R2-1713631 Timer handling of RAN-based location area update LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1711149
R2-1713744 Discussion on RAN-based location area update procedure in NR ASTRI, TCL Communication Ltd. discussion

Withdrawn
R2-1712960 Discussion on RAN notification area update Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core R2-1711373

10.4.1.7.3 Paging in inactive

RRC procedure to respond to paging, including any differences between RAN and CN paging
This agenda item is not relevant to EN-DC completion but will be treated if time allows

R2-1712422 Procedure of paging in inactive CATT discussion R2-1710288
R2-1712671 RAN-initiated paging message Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1712195 Further considerations on the CN and RAN paging Samsung discussion Rel-15 NR_newRAT-Core
R2-1712520 Paging in RRC_INACTIVE Ericsson discussion Rel-15 NR_newRAT-Core R2-1711366
R2-1713618 CN-initiated paging for a UE in RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711126
R2-1713703 RAN paging DRX in RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711393

Late
R2-1713932 RAN initiated paging Huawei, HiSilicon discussion

10.4.1.7.4 Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive

This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.

R2-1712196 Inter-RAT mobility in the RRC INACTIVE state Samsung discussion Rel-15 NR_newRAT-Core
R2-1712197 Text proposal for UE inter-RAT re-selection in INACTIVE Samsung, Nokia, Nokia Shanghai Bell pCR Rel-15 38.300 1.1.1 NR_newRAT-Core
R2-1712346 Additional SIB in EUTRAN for supporting NR SA deployments Ericsson discussion NR_newRAT-Core
R2-1712573 Inter-RAT mobility for inactive UE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1713260 Inter-RAT mobility between NR and eLTE for Inactive state LG Electronics Inc. discussion Rel-15 NR_newRAT-Core
R2-1713307 Mobility between LTE and NR for inactive Ues Ericsson discussion Rel-15 NR_newRAT-Core
R2-1713308 UE context handling during inter RAT handover Ericsson discussion Rel-15 NR_newRAT-Core

10.4.1.7.5 Security framework for inactive

Security framework for inactive UEs to address FFS arising from email discussion 98#30.
This agenda item is not relevant to EN-DC completion but will be treated if time allows

R2-1712772 Security aspects in RRC INACTIVE vivo discussion Rel-15 NR_newRAT-Core R2-1710944
R2-1713651 Consideration on security aspect for inactive UEs LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1711147
R2-1712673 NR security framework for inactive Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1712564 Security of INACTIVE to CONNECTED state transition Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1712424 Security issues related to RRC resume procedure from inactive state CATT discussion

R2-1712565 Draft LS to SA3 on inactive to connected state transition Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1712792 Security Aspects of Connection Control InterDigital discussion Rel-15 NR_newRAT-Core
R2-1713202 Security in inactive state Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1711056
R2-1713445 Security procedure from RRC_INACTIVE state in NR Samsung R&D Institute India discussion R2-1711771
R2-1713446 [DRAFT] LS on security framework for INACTIVE in NR Samsung R&D Institute India LS out Rel-15 NR_newRAT-Core R2-1711796 To:SA3

10.4.1.7.6 Inactive - other

Other inactive state related aspects
This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.

R2-1712209 UE actions upon cell reselection in RRC_INACTIVE ASUSTeK discussion Rel-15 NR_newRAT-Core R2-1711079
R2-1712253 Discussion on cell reselection priority for INACTIVE UE OPPO discussion
R2-1712254 Discussion on Cached Data Handling for INACTIVE UE OPPO discussion
R2-1712552 RLAU procedure and interaction with TAU Huawei, HiSilicon discussion Rel-15 R2-1710545
R2-1712574 RRC state transition from INACTIVE to IDLE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1712575 Cell reselection for inactive UEs Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1712577 Support of redistribution priority in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1712674 TP on agreed NR inactive aspects Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1712682 Cell reselection for inactive Ues Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1710627
R2-1712773 RRC Connection Release Issues for UE in RRC_INACTIVE vivo discussion Rel-15 NR_newRAT-Core
R2-1712978 Data transmission in Inactive TCL Communication Ltd. discussion Rel-15
R2-1713201 Consistent support of RRC_INACTIVE Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1711055
R2-1713274 Coordination of I-RNTI/Resume ID's across RAT's Ericsson discussion Rel-15 LTE_5GCN_connect-Core
R2-1713297 CN area updating in RRC_INACTIVE Ericsson discussion Rel-15 NR_newRAT-Core
R2-1713298 I-RNTI discussion Ericsson discussion Rel-15 NR_newRAT-Core
R2-1713299 Context relocation in NR Release 15 Ericsson discussion Rel-15 NR_newRAT-Core
R2-1713448 PLMN Selection in RRC INACTIVE state Samsung R&D Institute India discussion R2-1711818
R2-1713572 Cell reselection for inactive UE ITRI discussion NR_newRAT-Core
R2-1713614 Further consideration on INACTIVE feature LG Electronics France discussion NR_newRAT-Core
R2-1713616 Consideration on MICO mode for RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711124
R2-1713617 Support for PLMN selection in RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711125
R2-1713619 Offloading UEs in RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711143
R2-1713700 Handling of radio bearers and security for data transmission in RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711395

Late
R2-1713935 On the optionality of the INACTIVE state” Samsung discussion Rel-15, NR_newRAT-Core

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 452 of 1750

10.4.1.8 Access control

Continue to progress unified access control
This agenda item is not relevant to EN-DC completion but will be treated if time allows
Including output from email discussion [99bis#24][NR] AC (Intel)

Email discussion

R2-1712654 Email discussion report on [99bis#24][NR] AC Intel Corporation (rapporteur) report Rel-15 NR_newRAT-Core
=> Noted

R2-1712655 Draft Reply LS on unified Access Control for 5G NR (R2-1710062/S1-173552) from SA1 Intel Corporation discussion Rel-15 NR_newRAT-Core
- LG wonder if we can also respond to CT1 about their question 9.
- Qualcomm think we should ask whether NAS does the mapping and how to treat NAS PDU with data. Intel think many other questions were proposed so we should now just send those for which there is agreement.

=> Approved in R2-1714013

R2-1714013 Reply LS on unified Access Control for 5G NR RAN2 LS out Rel-15 NR_newRAT-Core To:SA1 Cc:CT1, SA2, CT6

Other

R2-1712176 QoS Flow based Access Control for CONNECTED Mode in NR TCL discussion NR_newRAT-Core R2-1710170
R2-1712221 Discussion on Access Control for On-demand SI Request OPPO discussion Rel-15
R2-1712224 Discussion on RRC Layer Enhancement for NR Access Control OPPO discussion Rel-15 NR_newRAT-Core
R2-1712268 Timer mechanism for 5G unified access cotnrol Spreadtrum Communications discussion Rel-15
R2-1712269 Barring information encoding for 5G unified access cotnrol Spreadtrum Communications discussion Rel-15
R2-1712351 Access attempt categorization and barring check Nokia, Nokia Shanghai Bell discussion NR_newRAT-Core
R2-1712352 Access Control applicability to different RRC states Nokia, Nokia Shanghai Bell discussion NR_newRAT-Core
R2-1712353 Congestion Control for RRC_CONNECTED Nokia, Nokia Shanghai Bell discussion NR_newRAT-Core
R2-1712354 Access Barring Control for RRC_INACTIVE Nokia, Nokia Shanghai Bell discussion NR_newRAT-Core
R2-1712530 Signaling of access control parameters Ericsson discussion NR_newRAT-Core
R2-1712531 Access control for NR Ericsson discussion NR_newRAT-Core
R2-1712532 Access Control for RRC-initiated Access Attempts Ericsson discussion NR_newRAT-Core
R2-1712533 Establishment causes for NR Ericsson discussion NR_newRAT-Core
R2-1712534 [DRAFT] Reply LS on requirements on unified access control for 5GS Ericsson LS out NR_newRAT-Core To:CT1 Cc:SA1, SA2
R2-1712535 [DRAFT] LS on Establishment Causes in NR Ericsson LS out NR_newRAT-Core To:CT1 Cc:SA1, SA2
R2-1712590 Establishment cause and call type for NR access control ZTE Corporation, Sane Chips discussion Rel-15 R2-1710423
R2-1712591 Consideration on the access control in NR ZTE Corporation, Sane Chips discussion Rel-15 R2-1710424
R2-1712592 Access category selection information provided by AS ZTE Corporation, Sane Chips discussion Rel-15
R2-1712593 ReplyLSOnUnifiedAccessControl (Reply to R2-1712105) ZTE Corporation, Sane Chips discussion Rel-15
R2-1712597 Consideration on the UAC category ZTE Corporation, Sane Chips discussion Rel-15
R2-1712656 5G access control mechanism in IDLE and INACTIVE Intel Corporation discussion Rel-15 NR_newRAT-Core

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 453 of 1750

R2-1712657 5G access control mechanism in CONNECTED Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1712840 Way-forward for NR access control Samsung discussion NR_newRAT-Core Withdrawn
R2-1712841 Way-forward for NR access control Samsung discussion NR_newRAT-Core
R2-1712842 NR access control procedure Samsung discussion NR_newRAT-Core
R2-1712843 On linking Establishment Cause and standardized access category Samsung discussion NR_newRAT-Core
R2-1712844 Barring configuration in NR access control Samsung discussion NR_newRAT-Core
R2-1712845 Barring skip indicator in NR Samsung discussion NR_newRAT-Core
R2-1712949 Considerations on Access Control in NR KT Corp. discussion R2-1710897
R2-1713528 Unified Access Control MediaTek Beijing Inc. discussion
R2-1713547 Access Control in RRC_INACTIVE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1705184
R2-1713558 Basic Access Control in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1711487
R2-1713562 Access Control in NR for RRC_CONNECTED Huawei Technologies France discussion Rel-15 NR_newRAT-Core R2-1711498
R2-1713565 Access Control for MT Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1711500
R2-1713694 Access category based access barring for RRC_IDLE and RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711385
R2-1713699 Access category based access barring mechanism for RRC_CONNECTED LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711398
R2-1713702 Random Access Backoff and Access Barring LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711394
R2-1713903 Unified Access Control in different RRC Modes Qualcomm Incorporated discussion R2-1710800

10.4.1.9 Inter-Node RRC messages

Structure and content of the Inter-Node RRC messages used for EN-DC procedures.
Including output from email discussion [99bis#25][NR] Inter-node RRC messages (Samsung)
This agenda item is relevant to EN-DC completion.

R2-1713454 Report of e-mail [99bis#25][NR] on Inter-node RRC messages Samsung Telecommunications report
=> Endorsed as a starting point

R2-1713144 Remaining issues on inter-node message design Huawei,HiSilicon discussion Rel-15 NR_newRAT-Core

Agreements
1: The maximum power for FR1 the UE can use in NR SCG should be included in the SCG-ConfigInfo and SCGConfig
2: The UE capability coordination result should be included in the HandoverPreparationInformation message (at inter-MN HO).
2bis: The IE of the UE capability coordination result has the same format with the one in SCGConfigInfo.

R2-1713498 Inter-node signalling, some remaining issues Samsung Telecommunications discussion Rel-15 NR_newRAT-Core

✉ **[100#xx][NR] Inter-Node RRC message (Samsung)**
Continue to progress the content of internode messages. To also consider the LS from RAN3
Intended outcome: TP/CR and report describing the FFS points that need to be discussed online at the next meeting
Deadline: Thursday 2017-01-04 (AH meeting)

R2-1712425 Inter-node RRC messages for dedicated configurations via F1 CATT discussion
R2-1712501 Remaining details of Inter-Node RRC messages for EN-DC AT&T discussion

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 454 of 1750

R2-1712826 Coordination of Parameters for Measurements Report Triggering Fujitsu discussion Rel-15 NR_newRAT-Core R2-1710355
R2-1713680 Capability coordination in Inter-node RRC messages HTC Corporation discussion

10.4.1.10 Other (non EN-DC)

Other RRC related aspects
This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.
R2-1712536 Wait Timer in NR Ericsson discussion NR_newRAT-Core
R2-1713181 Open issues on Inter-Node signalling for hand-over Ericsson discussion
R2-1713777 UE Assistance Information for energy efficiency enhancement Samsung Electronics discussion R2-1711806

10.4.2 LTE RRC changes for EN-DC

No documents should be submitted to 10.4.2. Please submit to 10.4.2.x.
Note that changes to LTE RRCConnectionReconfiguration for configuring EN-DC will be discussed jointly with NR RRCConnectionReconfiguration in 10.4.1.3.1, and NR and :LTE aspects of SCG failure for EN-DC will be jointly discussed in 10.4.1.5.3.

10.4.2.1 Running CR

This agenda item is relevant to EN-DC completion
Including output from email discussion [99bis#26][NR] LTE RRC running CRs (Samsung)

R2-1713455 Introducing support for NR, changes relevant for NSA Samsung Telecommunications CR Rel-15 36.331 14.4.0 3115 1 B NR_newRAT-Core R2-1711505
=> revised to R2-1713949
R2-1713949 Introducing support for NR, changes relevant for NSA Samsung Telecommunications CR Rel-15 36.331 14.4.0 3115 2 B NR_newRAT-Core R2-1711505

R2-1714142 Introducing support for NR, changes relevant for NSA Samsung Telecommunications CR Rel-15 36.331 14.4.0 3115 3 B NR_newRAT-Core

R2-1713456 Introducing support for NR in 36.331, remaining issues relevant for NSA Samsung Telecommunications report Rel-15 NR_newRAT-Core
- Intel wonders where we capture the fallback behaviour for MR-DC band combinations.
=> Items marked TBC in the list are confirmed.

R2-1713457 Introducing support for NR, changes only relevant for SA Samsung Telecommunications CR Rel-15 36.331 14.4.0 3186 - B NR_newRAT-Core
=> Noted

10.4.2.2 RRM measurements

Introduction of inter-RAT NR measurements within LTE RRC.
This agenda item is relevant to EN-DC completion.

Seving cell measurements

R2-1713361 NR SN serving cell measurements in LTE measurement reports Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT R2-1710855
moved from 10.2.4 to 10.4.2.2

R2-1712426 NR serving cell measurements CATT discussion
- Discussed jointly with the previous paper
- MediaTek agree with CATT. OPP have a similar understanding.
- Ericsson think the compromise is to configure the measurements for on any event type.
- Intel think that if it is configurable then the UE will have to support both cases so it is not a compromise.

Show of hands

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 455 of 1750

1 - The UE does not send NR serving cell measurements in measurement reports associated with LTE Ax events. [10]
2- The UE does send available NR serving cell measurements in measurement reports associated with LTE Ax events (configurability could be considered as a second question) [14]

1 NR serving cell measurements always sent for LTE Ax events [6]
2 NR serving cell measurements sent for LTE Ax events are configurable [5]

Agreements:
1 The UE sends available NR serving cell measurements in measurement reports associated with LTE Ax events. Measurements are always provided (not configurable)

=> Offline discussion whether there any Ax events for which the serving cell measurements are not provided. Also discuss whether beam level measurement can be provided.
=> Offline discussion whether best neighbour cell information on the serving frequencies should be provided
=> Offline discussion #31, Qualcomm

=> Offline discussion to conclude on the support of whitelist (cell ids) for NR measurements reporting in LTE (Bx events). (Offline discussion #32, CATT)
-

R2-1714225 Offline discussion #32: support of whiteCellList for NR measurements reporting in LTE (Bx events)

Agreements
1 whiteCellList is not supported for NR measurements reporting in LTE(Bx events). No use case is identified.
FFS Whether anything is needed to be able to distinguish between SA and NSA cells.

R2-1714185 Offline discussion #31 report

Agreements related to Ax events
1: UE sends available NR serving cell measurements in measurement reports with LTE A3, 4 and 5 events only. Available measurements are always provided (not configurable)
2: Available NR beam level measurements are sent in measurement reports with LTE A3, 4 and 5 events only. Available measurements are always provided (not configurable)
3: UE sends available NR best neighbour cell measurements in measurement reports with LTE A3, 4 and 5 events only. (configurable and controlled by existing configuration for best neighbour reporting).
FFS Contents of the reporting in terms of beam, RS type, quantity (not imposing any additional requirements on performing measurements). (We will attempt to follow the same principles for serving and best neighbour cell reporting of beam, RS type, quantity, as agreed for NR.)

R2-1712239 Discussion on Remaining Issues for EN-DC RRM OPPO discussion
R2-1712665 NR serving cell measurement reporting in EN-DC Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1712793 Reporting of NR Serving Cell Measurements in EN-DC InterDigital discussion Rel-15 NR_newRAT-Core
R2-1712866 NR serving cell in LTE measurement report MediaTek Inc. discussion Rel-15 NR_newRAT-Core
R2-1713391 Inclusion of NR SN serving cell measurements in LTE measurement reports Ericsson discussion Rel-15 NR_newRAT-Core
R2-1713227 Remaining issues on measurement reports for EN-DC CMCC discussion Rel-15 NR_newRAT-Core

Other

R2-1713146 SSTD measurement for EN-DC Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

P2
- Nokia thinks that for 1tx it is needed to have the timing information before the PSCell is configured
- Samsung also see some benefit for 1tx operation. Ericsson also agree that they could be configured before the PSCell. AT+T also see a benefit for this for cells that are not yet configured.
- Qualcomm think if we do this it should have a separate capability and it would also have some measurement gap impact. Intel support Qualcomm

Agreements
1: The network can configure the NR SSTD measurement whenever a NR PSCell is configured
2: NR SSTD measurement reporting is extended for cells that are not yet configured in the case that no NR PSCell is configured
3: Introduce one new capability indicator for SSTD measurement for EN-DC when PSCell is configured.
4 Introduce one new capability indicator for SSTD measurement for EN-DC when PSCell is not configured.

=> Send LS to RAN4 to inform them of our decision and ask if any issue with the LTE measurement gap patterns to obtain the SSTD measurement. Other questions to ask RAN4 can be considered offline. R2-1714143 (Offline discussion #33, Nokia).

R2-1714143 [DRAFT] LS on LTE measurement gap patterns for SSTD measurement Nokia LS out Rel-15 NR_newRAT-Core To:RAN4
- Qualcomm think the SSTD measurement for neighbour cell is not needed for all UEs and the time differences can be determined from a few UEs and used for others. So this could be obtained just from UEs configured with PCell.
- Nokia think it will still be needed for some UEs to configure them before the network has the timing. It is not a burden for UEs as it is not used all the time.

=> Approved in R2-1714227
=> SSTD measurements for PSCell configured will be included in the spec for Dec 17 and SSTD measurements for PSCell no yet configured will be added (in March version) when RAN4 have responded.

R2-1713921 Inter-RAT Measurement Framework Samsung discussion

Agreements
1: Cell level SINR based on SS-SINR is supported for inter-RAT NR measurements configured by LTE node
2: Cell level SINR based on SS-SINR can be used for triggering NR based B1/B2 events and reporting for inter-RAT NR measurements configured by LTE node

R2-1713262 Support of reportOnLeave for E-UTRA B1 and B2 events Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1711459

Agreements
1: reportOnLeave can be configured for B1 and B2 events for NR neighbours

R2-1712502 Remaining details of inter-RAT NR measurements AT&T discussion
R2-1712570 S-measure in LTE for EN-DC Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1712882 LTE Measurement Gap Design for Inter-RAT NR Cell Measurement MediaTek Inc. discussion Rel-15 NR_newRAT-Core
R2-1713145 Remaining issues on measurement report Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1713722 NR measurements in LTE measurement report for EN-DC LG Electronics Inc. discussion Rel-15 NR_newRAT-Core
Withdrawn
R2-1712820 Inter-RAT measurement for EN-DC Fujitsu discussion Rel-15 NR_newRAT-Core Withdrawn

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 457 of 1750

10.4.2.3 Other

Including the NR indication in LTE system information, etc
This agenda item is relevant to EN-DC completion

NR indicator

R2-1713443 5G indicator for EN-DC Ericsson discussion Rel-15 NR_newRAT-Core

- Vodafone think this should not be coupled with any new SIB such as that introduced for reselection. It could be a bit in SIB1 or SIB5.
- Qualcomm think this would require an EN-DC UE to read the new SIB just for a single bit.
- CMCC think we have not agreed to have a new SIB yet and also it should not be a mandatory bit.
- LG think it is overkill to add the new SIB to send one bit.
- Huawei think it should be a bit per PLMN. ZTE agree that it should be a bit per PLMN.
- Qualcomm think a bit per PLMN is not needed as it can be combined with NAS indication to determine whether 5G is available to the UE. Intel wonder what NAS information is available given that MME might not be updated. Vodafone think the NAS indicator will just indicate that the UE is forbidden to display the NR indication, but the RAN sharing case where NR is not shared to all PLMNs does need to be supported

Show of hands

1 Add NR indicator in a new SIB (When SA is specified the NR reselection info will be introduced in this new SIB) [6]
2 Add NR indicator in an existing SIB2 [15]

Agreement
1 1 bit NR indicator is added per PLMN
2 NR indicator to be added to SIB2

R2-1712806 How to implement an NR indicator in LTE system information NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core R2-1710119
R2-1713639 Introduction of NR indicator Qualcomm Incorporated CR Rel-15 36.331 14.4.0 3193 - B NR_newRAT-Core

Other

R2-1712367 IDC indication for EN-DC Qualcomm Incorporated discussion Rel-15 NR_newRAT

- Intel think in LTE we only introduced the IDC indication after receiving input from RAN4.
- LG think the proposal is natural but it would be good to understand how severe the problem is and it is not essential for December.
- Samsung also think this is not very urgent for December.
- DOCOMO think that RAN4's list of bands that affect other technologies is just LTE and there has been no discussion on RAN4.
- Ericsson think it would be possible to reuse the current solution.

=> Noted

R2-1712368 IDC indication for EN-DC Qualcomm Incorporated CR Rel-15 36.331 14.4.0 3131 - B NR_newRAT
R2-1712309 TP for inter-node message HTC Corporation discussion
moved from 10.4.2.1 to 10.4.2.3

Agreements
1: RadioBearerConfig is added in AS-Config.
2: RadioBearerConfigS is added in AS-Config.

R2-1713864 Handling of EPS bearer identity in EN-DC SHARP Corporation discussion Rel-15 NR_newRAT-Core
R2-1713730 Handling of SCG DRB configuration at RLF in EN-DC NEC discussion Rel-15 NR_newRAT-Core
moved from 10.4.2.1 to 10.4.2.3
R2-1713891 TDM pattern for single uplink operation Samsung Electronics GmbH discussion

R2-1713140 Running CR on 36.331 to support UP IP check failure handling Huawei, HiSilicon
draftCR Rel-15 36.331 14.4.0 B NR_newRAT-Core

10.4.3 UE capabilities

No documents should be submitted to 10.4.3. Please submit to 10.4.3.x.

10.4.3.1 UE capability structure

This agenda item is relevant to EN-DC completion and SA.
Including output from email discussion [99bis#28][NR] UE capability ASN.1 structure (Intel)
Maximum 1 tdoc per company

R2-1712677 Email Disc on [99bis#28][NR] UE capability ASN.1 structure Intel Corporation
discussion Rel-15 NR_newRAT-Core

- Samsung ask if we need to capture the UE retrieval procedure. Is this needed for Dec. Intel think the feature not needed for Dec can be captured in the running CR rather than the TS.

=> Aspects not needed for the Dec deadline will be captured in the running 331 and 306 CRs instead of the draft TSs.

Decoupling DL and UL bands (Option1 (direct inclusion of possible UL combinations in DL combination) or option3 (referencing of UL combinations from DL combination))

- Ericsson favour that 1 DL can include several possible UL combinations. The key is how many UL combinations are likely to be references from a single DL combination and depends on how much additional information in included in the combinations.
- DOCOMO think option 1 is better for readability. If we avoid to include other capabilities into the BCs then there is not much big difference between the option1 and option 3.
- Samsung also has some preference for option 1. LG think option 3 has better signalling efficiency and in future it will be easier to extend it.
- ZTE prefer option 3.

=> Revisit this discussion after we have discussed other issues that might impact what is included in a BC

Need to request band combination based on requested bands?

- Ericsson think it is complex to request band combinations and also inherits NR functionality in the NR messages. Wonder if it is easier to just have a request based on a list of bands. LTE eNB will need to be able to request MR-DC BCs and hence will need to understand NR BCs.
- Samsung wonder if there will be requests for the NR bands and MR-DC BCs that are reported.
- Intel think from LTE we observed that a request based on bands only can result in many BCs to be provided. hence it would be desirable to have both approaches if we want the request based on bands.
- Qualcomm agree the request can be a BC without any additional information.
- Intel wonder whether to request also the maximum number of carriers as in LTE. DOCOMO think that without fallback BC reporting we already have sufficient size reduction.

=> Network request for BCs will be based on band information only (no additional information in the request such as bandwidth class, etc)

Where to include modulation order in baseband processing combination?

- Intel prefer to wait for RAN4 response before we conclude this discussion.
- Qualcomm think this is required per CC in the BPC. Intel think RAN4 previously responded that the modulation should be provided per CC.
- Ericsson think the modulation could within the BPC but not per CC within the BPC.
- Huawei think modulation could be just per band.
- Vodafone think RAN4 is preferring this to be per carrier.

=> Can be checked what RAN4 have requested and discuss further offline

How to distinguish EN-DC band combination from NE-DC band combination

- Qualcomm think that the MR-DC BCs should not imply that the UE supports both option 3 and 4.

=> Capability to be added in LTE capability for EN-DC support, and in future an NR capability for NE-DC support, and an LTE capability for NG-EN-DC

R2-1712679 TP on UE capability Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Revised to capture agreements from the discussion in R2-1714138 (Offline discussion #23)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 459 of 1750

R2-1714138 TP on UE capability Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Open item on UL/DL coupling will be discussed as part of the Qualcomm email discussion on UE capability
=> Change maxRAT-Capabilities to maxRAT-CapabilityContainers
=> To is endorsed and will be updated again to capture agreements from this meeting via 38.306 email discussion.

R2-1712369 UE capability structure of NR and MR-DC Qualcomm Incorporated discussion Rel-15 NR_newRAT
- MediaTek say this is also their understanding.
- Qualcomm think the bandwidth class is quite open in RAN4 and higher is not fully defined but here it implies larger BW.

P2
- LG support the proposal and think it is the most explicit way to provide the linking.
- Ericsson think we can use similar logic to determine the BPCs that are applicable as for the SA case.
- Intel support the proposal. MediaTek also support the proposal as there are concerns over sharing with the legacy RAT.
- Nokia think it is possible to link the LTE BPC to the NR BPCs and it is include in the container to solve the size issue. Think the proposal is not required and it can be solved with proposal 1.
- Samsung think the LT/NR BPC linking could just be in the NR RAT and provide some additional assistance information in the container.
- DOCOMO also think the proposal is not required. Regarding Samsung proposal if we look ahead to NE DC it might make sense to include he linking in the MR-DC container so common to EN and NE DC.
- Qualcomm think without this the MN will not be able to determine when it selects a BPC how many carriers will be available in the other RAT.
- Samsung suggest that the UE can indicate simple indication of how many carriers are available on NR side with each BPC.

P4

Agreements
1 Define in 38.331 that a given BPC is applicable in CA band combinations (for SA operation) which consist of bands 1) with equal bandwidth class, and 2) equal or higher MIMO layer capability. This applicability rule also applies to fallback combinations which may not be signalled.

=> Offline discussion to try to progress whether the linking to BPC should be included in the MRDC BCs.
=> Offline discussion to progress how to address the new information from RAN4 about MIMO capability and intra-band non-contiguous CA in relation to carrier separation
=> (Offline discussion #24, Qualcomm)

✉ **[100#xx][NR] UE capabilities (Qualcomm)**
To discuss whether the linking to BPC should be included in the MRDC BCs and how to address the new information from RAN4 about MIMO capability and intra-band non-contiguous CA in relation to carrier separation.
Intended outcome: Report to AH meeting
Deadline: Thursday 2017-01-04

R2-1713211 Structure for NR capability Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
P3
- Ericsson think this has the risk of becoming very big and also if we went for option 3 for decoupling then there would be not many DL bands that could link to each UL combination.
- Intel under there will be only one SUL band in any given BC. Huawei think it need to be clear which of the normal UL bands is paired with the SUL band. Ericsson wonder if we need to distinguish between these cases. Intel think the UE would be able to support SUL paired with either of the ULs. Qualcomm also agree with the Intel comment.

P4

- Samsung think this is only needed for UL sharing from the UE perspective.
- Qualcomm think that no capability is needed for UL sharing from the UE perspective. Huawei think this capability is needed also for the sharing from the network perspective.
- Huawei think in this case there is no overlapping bandwidth between LTE and NR.
- Nokia think this is the combination of 1Tx , SUL and uplink sharing and from the UE perspective.

Agreements
1 SUL will be supported by indicating the SUL band number in a band combination as any other UL band.
=> Offline discussion to try to progress the need for LTE-NR switching time capability in the Dec spec. (Offline discussion #25, Huawei)
Update from offline:
- Nokia think that for the network perspective there is no switching within a single UE. This switching is only needed in the case of switching from the UE perspective.
=> Can be re-discussed after Dec 17.

R2-1712851 Fallback mechanism for baseband processing combination NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core
- Nokia wonder how a fallback BPC differs from the fallback BCs.

P2
- Intel think te max BW does not provide enough information as within this BW the number CCs could vary. It would help to also provide the maximum CCs. DOCOMO think this would also require the UE to request the CA BW class.
- Ericsson think that limiting to a certain number of carriers is not useful. If UEs support a certain number of carriers there are always networks that support this number of carriers. It only helps for networks that support fewer number of carriers.

Agreements for standalone and MR-DC
1 The UE only reports the BPC combinations associated to the reported band combinations rather than BPC combinations associated to all the band combinations supported by the UE, where the reported BPC combinations include the super set BPC combinations and fallback BPC combinations where the capabilities are different from the superset BPC.

Late
R2-1712680 CR on MR-DC capability Intel Corporation CR Rel-15 36.331 14.4.0 3143 - C NR_newRAT-Core
R2-1712694 BPC Design Discussion Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1713432 UE Capability Signalling Structure Ericsson discussion Rel-15 NR_newRAT-Core

10.4.3.2 UE capability coordination

This agenda item is relevant to EN-DC completion.
Maximum 1 tdoc per company
R2-1713501 UE capability coordination, some remaining aspects Samsung Telecommunications discussion Rel-15 NR_newRAT-Core

Agreements
1 Introduce the following inter-node signalling for coordination of EN-BC dependencies:
c) SCG-ConfigInfo (MN to SN): MN indicates which NR BCs the SN can select by field allowedBandCombinationNR that indicates a list of indices of all the EN-BCs in the MR DC capability container that includes the LTE BC it selected
d) SCG-Config (SN to MN for the case that the SN wants to request to use a different EN-BC): SN indicates which NR BC the SN wants to use by field requestedBandCombinationNR that indicates a list of indices of all the EN-BC in the MR DC capability container that includes the NR BC it wants to use.

=> BPC coordination to be discussed offline as part of offline discussion #24

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 461 of 1750

R2-1713147 Remaining issues on UE capability coordination Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1713359 Further considerations on MR-DC capability coordination Nokia Solutions & Networks (I) discussion Rel-15

10.4.3.3 Other aspects for EN-DC

Any other aspect related to UE capabilities relevant for EN-DC
Including output from email discussion [99bis#27][NR] L2/3 capabilities (Intel)
This agenda item is relevant to EN-DC completion.

R2-1712678 Email Disc on [99bis#27][NR] L2/3 capabilities Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Revised to R2-1714130
R2-1714130 Email Disc on [99bis#27][NR] L2/3 capabilities Intel Corporation discussion Rel-15 NR_newRAT-Core

Agreements
1 UE capability parameters will be introduced for features that are optional and for features that are mandatory but required ability to indicate successful IOT (no need to decide whether a feature is optional or mandatory with IoT bit at the time the capability parameter is defined).

=> Offline discussion to progress the lists. Aim to create a documents with lists that can be easily agreed plus list of FFS points that need more discussion (at future meeting). (Offline discussion #26, Intel)

R2-1714226 Offline discussion output on L2/3 capabilities Intel Corporation

Agreements:
1: Mandatory features without the need of any UE capability signalling:
2: Features with the need of a UE capability signalling (FFS whether to be 'mandatory with IOT' or optional) as listed in R2-1714226 (except Configured grant type 2)
3: RAN2 is asked to confirm after March (i.e. ASN.1 freeze), there is no mandatory feature w/o IOT bit in Rel-15, unless it is relevant to the idle mode.
4: Features needed further discussion as listed in R2-1714226
5: Features needed RAN1/4 inputs or RAN2 decision as listed in R2-1714226 (with additionally Configured grant type 2)
6: Features not required for Dec. 2017 version as listed in R2-1714226:
7: MAC, RLC capabilities are included in NR UE capability.
8: PDCP capabilities are included in both LTE UE capability and NR UE capability.

R2-1713345 Async-sync operation and capabilities Ericsson discussion Rel-15 NR_newRAT-Core

Agreements
1 In inter-band EN-DC, asynchronous UE operation is default operation and thus no separate capabilities are needed (Support of SSTD measurement for EN-DC in LTE will be discussed separately)
2 Single TX operation may be operated by the network with synchronised and non-synchronised operation. No additional UE capability parameter is needed to distinguish whether the UE supports operation in synchronised and non synchronised cases. (RAN2 understand that single Tx operation is only applicable for inter-band EN-DC)
3 In intra-band TDD EN-DC, the synchronous operation is only supported in Rel-15. No additional UE capability parameter is needed for this case
4 In intra-band FDD EN-DC, a single capability bit is introduced to indicate if the UE supports asynchronous/synchronous operation.

=> Check offline with RAN4 whether capability bit is needed per UE or per BC for support of simultaneous RXTX for inter-band TDD/TDD and inter-band FDD/TDD cases. And conclude whether RAN2 include it as per UE or per BC.(Offline discussion #27, Intel)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 462 of 1750

Update from offline from Intel: Think it should be per BC but it is not explicitly captured in RAN4. Suggest to send an LS.

✉ **[100#xx][NR] RAN4 LS for simultaneous RXTX for inter-band TDD/TDD and inter-band FDD/TDD cases (Intel)**
Intended outcome: Approved LS
Deadline: Thursday 2017-12-07

R2-1712505 UE capability indication of bearer split for EN-DC AT&T discussion
moved from 10.4.3.2 to 10.4.3.3
=> Parameter is already included in the list of parameters to be discussed as part of Offline discussion #26.

R2-1712692 L2 buffer size capability Intel Corporation discussion Rel-15 NR_newRAT-Core
- DOCOMO ask if the UE needs to be used based on the worst case band combination.
- MediaTek think we only need to use a single RTT to determine the buffer size that is maximum of the all the RTT of the CCs. Intel confirm this is the intention.
- DOCOMO ask which HARQ RTT value is used. Intel assume that will be provided from RAN1.
- Samsung think the calculation should be based on what the UE can actually do in terms of subcarrier spacing.

=> Offline discussion to try to conclude the values to be used in the buffer calculation. Check the status of RAN4 discussion on the numerologies to be supported within each band. (Offline discussion #28, Intel)

R2-1714200 Summary of offline discussion #28 on L2 buffer size capability Intel

Agreements
1 For layer 2 buffer size calculation, the sum of Xn delay and queuing delay is 25 ms (1 way delay).

✉ **[100#xx][NR] L2 buffer size (Intel)**
Progress the details of the L2 buffer size calculation based on proposals 1 and 2 of R2-1714200
Intended outcome: Report to next meeting
Deadline: Thursday 2018-01-04

Late
R2-1713950 Harmonised transfer of NR related capabilities Samsung Telecommunications discussion Rel-15 NR_newRAT-Core
- Qualcomm think this approach would require a change to S1 in order to store 2 capability containers. RAN3 spec refers to a single specific RRC message for the capabilities. Samsung think there would still be only one container stored in the CN.

=> Noted

10.4.3.4 Temporary capability restriction

This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.
Maximum 1 tdoc per company

R2-1712774 UE radio access capabilities change vivo discussion Rel-15 NR_newRAT-Core R2-1710945
R2-1713212 MN-SN coordination for UE temporary access capability restriction Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1713428 UE Capability Restrictions Ericsson discussion Rel-15 NR_newRAT-Core R2-1711521

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 463 of 1750

10.4.3.5 Other aspects for non EN-DC

Any other stage 2 aspect related to UE capabilities relevant for non EN-DC cases
This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.

R2-1712676 Temporary capability restriction Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1710611
R2-1712913 Reducing the size of UE capabilities Qualcomm Incorporated discussion Rel-15 NR_newRAT R2-1711561
R2-1713210 Network handling on UE static access capability Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1713429 UE Capability Compression Ericsson discussion Rel-15 NR_newRAT-Core R2-1711522
R2-1713499 Use of identifier representing NR UE capabilities, baseline Samsung Telecommunications discussion Rel-15 NR_newRAT-Core
R2-1713548 UE capability retrieval framework in NR NTT DOCOMO INC. discussion Rel-15 NR_newRAT-Core

10.4.3.6 TS

Latest 38.306, other rapporteur inputs, anything related to specification methodology.
This agenda item is relevant to EN-DC completion

R2-1712587 Draft TS38.306v004 Intel Corporation draft TS Rel-15 38.306 0.0.4 NR_newRAT-Core
=> Revised in R2-1714141 to capture agreements from this meeting (Offline discussion #29, Intel)

R2-1714141 Draft TS38.306v004 Intel Corporation draft TS Rel-15 38.306 0.0.4 NR_newRAT-Core
=> Endorsed

✉ **[100#xx][NR] 38.306 and UE capability ASN.1 (Intel)**
Updated draft TS to capture agreements from this meeting
Intended outcome: Agreed TS for submission to RAN for (one step) approval, and agreed ASN.1 for inclusion into 38.331
Deadline: Thursday 2017-12-07

R2-1712681 Open issues on UE capability Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Noted

10.4.4 Idle/inactive mode procedures

10.4.4.1 TS

Latest 38.304, other rapporteur inputs, anything related to specification methodology. Please submit any new text proposals to the appropriate agenda item.
This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.

R2-1713613 New Generation Radio Access Network; User Equipment (UE) procedures in Idle mode Qualcomm Incorporated draft TS Rel-15 38.304 0.0.6 NR_newRAT-Core R2-1711588

10.4.4.2 Selection/reselection rules

Basic criteria and rules for cell selection and reselection
Maximum 1 tdoc per company
This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.

R2-1712344 Cell Reselection in RRC_INACTIVE State Ericsson discussion NR_newRAT-Core
R2-1712683 Further considerations for cell (re)selection Intel Corporation discussion Rel-15 NR_newRAT-Core

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 464 of 1750

R2-1712775 Cell selection reselection in NR vivo discussion Rel-15 NR_newRAT-Core R2-1710946
R2-1712962 Service based Inter-RAT cell reselection China Telecom discussion
R2-1713204 Cell selection and reselection for NR IDLE - cell selection/reselection criteria Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1711059
R2-1713290 Cell selection and reselection rules Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1710466
R2-1713795 Cell selection reselection method for NR IDLE mode Samsung Electronics discussion R2-1711716

10.4.4.3 Cell quality derivation

Derivation of cell quantity from beam measurements (including filtering and FFS points from previous meetings)
Maximum 1 tdoc per company
This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.

R2-1712338 Cell quality derivation for idle/inactive UEs Ericsson discussion NR_newRAT-Core
R2-1712429 Considerations on idle mode measurement CATT discussion R2-1707912
R2-1712684 Cell quality derivation for idle mobility Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1710629
R2-1712776 Cell quality derivation in idle inactive mode vivo discussion Rel-15 NR_newRAT-Core R2-1710947
R2-1713203 Cell selection and reselection for NR IDLE - cell quality derivation Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1711058
R2-1713291 Derivation of cell quality in IDLE/INACTIVE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1710467
R2-1713364 Cell Quality Derivation for Cell Reselection Convida Wireless LLC discussion Rel-15 NR_newRAT-Core R2-1711442
R2-1713719 Cell quality derivation in IDLEINACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1710807
R2-1713794 Cell quality derivation method for NR IDLE mode Samsung Electronics discussion R2-1711715

10.4.4.4 Service based reselection

Maximum 1 tdoc per company
This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.

R2-1712427 Service based cell reselection CATT discussion R2-1707913
R2-1712537 Service-based RAT/frequency selection in INACTIVE or in IDLE Ericsson discussion NR_newRAT-Core
R2-1712685 Service based cell reselection Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1710630
R2-1713292 Service-based camping Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1710469
R2-1713363 Cell Re-selection: Service Specific Frequency Prioritisation in NR Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1707687
R2-1713573 Service-based cell reselection ITRI, ASUSTeK discussion NR_newRAT-Core R2-1711769
R2-1713725 Service based cell reselection LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1710813

10.4.4.5 Selection/reselection - other aspects

Including, for example mobility states, speed dependent scaling, forward compatibility for CSG, cell reservations, etc
This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.

R2-1712340 Cell reselection measurement rules Ericsson discussion NR_newRAT-Core
R2-1712341 Mobility states and state based scaling Ericsson discussion NR_newRAT-Core R2-1710448
R2-1712342 Considering the number of good beams for cell reselection Ericsson discussion NR_newRAT-Core

R2-1712343 Cell selection and reselection criteria and measurement configuration Ericsson discussion NR_newRAT-Core
R2-1712345 Cell-specific prioritisation at reselection Ericsson discussion NR_newRAT-Core R2-1710452
R2-1712428 Service types in Inactive Mode CATT discussion R2-1707911
R2-1712528 Camping in NR Ericsson discussion NR_newRAT-Core R2-1710475
R2-1712529 CSG-like selection and camping limitations in NR Ericsson discussion NR_newRAT-Core
R2-1712777 Consideration on forward compatibilitiy vivo discussion Rel-15 NR_newRAT-Core R2-1710948
R2-1713293 Speed dependent mobility in Idle and Inactive mode Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1710468
R2-1713294 Cell reservation and forward compatibility for CSG in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1710470
R2-1713760 NR forward compatibility issue for CSG LG Electronics Inc. discussion Rel-15 R2-1711646
R2-1713762 Idle Measurement Enhancement using UE speed LG Electronics Inc. discussion Rel-15 R2-1711648
R2-1713798 Speed dependant parameters in NR IDLE and INACTIVE mode mobility Samsung Electronics discussion R2-1711722
R2-1713799 Cell Barring and Reservations for NR Qualcomm Incorporated discussion R2-1710805
R2-1713811 CSG Type Functionality for NR Qualcomm Incorporated, Deutsche Teleko discussion R2-1710806

10.4.4.6 Idle/inactive paging

Including beam related aspects, response driven paging and calculation of paging occasion.
This agenda item is not relevant to EN-DC completion and is not expected to be treated at this meeting.

R2-1712339 Response-driven paging to reduce beam sweeping overhead in NR Ericsson discussion NR_newRAT-Core
R2-1712380 Providing more information relating to MT data in Paging Beijing Xiaomi Mobile Software discussion Rel-15 R2-1711046
R2-1712383 Dedicated RNTI(s) for response-driven paging Ericsson discussion NR_newRAT-Core
R2-1712384 Response beam aggregation for response-driven paging Ericsson discussion NR_newRAT-Core
R2-1712525 DRX in idle state Ericsson discussion NR_newRAT-Core
R2-1712526 Draft LS reply on maximum DRX value for NR in Rel-15 Ericsson LS out NR_newRAT-Core To:SA2 Cc:CT1, RAN3
R2-1712527 Configuration of paging transmissions in multi-beam operation Ericsson discussion NR_newRAT-Core
R2-1712543 Definition of Paging Frame and Paging Occasion Huawei, HiSilicon discussion Rel-15 Withdrawn
R2-1712544 Efficiency of direct and response-driven paging Huawei, HiSilicon discussion Rel-15 Withdrawn
R2-1712594 Calculation of paging occasion in NR ZTE Corporation, Sane Chips discussion Rel-15 R2-1710425
R2-1712595 Paging occasion mechanism comparision ZTE Corporation, Sane Chips discussion Rel-15 R2-1710426
R2-1712596 Overhead Reduction for Paging in Multi-beam Operation ZTE Corporation, Sane Chips discussion Rel-15 R2-1710427
R2-1712686 Calculation of paging occasion Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1710631
R2-1712803 Paging in High Frequency InterDigital discussion Rel-15 NR_newRAT-Core
R2-1712804 Paging Indicator Details InterDigital discussion Rel-15 NR_newRAT-Core R2-1710679
R2-1713365 UE Assisted Paging Convida Wireless LLC discussion Rel-15 NR_newRAT-Core R2-1711425
R2-1713370 PO Determination for Paging Reception Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1707689

R2-1713376 Paging in NR – Beamforming Aspects Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1707688
R2-1713494 Definition of Paging Frame and Paging Occasion Huawei, HiSilicon discussion Rel-15 R2-1710540
R2-1713495 Efficiency of direct and response-driven paging Huawei, HiSilicon discussion Rel-15 R2-1710541
R2-1713496 Paging mechanism with beam sweeping Huawei Technologies France discussion Rel-15 NR_newRAT-Core R2-1711501
R2-1713695 CN paging DRX in RRC_IDLE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1711386
R2-1713732 Consideration on NR paging Qualcomm Incorporated discussion R2-1710793
R2-1713743 Discussion on response beam selection in indication-based paging ASTRI, TCL Communication Ltd. discussion
R2-1713746 Discussion on downlink overhead reduction for NR paging ASTRI, TCL Communication Ltd. discussion
R2-1713781 Use of multiple P-RNTIs for NR paging Qualcomm Incorporated discussion R2-1710798
R2-1713873 Paging for wideband carrier in NR Samsung discussion Rel-15

11 Comebacks

This agenda item will be used during the meeting. No documents are supposed to be submitted by delegates.

11.1 Breakout sessions

11.1.1 Report from Break-Out session

Report from session on Rel-14 and Rel-15 LTE

R2-1714116 Report from Break-Out Session, Vice-Chair (CMCC)
CBF: Report from LTE Break-Out Session, Vice-Chair (CMCC)
=> Approved

Agreed Revision of agreements from R2-1712255
1 Transition between legacy SCell state and fast activation state is via MAC-CE (i.e., similar to legacy). 2 Legacy state transition mechanisms are applicable for transition between legacy SCell activated and SCell deactivated states.TEI15 :

R2-1714087 LTE Control Plane Latency Reduction Vodafone LS out RAN1, RAN
=> Approved in R2-1714186

euCA:

CB on Friday:=> Draft LS in R2-171xxxx to inform RAN1 and RAN4 our agreements of introducing new SCell fasct activation state. (Offline 144, Qualcomm)

R2-1714239 Introducing new SCell fast activation state Qualcomm LS out RAN1, RAN4

✉ **[100#xx][LTE/euCA] LS to RAN1/RAN4 on SCell fast activation ()**
Intended outcome: Approved LS
Deadline: Thursday 2017-12-07

UAV:

CBF to find a way to capture the simulation results. (Offline #111, Huawei). TP can be provided in R2-1714088
CB on Friday=> **T**ry to endorse the revised TP (offline#168, DCM) in R2-171XXXX
CB on Friday=> **T**ry to endorse the revised TP (offline#168, DCM) in R2-171XXXX

R2-1714088 TP on simulation results Huawei
=> Can be included in the report and then discussed as part of the email discussion on the TR.

R2-1714232 Text Proposal for UE Identification DoCOMo
=> Agreed

R2-1714231 Text Proposal for UAV conclusions DoCOMo
=> Agreed

R2-1714242 Reply LS on Certification/License and Identification of Aerial Vehicles Nokia LS out
To:SA2, SA1, RAN3
=> Remove " No involvement from SA2 is currently foreseen for this aspect."
=> WI code to be corrected
=> Other minor editorials
=> Approved in R2-1714248

R2-1714247 LS on RAN1 Conclusions and TPs approved in RAN1#91
=> Noted

11.1.2 Report from Break-Out session

Report from session on Rel-13/14 NB-IoT, Rel-13/14 MTC, Rel-15 NB-IoT WIs

R2-1714115 Report from Break-Out Session, Session Chair (MediaTek)
CBF: Report from LTE Break-Out Session, Vice-Chair (MediaTek)
=> Approved

11.1.3 Report from Break-Out session

Report from session on Rel-14 LTE and NR UP

R2-1714117 Report from Break-Out Session, Vice-Chair (InterDigital)
CBF: Report from LTE Break-Out Session, Session Chair (InterDigital)
=> Approved

R2-1714036 UE capabilities for Tx antenna selection Qualcomm Incorporated, Ericsson, SoftBank CR Agreement R2-1710551, R2-1712311 Rel-13 36.331 13.7.0 LTE_CA_TDD_FDD-Core 3080 3 F
=> Agreed
=> Rel-14 shadow CRs are also agreed R2-1714240

R2-1714037 UE capabilities for Tx antenna selection CR Agreement R2-1711846, R2-1712313 Rel-13 36.306 13.7.0 LTE_CA_TDD_FDD-Core 1510 3 F
=> Agreed
=> Rel-14 shadow CRs are also agreed R2-1714241

R2-1714038 Tabel 8.2-2 reformatting CR R2-1713551 Rel-14 36.302 14.3.0 TEI12 1191 1 F
=> Agreed

R2-1714054 Clarification on csi-RS-ConfigNZPId Qualcomm Incorporated, Ericsson CR Rel-
=> Agreed

R2-1714055 Clarification on csi-RS-ConfigNZPId Qualcomm Incorporated, Ericsson CR Rel-
=> Agreed

R2-1714040 Introduction of a new UE capability for ssp10 with less CRS CR R2-1713242 Rel-14 36.306 14.4.0 LTE_UL_CAP_enh-Core 1536 1 B
=> Agreed

R2-1714041 Introduction of a new configuration for ssp10 with less CRS CR R2-1713243
Rel-14 36.331 14.4.0 LTE_UL_CAP_enh-Core 3180 1 B
=> Agreed

R2-1712578 L2 parameter content of RRCReconfiguration message Huawei
=> Rapporteur will create a list of parameters that still need discussions
=> Revised in R2-1714235 to include agreements from this meeting

R2-1714235 L2 parameter content of RRCReconfiguration message Huawei

✉ **[100#xx][NR] L2 parameters ASN.1(Huawei)**
Intended outcome: Agreed TP to be incorporated into 38.331
Deadline: Thursday 2017-12-07

✉ **[100#xx][NR] L2 parameter FFSs (Huawei)**
Progress FFS points to next meeting
Intended outcome: Report to next meeting
Deadline: Thursday 2018-01-04

11.1.4 Report from Break-Out session

Report from session on Rel-15 MTC

R2-1714118 Report from Break-Out Session, Session Chair (Ericsson)
CBF: Report from LTE Break-Out Session, Session Chair (Ericsson)
=> Approved

11.1.5 Report from Break-Out session

Report from session on Rel-15 V2X WI
R2-1714119 Report from Break-Out Session, Session Chair (Intel)
CBF: Report from LTE Break-Out Session, Session Chair (Intel)
=> Scope of email discussion Radio resource pool sharing is extended to include possible solutions
=> Approved

R2-1714131 LS on Reliability for eV2X LS out Ericsson
=> Approved in R2-1714187

11.2 Main session

12 Outgoing LSs

Draft LSs should be submitted to their corresponding agenda item if there is one. If there is no appropriate agenda item, draft LSs may be submitted to this agenda item.

13 Any other business

RAN2 AH0118 in Vancouver (NR scope only)
=> RAN2 AH can treat incoming NR LSs and approve outgoing NR LSs
=> RAN2 AH can agree in principle CR

R2-1713652 Celebration of RAN2#100 Ericsson discussion
=> Approve Mats Folke's rendition of "Ode to 36.331" to the tune of "My favourite things
=> Revisit in RAN2#200
=> Approved

R2-1714209 LS to RAN2 on the occasion of their centenary meeting (R4-1714481; contact: James Clerk Maxwell) RAN4 LS in

=> Rejected

14 Closing of the meeting (17:00)

Annex A: List of participants

RAN2#100 participants list is at: http://webapp.etsi.org/3GPPRegistration/fViewPart.asp?mid=17086.

Total number of participants: 276 (registered 336)

Annex B: List of Tdocs

The list of tdocs of this RAN2#100 is attached to this report.

Total of 2187 tdoc numbers were allocated of which 2086 tdocs were available.

Annex C: Incoming liaison statements

TDoc	Title	Source	Status	Rel	Related WIs	To	Cc	Original LS

R2-1712102	FURTHER INFORMATION RELATED TO DRAFT NEW REPORT FOR IMT-2020 EVALUATION	ITU-R WP 5D	noted			RAN2		LS_EOs_5D_758_temp441
R2-1712103	Reply LS on CN node selection for LTE features when E-UTRA is connected to 5G CN (C1-174593; contact: Qualcomm)	CT1	noted	Rel-15	5GS_Ph1-CT	RAN2	SA2	C1-174593
R2-1712104	Reply LS on Early Data Transmission (C1-174595; contact: Qualcomm)	CT1	noted	Rel-15	LTE_eMTC4-Core, NB_IOTenh2-Core	RAN2, SA2	RAN3, SA3, CT4	C1-174595
R2-1712105	LS on requirements on unified access control for 5GS (C1-174626; contact: LGE)	CT1	noted	Rel-15	5GS_Ph1-CT	SA1, RAN2	SA2	C1-174626
R2-1712106	Reply LS on Restricted Use of Enhanced Coverage (C1-174627; contact: Nokia)	CT1	noted	Rel-15	CIoT_Ext	RAN6, SA2	RAN2	C1-174627
R2-1712107	Reply LS on the number of bearers (C1-174658; contact: Samsung)	CT1	noted	Rel-15	TEI15	SA2, RAN2	CT4, RAN, CT, SA, SA1	C1-174658
R2-1712108	Response LS to RAN2 on jumbo frames (S3-172515; contact: Ericsson)	SA3	noted	Rel-15	NR_newRAT-Core	RAN2		S3-172515
R2-1712109	Reply LS on Reply LS on 5GS Security aspects seeking resolution (S3-172517; contact: Ericsson)	SA3	noted	Rel-15	5GS_Ph1	SA2, RAN2		S3-172517
R2-1712110	LS on 2Gbps category (R1-1719084; contact: Qualcomm)	RAN1	noted	Rel-14	TEI14	RAN2, RAN		R1-1719084
R2-1712111	LS on MBSFN subframe configuration in handover signalling for eMTC (R1-1719091; contact: Qualcomm)	RAN1	noted	Rel-13	LTE_MTCe2_L1	RAN2		R1-1719091
R2-1712112	LS on Comb 2 SRS enhancements for BL/CE UEs (R1-1719093; contact: Qualcomm)	RAN1	noted	Rel-14	LTE_feMTC-Core	RAN2		R1-1719093
R2-1712113	LS on Supportable RNTI Length on DCI (R1-1719094; contact: Ericsson)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1719094
R2-1712114	LS on agreements on early data transmission during random access procedure for NB-IoT and BL/CE UEs in Rel-15 (R1-1719103; contact: HiSilicon)	RAN1	noted	Rel-15	LTE_eMTC4, NB_IOTenh2	RAN2		R1-1719103
R2-1712115	LS to RAN2 on carrier selection rules for Rel-15 V2X (R1-1719151; contact: Huawei)	RAN1	noted	Rel-15	LTE_eV2X-Core	RAN2		R1-1719151
R2-1712116	LS reply on SPS for short TTI (R1-1719154; contact: Huawei)	RAN1	noted	Rel-15	LTE_sTTIandPT	RAN2		R1-1719154
R2-1712117	LS to RAN4 on resource selection for Mode-4 sidelink CA (R1-1719159; contact: Intel)	RAN1	noted	Rel-15	LTE_eV2X	RAN4	RAN2	R1-1719159
R2-1712118	LS on NR Paging Mechanisms (R1-1719164; contact: Huawei)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1719164
R2-1712119	LS on higher layer signalling for special subframe configuration 10 (R1-1719204; contact: CMCC)	RAN1	noted	Rel-14	LTE_UL_CAP_enh-Core	RAN2		R1-1719204
R2-1712120	LS on updates to TS36.300 for short TTI and short processing time (R1-1719205; contact: Ericsson)	RAN1	noted	Rel-15	LTE_sTTIandPT	RAN2		R1-1719205
R2-1712121	LS on agreements on UL HARQ-ACK feedback in Rel-15 LTE efeMTC (R1-1719206;	RAN1	noted	Rel-15	LTE_eMTC4	RAN2		R1-1719206

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 471 of 1750

	contact: ZTE)							
R2-1712122	LS on wake-up signal configuration and procedures for NB-IoT and BL/CE UEs in Rel-15 (R1-1719207; contact: HiSilicon)	RAN1	noted	Rel-15	LTE_eMTC4, NB_IOTenh2	RAN2		R1-1719207
R2-1712123	LS on RAN1 observation on RSRP statistics for aerial vehicles (R1-1719052; contact: NTT DOCOMO)	RAN1	noted	Rel-15	FS_LTE_Aerial	RAN2		R1-1719052
R2-1712124	LS on Ultra Reliable Low Latency Communication for LTE (R1-1719210; contact: Ericsson)	RAN1	noted	Rel-15	LTE_HRLLC	RAN2		R1-1719210
R2-1712125	Response LS on simultaneous transmission and/or reception over EPC/E-UTRAN and 5GC/NR (R1-1719211; contact: Intel)	RAN1	noted	Rel-15	5GS_Ph1, NR_newRAT	SA2, RAN4	RAN2	R1-1719211
R2-1712126	Reply LS on RACH agreements (R1-1719214; contact: CATT)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1719214
R2-1712127	LS on HCS (R1-1719217; contact: Huawei)	RAN1	noted	Rel-15	LTE_1024QAM_DL	RAN2, RAN4		R1-1719217
R2-1712128	LS on system information broadcast for CU/DU split scenario (R3-174199; contact: CATT)	RAN3	noted	Rel-15	NR_newRAT-Core	RAN2	RAN1	R3-174199
R2-1712129	LS on Centralized Retransmission Solution (R3-174219; contact: Ericsson)	RAN3	noted	Rel-15	NR_newRAT	RAN2		R3-174219
R2-1712130	LS on length of NR Cell Identity (R3-174229; contact: Nokia)	RAN3	noted	Rel-15	NR_newRAT-Core	RAN2		R3-174229
R2-1712131	Reply LS on UE/RAN Radio Information and Compatibility Request (R3-174231; contact: Nokia)	RAN3	noted	Rel-15	NR_newRAT-Core	SA2	RAN2	R3-174231
R2-1712132	LS on MN-initiated SN change for delta signalling (R3-174233; contact: Nokia)	RAN3	noted	Rel-15	NR_newRAT-Core	RAN2		R3-174233
R2-1712133	LS on handling concurrent running of security procedures (S3-172565; contact: Ericsson)	SA3	noted	Rel-15	5GS_Ph1	RAN3	RAN2	S3-172565
R2-1712134	LS reply on Support for fake gNB detection mechanisms (R4-1711318; contact: Ericsson)	RAN4	noted	Rel-15	NR_newRAT	SA3	RAN1, RAN2	R4-1711318
R2-1712135	Reply to Reply LS on LTE call redirection to GERAN (S3c0011; contact: Nokia)	SA3	noted	Rel-15	TEI15	CT1, RAN2, RAN3		S3c0011
R2-1712136	LS on single Tx switched UL (R4-1711610; contact: Apple)	RAN4	noted	Rel-15	NR_newRAT	RAN2	RAN1, RAN3	R4-1711610
R2-1712137	LS on mmWave UE NC CA capability signalling (R4-1711623; contact: Qualcomm)	RAN4	noted	Rel-15	NR_newRAT	RAN2		R4-1711623
R2-1712138	Reply LS on UE capability signalling for sTTI configurations (R4-1711726; contact: Ericsson)	RAN4	noted	Rel-15	LTE_sTTIandPT	RAN1	RAN2	R4-1711726
R2-1712139	LS to RAN5 cc RAN1 and RAN2 on UE beamlock function (R4-1711823; contact: Keysight)	RAN4	noted	Rel-15	FS_NR_test_methods	RAN5	RAN1, RAN2	R4-1711823
R2-1712140	LS reply to subcarrier alignment (R4-1711859; contact: Huawei)	RAN4	noted	Rel-15	NR_newRAT	RAN1, RAN2		R4-1711859
R2-1712141	LS reply on NR UE baseband capabilities signalling (R4-1711888; contact: Intel)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2	RAN1	R4-1711888
R2-1712142	Reply LS on measurement accuracy improvement (R4-1711893; contact: Huawei)	RAN4	noted	Rel-15	NB_IOTenh2-Core	RAN1	RAN2	R4-1711893

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 472 of 1750

R2-1712143	LS on gaps for SS block measurement in NR (R4-1711940; contact: Ericsson)	RAN4	noted	Rel-15	NR_newRAT	RAN2	RAN1	R4-1711940
R2-1712144	LS to RAN1 and RAN2 on Definition of synchronous and asynchronous Dual connectivity in Rel-15 LTE-NR combinations (R4-1711965; contact: Ericsson)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN1, RAN2		R4-1711965
R2-1712145	LS on PRB grid in the NR (R4-1711972; contact: Nokia)	RAN4	noted	Rel-14	NR_newRAT-Core	RAN1	RAN2, RAN3	R4-1711972
R2-1712146	LS on no dedicated bearer support over NB-IoT (S2-176723; contact: MediaTek)	SA2	withdrawn	Rel-13	CIoT	RAN5, RAN2, CT1		S2-176723
R2-1712147	Reply LS on MBMS bearer event notification (S2-177582; contact: Ericsson)	SA2	noted	Rel-15	MBMS_Mcservices	SA6, RAN3	RAN2	S2-177582
R2-1712148	LS on FS_REAR SI conclusion (S2-177943; contact: Huawei)	SA2	noted	Rel-15	FS_REAR	RAN, RAN1, RAN2, RAN3, SA3, CT1, SA3-LI		S2-177943
R2-1712149	LS on default values for 5GS QoS averaging window for standardised 5QIs (S2-178049; contact: Qualcomm)	SA2	noted	Rel-15	5GS_Ph1	SA4, RAN2, SA6	CT1	S2-178049
R2-1712150	Reply LS on SDAP header design (S2-178056; contact: MediaTek)	SA2	noted	Rel-15	5GS_Ph1	RAN2		S2-178056
R2-1712151	Reply LS to RAN 2 on QCIs for EPC based ULLC (S2-178150; contact: Vodafone)	SA2	noted	Rel-15	LTE_sTTIandPT, EDCE5, LTE_HRLLC, NR_newRAT-Core	RAN2, RAN3, SA1	RAN1, SA4, CT4	S2-178150
R2-1712152	Reply LS on Certification/License and Identification of Aerial Vehicles (S2-178175; contact: Ericsson)	SA2	noted	Rel-15	FS_LTE_Aerial	RAN2	RAN3, SA3, SA1	S2-178175
R2-1712153	Data support for "voice centric" UE supporting CE mode B (S2-178179; contact: Intel)	SA2	noted	Rel-14	CIoT_Ext	RAN2, RAN3		S2-178179
R2-1712154	Reply LS on Early Data Transmission (S2-178180; contact: Qualcomm)	SA2	noted	Rel-15	LTE_eMTC4-Core, NB_IOTenh2-Core	RAN2, CT1	RAN3, SA3	S2-178180
R2-1712155	LS on the support of Unicast and Groupcast transmission over PC5 for eV2X (S2-178181; contact: LGE)	SA2	noted	Rel-15	LTE_eV2X, FS_eV2XARC	RAN, RAN2	SA, SA1, SA3	S2-178181
R2-1712156	Reply LS on algorithm selection in E-UTRA-NR Dual Connectivity (S2-178182; contact: Qualcomm)	SA2	noted	Rel-15	EDCE5	CT1, SA3	CT4, RAN2, RAN3	S2-178182
R2-1712157	Reply LS on NR Edge Computing (S2-178185; contact: Nokia)	SA2	noted	Rel-15	NR_newRAT	RAN	SA, RAN2, RAN3	S2-178185
R2-1712158	Reply LS on unified Access Control for 5G NR (S2-178191; contact: LGE)	SA2	noted	Rel-15	SMARTER, 5GS_Ph1, 5GS_Ph1-CT	CT1, SA1, RAN2		S2-178191
R2-1712159	LS on adding new service type in QMC reporting (S4-170952; contact: Ericsson)	SA4	noted	Rel-15	LTE_QMC_Streaming, EQoE_MTSI, QOED	RAN2, RAN3, SA5		S4-170952
R2-1712160	LS answer to LS on EUTRAN sharing enhancement (S5-175461; contact: Ericsson)	SA5	noted	Rel-14	TEI14	SA2	RAN2, RAN3, RAN, SA	S5-175461
R2-1712161	Reply LS to LS on supported features by 5GC for E-UTRA connected to 5G CN (S5-	SA5	noted	Rel-15	FS_5GS_Ph1_CH, QOED	RAN2	SA1, SA2, CT1,	S5-175495

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 473 of 1750

	175495; contact: Nokia)						RAN3	
R2-1712298	Reply LS on details of network identifiers (C4-175291; contact: Qualcomm)	CT4	noted	Rel-15	5GS_Ph1-CT	RAN2, SA2		C4-175291
R2-1712299	Reply LS on the number of bearers (C4-175345; contact: Nokia)	CT4	noted	Rel-15	TEI15	SA2	CT1, RAN2, RAN, CT, SA, SA1	C4-175345
R2-1712300	Reply LS on algorithm selection in E-UTRA-NR Dual Connectivity (C4-175349; contact: Ericsson)	CT4	noted	Rel-15	EDCE5	CT1, SA3	SA2, RAN2, RAN3	C4-175349
R2-1713927	Liaison Statement on defining a common value for SPID for Unmanned Aircraft	GSM Association	noted	Rel-15		SA2, RAN2, RAN3		DIG Doc 003 LS to 3GPP on SPID
R2-1713928	Reply LS on short processing time and short TTI (R1-1719223; contact: Ericsson)	RAN1	noted	Rel-15	LTE_sTTIandPT-Core	RAN2		R1-1719223
R2-1713929	LS on RRC parameters for WI on shortened TTI and processing time for LTE (R1-1719231; contact: Ericsson)	RAN1	noted	Rel-15	LTE_sTTIandPT-Core	RAN2		R1-1719231
R2-1713930	LS on maximum TA and processing time for LTE shortened processing time and short TTI (R1-1719238; contact: Nokia)	RAN1	noted	Rel-15	LTE_sTTIandPT	RAN2, RAN4		R1-1719238
R2-1713931	LS reply on SPS for short TTI (R1-1719248; contact: Huawei)	RAN1	noted	Rel-15	LTE_sTTIandPT	RAN2		R1-1719248
R2-1713933	Reply LS on default values for 5GS QoS averaging window for standardised 5QIs (S4-171363; contact: Qualcomm)	SA4	noted	Rel-15	5GS_Ph1	SA2, CT1	RAN2, SA6	S4-171363
R2-1713940	LS on RRC parameters for NR (R1-1719250; contact: Ericsson)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1719250
R2-1713952	LS Reply to 3GPP SA2 on Status Icon related to 5G	GSM Association	noted			SA2, RAN2	SA, SA1, RAN, CT1, CT	LS reply to 3GPP SA2 onStatusIcon
R2-1714112	LS on NR Idle Mode procedures (S1-174294; contact: Qualcomm)	SA1	noted	Rel-15	5GS_Ph1-CT	SA2, RAN2, CT1	RAN3	S1-174294
R2-1714113	Reply LS on Certification/License and Identification of Aerial Vehicles (S1-174512; contact: Qualcomm)	SA1	noted	Rel-15	FS_LTE_Aerial	SA2, RAN2	RAN3, SA3, GSMA IoT Drone Interest Group	S1-174512
R2-1714114	Reply LS on QCIs for EPC based ULLC (S1-174513; contact: Vodafone)	SA1	noted	Rel-15	NR_newRAT-Core, LTE_HRLLC, LTE_sTTIandPT, EDCE5	SA2, RAN, RAN1	RAN2, RAN3, SA4, CT4	S1-174513
R2-1714120	Reply LS on CR for Reference Signals for MBSFN with 1.25kHz and 7.5khz sub-carrier spacing (R1-1721431; contact: Intel)	RAN1	noted	Rel-14	MBMS_LTE_enh2-Core	RAN2		R1-1721431
R2-1714137	LS on EDCE5 Algorithm Indication between UE and SgNB (S3-173444; contact: Vodafone)	SA3	noted	Rel-15	EDCE5	CT1, CT4, RAN2, RAN3	SA2	S3-173444
R2-1714140	LS on NR TDD UL/DL configurations and support of HPUE (R1-1721560; contact: Softbank, Sprint)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN4	RAN2	R1-1721560
R2-1714144	LS on additional agreements for shortened TTI and processing time for LTE (R1-1721216; contact: Ericsson)	RAN1	noted	Rel-15	LTE_sTTIandPT	RAN2		R1-1721216

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 474 of 1750

R2-1714145	LS on NR RMSI TTI (R1-1721557; contact: CATT)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1721557
R2-1714148	Reply LS on RAN2 agreements for enhanced CA utilization WID (R4-1713920; contact: Nokia)	RAN4	noted	Rel-15	LTE_euCA-Core	RAN2		R4-1713920
R2-1714149	LS response on reduced SCell activation time for enhanced CA utilization WID (R4-1713921; contact: Qualcomm)	RAN4	noted	Rel-15	LTE_euCA	RN2		R4-1713921
R2-1714151	LS on wake-up signal (R1-1721241; contact: HiSilicon)	RAN1	noted	Rel-16	NB_IOTenh2-Core	RAN2, RAN4		R1-1721241
R2-1714155	LS on required information for NSA on X2 (R3-174964; contact: Nokia)	RAN3	noted	Rel-15	NR_newRAT-Core	RAN1, RAN2, RAN4		R3-174964
R2-1714156	LS on early data transmission (R1-1721255; contact: Huawei)	RAN1	noted	Rel-15	NB_IOTenh2-Core, LTE_eMTC4-Core	RAN2		R1-1721255
R2-1714161	Reply LS on SPS and Grant-free (R1-1721574; contact: NTT DOCOMO)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1721574
R2-1714162	LS on RAN1 agreement on UL power sharing for LTE/NR NSA operation (R1-1721606; contact: Intel)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1721606
R2-1714164	LS on RRC parameters for NR (R1-1721616; contact: Ericsson)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1721616
R2-1714167	Reply LS on maximum data rate of user plane integrity protected data (S3-173420; contact: Qualcomm)	SA3	noted	Rel-15	NR_newRAT-Core	RAN2	SA2, RAN3	S3-173420
R2-1714168	LS on Wake-up signal features for Rel-15 LTE-MTC (R1-1721282; contact: Ericsson)	RAN1	noted	Rel-15	LTE_eMTC4	RAN2		R1-1721282
R2-1714171	LS reply on support of Trace and MDT in NG-RAN in rel-15 (S5-176477; contact: Nokia)	SA5	noted	Rel-15	NR_newRAT-Core	RAN3, CT4	RAN2	S5-176477
R2-1714180	Reply LS on the number of bearers (S2-179536; contact: Samsung)	SA2	noted	Rel-15	TEI15	RAN2, CT1, CT4, RAN, SA, CT	SA1	S2-179536
R2-1714189	LS on SRS PHR reporting (R1-1721680; contact: Huawei)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1721680
R2-1714201	LS reply on SSTD measurements for EN-DC (R4-1714289; contact: Ericsson)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2, RAN1		R4-1714289
R2-1714202	LS on correction of interference in NB-IoT RACH procedure (R1-1721302; contact: Huawei)	RAN1	noted	Rel-14	NB_IOTenh-Core	RAN2		R1-1721302
R2-1714209	LS to RAN2 on the occasion of their centenary meeting (R4-1714481; contact: James Clerk Maxwell)	RAN4	rejected			RAN2		R4-1714481
R2-1714236	LS on MAC CE parameters for NR MIMO (R1-1721663; contact: NTT DOCOMO)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1721663
R2-1714247	LS on RAN1 Conclusions and TPs approved in RAN1#91 (R1-1721310; contact: Ericsson)	RAN1	noted	Rel-15	FS_LTE_Aerial	RAN2		R1-1721310

97 incoming LS, of which 96 were noted. One LS was withdrawn (was treated already in the previous meeting).

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 475 of 1750

Annex D:
Outgoing liaison statements

TDoc	Title	Release	Related WIs	To	Cc
R2-1713999	Reply LS on Issue with handovers in eMTC	Rel	LTE_MTCe2_L1-Core	RAN1	
R2-1714008	Reply LS to RAN1 on wake-up signal	Rel-13	NB_IOTenh2-Core, LTE_eMTC4-Core	RAN1	
R2-1714013	Reply LS on unified Access Control for 5G NR	Rel-15	NR_newRAT-Core	SA1	CT1, SA2, CT6
R2-1714015	Reply LS on System acquisition time reduction for Rel-15 LTE MTC	Rel-15	LTE_eMTC4-Core	RAN1, RAN4	
R2-1714049	LS on BWP related agreements	Rel-15	NR_newRAT-Core	RAN1	
R2-1714050	LS to RAN1 on beam recovery failure	Rel-15	NR_newRAT-Core	RAN1	
R2-1714061	LS to RAN1 on HARQ agreements	Rel-15	NR_newRAT-Core	RAN1	
R2-1714062	LS to RAN1 on GF/SPS agreements	Rel-15	NR_newRAT-Core	RAN1	
R2-1714070	LS on VoIP packet sizes and transport blocks	Rel-15	NR_newRAT-Core	RAN1	
R2-1714074	LS on PHR mapping table for FR1 and FR2	Rel-15	NR_newRAT-Core	RAN4	
R2-1714121	Reply LS on LTE call redirection to GERAN	Rel-15	TEI14	CT1	SA3, RAN3
R2-1714124	Reply LS on algorithm selection in E-UTRA-NR Dual Connectivity	Rel-14	NR_newRAT-Core, EDCE5	SA2, CT1, SA3	CT4, RAN3
R2-1714125	LS on maximum data rate of user plane integrity protected data	Rel-15	NR_newRAT-Core	SA3	SA2
R2-1714129	LS on TDM pattern coordination for single UL operation	Rel-15	NR_newRAT-Core	RAN3	
R2-1714136	Reply LS on QCIs for EPC based ULLC	Rel-15	NR_newRAT-Core	SA2	
R2-1714154	Reply LS on Supportable RNTI Length on DCI	Rel-15	NR_newRAT-Core	RAN1	
R2-1714169	LS on replacement of "SCG change indication" with "PDCP change indication"	Rel-15	NR_newRAT-Core	RAN3	
R2-1714186	LS on LTE Control Plane Latency Reduction	Rel-15	TEI15	RAN1	RAN
R2-1714187	LS on Reliability for eV2X	Rel-15	LTE_eV2X-Core	SA2	CT1
R2-1714203	Reply LS on supported features by 5GC for E-UTRA connected to 5G CN	Rel-15	LTE_5GCN_connect-Core	SA5	SA1, SA2, CT1, RAN3
R2-1714205	LS on cells not broadcasting SIB1	Rel-15	NR_newRAT-Core	RAN1	
R2-1714227	LS on LTE measurement gap patterns for SSTD measurement	Rel-15	NR_newRAT-Core	RAN4	
R2-1714239	LS about LTE CA SCell New State agreements	Rel-15	LTE_euCA-Core	RAN1, RAN4	RAN
R2-1714244	LS on Security aspects of supporting LTE connected to 5GC	Rel-15	LTE_5GCN_connect-Core	SA3	CT1
R2-1714245	Reply LS on LS on default values for 5GS QoS averaging window for standardised 5QIs	Rel-15	NR_newRAT-Core	SA2	SA4, SA6, CT1
R2-1714246	LS on MAC Ces for beam management and CSI	Rel-15	NR_newRAT-Core	RAN1	
R2-1714248	Reply LS on Certification/License and Identification of Aerial Vehicles	Rel-15	FS_LTE_Aerial	SA2, SA1, RAN3	
R2-1714258	LS on Rel-15 NB-IoT work progress	Rel-15	NB_IOTenh2	RAN	
R2-1714263	LS on UE capability clarification for simultaneousRxTx for NR	Rel-15	NR_newRAT-Core	RAN4	

29 outgoing LS.

Annex E:
List of agreed CRs

Agreed CRs:

TDoc	Title	Source	Rel	Spec	Related WIs	CR	Rev	Ca
R2-1712235	UE capability for support of SRS enhancements without support of comb 4	Qualcomm Incorporated, Ericsson	Rel-14	36.331	LTE_feMTC-Core	3127		F
R2-1712236	UE capability for support of SRS enhancements without support of comb 4	Qualcomm Incorporated, Ericsson	Rel-14	36.306	LTE_feMTC-Core	1514		F
R2-1712289	Define requirement for reception of number of simultaneous SC-PTM services	Qualcomm Incorporated	Rel-14	36.331	LTE_SC_PTM-Core	3108	1	A
R2-1712327	Correction on SRS switching capabilities field description	Qualcomm Incorporated	Rel-14	36.331	LTE_SRS_switch	3088	1	F
R2-1712556	Introduction of the temporary UE capability for overheating indication	Huawei Device, Huawei, HiSilicon, IPCom, Nokia, Nokia Shanghai Bell	Rel-14	36.306	TEI14	1490	5	B
R2-1712558	Correction on SubframeBitmap Configuration in Band 47	Qualcomm Incorporated	Rel-14	36.331	LTE_V2X-Core	3085	2	F
R2-1712705	Introduction of QoE Measurement Collection for LTE	Huawei, HiSilicon	Rel-15	36.300	LTE_QMC_Streaming-Core	1073		B
R2-1712706	Introduction of QoE Measurement Collection for LTE	Huawei, HiSilicon	Rel-15	36.306	LTE_QMC_Streaming-Core	1519		B
R2-1712707	Introduction of QoE Measurement Collection for LTE	Huawei, HiSilicon	Rel-15	36.331	LTE_QMC_Streaming-Core	3144		B
R2-1712741	Corrections to V2X in TS 36.300	Huawei, HiSilicon	Rel-14	36.300	LTE_V2X-Core	1062	3	F
R2-1712954	Correction to RLC UM for LWA	Ericsson	Rel-14	36.323	LTE_WLAN_aggr-Core	0210		F
R2-1713039	Removal of FFS for RAI in 36.321	Ericsson	Rel-14	36.321	NB_IOTenh-Core	1186	1	F
R2-1713040	Clarification on Interference Randomisation in NB-IoT in 36.331	Ericsson, Qualcomm Incorporated	Rel-14	36.331	NB_IOTenh-Core	3090	2	F
R2-1713081	MUST capability	MediaTek Inc.	Rel-14	36.331	LTE_MUST-Core	3091	1	F
R2-1713094	Correction to description of uplink and downlink shared channel physical layer model for MTC and NB-IoT.	Huawei, HiSilicon	Rel-13	36.302	LTE_MTCe2_L1-Core, NB_IOT-Core	0116	2	F
R2-1713095	Correction to description of uplink and downlink shared channel physical layer model for MTC and NB-IoT.	Huawei, HiSilicon	Rel-14	36.302	LTE_MTCe2_L1-Core, NB_IOT-Core	0117	1	A
R2-1713098	Correction on TS 36.300 for support of larger maximum PDSCH/PUSCH channel bandwidth for feMTC	Huawei, HiSilicon	Rel-14	36.300	LTE_feMTC-Core	1066	1	F
R2-1713128	MUST capability	MediaTek Inc.	Rel-14	36.306	LTE_MUST-Core	1533		F
R2-1713222	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Rel-13	36.300	LTE_MTCe2_L1-Core	1054	3	F
R2-1713225	Minor correction on the IE of pusch-EnhancementsConfig in feMTC	Huawei, HiSilicon	Rel-14	36.321	LTE_feMTC-Core	1187	1	F
R2-1713377	Correction on zone configuration in transmission pool selection	Qualcomm Incorporated	Rel-14	36.331	LTE_V2X-Core	3184		F
R2-1713413	Correction to UE capabilities	Nokia, Nokia Shanghai Bell	Rel-14	36.331	LTE_V2X-Core	3107	2	F
R2-1713540	DCI monitoring subframes for eIMTA	Huawei, HiSilicon	Rel-12	36.331	LTE_TDD_eIMTA-Core	3188		F
R2-1713542	DCI monitoring subframes for eIMTA	Huawei, HiSilicon	Rel-13	36.331	LTE_TDD_eIMTA-Core	3189		A
R2-1713545	DCI monitoring subframes for eIMTA	Huawei, HiSilicon	Rel-14	36.331	LTE_TDD_eIMTA-Core	3190		A
R2-1713566	Signaling of NCSG Support for Inter-F Measurement	Qualcomm Incorporated, Ericsson,Nokia	Rel-14	36.331	LTE_meas_gap_enh-Core	3110	3	B
R2-1713624	Alignment of FGI4 (Short DRX) for Cat M1	Ericsson	Rel-13	36.331	LTE_MTCe2_L1-Core	3119	1	F
R2-1713625	Alignment of FGI4 (Short DRX) for Cat M1 and M2	Ericsson	Rel-14	36.331	LTE_MTCe2_L1-Core	3120	1	F
R2-1713664	SFN desynchronizaion between eNB and eDRX UE	NTT DOCOMO INC.	Rel-14	36.331	LTE_extDRX-Core	3194		F
R2-1713817	Corrections to V2X functionality	LG Electronics Inc.	Rel-14	36.321	LTE_V2X-Core	1190	2	F
R2-1713960	Clarification on eDRX in NB-IoT	Nokia	Rel-13	36.304	NB_IOT-Core, LTE_extDRX-Core	0398	1	F
R2-1713961	Clarification on eDRX in NB-IoT	Nokia	Rel-14	36.304	NB_IOT-Core, LTE_extDRX-Core	0399	1	A
R2-1713962	Small corrections to CarrierConfigDedicated, T322 and t-reordering default configuration	Huawei, HiSilicon	Rel-14	36.331	NB_IOTenh-Core	3175	1	F
R2-1713963	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Rel-13	36.331	LTE_MTCe2_L1-Core	3045	4	F
R2-1713964	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Rel-14	36.331	LTE_MTCe2_L1-Core	3046	3	A

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 477 of 1750

R2-1713965	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Rel-14	36.300	LTE_MTCe2_L1-Core	1055	4	A
R2-1713967	Introducing a definition for the term UE in CE	Intel Corporation, Ericsson, Huawei, HiSilicon, LG	Rel-13	36.331	LTE_MTCe2_L1-Core	3139	1	F
R2-1713968	Introducing a definition for the term UE in CE	Intel Corporation, Ericsson, Huawei, HiSilicon, LG	Rel-14	36.331	LTE_MTCe2_L1-Core	3140	1	A
R2-1713969	Correction to cell barring for coverage enhancement	Huawei, HiSilicon, Intel Corporation	Rel-13	36.304	LTE_MTCe2_L1-Core	0396	1	F
R2-1713974	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Rel-13	36.306	LTE_MTCe2_L1-Core	1527	1	F
R2-1713975	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Rel-14	36.306	LTE_MTCe2_L1-Core	1528	1	A
R2-1713976	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Rel-13	36.331	LTE_MTCe2_L1-Core	3159	1	F
R2-1713977	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Rel-14	36.331	LTE_MTCe2_L1-Core	3160	1	A
R2-1713978	Target cell optional PBCH repetition status indication	Qualcomm Incorporated	Rel-14	36.331	LTE_feMTC-Core	3037	4	F
R2-1713980	Correction on the field description of ce-PDSCH-TenProcesses	Huawei, HiSilicon	Rel-14	36.331	LTE_feMTC-Core	3169	1	F
R2-1713981	Clarification on srs-UpPtsAdd in SRS coverage enhancement	Intel Corporation	Rel-14	36.331	LTE_feMTC-Core	3137	1	F
R2-1713982	Scheduling information of SIB1-BR when skipping MIB during HO	Intel Corporation	Rel-14	36.331	LTE_feMTC-Core	3138	1	F
R2-1713984	Correction on PRS hopping configuration	Huawei, HiSilicon	Rel-14	36.355	LTE_feMTC-Core	0187	2	F
R2-1713985	MBSFN subframes for target cell during handover to CE cell	Qualcomm Incorporated	Rel-13	36.331	LTE_MTCe2_L1-Core	3128	1	F
R2-1713986	MBSFN subframes for target cell during handover to CE cell	Qualcomm Incorporated	Rel-14	36.331	LTE_MTCe2_L1-Core	3129	1	F
R2-1713991	Correction on downlink reception type combination for SC-PTM in feMTC	Huawei, HiSilicon	Rel-14	36.302	LTE_feMTC-Core	0115	3	F
R2-1713994	Successful acknowledgement of RRCConnectionRelease	Ericsson, Huawei, HiSilicon	Rel-14	36.331	NB_IOTenh-Core	3157	1	F
R2-1713997	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Rel-13	36.331	LTE_MTCe2_L1-Core	3095	5	F
R2-1713998	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Rel-14	36.331	LTE_MTCe2_L1-Core	3096	4	A
R2-1714000	Correction to UE-Capability-NB extension and provision for late rel-13 corrections	Sequans Communications	Rel-14	36.331	NB_IOTenh-Core	3113	4	F
R2-1714002	Introduction of relaxed monitoring in NB-IoT	Ericsson, Huawei, HiSilicon, LG Electronics	Rel-14	36.304	NB_IOTenh-Core, TEI14	0392	2	C
R2-1714003	Introduction of relaxed monitoring in NB-IoT	Ericsson, Huawei, HiSilicon, LG Electronics	Rel-14	36.306	NB_IOTenh-Core, TEI14	1523	2	C
R2-1714007	Clarification on carrier index in PDCCH order	Huawei, HiSilicon	Rel-14	36.321	NB_IOTenh-Core	1188	4	F
R2-1714009	Introduction of the overheating indication	Huawei Device, Huawei, HiSilicon, IPCom, Nokia, Nokia Shanghai Bell, MediaTek	Rel-14	36.300	TEI14	1048	7	B
R2-1714010	Introduction of the overheating indication	Huawei Device, Huawei, HiSilicon, IPCom, MediaTek	Rel-14	36.331	TEI14	2982	8	B
R2-1714036	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Rel-13	36.331	LTE_CA_TDD_FDD-Core	3080	3	F
R2-1714037	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Rel-13	36.306	LTE_CA_TDD_FDD-Core	1510	3	F
R2-1714038	Table 8.2-2 correction of the remarks for DL reception type of Sidelink and FeMBMS and move of EPDCCH remark to the bottom of the table	Ericsson	Rel-14	36.302	TEI14	1191	1	F
R2-1714040	Introduction of a new UE capability for	CMCC	Rel-14	36.306	LTE_UL_CAP_enh-Core	1536	1	B

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 478 of 1750

	ssp10 with less CRS							
R2-1714041	Introduction of a new configuration for ssp10 with less CRS	CMCC	Rel-14	36.331	LTE_UL_CAP_enh-Core	3180	1	B
R2-1714042	Introduction of Enhanced CRS and SU-MIMO Interference Mitigation Performance Requirements for LTE	Intel Corporation	Rel-14	36.306	LTE_eCRSIM_eSUMIMO	1518	1	B
R2-1714051	Correction to V2X descriptions in TS 36.302	Huawei, Ericsson, OPPO, HiSilicon	Rel-14	36.302	LTE_V2X-Core	0114	2	F
R2-1714053	Clarification to Mapping Between Service Types and V2X Frequencies	Ericsson	Rel-14	36.300	LTE_V2X-Core	1083	1	F
R2-1714054	Clarification on csi-RS-ConfigNZPId	Qualcomm Incorporated, Ericsson	Rel-13	36.331	LTE_EBF_FDMIMO-Core	3111	2	F
R2-1714055	Clarification on csi-RS-ConfigNZPId	Qualcomm Incorporated, Ericsson	Rel-14	36.331	LTE_EBF_FDMIMO-Core	3112	2	A
R2-1714064	Correction to Inter-frequency reception for V2X sidelink communication	Huawei, HiSilicon	Rel-14	36.331	LTE_V2X-Core	3072	3	F
R2-1714065	Transmission of P2X sidelink communication in Exceptional Pool	Qualcomm Incorporated	Rel-14	36.331	LTE_V2X-Core	3084	3	F
R2-1714066	EN-DC impacts to LTE RLC	Huawei, HiSilicon	Rel-15	36.322	NR_newRAT-Core	0132	1	B
R2-1714072	EN-DC impacts to LTE MAC	Huawei, HiSilicon, Apple	Rel-15	36.321	NR_newRAT-Core	1196	2	B
R2-1714142	Introducing support for NR, changes relevant for NSA	Samsung Telecommunications	Rel-15	36.331	NR_newRAT-Core	3115	3	B
R2-1714175	Correction to UE-Capability-NB extension and provision for late rel-13 corrections	Sequans Communications	Rel-13	36.331	NB_IOT-Core	3201		F
R2-1714177	Clarification on averaging window for RAN assisted codec rate adaptation	Qualcomm Incorporated	Rel-14	36.321	LTE_VoLTE_ViLTE_enh	1202	1	F
R2-1714179	Introduction of assistance information for local cache	CMCC, Intel Corporation	Rel-15	36.300	LTE_ViLTE_enh2-Core	1076	2	B
R2-1714210	Introduction of relaxed monitoring in NB-IoT	Ericsson, Huawei, HiSilicon, LG Electronics	Rel-14	36.331	NB_IOTenh-Core, TEI14	3154	3	C
R2-1714211	CR on SIB21 reading	OPPO, Qualcomm Incorporated	Rel-14	36.331	LTE_V2X-Core	3073	4	F
R2-1714212	Define requirement for reception of number of simultaneous SC-PTM services	Qualcomm Incorporated	Rel-13	36.331	LTE_SC_PTM-Core	3106	3	F
R2-1714213	Cleaning up CQI and CSI-RS-related configurations (related to Rel-14 ASN.1 review issue N.099)	Nokia, Nokia Shanghai Bell	Rel-14	36.331	TEI14	2968	5	F
R2-1714214	Deliver stored PDCP SDUs for LWA bearer with RLC UM at PDCP re-establishment	LG Electronics	Rel-14	36.323	LTE_WLAN_aggr-Core	0216	1	F
R2-1714215	Correction to cell barring for coverage enhancement	Huawei, HiSilicon, Intel Corporation	Rel-14	36.304	LTE_MTCe2_L1-Core	0397	2	A
R2-1714216	Correction to actions related to InterFreqRSTDMeasurementIndication message	Qualcomm Incorporated	Rel-14	36.331	LTE_feMTC-Core	3135	2	F
R2-1714240	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Rel-14	36.331	LTE_CA_TDD_FDD-Core	3081	2	A
R2-1714241	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Rel-14	36.306	LTE_CA_TDD_FDD-Core	1511	2	A
R2-1714249	Clarifications CR	Huawei, HiSilicon, ITL	Rel-15	36.746	FS_feD2D_IoT_relay_wearable	0002	3	F
R2-1714250	NRS-CRS power offset configuration for NB-IoT	ZTE Corporation, Sanechips	Rel-14	36.331	NB_IOTenh-Core	3153	2	F
R2-1714254	Correction to random access power control in 36.306	Huawei, HiSilicon	Rel-14	36.306	NB_IOTenh-Core	1534	1	F
R2-1714255	Correction to random access power control in 36.321	Huawei, HiSilicon	Rel-14	36.321	NB_IOTenh-Core	1199	1	F
R2-1714256	Correction to random access power control in 36.331	Huawei, HiSilicon	Rel-14	36.331	NB_IOTenh-Core	3176	1	F
R2-1714264	Change to actions upon mac-ContentionResolutionTimer expiry for FeMTC and eNB-IoT	Nokia, Nokia Shanghai Bell	Rel-14	36.321	LTE_feMTC-Core, NB_IOTenh-Core	1194	2	F
R2-1714265	Introduction of shortened TTI and processing time for LTE	Ericsson	Rel-15	36.331	LTE_sTTIandPT-Core	3202		B
R2-1714266	Introduction of shortened TTI and	Ericsson	Rel-15	36.321	LTE_sTTIandPT-Core	1203		B

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 479 of 1750

	processing time for LTE							
R2-1714267	Introduction of shortened TTI and processing time for LTE	Ericsson	Rel-15	36.306	LTE_sTTIandPT-Core	1542		B
R2-1714268	Introduction of shortened TTI and processing time for LTE	Ericsson	Rel-15	36.302	LTE_sTTIandPT-Core	1192		B
R2-1714269	Introduction of shortened TTI and processing time for LTE	Ericsson	Rel-15	36.300	LTE_sTTIandPT-Core	1084		B
R2-1714274	Protection of Redirection to GERAN	RAN3 (Nokia, Nokia Shanghai Bell)	Rel-14	36.300	TEI14	1085		F
R2-1714280	Baseline CR for Rel.15 NR (RAN3 part)	RAN3 (Nokia, Nokia Shanghai Bell, ZTE)	Rel-15	36.300	NR_newRAT-Core	1086	1	B
R2-1714281	Introduction of assistance information for local cache	CMCC, Intel Corporation	Rel-15	36.306	LTE_ViLTE_enh2-Core	1535	2	B
R2-1714282	Introduction of assistance information for local cache	CMCC, Intel Corporation	Rel-15	36.323	LTE_ViLTE_enh2-Core	0211	2	B
R2-1714283	Introduction of assistance information for local cache	CMCC, Intel Corporation	Rel-15	36.331	LTE_ViLTE_enh2-Core	3178	2	B
R2-1714284	Reject of unprotected redirect to GERAN	Ericsson	Rel-14	36.331	TEI14	3132	3	C

104 agreed CRs.

Annex F: Email Approvals

Deadline Thursday, 2017-12-07, 23:59 Pacific Time

Please request TDoc numbers for the following email discussions from MCC if not already allocated

[100#01][NR] LS to RAN4 on simultaneous RXTX for inter-band TDD/TDD and inter-band FDD/TDD (Intel)

Intended outcome: Approved LS
Deadline: Thursday 2017-12-07

=> Approved in R2-1714263.

[100#02][LTE/euCA] LS to RAN1/RAN4 on SCell fast activation (Qualcomm)

Intended outcome: Approved LS
Deadline: Thursday 2017-12-07

=> Approved in R2-1714239.

[100#03][LTE/V2X] – Correction on zone configuration – Qualcomm

- Confirm the earth model used, WGS84

Intended outcome: Agreed CR
Deadline: Thursday 2017-12-07

=> The CR is agreed in R2-1713377.

[100#04][LTE/sTTI] – 36.331 – Ericsson

- CR capturing all RAN2 agreements for sTTI

Intended outcome: Agreed CR
Deadline: Thursday 2017-12-07

=> The CR is agreed in R2-1714265.

[100#05][LTE/sTTI] – 36.321 – Ericsson

- CR capturing all RAN2 agreements for sTTI

Intended outcome: Agreed CR
Deadline: Thursday 2017-12-07

=> The CR is agreed in R2-1714266.

[100#06][LTE/sTTI] – 36.306 – Ericsson

- CR capturing all RAN2 agreements for sTTI
  Intended outcome: Agreed CR
  Deadline: Thursday 2017-12-07

=> The CR is agreed in R2-1714267.

[100#07][LTE/sTTI] – 36.302 – Ericsson

- CR capturing all RAN2 agreements for sTTI
  Intended outcome: Agreed CR
  Deadline: Thursday 2017-12-07

=> This CR is agreed in R2-1714268.

[100#08][LTE/sTTI] – 36.300 – Ericsson

- CR capturing all RAN2 agreements for sTTI
  Intended outcome: Agreed CR
  Deadline: Thursday 2017-12-07

=> This CR is agreed in R2-1714269.

[100#09][LTE/UAV]TR 36.777(DCM)

- All endorsed TPs from RAN2 and RAN1 should be merged into the TR
  Intended outcome: Agreed TR for submission to RAN for approval
  Deadline: Thursday 2017-12-07

=> Agreed in R2-1714276 (v0.5.0)

[100#10][NB-IoT R15] Running Rel-15 36.331 CR for NB-IoT and LS to RP (Huawei)

Intended outcome: Endorsed running CR and approved LS
Deadline: Thursday 2017-12-07

=> The running CR is endorsed in R2-1714272, the LS is approved in R2-1714258

[100#11][NB-IoT R15] Running Rel-15 36.321 CR for NB-IoT (Ericsson)

Intended outcome: Endorsed running CR
Deadline: Thursday 2017-12-07

=> Endorsed as a running CR in R2-1714262

[100#12][NB-IoT R14] NRS-CRS power offset configuration (ZTE)

Mainly to check R1-R2 consistency
Intended outcome: Agreed CR
Deadline: Thursday 2017-12-07

=> This CR is agreed in R2-1714250.

[100#13][NB-IoT R14] Interference in RACH procedure CR (Huawei)

Interference in RACH procedure, CR approval 1 week (revisions of R2-1713218, 19, 20), update CRs based on R1 LS
Intended outcome: Agreed CR
Deadline: Thursday 2017-12-07

=> The CRs are agreed in R2-1714254, R2-1714255, R2-1714256.

[100#14][NB-IoT/MTC R14] Contention Resolution Timer (Nokia)

Intended outcome: Agreed CR
Deadline: Thursday 2017-12-07

=> The CR is agreed in R2-1714264.

[100#15][NR] 36.800 (Nokia)

Intended outcome: Agreed TS for submission to RAN for approval
Deadline: Thursday 2017-12-07

=> Agreed in R2-1714252.

[100#16][NR] 37.340 (ZTE)

Intended outcome: Agreed TS for submission to RAN for approval
Deadline: Thursday 2017-12-07
=> Agreed in R2-1714251.

[100#17][NR] 38.331 (Ericsson)

Intended outcome: Agreed TS for submission to RAN for (one step) approval
Deadline: Thursday 2017-12-07
=> Agreed in R2-1714259.

[100#44][NR] 36.331 CR (Samsung)

Intended outcome: Agreed CR
Deadline: Thursday 2017-12-07
=> The CR is agreed in R2-1714142.

[100#18][NR] 38.306 and UE capability ASN.1 (Intel)

Updated draft TS to capture agreements from this meeting
Intended outcome: Agreed TS for submission to RAN for (one step) approval, and agreed ASN.1 for inclusion into 38.331
Deadline: Thursday 2017-12-07
=> Agreed: R2-1714270: The TP on UE capabilities
R2-1714271: 38.306, v0.1.0

[100#19][NR] L2 parameters ASN.1(Huawei)

Intended outcome: Agreed TP to be incorporated into 38.331
Deadline: Thursday 2017-12-07
=> The TP is agreed in R3-1714277

[100#20][NR UP/MAC] – 38.321 – Samsung

- Running TS capturing agreed TPs and all new agreements
Intended outcome: Agreed TS for submission to RAN for approval
Deadline: Thursday 2017-12-07
=> Agreed in R2-1714253.

[100#21][NR UP/RLC] – 38.322 – Mediatek

- Running TS capturing agreed TPs and all new agreements
Intended outcome: Agreed TS for submission to RAN for approval
Deadline: Thursday 2017-12-07
=> Agreed in R2-1714261.

[100#22][NR UP/PDCP] – 38.323 – LG

- Running TS capturing agreed TPs and all new agreements
Intended outcome: Agreed TS for submission to RAN for approval
Deadline: Thursday 2017-12-07
=> Agreed in R2-1714273

[100#23][NR UP/MAC] – TP on SPS/GF - Nokia

- agreeable TP to be merged in main
Intended outcome: Agreed TP
Deadline: Thursday 2017-12-06 (note earlier deadline to enable merge into MAC TS)
=> The TP is agreed in R2-1714058.

[100#43][LTE/ViLTE] Assistance information for local cache CRs to 36.331, 36.323 and 36.306 - CMCC

Use R2-1714159, R2-1714160, R2-1714158 as baseline

Intended outcome: Agreed CRs
Deadline: Thursday 2017-12-07
=> Agreed in R2-1714281/82/83 (36.306 / 36.323 / 36.331)

[100#45][LTE/feD2D] Agree in principle agreed CR from RAN2#99bis

- Provide the in principle agreed CR from RAN2#99bis in R2-1711862 to this email discussion for agreement.
  Intended outcome: Agreed CR
  Deadline: Thursday 2017-12-06

=> Agreed in R2-1714249.

Deadline Thursday, 2017-12-14, 23:59 Pacific Time

Please request TDoc numbers for the following email discussions from MCC if not already allocated

[100#24][LTE/5GC] 36.331 running CR (Intel)

Update with agreements from this meeting
Intended outcome: Endorsed running CR
Deadline: Thursday 2017-12-14
=> Reserved R2-1714286

[100#25][LTE/5GC] 36.300 running CR (Huawei)

Update with agreements from this meeting
Intended outcome: Endorsed running CR
Deadline: Thursday 2017-12-14
=> Reserved R2-1714285

[100#26][LTE/UDC] Running 36.323 CR (CATT)

- Update the running CR according to the agreements from this meeting
  Intended outcome: endorsed running CR
  Deadline: Thursday 2017-12-14

=> Reserved R2-1714278

[100#27][LTE/UDC] Running 36.331 CR (CATT)

- Update the running CR according to the agreements from this meeting
  Intended outcome: endorsed running CR
  Deadline: Thursday 2017-12-14

=> Reserved R2-1714279

[100#28][LTE/euCA] Running stage-2 CR for euCA (Nokia)

Capture related the agreements from this meeting and the previous meetings.
Intended outcome: Endorsed running CR
Deadline: Thursday 2017-12-14

[100#29][LTE/euCA] Running stage-3 CR for euCA (Nokia)

Capture related the agreements from this meeting and the previous meetings.
Intended outcome: Endorsed running CR
Deadline: Thursday 2017-12-14

Deadline Thursday, 2018-01-11, 23:59 Pacific Time

TDoc numbers for the following email discussions may be requested via 3GU tool

[100#30][NR] L1 CSI meas config (Ericsson)

Progress details of L1 parameters related to CSI meas config
Intended outcome: Report to next meeting

Deadline: Thursday 2018-01-11

[100#31][NR] Inter-Node RRC message (Samsung)

Continue to progress the content of inter-node RRC messages. To also consider the LS from RAN3
Intended outcome: TP/CR and report describing the FFS points that need to be discussed online at the next meeting
Deadline: Thursday 2017-01-11

[100#32][NR] UE capabilities (Qualcomm)

To discuss whether the linking to BPC should be included in the MRDC BCs and how to address the new information from RAN4 about MIMO capability and intra-band non-contiguous CA in relation to carrier separation.
Intended outcome: Report to AH meeting
Deadline: Thursday 2017-01-11

[100#33][NR] L2 buffer size (Intel)

Progress the details of the L2 buffer size calculation based on proposals 1 and 2 of R2-1714200
Intended outcome: Report to next meeting
Deadline: Thursday 2018-01-11

[100#34][NR] L2 parameter FFSs (Huawei)

Progress FFS points to next meeting
Intended outcome: Report to next meeting
Deadline: Thursday 2018-01-11

Deadline Thursday, 2018-02-08, 23:59 Pacific Time

TDoc numbers for the following email discussions may be requested via 3GU tool

[100#35][LTE/TEI15] New L2 measurements (Huawei)

- Identify the solution to address SA5 requirement
  Intended outcome: agreeable CR if needed
  Deadline: Thursday 2018-02-08

[100#36][LTE/euCA] Solutions on signalling overhead reduction (Nokia)

Try to have a unified solution based on the contributions so far.
Intended outcome: Report to the next meeting
Deadline: Thursday 2018-02-08

[100#37][NB-IoT R14] Measurement Report for NB-IoT (CMCC)

Measurement Report for NB-IoT, what could be the possible solution(s), which release, pave the way for decisions,
Intended outcome: Report to next meeting
Deadline: Thursday 2017-02-08

[100#38][MTC Rel-15] padding issue in Msg3 [Ericsson]

On how to address the padding issue in Msg3
Intended outcome: Report to next meeting
Deadline: Thursday 2017-02-08

[100#39][MTC R15] 36.331 CR [Qualcomm]

Intention: to progress the running 36.331 CR for eMTC to capture the Rel-15 agreement
Intended outcome: Running CR submitted next meeting

Deadline: Thursday 2017-02-08

[100#40][MTC R15] 36.321 CR [Intel]

To progress the running 36.321 CR for eMTC to capture the Rel-15 agreement
Intended outcome: Running CR submitted next meeting
Deadline: Thursday 2017-02-08

[100#41][LTE – eV2X] TX carrier selection – LG

- Identify the list of solutions by using PPPP and CBR in the TX carrier selection (based on the contributions this meeting)
- Analyze pros and cons
- Select the best option / the most preferred option
  Intended outcome: Report to next meeting
  Deadline: Thursday 2017-02-08

[100#42][LTE – eV2X] Radio resource pool sharing – OPPO

- Identify possible scenarios
- Clarify which scenario we'll take into account for the solution
- Pool configurations with pool sharing
- Possible solutions (RAN2 based one)
  Intended outcome: Report to next meeting
  Deadline: Thursday 2017-02-08

Annex G: History

Document history		
Date	**TSG RAN WG2 Tdoc**	**Subject**
18.12.2017	-	Draft report v1

Author: **Dr. Juha Korhonen**
ETSI Mobile Competence Centre (MCC)
Tel. +33 (0)4 92 94 42 00
email: Juha.Korhonen@etsi.org

APPENDIX 22a

TDoc	Title	Source	Contact	Contact ID
R2-1712100	Agenda for RAN2#100	Chairman	Richard Burbidge	14160
R2-1712101	RAN2#99bis Meeting Report	MCC	Juha Korhonen	21609
R2-1712102	FURTHER INFORMATION RELATED TO DRAFT NEW REPORT FOR IMT-2020 EVALUATION	ITU-R WP 5D	Sergio Buonomo	56608
R2-1712103	Reply LS on CN node selection for LTE features when E-UTRA is connected to 5G CN (C1-174593; contact: Qualcomm)	CT1	Lena Chaponniere	38080
R2-1712104	Reply LS on Early Data Transmission (C1-174595; contact: Qualcomm)	CT1	Amer Catovic	39766
R2-1712105	LS on requirements on unified access control for 5GS (C1-174626; contact: LGE)	CT1	Jaehyun Kim	44912
R2-1712106	Reply LS on Restricted Use of Enhanced Coverage (C1-174627; contact: Nokia)	CT1	Jennifer Liu	43418
R2-1712107	Reply LS on the number of bearers (C1-174658; contact: Samsung)	CT1	Lalith Kumar	60520
R2-1712108	Response LS to RAN2 on jumbo frames (S3-172515; contact: Ericsson)	SA3	Vesa Torvinen	28179
R2-1712109	Reply LS on Reply LS on 5GS Security aspects seeking resolution (S3-172517; contact: Ericsson)	SA3	Prajwol Kumar Nakarmi	64718
R2-1712110	LS on 2Gbps category (R1-1719084; contact: Qualcomm)	RAN1	Alberto Rico Alvarino	63913
R2-1712111	LS on MBSFN subframe configuration in handover signalling for eMTC (R1-1719091; contact: Qualcomm)	RAN1	Alberto Rico Alvarino	63913
R2-1712112	LS on Comb 2 SRS enhancements for BL/CE UEs (R1-1719093; contact: Qualcomm)	RAN1	Alberto Rico Alvarino	63913
R2-1712113	LS on Supportable RNTI Length on DCI (R1-1719094; contact: Ericsson)	RAN1	Yufei Blankenship	59257
R2-1712114	LS on agreements on early data transmission during random access procedure for NB-IoT and BL/CE UEs in Rel-15 (R1-1719103; contact: HiSilicon)	RAN1	Xiaolei Tie	46311
R2-1712115	LS to RAN2 on carrier selection rules for Rel-15 V2X (R1-1719151; contact: Huawei)	RAN1	Yi Shi	60150
R2-1712116	LS reply on SPS for short TTI (R1-1719154; contact: Huawei)	RAN1	Yubo Yang	61945
R2-1712117	LS to RAN4 on resource selection for Mode-4 sidelink CA (R1-1719159; contact: Intel)	RAN1	Alexey Khoryaev	46112
R2-1712118	LS on NR Paging Mechanisms (R1-1719164; contact: Huawei)	RAN1	Huang Huang	71783
R2-1712119	LS on higher layer signalling for special subframe configuration 10 (R1-1719204; contact: CMCC)	RAN1	Xueying Hou	58561
R2-1712120	LS on updates to TS36.300 for short TTI and short processing time (R1-1719205; contact: Ericsson)	RAN1	Laetitia Falconetti	63379
R2-1712121	LS on agreements on UL HARQ-ACK feedback in Rel-15 LTE efeMTC (R1-1719206; contact: ZTE)	RAN1	Huiying Fang	45290
R2-1712122	LS on wake-up signal configuration and procedures for NB-IoT and BL/CE UEs in Rel-15 (R1-1719207; contact: HiSilicon)	RAN1	Xiaolei Tie	46311
R2-1712123	LS on RAN1 observation on RSRP statistics for aerial vehicles (R1-1719052; contact: NTT DOCOMO)	RAN1	Shinpei Yasukawa	57935
R2-1712124	LS on Ultra Reliable Low Latency Communication for LTE (R1-1719210; contact: Ericsson)	RAN1	Laetitia Falconetti	63379
R2-1712125	Response LS on simultaneous transmission and/or reception over EPC/E-UTRAN and 5GC/NR (R1-1719211; contact: Intel)	RAN1	Hong He	47006
R2-1712126	Reply LS on RACH agreements (R1-1719214; contact: CATT)	RAN1	Ren Da	70182
R2-1712127	LS on HCS (R1-1719217; contact: Huawei)	RAN1	Yubo Yang	61945
R2-1712128	LS on system information broadcast for CU/DU split scenario (R3-174199; contact: CATT)	RAN3	Aijuan Liu	43714
R2-1712129	LS on Centralized Retransmission Solution (R3-174219; contact: Ericsson)	RAN3	Angelo Centonza	35887

R2-1712130	LS on length of NR Cell Identity (R3-174229; contact: Nokia)	RAN3	Sean Kelley	70295
R2-1712131	Reply LS on UE/RAN Radio Information and Compatibility Request (R3-174231; contact: Nokia)	RAN3	Philippe Godin	68843
R2-1712132	LS on MN-initiated SN change for delta signalling (R3-174233; contact: Nokia)	RAN3	Krzysztof Kordybach	68359
R2-1712133	LS on handling concurrent running of security procedures (S3-172565; contact: Ericsson)	SA3	Prajwol Kumar Nakarmi	64718
R2-1712134	LS reply on Support for fake gNB detection mechanisms (R4-1711318; contact: Ericsson)	RAN4	Muhammad Kazmi	31117
R2-1712135	Reply to Reply LS on LTE call redirection to GERAN (S3c0011; contact: Nokia)	SA3	Suresh Nair	70166
R2-1712136	LS on single Tx switched UL (R4-1711610; contact: Apple)	RAN4	Dawei Zhang	40303
R2-1712137	LS on mmWave UE NC CA capability signalling (R4-1711623; contact: Qualcomm)	RAN4	Ville Vintola	44963
R2-1712138	Reply LS on UE capability signalling for sTTI configurations (R4-1711726; contact: Ericsson)	RAN4	Maomao Chen	46060
R2-1712139	LS to RAN5 cc RAN1 and RAN2 on UE beamlock function (R4-1711823; contact: Keysight)	RAN4	Moray Rumney	6630
R2-1712140	LS reply to subcarrier alignment (R4-1711859; contact: Huawei)	RAN4	Xiang (Steven) Chen	41576
R2-1712141	LS reply on NR UE baseband capabilities signalling (R4-1711888; contact: Intel)	RAN4	Andrey Chervyakov	47232
R2-1712142	Reply LS on measurement accuracy improvement (R4-1711893; contact: Huawei)	RAN4	Qiming Li	61879
R2-1712143	LS on gaps for SS block measurement in NR (R4-1711940; contact: Ericsson)	RAN4	Christopher Callender	58614
R2-1712144	LS to RAN1 and RAN2 on Definition of synchronous and asynchronous Dual connectivity in Rel-15 LTE-NR combinations (R4-1711965; contact: Ericsson)	RAN4	Rahman Imadur	57720
R2-1712145	LS on PRB grid in the NR (R4-1711972; contact: Nokia)	RAN4	Hisashi Onozawa	70298
R2-1712146	LS on no dedicated bearer support over NB-IoT (S2-176723; contact: MediaTek)	SA2	Guillaume Sebire	45073
R2-1712147	Reply LS on MBMS bearer event notification (S2-177582; contact: Ericsson)	SA2	Shabnam Sultana	21207
R2-1712148	LS on FS_REAR SI conclusion (S2-177943; contact: Huawei)	SA2	Dario Serafino Tonesi	43468
R2-1712149	LS on default values for 5GS QoS averaging window for standardised 5QIs (S2-178049; contact: Qualcomm)	SA2	Haris Zisimopoulos	57197
R2-1712150	Reply LS on SDAP header design (S2-178056; contact: MediaTek)	SA2	Guillaume Sebire	45073
R2-1712151	Reply LS to RAN 2 on QCIs for EPC based ULLC (S2-178150; contact: Vodafone)	SA2	Chris Pudney	1122
R2-1712152	Reply LS on Certification/License and Identification of Aerial Vehicles (S2-178175; contact: Ericsson)	SA2	Shabnam Sultana	21207
R2-1712153	Data support for "voice centric" UE supporting CE mode B (S2-178179; contact: Intel)	SA2	Puneet Jain	36283
R2-1712154	Reply LS on Early Data Transmission (S2-178180; contact: Qualcomm)	SA2	Haris Zisimopoulos	57197
R2-1712155	LS on the support of Unicast and Groupcast transmission over PC5 for eV2X (S2-178181; contact: LGE)	SA2	Laeyoung Kim	40613
R2-1712156	Reply LS on algorithm selection in E-UTRA-NR Dual Connectivity (S2-178182; contact: Qualcomm)	SA2	Haris Zisimopoulos	57197
R2-1712157	Reply LS on NR Edge Computing (S2-178185; contact: Nokia)	SA2	Laurent Thiebaut	68713
R2-1712158	Reply LS on unified Access Control for 5G NR (S2-178191; contact: LGE)	SA2	Sang Min Park	62105
R2-1712159	LS on adding new service type in QMC reporting (S4-170952; contact: Ericsson)	SA4	Gunnar Heikkilä	31393
R2-1712160	LS answer to LS on EUTRAN sharing enhancement (S5-175461; contact: Ericsson)	SA5	Robert Petersen	14104

R2-1712161	Reply LS to LS on supported features by 5GC for E-UTRA connected to 5G CN (S5-175495; contact: Nokia)	SA5	Maryse Gardella	68914
R2-1712162	On default DRB, default QoS flow and profile	Samsung	Alexander Sayenko	47308
R2-1712163	Further considerations on the number of DRBs and PDU sessions for NR	Samsung	Alexander Sayenko	47308
R2-1712164	Text proposal for the SDAP entity establishment and release	Samsung	Alexander Sayenko	47308
R2-1712165	Text proposal on the number of SDAP entities	Samsung	Alexander Sayenko	47308
R2-1712166	Further considerations on the QoS header format	Samsung	Alexander Sayenko	47308
R2-1712167	Further considerations on a common AS/NAS reflective QoS indicator	Samsung	Alexander Sayenko	47308
R2-1712168	Clarification for the MR-DC QoS framework	Samsung	Alexander Sayenko	47308
R2-1712169	Further discussion on merging NR RRC messages	Samsung	Alexander Sayenko	47308
R2-1712170	Further considerations on radio network identities for NR	Samsung	Alexander Sayenko	47308
R2-1712171	Further considerations on the CN selection for E-UTRAN connected to 5G CN	Samsung	Alexander Sayenko	47308
R2-1712172	CN type indication for E-UTRAN connected to 5G CN	Samsung	Alexander Sayenko	47308
R2-1712173	Issues with RQI setting for AS updating	TCL, vivo, CATT	Xin Xia	71232
R2-1712174	QFI Presence for AS Level Reflective QoS	TCL, CATT	Xin Xia	71232
R2-1712175	Ping Pong Issues for Conditional Handover	TCL	Xin Xia	71232
R2-1712176	QoS Flow based Access Control for CONNECTED Mode in NR	TCL	Xin Xia	71232
R2-1712177	Clarification on RQI bits	TCL	Xin Xia	71232
R2-1712178	Carrier selection in CA-based eV2x	OPPO	Qianxi Lu	71851
R2-1712179	Packet duplication in CA-based eV2x	OPPO	Qianxi Lu	71851
R2-1712180	Resource pool sharing in eV2x	OPPO	Qianxi Lu	71851
R2-1712181	Resource selection for sTTI in eV2x	OPPO	Qianxi Lu	71851
R2-1712182	Latency reduction in eV2x	OPPO	Qianxi Lu	71851
R2-1712183	Discussion on Carrier Set Configuration for PC5 CA	OPPO	Qianxi Lu	71851
R2-1712184	Discussion on target scenarios for 1PRB bandwdith limited UE	OPPO	Qianxi Lu	71851
R2-1712185	Discussion on path switch options	OPPO	Qianxi Lu	71851
R2-1712186	Left issue for split bearer	OPPO	Qianxi Lu	71851
R2-1712187	PDCP handling for UL path switch	OPPO	Qianxi Lu	71851
R2-1712188	Discussion on LTE PDCP receive operation	OPPO	Qianxi Lu	71851
R2-1712189	Discussion on SPS configuration	OPPO	Qianxi Lu	71851
R2-1712190	Discussion on UL duplication control	OPPO	Qianxi Lu	71851
R2-1712191	Discussion on use case of UL duplication	OPPO	Qianxi Lu	71851
R2-1712192	CR on SIB21 reading	OPPO, Qualcomm Incorporated	Qianxi Lu	71851
R2-1712193	Further considerations on RAN paging area for NR	Samsung	Alexander Sayenko	47308
R2-1712194	RRC procedures for the RAN paging area	Samsung	Alexander Sayenko	47308
R2-1712195	Further considerations on the CN and RAN paging	Samsung	Alexander Sayenko	47308
R2-1712196	Inter-RAT mobility in the RRC INACTIVE state	Samsung	Alexander Sayenko	47308

R2-1712197	Text proposal for UE inter-RAT re-selection in INACTIVE	Samsung, Nokia, Nokia Shanghai Bell	Alexander Sayenko	47308
R2-1712198	Further considerations on extended number of dedicated radio bearers for E-UTRAN	Samsung, Telstra, T-Mobile USA	Alexander Sayenko	47308
R2-1712199	Stopping contention resolution timer based on retransmission scheduling	LG Electronics Inc.	Jeonggu Lee	70359
R2-1712200	SDAP PDU format	OPPO	Shi Cong	69644
R2-1712201	DRX operation for cross slot PDCCH monitoring	OPPO	Shi Cong	69644
R2-1712202	MAC SDU discard procedure	OPPO	Shi Cong	69644
R2-1712203	The first x bits of CCCH SDU transmitted in Msg3	OPPO	Shi Cong	69644
R2-1712204	The start condition of the UL HARQ RTT timer	OPPO	Shi Cong	69644
R2-1712205	Stopping contention resolution timer based on retransmission scheduling	LG Electronics Inc.	Jeonggu Lee	70359
R2-1712206	Presence of UL SDAP header on default DRB	ASUSTeK	Lider Pan	56728
R2-1712207	Discussion on changing presence of SDAP header	ASUSTeK	Lider Pan	56728
R2-1712208	State transition from RRC_CONNECTED to RRC_INACTIVE	ASUSTeK	Lider Pan	56728
R2-1712209	UE actions upon cell reselection in RRC_INACTIVE	ASUSTeK	Lider Pan	56728
R2-1712210	PDCP duplication and SCell (de-)activation	ASUSTeK	Lider Pan	56728
R2-1712211	Discussion on Timing Advance in NR	ASUSTeK	Lider Pan	56728
R2-1712212	Details of BWP inactivity timer	ASUSTeK	Lider Pan	56728
R2-1712213	Discussion on beam recovery request in NR	ASUSTeK	Lider Pan	56728
R2-1712214	Discussion on On-demand system information request in NR	ASUSTeK	Lider Pan	56728
R2-1712215	Discussion on the relative priority order of NR LCP	ASUSTeK	Lider Pan	56728
R2-1712216	Discussion on HARQ configuration	OPPO	Qianxi Lu	71851
R2-1712217	Clarification on NAS and AS Function Division for CN Type Selection	OPPO	Lei Yixue	73172
R2-1712218	Preventing Legacy UE and 5GC UE from Camping on 5GC-only and EPC-only eLTE Cells	OPPO	Lei Yixue	73172
R2-1712219	Corrections to TP in RRC(Connection)Reconfiguration	OPPO	Lei Yixue	73172
R2-1712220	Discussion on Access Control for eLTE	OPPO	Lei Yixue	73172
R2-1712221	Discussion on Access Control for On-demand SI Request	OPPO	Lei Yixue	73172
R2-1712222	Discussion on EPC and 5GC Selection During for Intra-LTE Handover with CN Type Change	OPPO	Lei Yixue	73172
R2-1712223	Discussion on Radio Bearer and Lower Layers Configuration in eLTE	OPPO	Lei Yixue	73172
R2-1712224	Discussion on RRC Layer Enhancement for NR Access Control	OPPO	Lei Yixue	73172
R2-1712225	Discussion on CellBarred Info in NR MIB and SIB1	OPPO, Coolpad	Lei Yixue	73172
R2-1712226	Working Assumption Confirmation and Propose TP to TS 38.300 on Network Slicing	OPPO, Coolpad	Lei Yixue	73172
R2-1712227	Discussion on NR SI Modification	OPPO	Lei Yixue	73172
R2-1712228	Discussion on Remaining Issues of On-Demand SI	OPPO	Lei Yixue	73172
R2-1712229	Initial considerations on Content of Other SI for NR	OPPO	Lei Yixue	73172
R2-1712230	Consideration on NR SI Scheduling	OPPO	Lei Yixue	73172
R2-1712231	DRX enhancement using HARQ feedback	LG Electronics Inc.	Jeonggu Lee	70359
R2-1712232	DRX enhancement using HARQ feedback	LG Electronics Inc.	Jeonggu Lee	70359
R2-1712233	RA enhancement using HARQ feedback	LG Electronics Inc.	Jeonggu Lee	70359
R2-1712234	Further Consideration of NB-IoT Small Cell Support	Telekom R&D Sdn Bhd	Chun-Yeow Yeoh	65963
R2-1712235	UE capability for support of SRS enhancements without support of comb 4	Qualcomm Incorporated, Ericsson	Umesh Phuyal	71775
R2-1712236	UE capability for support of SRS enhancements without support of comb 4	Qualcomm Incorporated, Ericsson	Umesh Phuyal	71775
R2-1712237	Discussion on Left Issues for RRC State Transitions	OPPO	Yang Ning	62986
R2-1712238	Discussion on Detailed Issues for RLM	OPPO	Yang Ning	62986
R2-1712239	Discussion on Remaining Issues for EN-DC RRM	OPPO	Yang Ning	62986

R2-1712240	Discussion on Remaining Issues for RRM Configuration	OPPO	Yang Ning	62986
R2-1712241	Discussion on Remaining Issues for RRM Reporting	OPPO	Yang Ning	62986
R2-1712242	Measurement Gap Coordination in EN-DC	OPPO	Yang Ning	62986
R2-1712243	NR Measurement Gap Configurations	OPPO	Yang Ning	62986
R2-1712244	Area ID and details on value tag message structure for NR	Gemalto N.V.	Volker Breuer	61062
R2-1712245	Summary of email discussion [99bis#29][LTE/UDC] Operator controlled dictionary issue [MTK]	MediaTek Inc.	Randy Liu	74551
R2-1712246	The power headroom report MAC CE	OPPO	Shi Cong	69644
R2-1712247	Discussion on RACH issue and UE capability for SUL operation	OPPO	Yang Ning	62986
R2-1712248	Discussion on the data available for BSR calculation due to DRB IP	OPPO	Yang Ning	62986
R2-1712249	Discussion on the data recovery due to DRB IP failure	OPPO	Yang Ning	62986
R2-1712250	Discussion on configuration and mobility about BWP operation	OPPO	Yang Ning	62986
R2-1712251	Discussion on SCG RRC reconfiguration failure on SRB3	OPPO	Yang Ning	62986
R2-1712252	Discussion on Assistance Information for RAN-based Notification Area Decision	OPPO	Yang Ning	62986
R2-1712253	Discussion on cell reselection priority for INACTIVE UE	OPPO	Yang Ning	62986
R2-1712254	Discussion on Cached Data Handling for INACTIVE UE	OPPO	Yang Ning	62986
R2-1712255	Fast SCell activation for enhanced CA utilization	Qualcomm, AT&T, Verizon	Veera Prasada Kadiri	72325
R2-1712256	Fast SCell Configuration through Quick SCell Measurement Reporting	Qualcomm Inc	Veera Prasada Kadiri	72325
R2-1712257	Signalling Optimization for SCell Configuration and Handover	Qualcomm Inc	Veera Prasada Kadiri	72325
R2-1712258	Draft LS on usage of L1 Signaling and timeline for SCell State transition	Qualcomm Inc	Veera Prasada Kadiri	72325
R2-1712259	Mobility enhancements for NR NSA	Samsung	Alexander Sayenko	47308
R2-1712260	Mobility enhancements for NR SA	Samsung	Alexander Sayenko	47308
R2-1712261	Draft LS on AS Security Aspects of LTE connectivity to 5G-CN	Qualcomm Inc	Veera Prasada Kadiri	72325
R2-1712262	Access Stratum Security aspects of E-UTRAN connected to 5GCN	Qualcomm Inc	Veera Prasada Kadiri	72325
R2-1712263	SRB1 PDCP version change for UEs connecting to 5GCN through E-UTRAN	Qualcomm Inc	Veera Prasada Kadiri	72325
R2-1712264	Preventing Legacy LTE UEs from camping on eLTE Cells & PLMNs connected to New 5G Core Network only	Qualcomm Inc	Veera Prasada Kadiri	72325
R2-1712265	RRC INACTIVE State aspects for E-UTRAN connected to 5GCN	Qualcomm Inc	Veera Prasada Kadiri	72325
R2-1712266	Draft TS 38.300 v120	Rapporteur (Nokia)	Benoist SEBIRE	68461
R2-1712267	SR configuration reuse under LCH release	Spreadtrum Communications	Arto Lehti	61519
R2-1712268	Timer mechanism for 5G unified access cotnrol	Spreadtrum Communications	Arto Lehti	61519
R2-1712269	Barring information encoding for 5G unified access cotnrol	Spreadtrum Communications	Arto Lehti	61519
R2-1712270	Considerations for measurement GAP for NR in EN DC	Spreadtrum Communications	Arto Lehti	61519
R2-1712271	BWP Switch Impact on MN/SN procedures	Spreadtrum Communications	Arto Lehti	61519
R2-1712272	Text Proposal for Stage 2 on SN initiated SN Modification in TS37.340	Spreadtrum Communications	Arto Lehti	61519
R2-1712273	Measurement requirement issue due to different DRX configurations	Spreadtrum Communications	Arto Lehti	61519
R2-1712274	Sliding measurement GAP	Spreadtrum Communications	Arto Lehti	61519

R2-1712275	Delta signaling of BWP	Spreadtrum Communications	Arto Lehti	61519
R2-1712276	Discussions on the IS and OOS counting procedure	Spreadtrum Communications	Arto Lehti	61519
R2-1712277	Discussion on initial access for SUL	ZTE Corporation,Sanechips	Zhongda Du	38890
R2-1712278	Discussion on configuration of uplink channels for SUL carrier	ZTE Corporation,Sanechips	Zhongda Du	38890
R2-1712279	Discussion on RACH procedure for SUL	ZTE Corporation,Sanechips	Zhongda Du	38890
R2-1712280	Discussion on UP issues for SUL	ZTE Corporation, Sanechips	Zhongda Du	38890
R2-1712281	Discussion on single TX transmission and solution	ZTE Corporation, Sanechips	Zhongda Du	38890
R2-1712282	Discussion on UE capability signaling for 1TX transmission	ZTE Corporation,Sanechips	Zhongda Du	38890
R2-1712283	Further Consideration of NB-IoT Small Cell Support	Telekom R&D Sdn Bhd	Chun-Yeow Yeoh	65963
R2-1712284	Outstanding issues with SR design for NR and TP for TS 38.321	Samsung R&D Institute UK	Milos Tesanovic	66723
R2-1712285	How to Handle the Case Only Some PLMNs Have Access to 5GC?	OPPO	Lei Yixue	73172
R2-1712286	Discussion on ANR Functionality for eLTE	OPPO	Lei Yixue	73172
R2-1712287	Correction on NR-PBCH Definition for TS 38.331	OPPO	Lei Yixue	73172
R2-1712288	Define requirement for reception of number of simultaneous SC-PTM services	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712289	Define requirement for reception of number of simultaneous SC-PTM services	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712290	Target cell optional PBCH repetition status indication	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712291	Clarification early contention resolution not supported in NB-IoT	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712292	MBSFN subframes for target cell during handover to CE cell	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712293	MBSFN subframes for target cell during handover to CE cell	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712294	[DRAFT] Reply LS on Issue with handovers in eMTC	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712295	Email discussion report: [99bis#36][NB-IoT] RRC release enhancements	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712296	Further input on RRC Connection Release via PDCCH DCI	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712297	Wakup signal considerations	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1712298	Reply LS on details of network identifiers (C4-175291; contact: Qualcomm)	CT4	Lena Chaponniere	38080
R2-1712299	Reply LS on the number of bearers (C4-175345; contact: Nokia)	CT4	Bruno Landais	68755
R2-1712300	Reply LS on algorithm selection in E-UTRA-NR Dual Connectivity (C4-175349; contact: Ericsson)	CT4	Yong Yang	42295
R2-1712301	TS 37.340v120	Rapporteur (ZTE Corporation)	Sergio Parolari	26217
R2-1712302	Draft TS 37.340v121	Rapporteur (ZTE Corporation)	Sergio Parolari	26217
R2-1712303	List of FFSs for MR-DC with 5GC	Rapporteur (ZTE Corporation)	Sergio Parolari	26217
R2-1712304	Draft 37.340CR to introduce NR-NR DC	Rapporteur (ZTE Corporation)	Sergio Parolari	26217
R2-1712305	RAN WG's progress on NR WI in the October meeting 2017	NTT DOCOMO, INC. (Rapporteur)	Hideaki Takahashi	60906

R2-1712306	RRC Reestablishment problem for UAV	KDDI Corporation	Hiroki Takeda	58815
R2-1712307	On demand system information	SHARP Corporation	fangying xiao	59314
R2-1712308	Interaction between PDCP and RLC Entities for duplication in NR-NR DC	TCL	Xin Xia	71232
R2-1712309	TP for inter-node message	HTC Corporation	Frank Wu	65148
R2-1712310	SN change/addition during handover	HTC Corporation	Frank Wu	65148
R2-1712311	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Umesh Phuyal	71775
R2-1712312	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Umesh Phuyal	71775
R2-1712313	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Umesh Phuyal	71775
R2-1712314	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Umesh Phuyal	71775
R2-1712315	Fall-back mode from early data transmission	III	Yi-Ting Lin	43482
R2-1712316	Uses of different BSR formats	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712317	BSR enhancement for SDAP	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712318	Remaining issues for DRX	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712319	Enhancement of DRX	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712320	Clarification on RLC STATUS PDU construction	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712321	Impacts of RLC Pre-processing to BSR	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712322	BWP issues for EN-DC completion	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712323	BWP issues for non EN-DC	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712324	Stage-2 TP for cell definition	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712325	Discussion on the handling 2 for UM DRB and SRB	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712326	Remaining issues for BWP	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712327	Correction on SRS switching capabilities field description	Qualcomm Incorporated	Umesh Phuyal	71775
R2-1712328	Updated RLC SDU discard procedure due to MAC layer discard procedure	OPPO	Shi Cong	69644
R2-1712329	Remaining issues for quick release of RRC connection in FeNB-IoT	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712330	Consideration on SPS for SC-PTM in FeNB-IoT	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712331	Consideration on SR and PHR transmission enhancement in FeNB-IoT	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712332	Consideration on further UE power consumption reduction in FeNB-IoT	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712333	Consideration on supporting lower UE power class in eFeMTC	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712334	Further consideration on wake-up signal	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712335	Further consideration on access control in eFeMTC	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712336	Further consideration on Uplink HARQ-ACK feedback in eFeMTC	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712337	Remaining issues for system acquisition time reduction in eFeMTC	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712338	Cell quality derivation for idle/inactive UEs	Ericsson	Janne Peisa	33372
R2-1712339	Response-driven paging to reduce beam sweeping overhead in NR	Ericsson	Janne Peisa	33372
R2-1712340	Cell reselection measurement rules	Ericsson	Janne Peisa	33372
R2-1712341	Mobility states and state based scaling	Ericsson	Janne Peisa	33372
R2-1712342	Considering the number of good beams for cell reselection	Ericsson	Janne Peisa	33372
R2-1712343	Cell selection and reselection criteria and measurement configuration	Ericsson	Janne Peisa	33372
R2-1712344	Cell Reselection in RRC_INACTIVE State	Ericsson	Janne Peisa	33372
R2-1712345	Cell-specific prioritisation at reselection	Ericsson	Janne Peisa	33372

R2-1712346	Additional SIB in EUTRAN for supporting NR SA deployments	Ericsson	Janne Peisa	33372
R2-1712347	Report of email discussion [99bis#23]: MAC text proposal on beam selection	Ericsson	Janne Peisa	33372
R2-1712348	Report of email discussion 99bis#45 LTE UL CA IDC problems	Nokia, Nokia Shanghai Bell	Malgorzata Tomala	68485
R2-1712349	MIMO spatial multiplexing continuity	Nokia, Nokia Shanghai Bell	Malgorzata Tomala	68485
R2-1712350	Slice assistance information over RRC	Nokia, Nokia Shanghai Bell	Malgorzata Tomala	68485
R2-1712351	Access attempt categorization and barring check	Nokia, Nokia Shanghai Bell	Malgorzata Tomala	68485
R2-1712352	Access Control applicability to different RRC states	Nokia, Nokia Shanghai Bell	Malgorzata Tomala	68485
R2-1712353	Congestion Control for RRC_CONNECTED	Nokia, Nokia Shanghai Bell	Malgorzata Tomala	68485
R2-1712354	Access Barring Control for RRC_INACTIVE	Nokia, Nokia Shanghai Bell	Malgorzata Tomala	68485
R2-1712355	Draft TS 38.300 v121	Rapporteur (Nokia)	Benoist SEBIRE	68461
R2-1712356	NR Stage 2 Clean Up	Rapporteur (Nokia)	Benoist SEBIRE	68461
R2-1712357	NR Stage 2 Open Issues	Rapporteur (Nokia)	Benoist SEBIRE	68461
R2-1712358	Notification Control for GBR QoS Flows	Nokia, Nokia Shanghai Bell	Benoist SEBIRE	68461
R2-1712359	QoS Update	Rapporteur (Nokia)	Benoist SEBIRE	68461
R2-1712360	BWP Description	Rapporteur (Nokia), Huawei	Benoist SEBIRE	68461
R2-1712361	New QoS flow on the Default Bearer	Nokia, Mediatek, Nokia Shanghai Bell	Benoist SEBIRE	68461
R2-1712362	Reflective QoS Control	Nokia, Nokia Shanghai Bell	Benoist SEBIRE	68461
R2-1712363	QoS Flow Remapping	Nokia, Nokia Shanghai Bell	Benoist SEBIRE	68461
R2-1712364	Default QoS Profile	Nokia, Nokia Shanghai Bell	Benoist SEBIRE	68461
R2-1712365	LCP design for NR – focus on calculation and updating of Bj values in NR – and TP for TS 38.321	Samsung R&D Institute UK	Milos Tesanovic	66723
R2-1712366	Measurement capability and measurement gap handling in EN-DC	Qualcomm Incorporated	Masato Kitazoe	29801
R2-1712367	IDC indication for EN-DC	Qualcomm Incorporated, NTT DOCOMO, INC.	Masato Kitazoe	29801
R2-1712368	IDC indication for EN-DC	Qualcomm Incorporated, NTT DOCOMO, INC.	Masato Kitazoe	29801
R2-1712369	UE capability structure of NR and MR-DC	Qualcomm Incorporated	Masato Kitazoe	29801
R2-1712370	LTE-NR coordination for RF coexistence	Qualcomm Incorporated	Masato Kitazoe	29801
R2-1712371	RB Alignment in NR	Qualcomm Incorporated	Masato Kitazoe	29801
R2-1712372	Synchronization Raster and Frequency Location Signalling in NR	Qualcomm Incorporated	Masato Kitazoe	29801
R2-1712373	SUL impact on random access	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759
R2-1712374	SUL impact on LCP	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759
R2-1712375	SUL impact on PHR	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759
R2-1712376	SUL impact on TA	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759
R2-1712377	Consideration on reflective QoS of SDAP	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759

R2-1712378	QoS Flow Remapping	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759
R2-1712379	Multiple preamble transmission for contention free RACH	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759
R2-1712380	Providing more information relating to MT data in Paging	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759
R2-1712381	Categorized Events for Differentiation of backoff and power ramping parameter	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759
R2-1712382	Support of measurement gaps for location related inter-RAT measurements	Ericsson	Ritesh Shreevastav	69655
R2-1712383	Dedicated RNTI(s) for response-driven paging	Ericsson	Janne Peisa	33372
R2-1712384	Response beam aggregation for response-driven paging	Ericsson	Janne Peisa	33372
R2-1712385	Supporting Dual Registration in Access Stratum	Lenovo, Motorola Mobility	Prateek Basu Mallick	70323
R2-1712386	Further Discussion on Slice Selection Information over RRC	Huawei, HiSilicon	Feng Han	72237
R2-1712387	Slice-based Unified Access Control	Huawei, HiSilicon	Feng Han	72237
R2-1712388	Slice Availability for Cell Reselection	Huawei, HiSilicon	Feng Han	72237
R2-1712389	What is RAN part of a network slice ?	Huawei, HiSilicon	Feng Han	72237
R2-1712390	DRB Level Offloading in NR DC	Huawei, HiSilicon	Feng Han	72237
R2-1712391	Notification Control	Huawei, HiSilicon, CATT	Feng Han	72237
R2-1712392	Number of SDAP Entities for NR DC	Huawei, HiSilicon	Feng Han	72237
R2-1712393	Further Discussion on SDAP Header Format	Huawei, HiSilicon	Feng Han	72237
R2-1712394	SDAP (re)configuration	Huawei, HiSilicon	Feng Han	72237
R2-1712395	QoS Flow to DRB Re-Mapping	Huawei, HiSilicon	Feng Han	72237
R2-1712396	Lossless Handover of QoS Flow	Huawei, HiSilicon	Feng Han	72237
R2-1712397	QoS Flow Level Offloading in NR-DC	Huawei, HiSilicon	Feng Han	72237
R2-1712398	[DRAFT] Reply to LS on simultaneous transmission and/or reception over EPC/E-UTRAN and 5GC/NR	Lenovo, Motorola Mobility	Prateek Basu Mallick	70323
R2-1712399	Stage 2 text for UE overheating	Ericsson, Deutsche Telekom	Hakan Palm	18830
R2-1712400	Bandwidths in fallback band combinations	Ericsson	Hakan Palm	18830
R2-1712401	Supported bandwidths in Fallback band combination	Ericsson	Hakan Palm	18830
R2-1712402	Secured redirect to GERAN	Ericsson	Hakan Palm	18830
R2-1712403	[DRAFT] Reply LS on LTE call redirection to GERAN	Ericsson	Hakan Palm	18830
R2-1712404	Reject of unprotected redirect to GERAN	Ericsson	Hakan Palm	18830
R2-1712405	Demerits of using Slice information for Cell selection	Lenovo Mobile Com. Technology	Prateek Basu Mallick	70323
R2-1712406	Text proposal for 38.305 skeleton	Ericsson	Ritesh Shreevastav	69655
R2-1712407	UL resource configuration for the beam failure recovery	PANASONIC R&D Center Germany	Ming-hung Tao	71004
R2-1712408	TP for on-demand SI acquisition during HO	PANASONIC R&D Center Germany	Ming-hung Tao	71004
R2-1712409	Considerations for the SI index design	PANASONIC R&D Center Germany	Ming-hung Tao	71004
R2-1712410	Cell reselection based on slice availability	CATT	Zhe Chen	66576
R2-1712411	RRC connection re-establishment and resume procedures in NR	CATT	Zhe Chen	66576
R2-1712412	Open Issues on Connection Control Procedure	CATT	Zhe Chen	66576
R2-1712413	Consideration on the relation between access categories and establishment causes	CATT	Zhe Chen	66576
R2-1712414	Capturing of default configuration of SRB	CATT	Zhe Chen	66576
R2-1712415	Considerations on neighbor cell reporting on serving frequencies	CATT	Zhe Chen	66576
R2-1712416	Further considerations on events C1 and C2	CATT	Zhe Chen	66576
R2-1712417	Handling of Measurement Configured by SN upon SN/PSCell change	CATT	Zhe Chen	66576
R2-1712418	SI info transmission on f1 interface	CATT	Zhe Chen	66576
R2-1712419	Indexed SI in NR	CATT	Zhe Chen	66576
R2-1712420	SI Modification	CATT	Zhe Chen	66576
R2-1712421	Remaining issues of on-demand SI	CATT	Zhe Chen	66576
R2-1712422	Procedure of paging in inactive	CATT	Zhe Chen	66576
R2-1712423	RAN-based notification area update procedure	CATT	Zhe Chen	66576

R2-1712424	Security issues related to RRC resume procedure from inactive state	CATT	Zhe Chen	66576
R2-1712425	Inter-node RRC messages for dedicated configurations via F1	CATT	Zhe Chen	66576
R2-1712426	NR serving cell measurements	CATT	Zhe Chen	66576
R2-1712427	Service based cell reselection	CATT	Zhe Chen	66576
R2-1712428	Service types in Inactive Mode	CATT	Zhe Chen	66576
R2-1712429	Considerations on idle mode measurement	CATT	Zhe Chen	66576
R2-1712430	Use of two security keys in the same network node	Lenovo, Motorola Mobility	Prateek Basu Mallick	70323
R2-1712431	Consideration on the mapping between PHR reported value and the measured quantity	ZTE CORPORATION	River Huang	43874
R2-1712432	Consideration on the remaining issues for multi-Msg.1 transmission	ZTE CORPORATION	River Huang	43874
R2-1712433	Consideration on the UE autonomous BWP switch	ZTE CORPORATION	River Huang	43874
R2-1712434	Further consideration on the power ramping	ZTE CORPORATION	River Huang	43874
R2-1712435	Consideration on PDCP Duplication in NR	ZTE CORPORATION	River Huang	43874
R2-1712436	Consideration on SR Transmission in NR	ZTE CORPORATION	River Huang	43874
R2-1712437	Discussion on SDAP DATA PDU for reflective QoS	ZTE CORPORATION	River Huang	43874
R2-1712438	DRB integrity check failure handling	ZTE CORPORATION	River Huang	43874
R2-1712439	Measurement coordination for EN-DC	ZTE CORPORATION	River Huang	43874
R2-1712440	UE processing upon inter-MN handover with SN change	ZTE CORPORATION	River Huang	43874
R2-1712441	Consideration on the Coordination of SCell Index in EN-DC	ZTE CORPORATION	River Huang	43874
R2-1712442	Remaining issues on DRX	ZTE CORPORATION	River Huang	43874
R2-1712443	Remaining details of RACH procedure	ZTE CORPORATION	River Huang	43874
R2-1712444	Outstanding issues for sTTI	Ericsson	Cecilia Eklof	59618
R2-1712445	Summary of e-mail discussion on remaining open issues for sTTI	Ericsson	Cecilia Eklof	59618
R2-1712446	Remaining issues of sTTI and SPS	Ericsson	Cecilia Eklof	59618
R2-1712447	Remaining SR and BSR issues	Ericsson	Cecilia Eklof	59618
R2-1712448	Scheduling Requests with short TTI	Ericsson	Cecilia Eklof	59618
R2-1712449	Running CR for introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1712450	Running CR for introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1712451	Running CR for introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1712452	Running CR for introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1712453	Running CR for introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1712454	sPUCCH Utilization Strategy	Ericsson	Cecilia Eklof	59618
R2-1712455	Further MAC impacts of sTTI	Ericsson	Cecilia Eklof	59618
R2-1712456	Further MAC impacts of sTTI	Ericsson	Cecilia Eklof	59618
R2-1712457	Packet duplication in LTE	Ericsson	Cecilia Eklof	59618

R2-1712458	URLLC Techniques for Latency	Ericsson	Cecilia Eklof	59618
R2-1712459	Transport block repetition for reliability	Ericsson	Cecilia Eklof	59618
R2-1712460	Reliable HARQ feedback for UL SPS	Ericsson	Cecilia Eklof	59618
R2-1712461	Outstanding problem with QoE configuration	Ericsson	Cecilia Eklof	59618
R2-1712462	Improved handling of QoE configuration	Ericsson	Cecilia Eklof	59618
R2-1712463	Improved handling of QoE configuration	Ericsson	Cecilia Eklof	59618
R2-1712464	New service type in QMC reporting	Ericsson	Cecilia Eklof	59618
R2-1712465	Introduction of QoE Measurement Collection for MTSI services	Ericsson	Cecilia Eklof	59618
R2-1712466	Introduction of QoE Measurement Collection for MTSI services	Ericsson	Cecilia Eklof	59618
R2-1712467	Introduction of QoE Measurement Collection for MTSI services	Ericsson	Cecilia Eklof	59618
R2-1712468	TP for Usage of user plane integrity protection	Qualcomm Incorporated, Panasonic, Samsung, MediaTek Inc., Lenovo, Motorola Mobility	Keiichi Kubota	43471
R2-1712469	Handover Enhancements for UAVs	Fraunhofer HHI	Thomas Fehrenbach	65063
R2-1712470	Correction to actions related to InterFreqRSTDMeasurementIndication message	Qualcomm Incorporated	Sven Fischer	20628
R2-1712471	Text Proposal for Clause 1 to 3 of TS 38.305	Qualcomm Incorporated	Sven Fischer	20628
R2-1712472	BSR design to support pre-processing	MediaTek Inc.	Pavan Nuggehalli	60166
R2-1712473	Text Proposal for Clause 4 of TS 38.305	Qualcomm Incorporated	Sven Fischer	20628
R2-1712474	Text Proposal for Clause 5 of TS 38.305	Qualcomm Incorporated	Sven Fischer	20628
R2-1712475	Text Proposal for Clause 6 of TS 38.305	Qualcomm Incorporated	Sven Fischer	20628
R2-1712476	Text Proposal for Clause 7 of TS 38.305	Qualcomm Incorporated	Sven Fischer	20628
R2-1712477	Text Proposal for Clause 8 of TS 38.305	Qualcomm Incorporated	Sven Fischer	20628
R2-1712478	Draft TS 38.322 v110	MediaTek Inc.	Pavan Nuggehalli	60166
R2-1712479	PDCP data recovery for UL split bearer	MediaTek Inc.	Pavan Nuggehalli	60166
R2-1712480	NR PDCP enhancements to support LTE RLC	MediaTek Inc.	Pavan Nuggehalli	60166
R2-1712481	SDAP header design based on NAS 5G QoS requirements	MediaTek Inc.	Pavan Nuggehalli	60166
R2-1712482	In-order delivery during QoS flow relocation	MediaTek Inc.	Pavan Nuggehalli	60166
R2-1712483	System information structure and contents	Ericsson	Janne Peisa	33372
R2-1712484	SS Block index dependent system information	Ericsson	Janne Peisa	33372
R2-1712485	Stored System Information	Ericsson	Janne Peisa	33372
R2-1712486	Change of System information in NR	Ericsson	Janne Peisa	33372
R2-1712487	System Information Scheduling	Ericsson	Janne Peisa	33372
R2-1712488	Open issues on On-demand SI	Ericsson	Janne Peisa	33372
R2-1712489	SIBs needed for stand-alone NR deployments	Ericsson	Janne Peisa	33372
R2-1712490	Dedicated System Information	Ericsson	Janne Peisa	33372
R2-1712491	System information content at network sharing	Ericsson	Janne Peisa	33372
R2-1712492	Transmission time interval for NR-MIB and NR-SIB1	Ericsson	Janne Peisa	33372
R2-1712493	NR-SIB1 content for NSA and ANR	Ericsson	Janne Peisa	33372
R2-1712494	Defining reserved resources in NR-SIB1	Ericsson	Janne Peisa	33372
R2-1712495	Open issues on cell barring	Ericsson	Janne Peisa	33372
R2-1712496	On-demand SI reject procedure	Ericsson	Janne Peisa	33372
R2-1712497	Update of SI Area common SI	Ericsson	Janne Peisa	33372
R2-1712498	On-demand SI in RRC connected	Ericsson	Janne Peisa	33372

R2-1712499	Duration of on-demand SI broadcast	Ericsson	Janne Peisa	33372
R2-1712500	Remaining details of NR measurement report content and configuration	AT&T	Milap Majmundar	70953
R2-1712501	Remaining details of Inter-Node RRC messages for EN-DC	AT&T	Milap Majmundar	70953
R2-1712502	Remaining details of inter-RAT NR measurements	AT&T	Milap Majmundar	70953
R2-1712503	Support for intra-frequency dual connectivity in NR	AT&T	Milap Majmundar	70953
R2-1712504	Regarding LS from RAN3 on Centralized Retransmission Solution	AT&T	Milap Majmundar	70953
R2-1712505	UE capability indication of bearer split for EN-DC	AT&T	Milap Majmundar	70953
R2-1712506	Further discussion on information for handover	Huawei, HiSilicon	Jialin Zou	72263
R2-1712507	Further discussion on beam selection during handover	Huawei, HiSilicon	Jialin Zou	72263
R2-1712508	3 Types of HO in NR	Huawei, HiSilicon	Jialin Zou	72263
R2-1712509	Further discussion on Conditional HO	Huawei, HiSilicon	Jialin Zou	72263
R2-1712510	DC based NR scheme for 0ms interruption handover	Huawei, HiSilicon	Jialin Zou	72263
R2-1712511	Security key change without L2 reset	Huawei, HiSilicon	Jialin Zou	72263
R2-1712512	DC for intra-frequency mobility in NR	Huawei, HiSilicon	Jialin Zou	72263
R2-1712513	Mobility enhancements for PCell change	Huawei, HiSilicon	Jialin Zou	72263
R2-1712514	Potential Advantages of multi-connectivity with multiple MAC entities within an NR cell	Huawei, HiSilicon	Jialin Zou	72263
R2-1712515	Inter MN handover without SN change	Huawei, HiSilicon	Jialin Zou	72263
R2-1712516	Allocation of appropriate RACH resources for handover	Huawei, HiSilicon	Jialin Zou	72263
R2-1712517	Inter-RAT handover between LTE and NR	Huawei, HiSilicon	Jialin Zou	72263
R2-1712518	Message content in inter-RAT handover	Huawei, HiSilicon	Jialin Zou	72263
R2-1712519	On the need for Cx events	Huawei, HiSilicon	Jialin Zou	72263
R2-1712520	Paging in RRC_INACTIVE	Ericsson	Janne Peisa	33372
R2-1712521	TP on 38.300 for RNA Configuration	Ericsson	Janne Peisa	33372
R2-1712522	RAN Sharing and identifier aspects in NR	Ericsson	Janne Peisa	33372
R2-1712523	VoLTE enhancements in NR	Ericsson	Janne Peisa	33372
R2-1712524	Support for IMS Emergency calls in NR	Ericsson	Janne Peisa	33372
R2-1712525	DRX in idle state	Ericsson	Janne Peisa	33372
R2-1712526	Draft LS reply on maximum DRX value for NR in Rel-15	Ericsson	Janne Peisa	33372
R2-1712527	Configuration of paging transmissions in multi-beam operation	Ericsson	Janne Peisa	33372
R2-1712528	Camping in NR	Ericsson	Janne Peisa	33372
R2-1712529	CSG-like selection and camping limitations in NR	Ericsson	Janne Peisa	33372
R2-1712530	Signaling of access control parameters	Ericsson	Janne Peisa	33372
R2-1712531	Access control for NR	Ericsson	Janne Peisa	33372
R2-1712532	Access Control for RRC-initiated Access Attempts	Ericsson	Janne Peisa	33372
R2-1712533	Establishment causes for NR	Ericsson	Janne Peisa	33372
R2-1712534	[DRAFT] Reply LS on requirements on unified access control for 5GS	Ericsson	Janne Peisa	33372
R2-1712535	[DRAFT] LS on Establishment Causes in NR	Ericsson	Janne Peisa	33372
R2-1712536	Wait Timer in NR	Ericsson	Janne Peisa	33372
R2-1712537	Service-based RAT/frequency selection in INACTIVE or in IDLE	Ericsson	Janne Peisa	33372
R2-1712538	Procedures for enabling security per bearer	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712539	UE handling requirement for integrity on DRBs	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712540	Protocol impacts of positioning in NR	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712541	ASN.1 handling of SA specific fields in NSA	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712542	Extensibility in NR ASN.1	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712543	Definition of Paging Frame and Paging Occasion	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712544	Efficiency of direct and response-driven paging	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712545	Re-establishment upon integrity check failure	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712546	[DRAFT] LS to SA3 on re-establishment upon integrity check failure	Huawei	Nathan Tenny	63312
R2-1712547	Integrity protection and Counter Check Procedure for NRUP	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712548	Automatic Neighbour Relation in NR	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712549	Remaining issues on measurement configuration	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712550	ASN.1 structure for L3 filter configuration	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712551	Measurement gap configuration in NR	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712552	RLAU procedure and interaction with TAU	Huawei, HiSilicon	Nathan Tenny	63312

R2-1712553	Clarification that bearers are distinguished by LCID on PC5	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712554	Signalling for association of PC5 radio resources	Huawei, HiSilicon	Nathan Tenny	63312
R2-1712555	Introduction of the overheating indication	Huawei Device, Huawei, HiSilicon, IPCom, Nokia, Nokia Shanghai Bell	Nathan Tenny	63312
R2-1712556	Introduction of the temporary UE capability for overheating indication	Huawei Device, Huawei, HiSilicon, IPCom, Nokia, Nokia Shanghai Bell	Nathan Tenny	63312
R2-1712557	Introduction of the overheating indication	Huawei Device, Huawei, HiSilicon, IPCom	Nathan Tenny	63312
R2-1712558	Correction on SubframeBitmap Configuration in Band 47	Qualcomm Incorporated	Zhibin Wu	49530
R2-1712559	RLF for NR	Huawei, HiSilicon	David Lecompte	34967
R2-1712560	BWP impact on RRM measurement	Huawei, HiSilicon	David Lecompte	34967
R2-1712561	Need for new MAC CEs for UL and DL beam management	Huawei, HiSilicon	David Lecompte	34967
R2-1712562	Consideration on DRX with beam management	Huawei, HiSilicon	David Lecompte	34967
R2-1712563	Handling of resources for beam failure recovery	Huawei, HiSilicon	David Lecompte	34967
R2-1712564	Security of INACTIVE to CONNECTED state transition	Huawei, HiSilicon	David Lecompte	34967
R2-1712565	[DRAFT LS to SA3 on inactive to connected state transition	Huawei	David Lecompte	34967
R2-1712566	Remaining issues on State transition between RRC CONNECTED and INACTIVE	Huawei, HiSilicon	David Lecompte	34967
R2-1712567	Timer based state transmission from CONNECTED to inactive	Huawei, HiSilicon	David Lecompte	34967
R2-1712568	Remaining issue on Events and measurements for handover from NR to E-UTRA	Huawei, HiSilicon	David Lecompte	34967
R2-1712569	Definition of GAP assisted measurement in NR	Huawei, HiSilicon	David Lecompte	34967
R2-1712570	S-measure in LTE for EN-DC	Huawei, HiSilicon	David Lecompte	34967
R2-1712571	Speed dependent mobility for connected mode	Huawei, HiSilicon	David Lecompte	34967
R2-1712572	Discussion on CN location Update and RNA Update for inactive state	Huawei, HiSilicon	David Lecompte	34967
R2-1712573	Inter-RAT mobility for inactive UE	Huawei, HiSilicon	David Lecompte	34967
R2-1712574	RRC state transition from INACTIVE to IDLE	Huawei, HiSilicon	David Lecompte	34967
R2-1712575	Cell reselection for inactive UEs	Huawei, HiSilicon	David Lecompte	34967
R2-1712576	RAN-based notification area configuration	Huawei, HiSilicon	David Lecompte	34967
R2-1712577	Support of redistribution priority in NR	Huawei, HiSilicon	David Lecompte	34967
R2-1712578	L2 parameter content of RRCReconfiguration message	Huawei (Rapporteur)	David Lecompte	34967
R2-1712579	Harmonization of RRC Connection Control management procedures	Huawei, HiSilicon	David Lecompte	34967
R2-1712580	UE behaviour upon leaving RRC_CONNECTED state	Huawei, HiSilicon	David Lecompte	34967
R2-1712581	Cell quality adjustment	Huawei, HiSilicon	David Lecompte	34967
R2-1712582	RRC Establishment Cause	Huawei, HiSilicon	David Lecompte	34967
R2-1712583	Consideration on RRC connection establishment procedure	Huawei, HiSilicon	David Lecompte	34967
R2-1712584	[DRAFT] LS to RAN1 on MSG3 size	Huawei	David Lecompte	34967
R2-1712585	Discussion on the support of SCG SRB for intra-NR DC	Huawei, HiSilicon	David Lecompte	34967
R2-1712586	Email discussion report [99bis#60] Field trial results for aerial vehicles	Qualcomm Incorporated	Umesh Phuyal	71775
R2-1712587	Draft TS38.306v004	Intel Corporation	Kyeongin Jeong	72747
R2-1712588	Multi-PLMN aspects of E-UTRA cell connected to 5GC	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712589	Leftover issues for NW slicing	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712590	Establishment cause and call type for NR access control	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712591	Consideration on the access control in NR	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079

R2-1712592	Access category selection information provided by AS	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712593	[DRAFT] Reply LS on unified access control for 5GS	ZTE	Eswar Vutukuri	74079
R2-1712594	Calculation of paging occasion in NR	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712595	Paging occasion mechanism comparision	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712596	Overhead Reduction for Paging in Multi-beam Operation	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712597	Consideration on the UAC category	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712598	Remaining issues on NR-PBCH	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712599	Consideration on the Content of NR-RMSI	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712600	Consideration on the Stored other SI	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712601	Discussion on the RAN2 impacts with the BWP terminologies introduced in RAN1	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712602	Discussion on the configuration of measurement gap	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712603	Discussion on the support of MBB and RACH-less in NR	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712604	Targeting a Lossless handover with 0ms interruption	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712605	Discussion on single connected handover	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712606	Discussion on the introduction of SS-block specific events	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712607	Inter-RAT measurements for NR handover to EUTRAN	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712608	Discussion on QoS flow-DRB remapping	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712609	QoS remaining aspects for NR-NR DC	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712610	PDCP type change for eLTE	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712611	Data rate restrictions for user plane integrity protection	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712612	QoS flow to DRB mapping during HO for bearers using reflective QoS	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712613	Handling of EN-DC with suspend/resume	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712614	Consideration on RAN area configuration	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712615	Consideration on periodic RAN area update procedure	ZTE Corporation, Sane Chips	Eswar Vutukuri	74079
R2-1712616	Cell reselection for the UE on high-speed-dedicated network	Intel Corporation, CMCC	Youn hyoung Heo	47007
R2-1712617	Solution details on awareness of critical data	Intel Corporation	Youn hyoung Heo	47007
R2-1712618	Introduction of reporting of critical data stored in the UL buffer (R bit)	Intel Corporation	Youn hyoung Heo	47007
R2-1712619	Introduction of reporting of critical data stored in the UL buffer (BSR content)	Intel Corporation	Youn hyoung Heo	47007
R2-1712620	Introduction of reporting of critical data stored in the UL buffer	Intel Corporation	Youn hyoung Heo	47007
R2-1712621	Introduction of reporting of critical data stored in the UL buffer	Intel Corporation	Youn hyoung Heo	47007
R2-1712622	Clarifications on V2X SL communications	Intel Corporation	Youn hyoung Heo	47007
R2-1712623	HARQ aspects of AUL	Intel Corporation	Youn hyoung Heo	47007
R2-1712624	Other MAC aspects of AUL	Intel Corporation	Youn hyoung Heo	47007
R2-1712625	Limited RX chain UE considerations for CA over PC5	Intel Corporation	Youn hyoung Heo	47007

R2-1712626	Remaining aspects of TX Carrier Selection for CA over PC5	Intel Corporation	Youn hyoung Heo	47007
R2-1712627	Discussion on carrier reselection aspects for CA over sidelink	Intel Corporation	Youn hyoung Heo	47007
R2-1712628	Discussion on packet duplication for V2X CA	Intel Corporation	Youn hyoung Heo	47007
R2-1712629	Further considerations on packet duplication for CA based eV2X	Intel Corporation	Youn hyoung Heo	47007
R2-1712630	Resource pool sharing between mode 3 and mode 4	Intel Corporation	Youn hyoung Heo	47007
R2-1712631	Discussion on path switching option 2	Intel Corporation	Youn hyoung Heo	47007
R2-1712632	Clarification on srs-UpPtsAdd in SRS coverage enhancement	Intel Corporation	Youn hyoung Heo	47007
R2-1712633	Scheduling information of SIB1-BR when skipping MIB during HO	Intel Corporation	Youn hyoung Heo	47007
R2-1712634	Introducing a definition for the term UE in CE	Intel Corporation, Ericsson, Huawei, HiSilicon, LG	Youn hyoung Heo	47007
R2-1712635	Introducing a definition for the term UE in CE	Intel Corporation, Ericsson, Huawei, HiSilicon, LG	Youn hyoung Heo	47007
R2-1712636	Running CR for Early Data Transmission	Intel Corporation	Youn hyoung Heo	47007
R2-1712637	[DRAFT] Reply LS on Data support for "voice centric" UE supporting CE mode B	Intel Corporation	Youn hyoung Heo	47007
R2-1712638	Discussion on CE mode B restriction change in RRC connected mode	Intel Corporation	Youn hyoung Heo	47007
R2-1712639	Early data transmission discussion for eFeMTC and FeNB-IoT	Intel Corporation	Youn hyoung Heo	47007
R2-1712640	CE level based access barring and load control for eFeMTC	Intel Corporation	Youn hyoung Heo	47007
R2-1712641	Introduction of further enhancements to CoMP	Intel Corporation	Youn hyoung Heo	47007
R2-1712642	Introduction of further enhancements to CoMP	Intel Corporation	Youn hyoung Heo	47007
R2-1712643	Introduction of further enhancements to CoMP	Intel Corporation	Youn hyoung Heo	47007
R2-1712644	Introduction of Enhanced CRS and SU-MIMO Interference Mitigation Performance Requirements for LTE	Intel Corporation	Youn hyoung Heo	47007
R2-1712645	Introduction of Enhanced CRS and SU-MIMO Interference Mitigation Performance Requirements for LTE	Intel Corporation	Youn hyoung Heo	47007
R2-1712646	Overall impact in RAN2 for BWP	Intel Corporation	Sudeep Palat	63872
R2-1712647	s-Measure for NR-SS and CSI-RS in NR	Intel Corporation	Sudeep Palat	63872
R2-1712648	Remaining issues on measurement reporting for beam and cell	Intel Corporation	Sudeep Palat	63872
R2-1712649	[DRAFT] LS on minimum requirement on total number of beam measure in NR	Intel Corporation	Sudeep Palat	63872
R2-1712650	Measurement gap in NR	Intel Corporation	Sudeep Palat	63872
R2-1712651	Handover optimization in NR for Rel 15	Intel Corporation	Sudeep Palat	63872
R2-1712652	Random Access Procedural Aspects	Intel Corporation	Sudeep Palat	63872
R2-1712653	On choosing SSB for RACH resource selection	Intel Corporation	Sudeep Palat	63872
R2-1712654	Email discussion report on [99bis#24][NR] AC	Intel Corporation (rapporteur)	Sudeep Palat	63872
R2-1712655	[DRAFT] Reply LS on unified Access Control for 5G NR	Intel Corporation	Sudeep Palat	63872
R2-1712656	5G access control mechanism in IDLE and INACTIVE	Intel Corporation	Sudeep Palat	63872
R2-1712657	5G access control mechanism in CONNECTED	Intel Corporation	Sudeep Palat	63872
R2-1712658	Usage of NR PDCP for SRBs	Intel Corporation	Sudeep Palat	63872
R2-1712659	Further consideration on CN type indication and CN type selection	Intel Corporation	Sudeep Palat	63872

R2-1712660	Support of security for eLTE	Intel Corporation	Sudeep Palat	63872
R2-1712661	The impact on TS36.331 due to E-UTRA connected to 5GC	Intel Corporation	Sudeep Palat	63872
R2-1712662	Running 36.331 CR for E-UTRA connected to 5GC	Intel Corporation	Sudeep Palat	63872
R2-1712663	Support of positioning for E-UTRA connected to 5GC	Intel Corporation	Sudeep Palat	63872
R2-1712664	UE handling of combined configuration message	Intel Corporation	Sudeep Palat	63872
R2-1712665	NR serving cell measurement reporting in EN-DC	Intel Corporation	Sudeep Palat	63872
R2-1712666	Delta/Full configuration for bearer type change and SN change	Intel Corporation	Sudeep Palat	63872
R2-1712667	RRC signaling for PDCP data recovery	Intel Corporation	Sudeep Palat	63872
R2-1712668	Processing delay requirement for EN-DC UE	Intel Corporation	Sudeep Palat	63872
R2-1712669	Terminology for RBs in EN-DC	Intel Corporation	Sudeep Palat	63872
R2-1712670	TP on RAN notification area configuration	Intel Corporation	Sudeep Palat	63872
R2-1712671	RAN-initiated paging message	Intel Corporation	Sudeep Palat	63872
R2-1712672	NR common RRC procedures	Intel Corporation	Sudeep Palat	63872
R2-1712673	NR security framework for inactive	Intel Corporation	Sudeep Palat	63872
R2-1712674	TP on agreed NR inactive aspects	Intel Corporation	Sudeep Palat	63872
R2-1712675	Random Access in SUL	Intel Corporation	Sudeep Palat	63872
R2-1712676	Temporary capability restriction	Intel Corporation	Sudeep Palat	63872
R2-1712677	Email Disc on [99bis#28][NR] UE capability ASN.1 structure	Intel Corporation	Sudeep Palat	63872
R2-1712678	Email Disc on [99bis#27][NR] L2/3 capabilities	Intel Corporation	Sudeep Palat	63872
R2-1712679	TP on UE capability	Intel Corporation	Sudeep Palat	63872
R2-1712680	CR on MR-DC capability	Intel Corporation	Sudeep Palat	63872
R2-1712681	Open issues on UE capability	Intel Corporation	Sudeep Palat	63872
R2-1712682	Cell reselection for inactive Ues	Intel Corporation	Sudeep Palat	63872
R2-1712683	Further considerations for cell (re)selection	Intel Corporation	Sudeep Palat	63872
R2-1712684	Cell quality derivation for idle mobility	Intel Corporation	Sudeep Palat	63872
R2-1712685	Service based cell reselection	Intel Corporation	Sudeep Palat	63872
R2-1712686	Calculation of paging occasion	Intel Corporation	Sudeep Palat	63872
R2-1712687	Updates to stage 2 QoS flow	Intel Corporation, Rapporteur (Nokia)	Sudeep Palat	63872
R2-1712688	Dual registration solution for 5GS / EPS interworking	Intel Corporation	Sudeep Palat	63872
R2-1712689	Addition and Release of SCG configuration over LTE RRC	Intel Corporation	Sudeep Palat	63872
R2-1712690	Submission of RLC PDUs to MAC	Intel Corporation	Sudeep Palat	63872
R2-1712691	UL path switching	Intel Corporation	Sudeep Palat	63872
R2-1712692	L2 buffer size capability	Intel Corporation	Sudeep Palat	63872
R2-1712693	Measurement Gap Capability Signaling aspects for EN-DC and NR SA	Intel Corporation	Sudeep Palat	63872
R2-1712694	BPC Design Discussion	Intel Corporation	Sudeep Palat	63872
R2-1712695	Support of measurements on legacy RATs for EN-DC	Intel Corporation	Sudeep Palat	63872
R2-1712696	TDM pattern for single UL Tx	Intel Corporation	Sudeep Palat	63872
R2-1712697	UE security algorithm capability signalling in EN-DC	Intel Corporation	Sudeep Palat	63872
R2-1712698	Draft TS 38.321 v1.1.0	Samsung (Rapporteur)	Jaehyuk Jang	46012
R2-1712699	CBG-based HARQ operations in MAC	Samsung	Jaehyuk Jang	46012
R2-1712700	DRX timer for SPS	Samsung	Jaehyuk Jang	46012
R2-1712701	PHR and SUL in NR	Samsung	Jaehyuk Jang	46012
R2-1712702	MAC reset for NR	Samsung	Jaehyuk Jang	46012
R2-1712703	Variables and constants for NR MAC specification	Samsung	Jaehyuk Jang	46012
R2-1712704	Text propsoal for a new clause for the handling of measurement gap	Samsung	Jaehyuk Jang	46012
R2-1712705	Introduction of QoE Measurement Collection for LTE	Huawei, HiSilicon	Jun Chen	45773
R2-1712706	Introduction of QoE Measurement Collection for LTE	Huawei, HiSilicon	Jun Chen	45773
R2-1712707	Introduction of QoE Measurement Collection for LTE	Huawei, HiSilicon	Jun Chen	45773
R2-1712708	Overview on new LTE measurements	Huawei, HiSilicon, China Telecom	Jun Chen	45773

R2-1712709	Discussion on new measurement on PRB usage distribution	Huawei, HiSilicon, China Telecom	Jun Chen	45773
R2-1712710	Discussion on new measurement on IP throughput distribution	Huawei, HiSilicon, China Telecom	Jun Chen	45773
R2-1712711	Introduction of new measurement on PRB usage distribution	Huawei, HiSilicon, China Telecom	Jun Chen	45773
R2-1712712	Introduction of new measurement on IP throughput distribution	Huawei, HiSilicon, China Telecom	Jun Chen	45773
R2-1712713	Discussion on checksum options for UDC	Huawei, HiSilicon	Jun Chen	45773
R2-1712714	CR on checksum option for UDC	Huawei, HiSilicon	Jun Chen	45773
R2-1712715	Discussion on checksum failure handling for UDC	Huawei, HiSilicon	Jun Chen	45773
R2-1712716	CR on checksum failure handling for UDC	Huawei, HiSilicon	Jun Chen	45773
R2-1712717	CR on checksum failure handling for UDC	Huawei, HiSilicon	Jun Chen	45773
R2-1712718	Discussion on handover and re-establishment cases for UDC	Huawei, HiSilicon	Jun Chen	45773
R2-1712719	Discussion on SIP dictionary RFC 3485 for UDC	Huawei, HiSilicon	Jun Chen	45773
R2-1712720	Discussion on configuration of UDC dictionary	Huawei, HiSilicon	Jun Chen	45773
R2-1712721	Discussion on setup and release of UDC	Huawei, HiSilicon	Jun Chen	45773
R2-1712722	Discussion on UDC functionality in PDCP layer	Huawei, HiSilicon	Jun Chen	45773
R2-1712723	CR on UDC functionality in PDCP layer	Huawei, HiSilicon	Jun Chen	45773
R2-1712724	Discussion on UE assistance information	Huawei, HiSilicon	Jun Chen	45773
R2-1712725	Discussion on L2 differentiated handling for upper layer critical data	Huawei, HiSilicon	Jun Chen	45773
R2-1712726	Introduction of new PDCP discard timer	Huawei, HiSilicon	Jun Chen	45773
R2-1712727	Introduction of new PDCP discard timer	Huawei, HiSilicon	Jun Chen	45773
R2-1712728	Introduction of new PDCP discard timer	Huawei, HiSilicon	Jun Chen	45773
R2-1712729	Introduction of new PDCP discard timer	Huawei, HiSilicon	Jun Chen	45773
R2-1712730	BSR procedure for data duplication	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712731	Cell deactivation impacts on PDCP duplication	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712732	PBR configuration for duplication DRB	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712733	RLC optimization for packet duplication	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712734	Further consideration on RLF indication	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712735	RLC behaviours upon duplicate deactivation	Huawei, ASUSTek, HiSilicon	Zhenzhen Cao	58032
R2-1712736	PDCP operation for packet duplication	Huawei, ASUSTek, HiSilicon	Zhenzhen Cao	58032
R2-1712737	PDCP data volume calculation for packet duplication	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712738	Clarification on bearer type for packet duplication	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712739	Enhancements for DL Packet Duplication	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712740	Correction to Inter-frequency reception for V2X sidelink communication	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712741	Corrections to V2X in TS 36.300	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712742	Correction to V2X descriptions in TS 36.302	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712743	Consideration on latency related aspects in LTE eV2X	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712744	Discussion on how to deal with Destination L2 ID during Tx carrier selection	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712745	Need of Rx carrier selection for UEs with limited Rx capability	Huawei, Qualcomm Incorporated, OPPO, CATT, HiSilicon	Xiao Xiao	62927
R2-1712746	Packet duplication for PC5 CA	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712747	Discussion on resource pool sharing between mode3 and mode4 UEs	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712748	On resource pool sharing between R15 UEs and R14 UEs	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712749	On UEs with limited Rx capability in PC5 CA	Huawei, HiSilicon	Xiao Xiao	62927

R2-1712750	Reconsideration on sidelink HARQ entity and sidelink process in PC5 CA	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712751	Discussion on the Tx carrier selection for PC5 CA	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712752	Analysis on resource allocation for PC5 CA	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712753	RLM/RLF in NR	vivo	LI CHEN	70878
R2-1712754	RACH configuration for beam recovery	vivo	LI CHEN	70878
R2-1712755	Behavior on DRB IP check failure	vivo	LI CHEN	70878
R2-1712756	UE registered slices information at gNB	vivo	LI CHEN	70878
R2-1712757	Cell selection/reselection with network slicing	vivo	LI CHEN	70878
R2-1712758	Lossless HO for Qos flow and DRB offloading	vivo	LI CHEN	70878
R2-1712759	BWP impact on idle inactive mode	vivo	LI CHEN	70878
R2-1712760	RACH resource selection for SUL	vivo	LI CHEN	70878
R2-1712761	Remaining issues and TP for baseline handover procedure	vivo	LI CHEN	70878
R2-1712762	Random access with SUL and corresponding Text Proposal	vivo	LI CHEN	70878
R2-1712763	Remaining issues on SRB3	vivo	LI CHEN	70878
R2-1712764	Remaining FFS Issues on MSG3/4/5 Content for NR RRC Connection Control	vivo	LI CHEN	70878
R2-1712765	Issues on measurement gap in EN-DC and NR	vivo	LI CHEN	70878
R2-1712766	Remaing issues for measurement object	vivo	LI CHEN	70878
R2-1712767	Remainning issues on SCG failure	vivo	LI CHEN	70878
R2-1712768	Stored system information in NR	vivo	LI CHEN	70878
R2-1712769	SI Change Notification	vivo	LI CHEN	70878
R2-1712770	Scheduling of Other SI	vivo	LI CHEN	70878
R2-1712771	Remaining issues of on demand SI	vivo	LI CHEN	70878
R2-1712772	Security aspects in RRC INACTIVE	vivo	LI CHEN	70878
R2-1712773	RRC Connection Release Issues for UE in RRC_INACTIVE	vivo	LI CHEN	70878
R2-1712774	UE radio access capabilities change	vivo	LI CHEN	70878
R2-1712775	Cell selection reselection in NR	vivo	LI CHEN	70878
R2-1712776	Cell quality derivation in idle inactive mode	vivo	LI CHEN	70878
R2-1712777	Consideration on forward compatibilitiy	vivo	LI CHEN	70878
R2-1712778	CN selection for LTE connected to 5GC	vivo	LI CHEN	70878
R2-1712779	Consideration on SRB configuration in eLTE	vivo	LI CHEN	70878
R2-1712780	Mobility issue in LTE connected to NextGen Core	vivo	LI CHEN	70878
R2-1712781	Remaining issues for MAC PDU format in NR	Huawei, HiSilicon	Xiao Xiao	62927
R2-1712782	Location of the Power Ramping Counter in the RA Procedure	InterDigital	Faris Alfarhan	72155
R2-1712783	RA Procedure on the SUL	InterDigital	Faris Alfarhan	72155
R2-1712784	Remaining Details of the SR Procedure	InterDigital	Faris Alfarhan	72155
R2-1712785	RACH Configuration in Handover	InterDigital	Faris Alfarhan	72155
R2-1712786	Summary of email discussion [99b#40][NR UP/MAC] LCP	InterDigital	Paul Marinier	72016
R2-1712787	TP output of email discussion [99b#40][NR UP/MAC] LCP	InterDigital	Paul Marinier	72016
R2-1712788	Power Headroom Reporting for NR	InterDigital	Paul Marinier	72016
R2-1712789	Remaining issues with RRM measurements	InterDigital	Martino Freda	44622
R2-1712790	Measurement configuration with Ax and Cx events	InterDigital	Martino Freda	44622
R2-1712791	Open Issues on Connection Control Procedures	InterDigital	Martino Freda	44622
R2-1712792	Security Aspects of Connection Control	InterDigital	Martino Freda	44622
R2-1712793	Reporting of NR Serving Cell Measurements in EN-DC	InterDigital	Martino Freda	44622
R2-1712794	Conditional Reconfiguration for NR	InterDigital	Martino Freda	44622
R2-1712795	Control Plan Impacts of BWP	InterDigital	Martino Freda	44622
R2-1712796	Harmonization of Connection Control Procedures and Messages	InterDigital	Martino Freda	44622
R2-1712797	Timer-based Inactivation for NR	InterDigital	Martino Freda	44622
R2-1712798	Measurement Events to Support BWPs	InterDigital	Martino Freda	44622
R2-1712799	Details of Stored System Information for NR	InterDigital	Martino Freda	44622
R2-1712800	SI Modification Procedure in NR	InterDigital	Martino Freda	44622

R2-1712801	On Demand SI Request Procedure	InterDigital	Martino Freda	44622
R2-1712802	RAN Location Area Update Procedure for NR	InterDigital	Martino Freda	44622
R2-1712803	Paging in High Frequency	InterDigital	Martino Freda	44622
R2-1712804	Paging Indicator Details	InterDigital	Martino Freda	44622
R2-1712805	Control Plane Impacts of SUL	InterDigital	Martino Freda	44622
R2-1712806	How to implement an NR indicator in LTE system information	NTT DOCOMO, INC.	Hideaki Takahashi	60906
R2-1712807	Text Proposal on PDCP Data Recovery procedure for EN-DC	Samsung R&D Institute India	neha sharma	70441
R2-1712808	Discussion on UDC checksum error handling and message formats	MediaTek Inc	Randy Liu	74551
R2-1712809	Introduction of Operator controlled dictionary for UDC	MediaTek Inc	Randy Liu	74551
R2-1712810	Introduction of Operator-defined dictionary for UDC	MediaTek Inc	Randy Liu	74551
R2-1712811	Introduction of UDC checksum error handling	MediaTek Inc	Randy Liu	74551
R2-1712812	Improved Access and Load Control for Idle Mode UEs	Fujitsu	Yoshiaki Ohta	37498
R2-1712813	Coordination of Parameters for Measurements Report Trigger	Fujitsu	Yoshiaki Ohta	37498
R2-1712814	MAC TP for BSR	Fujitsu	Yoshiaki Ohta	37498
R2-1712815	RA-RNTI calculation	Fujitsu	Yoshiaki Ohta	37498
R2-1712816	SR procedure with multiple SR configurations	Fujitsu	Yoshiaki Ohta	37498
R2-1712817	RLC TP for BSR	Fujitsu	Yoshiaki Ohta	37498
R2-1712818	Pre-processing restriction	Fujitsu	Yoshiaki Ohta	37498
R2-1712819	The index of stored system information	Fujtisu	Yoshiaki Ohta	37498
R2-1712820	Inter-RAT measurement for EN-DC	Fujitsu	Yoshiaki Ohta	37498
R2-1712821	Improved Access and Load control for Idle Mode UEs	Fujitsu	Yoshiaki Ohta	37498
R2-1712822	Further issues on basic handover procedure	Fujitsu	Yoshiaki Ohta	37498
R2-1712823	Unknown MAC PDU discard	Fujitsu	Yoshiaki Ohta	37498
R2-1712824	Necessity of R values in Long BSR	Fujitsu	Yoshiaki Ohta	37498
R2-1712825	The index of stored system information	Fujitsu	Yoshiaki Ohta	37498
R2-1712826	Coordination of Parameters for Measurements Report Triggering	Fujitsu	Yoshiaki Ohta	37498
R2-1712827	[99bis#39][NR UP/MAC] – BSR open issues	vivo	RAN YUE	69629
R2-1712828	TP for output of email discussion #39 BSR open issues	vivo	RAN YUE	69629
R2-1712829	DRX inactivity timer for SPS UL skip	vivo	RAN YUE	69629
R2-1712830	BI value and UE Contention Resolution Identity	vivo	RAN YUE	69629
R2-1712831	UE selection for measurement of faster Scells activation	vivo	RAN YUE	69629
R2-1712832	Analysis on the Security and Configuration Issues of IDLE State Measurement	vivo	RAN YUE	69629
R2-1712833	Duplication deactivation due to Scell or BWP deactivation	vivo	RAN YUE	69629
R2-1712834	Discussion on the remaining problems on DRX	vivo	RAN YUE	69629
R2-1712835	Handling of unknown, unforeseen and erroneous protocol data	vivo	RAN YUE	69629
R2-1712836	On the procedures for SUL	Samsung	Sangbum Kim	42122
R2-1712837	Differentiation of Backoff parameter and/or power ramping	Samsung	Sangbum Kim	42122
R2-1712838	SUL Description	Rapporteur (Nokia), CMCC	Benoist SEBIRE	68461
R2-1712839	On supporting multiple modification periods in NR	Samsung	Sangbum Kim	42122
R2-1712840	Way-forward for NR access control	Samsung	Sangbum Kim	42122
R2-1712841	Way-forward for NR access control	Samsung	Sangbum Kim	42122
R2-1712842	NR access control procedure	Samsung	Sangbum Kim	42122
R2-1712843	On linking Establishment Cause and standardized access category	Samsung	Sangbum Kim	42122

R2-1712844	Barring configuration in NR access control	Samsung	Sangbum Kim	42122
R2-1712845	Barring skip indicator in NR	Samsung	Sangbum Kim	42122
R2-1712846	Discussion about exceptional pool for resource pool sharing between UEs using mode 3 and UEs using mode 4	Samsung R&D Institute UK	Sangwook Kwon	73379
R2-1712847	Capability design for single UL transmission	Apple	Fangli Xu	74483
R2-1712848	TDM pattern coordination for single UL transmission	Apple	Fangli Xu	74483
R2-1712849	Stage-2 TP for single UL transmission	Apple	Fangli Xu	74483
R2-1712850	LTE impact of single UL transmission	Apple	Fangli Xu	74483
R2-1712851	Fallback mechanism for baseband processing combination	NTT DOCOMO, INC.	Hideaki Takahashi	60906
R2-1712852	_Issues for carrier selection in CA-based eV2X	CATT	Zhe Chen	66576
R2-1712853	Discussion on mode 3 and mode 4 shared resource pool	CATT	Zhe Chen	66576
R2-1712854	some consideration of Rx limitatoin	CATT	Zhe Chen	66576
R2-1712855	Cell Index in EN-DC	CATT	Zhe Chen	66576
R2-1712856	Further considerations on the RA procedure	CATT	Zhe Chen	66576
R2-1712857	Leftover issues of configured grants	CATT	Zhe Chen	66576
R2-1712858	Open Issues on DRX	CATT	Zhe Chen	66576
R2-1712859	Duplication activation/deactivation MAC CE	CATT	Zhe Chen	66576
R2-1712860	RAN1 impact on RAN2 PHR design	CATT	Zhe Chen	66576
R2-1712861	BWP Inactivity Timer for active UL BWP	CATT	Zhe Chen	66576
R2-1712862	SDAP header format	CATT	Zhe Chen	66576
R2-1712863	BWP selection in handover	CATT	Zhe Chen	66576
R2-1712864	Further Consideration on CN Type Selection	CATT	Zhe Chen	66576
R2-1712865	Inactive State Modelling in LTE Connectivity to 5G-CN	CATT	Zhe Chen	66576
R2-1712866	NR serving cell in LTE measurement report	MediaTek Inc.	Chun-Fan Tsai	73920
R2-1712867	SCG Failure and Split SRB	MediaTek Inc.	Chun-Fan Tsai	73920
R2-1712868	Timing Advance to support SUL	Samsung Electronics	Sunheui Ryoo	73376
R2-1712869	Layer design aspect for Tx carrier selection	LG Electronics Inc.	Jongwoo Hong	66526
R2-1712870	MAC Functions to support Beam Management and Beam Recovery	MediaTek Inc.	Yuanyuan Zhang	56830
R2-1712871	Beam Management and Beam Recovery in MAC	MediaTek Inc.	Yuanyuan Zhang	56830
R2-1712872	Mobility Enhancement for ‘0ms Interruption’ HO	MediaTek Inc.	Yuanyuan Zhang	56830
R2-1712873	Tx/Rx Carrier selection	LG Electronics Inc.	Jongwoo Hong	66526
R2-1712874	One or Multiple NR-Cells per MAC Entity	MediaTek Inc.	Yuanyuan Zhang	56830
R2-1712875	Considerations on Cell Reselection in High Speed Railway Scenario	CATT	Haiyang Quan	35212
R2-1712876	Introduction of DEFLATE based UDC Solution	CATT	Haiyang Quan	35212
R2-1712877	Introduction of DEFLATE based UDC Solution	CATT	Haiyang Quan	35212
R2-1712878	Checksum Calculation for UDC	CATT	Haiyang Quan	35212
R2-1712879	Buffer Handling for UDC	CATT	Haiyang Quan	35212
R2-1712880	Consideration on Intra-eNB Handover for UDC	CATT	Haiyang Quan	35212
R2-1712881	Further Discussion on Pre-defined Dictionary for UDC	CATT	Haiyang Quan	35212
R2-1712882	LTE Measurement Gap Design for Inter-RAT NR Cell Measurement	MediaTek Inc.	Chun-Fan Tsai	73920
R2-1712883	Text Proposal to support BWP Operation in 38.300	MediaTek Inc.	Yuanyuan Zhang	56830
R2-1712884	Feasibility evaluation on path switch option 2	LG Electronics Inc.	Jongwoo Hong	66526
R2-1712885	TP on Basic HO Considering the FFS Issues	MediaTek Inc.	Yuanyuan Zhang	56830
R2-1712886	Measurement Gap Design for EN-DC	MediaTek Inc.	Chun-Fan Tsai	73920
R2-1712887	Further Clarification on MO Configuration with/without SSB	MediaTek Inc.	Yuanyuan Zhang	56830
R2-1712888	Measurement Gap Design for NR SA	MediaTek Inc.	Chun-Fan Tsai	73920
R2-1712889	Supporting BWP Operation in Stage-3 RRC	MediaTek Inc.	Yuanyuan Zhang	56830

R2-1712890	Stage2 TP to update bearer type description	ZTE Corporation, Sanechips	Sergio Parolari	26217
R2-1712891	Supporting BWP Operation in Stage-3 RRC	MediaTek Inc.	Yuanyuan Zhang	56830
R2-1712892	TP for RLF Timers & Constants configuration in 38.331	MediaTek Inc.	Yuanyuan Zhang	56830
R2-1712893	Confirmation on AUL activation and deactivation	Huawei, HiSilicon	Li Zhao	62841
R2-1712894	Issues on BS and PH calculation for AUL	Huawei, HiSilicon	Li Zhao	62841
R2-1712895	Issues on RLC reordering with AUL	Huawei, HiSilicon	Li Zhao	62841
R2-1712896	Other MAC aspects of AUL	Huawei, HiSilicon	Li Zhao	62841
R2-1712897	Support of FeCoMP in TS 36.331	Huawei, HiSilicon	Li Zhao	62841
R2-1712898	Support of 1024QAM in TS 36.331	Huawei, HiSilicon	Li Zhao	62841
R2-1712899	Support of 1024QAM in TS 36.306	Huawei, HiSilicon	Li Zhao	62841
R2-1712900	Text Proposal on LCP in NR	Huawei, HiSilicon	Li Zhao	62841
R2-1712901	Discussion for signaling exchange issues for UL interference detection	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1712902	Behavior of t-Reordering timer during PDCP re-establishment for SRB and AM DRB	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712903	Remaining issues on RA procedure	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712904	Remaining issues on the power ramping	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712905	Discussion on RA procedure related to SUL	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712906	Complete text proposal for NR random access procedure	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712907	Remaining issues with UL split bearer	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712908	Remaining issues for RoHC in NR and EN-DC	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712909	Consideration on PHR in EN-DC	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712910	Discussion on the procedure of MSG1-based SI request	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712911	Differentiation for SR-triggered Random Access	Huawei, HiSilicon	Yinghao Guo	72226
R2-1712912	LCP procedure for NR	Motorola Mobility España SA	Joachim Loehr	70607
R2-1712913	Reducing the size of UE capabilities	Qualcomm Incorporated	Masato Kitazoe	29801
R2-1712914	PDCP packet duplication	Lenovo, Motorola Mobility	Joachim Loehr	70607
R2-1712915	PHR for NR CA	Lenovo, Motorola Mobility	Joachim Loehr	70607
R2-1712916	PHR MAC CE format	Lenovo, Motorola Mobility, Qualcomm Incorporated	Joachim Loehr	70607
R2-1712917	Number of supported DRBs in NR (16/32)	Ericsson	Henrik Enbuske	32991
R2-1712918	Number of DRBs in E-UTRA connected to 5GC	Ericsson	Henrik Enbuske	32991
R2-1712919	Analysis of the QoS framework (Stage 2)	Ericsson	Henrik Enbuske	32991
R2-1712920	Issues with the exisiting QoS framewok (Stage 3)	Ericsson	Henrik Enbuske	32991
R2-1712921	QoS Flow Relocation in NR-DC between MN and SN	Ericsson	Henrik Enbuske	32991
R2-1712922	SDAP entity establishment	Ericsson	Henrik Enbuske	32991
R2-1712923	SDAP Header Format	Ericsson	Henrik Enbuske	32991
R2-1712924	SDAP configurations aspects	Ericsson	Henrik Enbuske	32991
R2-1712925	PDCP SN reconfiguration at handover	Ericsson	Henrik Enbuske	32991
R2-1712926	PDCP duplication and discard	Ericsson	Henrik Enbuske	32991
R2-1712927	UP timers in PDCP	Ericsson	Henrik Enbuske	32991
R2-1712928	PDCP duplication for AM operation	Ericsson	Henrik Enbuske	32991
R2-1712929	PDCP duplication transmit operation	Ericsson	Henrik Enbuske	32991
R2-1712930	PDCP UL switch procedure	Ericsson	Henrik Enbuske	32991
R2-1712931	PDCP BSR reporting at UL split	Ericsson	Henrik Enbuske	32991
R2-1712932	PDCP data volume reporting in duplication	Ericsson	Henrik Enbuske	32991
R2-1712933	PDCP duplication control related to SCell control	Ericsson	Henrik Enbuske	32991
R2-1712934	Email discussion on RLC open issues	Ericsson	Henrik Enbuske	32991

R2-1712935	TP on RLC open issue email discussion	Ericsson	Henrik Enbuske	32991
R2-1712936	RLC STATUS report format	Ericsson	Henrik Enbuske	32991
R2-1712937	Remaining issues for SPS in NR	Ericsson	Henrik Enbuske	32991
R2-1712938	Correction on mac-ContentionResolutionTimer for FeMTC and eNB-IoT	Nokia, Nokia Shanghai Bell	Haitao Li	73693
R2-1712939	Correction on FGI bit-13 for FeMTC	Nokia, Nokia Shanghai Bell	Haitao Li	73693
R2-1712940	Network initiated early UL data transmission	Nokia, Nokia Shanghai Bell	Haitao Li	73693
R2-1712941	Resource pool sharing between mode 3 and mode 4	Nokia, Nokia Shanghai Bell	Haitao Li	73693
R2-1712942	Discussion on activation of Duplication	Nokia, Nokia Shanghai Bell	Haitao Li	73693
R2-1712943	Bearer handling in NR-E-UTRA Dual Connectivity	Samsung R&D Institute India	neha sharma	70441
R2-1712944	Discussion on certification issues for response LS from SA2	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1712945	Consideration for identification issues for drone UE	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1712946	Discussion on Inter DU mobility	KT Corp.	Sungpyo Hong	55584
R2-1712947	Discussion on carrier selection details and handling Rx limited V2X UE	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1712948	Discussion on packet duplication on PC5	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1712949	Considerations on Access Control in NR	KT Corp.	Sungpyo Hong	55584
R2-1712950	Conditional handover in NR system	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1712951	FGI20 limitation for DRBs	Ericsson	Mattias Bergstrom	46046
R2-1712952	Avoiding FGI20 limitation for DRBs	Ericsson	Mattias Bergstrom	46046
R2-1712953	Avoiding FGI20 limitation for DRBs	Ericsson	Mattias Bergstrom	46046
R2-1712954	Correction to RLC UM for LWA	Ericsson	Mattias Bergstrom	46046
R2-1712955	LCID space extension	Ericsson	Mattias Bergstrom	46046
R2-1712956	LCID space extension	Ericsson	Mattias Bergstrom	46046
R2-1712957	Number of DRBs in E-UTRA	Ericsson	Mattias Bergstrom	46046
R2-1712958	Discussion on conditional handover in NR	KT Corp.	Sungpyo Hong	55584
R2-1712959	Dedicated resource configuration for beam failure recovery	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1712960	Discussion on RAN notification area update	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1712961	2-Step RACH support for Small Cells	Gemalto N.V.	Osaid khaliq	64768
R2-1712962	Service based Inter-RAT cell reselection	China Telecom	Xing Yang	65708
R2-1712963	QoS Flow Remapping in Handover and Within the Same Cell	Ericsson	Henrik Enbuske	32991
R2-1712964	Discussion on PDCP data volume calculation during PDCP Duplication	Samsung R&D Institute India	neha sharma	70441
R2-1712965	Discussion on Uplink Packet Duplication	III	Feng Ming Yang	60304
R2-1712966	PDCP duplication consideration	Potevio	Lanying Zhou	74047
R2-1712967	Discussion on radio resource pool sharing in eV2X	Potevio	Lanying Zhou	74047
R2-1712968	Msg4 content for SI request	Potevio	Lanying Zhou	74047
R2-1712969	BWP switch on C-DRX	Potevio	Lanying Zhou	74047
R2-1712970	Packet Duplication for eV2X Sidelink CA	Potevio	Lanying Zhou	74047
R2-1712971	Single cellBarred IE in NR System Information	vivo, Qualcomm Incorporated, Xiaomi, CATR, China Telecom, China Unicom	LI CHEN	70878
R2-1712972	Remaining issues on SR for sTTI	Nokia, Nokia Shanghai Bell	Chunli Wu	73601

R2-1712973	Email discussion summary on [99bis#38][NR UP/MAC] – SR open issues - Nokia	Nokia	Chunli Wu	73601
R2-1712974	TP outcome of Email discussion [99bis#38][NR UP/MAC] – SR open issues - Nokia	Nokia	Chunli Wu	73601
R2-1712975	Remaining issues on DRX	Nokia, Nokia Shanghai Bell	Chunli Wu	73601
R2-1712976	Improved Access and Load control for Idle Mode UEs	Fujitsu	Yoshiaki Ohta	37498
R2-1712977	RA-RNTI calculation	Fujitsu	Yoshiaki Ohta	37498
R2-1712978	Data transmission in Inactive	TCL Communication Ltd.	Caroline JACTAT	67404
R2-1712979	Autonomous Uplink HARQ Aspects	Motorola Mobility Germany GmbH	Alexander Golitschek Edler Von Elbwart	73673
R2-1712980	EN-DC impacts to LTE MAC	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712981	EN-DC impacts to LTE RLC	Huawei, HiSilicon	Zhenzhen Cao	58032
R2-1712982	Remaining issues for EDT	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712983	NRS-CRS power offset configuration for NB-IoT	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712984	Optional configuration in NR system information	Ericsson	Janne Peisa	33372
R2-1712985	Single and simultaneous UL on problematic channels	Sony	Vivek Sharma	56626
R2-1712986	NR RRC connection request	Sony	Vivek Sharma	56626
R2-1712987	NSSAI in MSG5	Sony	Vivek Sharma	56626
R2-1712988	Necessity of indication that on demand SI is being broadcast	Sony	Vivek Sharma	56626
R2-1712989	Handover involving EPC and 5GC	Sony	Vivek Sharma	56626
R2-1712990	BWP impact on RRM Measurements for Wideband CC	Sony	Vivek Sharma	56626
R2-1712991	Discussion on identification and certification of Aerial Vehicles	Sony	Vivek Sharma	56626
R2-1712992	Discussion on measurement for Aerial Vehicles handover	Sony	Vivek Sharma	56626
R2-1712993	WUS aspects on grouping and mobility for efeMTC and feNB-IoT	Sony	Vivek Sharma	56626
R2-1712994	NRS-CRS power offset configuration for NB-IoT	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1712995	Analysis on the feasibility and technical restrictions of dual registration	vivo	LI CHEN	70878
R2-1712996	[DRAFT] reply LS on dual registration	vivo	LI CHEN	70878
R2-1712997	Clarification on the measurement used for the beam selection	vivo	LI CHEN	70878
R2-1712998	Discussion on the SCell index	vivo, Xiaomi, CATR, TCL	LI CHEN	70878
R2-1712999	Remaining stage-2 issues of SUL carrier for EN-DC	vivo, CATR	LI CHEN	70878
R2-1713000	UE behavior upon SCell-failure of PDCP duplication	vivo	LI CHEN	70878
R2-1713001	NRS-CRS power offset configuration for NB-IoT	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1713002	Clarification on the SUL PHR reporting	vivo	RAN YUE	69629
R2-1713003	Consideration on BSR for SDAP	vivo	RAN YUE	69629
R2-1713004	Layer-2 behaviors of PDCP duplication deactivation	vivo	RAN YUE	69629
R2-1713005	PDCP duplication impacts on LCP	vivo	RAN YUE	69629
R2-1713006	Discussion on the PDCP data volume	vivo	RAN YUE	69629
R2-1713007	PHR impacts for beamforming	vivo	RAN YUE	69629
R2-1713008	UE behavior at UL path switch	vivo	RAN YUE	69629
R2-1713009	UE layer-2 behaviors at SCell-failure	vivo	RAN YUE	69629
R2-1713010	Email report 99bis_35 Relaxed Monitoring	Ericsson	Martin Van Der Zee	58600
R2-1713011	Relaxed Monitoring in MTC	Ericsson	Martin Van Der Zee	58600
R2-1713012	Relaxed Monitoring in NB-IoT	Ericsson	Martin Van Der Zee	58600

R2-1713013	Introduction of relaxed monitoring in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713014	Introduction of relaxed monitoring in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713015	Introduction of relaxed monitoring in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713016	Introduction of relaxed monitoring in MTC	Ericsson	Martin Van Der Zee	58600
R2-1713017	Introduction of relaxed monitoring in MTC	Ericsson	Martin Van Der Zee	58600
R2-1713018	Dynamical adjustment for NPDCCH period in RRC_CONNECTED for UE power saving	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1713019	Dynamical adjustment for NPDCCH period in RRC_CONNECTED for UE power saving	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1713020	Segmentation of LPP messages	Qualcomm Incorporated	Sven Fischer	20628
R2-1713021	Segmentation of LPP Messages	Qualcomm Incorporated	Sven Fischer	20628
R2-1713022	Cell measurement optimization during PRACH procedure for UE power saving	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1713023	Introduction of relaxed monitoring in MTC	Ericsson	Martin Van Der Zee	58600
R2-1713024	Quick RRC connection release	Ericsson	Martin Van Der Zee	58600
R2-1713025	Introduction of timer based release	Ericsson	Martin Van Der Zee	58600
R2-1713026	Introduction of timer based release	Ericsson	Martin Van Der Zee	58600
R2-1713027	Introduction of timer based release	Ericsson	Martin Van Der Zee	58600
R2-1713028	Successful acknowledgement of RRCConnectionRelease	Ericsson	Martin Van Der Zee	58600
R2-1713029	Way forward UE differentiation	Ericsson, Vodafone	Martin Van Der Zee	58600
R2-1713030	DRAFT LS on UE differentiation in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713031	High quality criterion in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713032	DRAFT LS on high quality signal threshold in NB-IoT and EC-GSM	Ericsson	Martin Van Der Zee	58600
R2-1713033	Wake-up signal for NB-IoT & eMTC	Ericsson	Martin Van Der Zee	58600
R2-1713034	Introduction of Wake Up Signal in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713035	Introduction of Wake Up Signal in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713036	Introduction of Wake Up Signal in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713037	Introduction of Wake Up Signal in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713038	No dedicated bearer support in NB-IoT	Ericsson	Martin Van Der Zee	58600
R2-1713039	Removal of FFS for RAI in 36.321	Ericsson	Martin Van Der Zee	58600
R2-1713040	Clarification on Interference Randomisation in NB-IoT in 36.331	Ericsson, Qualcomm Incorporated	Martin Van Der Zee	58600
R2-1713041	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Martin Van Der Zee	58600
R2-1713042	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Martin Van Der Zee	58600
R2-1713043	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Martin Van Der Zee	58600

R2-1713044	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Martin Van Der Zee	58600
R2-1713045	Cell measurement optimization during PRACH procedure for UE power saving	ZTE Corporation, Sanechips	Ting Lu	63111
R2-1713046	Lower power class UE for LTE-MTC	Ericsson	Tuomas Tirronen	73195
R2-1713047	Introducing 14 dBm UE power class for BL UEs	Ericsson	Tuomas Tirronen	73195
R2-1713048	Introducing 14 dBm UE power class for BL UEs	Ericsson	Tuomas Tirronen	73195
R2-1713049	Introducing 14 dBm UE power class for BL UEs	Ericsson	Tuomas Tirronen	73195
R2-1713050	Reduced System Acquisition Time	Ericsson	Tuomas Tirronen	73195
R2-1713051	Skipping SIB1-BR acquisition	Ericsson	Tuomas Tirronen	73195
R2-1713052	Skipping SIB1-BR acquisition	Ericsson	Tuomas Tirronen	73195
R2-1713053	DRAFT LS reply on system acquisition time reduction for Rel-15 LTE-MTC	Ericsson	Tuomas Tirronen	73195
R2-1713054	Remaining general aspects of early data transmission	Ericsson	Tuomas Tirronen	73195
R2-1713055	Remaining issues on early data transmission over UP	Ericsson	Tuomas Tirronen	73195
R2-1713056	Remaining Issues in Early Data Transmission over NAS	Ericsson	Tuomas Tirronen	73195
R2-1713057	[99bis#53][MTC/NB-IoT] EDT indication via PRACH	Ericsson	Tuomas Tirronen	73195
R2-1713058	Evaluation for early data transmissions	Ericsson	Tuomas Tirronen	73195
R2-1713059	Uplink HARQ ACK feedback for MTC	Ericsson	Tuomas Tirronen	73195
R2-1713060	Uplink HARQ ACK feedback for BL UEs and UEs in CE	Ericsson	Tuomas Tirronen	73195
R2-1713061	Uplink HARQ ACK feedback for BL UEs and UEs in CE	Ericsson	Tuomas Tirronen	73195
R2-1713062	Uplink HARQ ACK feedback for BL UEs and UEs in CE	Ericsson	Tuomas Tirronen	73195
R2-1713063	CRS muting	Ericsson	Tuomas Tirronen	73195
R2-1713064	Introduction of UE capability for PUSCH sub-PRB allocation	Ericsson	Tuomas Tirronen	73195
R2-1713065	Introduction of UE capability for PUSCH sub-PRB allocation	Ericsson	Tuomas Tirronen	73195
R2-1713066	Introduction of DL 64QAM for BL/CE UEs	Ericsson	Tuomas Tirronen	73195
R2-1713067	Introduction of DL 64QAM for BL/CE UEs	Ericsson	Tuomas Tirronen	73195
R2-1713068	Improved Idle Mode Access Control for efeMTC UEs	Ericsson	Tuomas Tirronen	73195
R2-1713069	Improved Idle Mode Access Control for efeMTC UEs	Ericsson	Tuomas Tirronen	73195
R2-1713070	Discussion on carrier selection in PC5 CA	ZTE Corporation	Lin Chen	65877
R2-1713071	Consideration on data duplication design for PC5 CA	ZTE Corporation	Lin Chen	65877
R2-1713072	Discussion on sidelink resource request mechanism for PC5 CA	ZTE Corporation	Lin Chen	65877
R2-1713073	On structure of SI index	MediaTek Inc.	Guanyu Lin	65848
R2-1713074	NR SI Modification	MediaTek Inc.	Guanyu Lin	65848
R2-1713075	Indicator for Other SI Transmission	MediaTek Inc.	Guanyu Lin	65848
R2-1713076	RA-RNTI formula	MediaTek Inc.	Guanyu Lin	65848
R2-1713077	Handle ongoing HARQ process when BWP switching occurs	MediaTek Inc.	Guanyu Lin	65848
R2-1713078	Consideration on resource pool sharing between UEs using mode 3 and mode 4	ZTE Corporation	Lin Chen	65877
R2-1713079	Consideration on latency reduction	ZTE Corporation	Lin Chen	65877
R2-1713080	Discussion on support of 64QAM over sidelink	ZTE Corporation	Lin Chen	65877
R2-1713081	MUST capability	MediaTek Inc.	Alex Hsu	41036

R2-1713082	Introduction of relaxed monitoring for NB-IoT in 36.304	Huawei, HiSilicon	Brian Martin	72959
R2-1713083	Introduction of relaxed monitoring for NB-IoT in 36.306	Huawei, HiSilicon	Brian Martin	72959
R2-1713084	Introduction of relaxed monitoring for NB-IoT in 36.331	Huawei, HiSilicon	Brian Martin	72959
R2-1713085	Introduction of relaxed monitoring for efeMTC in 36.304	Huawei, HiSilicon	Brian Martin	72959
R2-1713086	Introduction of relaxed monitoring for efeMTC in 36.306	Huawei, HiSilicon	Brian Martin	72959
R2-1713087	Introduction of relaxed monitoring for efeMTC in 36.331	Huawei, HiSilicon	Brian Martin	72959
R2-1713088	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713089	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713090	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713091	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713092	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Brian Martin	72959
R2-1713093	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Brian Martin	72959
R2-1713094	Correction to description of uplink and downlink shared channel physical layer model for MTC and NB-IoT.	Huawei, HiSilicon	Brian Martin	72959
R2-1713095	Correction to description of uplink and downlink shared channel physical layer model for MTC and NB-IoT.	Huawei, HiSilicon	Brian Martin	72959
R2-1713096	Correction on downlink reception type combination for SC-PTM in feMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713097	Minor correction on the IE of pusch-EnhancementsConfig in feMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713098	Correction on TS 36.300 for support of larger maximum PDSCH/PUSCH channel bandwidth for feMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713099	Correction on PRS hopping configuration	Huawei, HiSilicon	Brian Martin	72959
R2-1713100	Correction to cell barring for coverage enhancement	Huawei, HiSilicon, Intel Corporation	Brian Martin	72959
R2-1713101	Correction to cell barring for coverage enhancement	Huawei, HiSilicon, Intel Corporation	Brian Martin	72959
R2-1713102	Correction to Radio Resource common configuration during CE->NC Handover for Rel-13 eMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713103	Correction to Radio Resource common configuration during CE->NC Handover for Rel-13 eMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713104	Correction on the field description of ce-PDSCH-TenProcesses	Huawei, HiSilicon	Brian Martin	72959
R2-1713105	System Information acquisition enhancements.	Huawei, HiSilicon	Brian Martin	72959
R2-1713106	Accumulation across SIB1-BR/SI modification period	Huawei, HiSilicon	Brian Martin	72959
R2-1713107	[DRAFT] Reply LS on System acquisition time reduction for Rel-15 LTE MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713108	Skip system information reading for MTC based on neighbour cell indication	Huawei, HiSilicon	Brian Martin	72959
R2-1713109	Skip system information reading for MTC based on MIB indication	Huawei, HiSilicon	Brian Martin	72959
R2-1713110	Introduction of system information acquisition optimisation in MIB and SIB4	Huawei, HiSilicon	Brian Martin	72959
R2-1713111	Introduction of system information acquisition optimisation in MIB	Huawei, HiSilicon	Brian Martin	72959
R2-1713112	Existing solutions for access/load control of idle mode UEs	Huawei, HiSilicon	Brian Martin	72959
R2-1713113	Improved access/load control of idle mode UEs	Huawei, HiSilicon	Brian Martin	72959
R2-1713114	Uplink HARQ-ACK feedback for early termination of MPDCCH monitoring	Huawei, HiSilicon	Brian Martin	72959

R2-1713115	Uplink HARQ-ACK feedback for early termination of PUSCH transmission	Huawei, HiSilicon	Brian Martin	72959
R2-1713116	Increased PDSCH spectral efficiency for Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713117	DRAFT LS on signalling support of 64QAM for Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713118	Introduction of 64QAM for PDSCH in Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713119	Introduction of 64QAM for PDSCH in Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713120	Increased PUSCH spectral efficiency for Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713121	Lower UE power class for Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713122	Draft Reply LS on new UE power class for Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713123	Introduction of Lower UE power class for Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713124	Introduction of Lower UE power class for Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713125	Introduction of Lower UE power class for Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713126	Discussion on higher UE velocity in Rel-15 MTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713127	On CRS muting for BL UEs	Huawei, HiSilicon	Brian Martin	72959
R2-1713128	MUST capability	MediaTek Inc.	Alex Hsu	41036
R2-1713129	Clarification on eDRX in NB-IoT	Nokia	Jussi-pekka Koskinen	69951
R2-1713130	Discussion on CN selection	Huawei, HiSilicon	Lei Liu	59582
R2-1713131	Draft LS to CT1 on CN selection	Huawei	Lei Liu	59582
R2-1713132	Handling on E-UTRA cell where some PLMNs only have access to 5GC	Huawei, HiSilicon	Lei Liu	59582
R2-1713133	Handling the features not supported in 5GC but supported in EPC	Huawei, HiSilicon	Lei Liu	59582
R2-1713134	NR PDCP configuration for SRB for UE accessing 5GC via ng-eNB	Huawei, HiSilicon	Lei Liu	59582
R2-1713135	Stage 3 design on intra-E-UTRA inter-system HO	Huawei, HiSilicon	Lei Liu	59582
R2-1713136	Support of 5GS security in E-UTRA connected to 5GC	Huawei, HiSilicon	Lei Liu	59582
R2-1713137	Measurement coordination for LTE-NR DC	Huawei, HiSilicon	Lei Liu	59582
R2-1713138	UP integrity protection check failure handling in LTE-NR DC	Huawei, HiSilicon	Lei Liu	59582
R2-1713139	TP on 38.331 to support UP IP check failure handling	Huawei, HiSilicon	Lei Liu	59582
R2-1713140	Running CR on 36.331 to support UP IP check failure handling	Huawei, HiSilicon	Lei Liu	59582
R2-1713141	TP on TS 37.340	Huawei, HiSilicon	Lei Liu	59582
R2-1713142	TP on default configuration of SRB1S, SRB2S and SRB3	Huawei, HiSilicon	Lei Liu	59582
R2-1713143	Handling upon joint configuration failure	Huawei, HiSilicon	Lei Liu	59582
R2-1713144	Remaining issues on inter-node message design	Huawei,HiSilicon	Lei Liu	59582
R2-1713145	Remaining issues on measurement report	Huawei, HiSilicon	Lei Liu	59582
R2-1713146	SSTD measurement for EN-DC	Huawei, HiSilicon	Lei Liu	59582
R2-1713147	Remaining issues on UE capability coordination	Huawei, HiSilicon	Lei Liu	59582
R2-1713148	Secondary RAT data volume report	Huawei, HiSilicon	Lei Liu	59582
R2-1713149	Remaining issue on SRB3 establishment	Huawei, HiSilicon	Lei Liu	59582
R2-1713150	Clarification on duplication SRB in EN-DC	Huawei, HiSilicon	Lei Liu	59582
R2-1713151	Discussion on PDCP version change	Huawei, HiSilicon	Lei Liu	59582
R2-1713152	Resolving the unsecured GERAN redirection issue	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713153	Resolving the GERAN redirection security issue	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713154	Releasing CQI-ReportConfig	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713155	Clarification to WLAN status monitoring	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713156	Clarification to WLAN status monitoring	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943

R2-1713157	Restructuring of CQI-ReportConfig (email discussion 99#21)	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713158	Discussion on running CRs for euCA	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713159	Stage-2 running CR for euCA	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713160	RRC running CR for euCA	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713161	Faster IDLE mode measurements	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713162	Security aspects of IDLE mode measurements	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713163	[DRAFT] LS to SA3/RAN3 on RAN2 agreements for Scell delay reduction	Nokia	Tero Henttonen	69943
R2-1713164	Direct activation of configured Scells	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713165	Common SCell configuration	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713166	Achievable reliability and latency for HRLLC	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713167	Finalization of SUO for EN-DC	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713168	Report of email discussion 99bis#15	Nokia (rapporteur)	Tero Henttonen	69943
R2-1713169	Considerations on fast access inter-site small cells in NR	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713170	Report of email discussion [99bis#32][LTE/euCA] Faster activation for Scells	Nokia (rapporteur)	Tero Henttonen	69943
R2-1713171	Remaining issues on beam selection during handover	Ericsson	Janne Peisa	33372
R2-1713172	Revisit of Stage 3 MAC spec in consideration of SUL	Huawei, HiSilicon	Chong Lou	72227
R2-1713173	Summary of [99bis#41][NR/UP] Open issues on SPS and GF	Huawei, HiSilicon	Chong Lou	72227
R2-1713174	TP outcome of [99bis#41][NR/UP] Open issues on SPS and GF	Huawei, HiSilicon	Chong Lou	72227
R2-1713175	Discussion on HARQ in NR	Huawei, HiSilicon	Chong Lou	72227
R2-1713176	Remaining issues of PHR procedure and power management	Huawei, HiSilicon	Chong Lou	72227
R2-1713177	PHR with multi-beam operation	Huawei, HiSilicon	Chong Lou	72227
R2-1713178	Impacts of SUL on PHR	Huawei, HiSilicon	Chong Lou	72227
R2-1713179	Uplink TA maintenance with multi-beam operation	Huawei, HiSilicon	Chong Lou	72227
R2-1713180	Clarification on eDRX in NB-IoT	Nokia	Jussi-pekka Koskinen	69951
R2-1713181	Open issues on Inter-Node signalling for hand-over	Ericsson	Janne Peisa	33372
R2-1713182	Report of email discussion [99bis#55]NB-IoT MTC] on EDT RRC Messages	Huawei	Baokun Shan	70626
R2-1713183	Introduction of Early data transmission in 36.331	Huawei, HiSilicon	Baokun Shan	70626
R2-1713184	Remaining issues for EDT in the CP solution for eMTC and NB-IoT	Huawei, HiSilicon, Neul	Baokun Shan	70626
R2-1713185	Remaining issues for EDT in the UP solution for eMTC and NB-IoT	Huawei, HiSilicon, Neul	Baokun Shan	70626
R2-1713186	Report of email discussion [99bis#35][NB-IoT MTC] on wake-up signal	Huawei	Baokun Shan	70626
R2-1713187	[DRAFT] Reply LS to RAN1 on wake-up signal	Huawei	Baokun Shan	70626
R2-1713188	PRACH partitioning for early data transmission	Huawei, HiSilicon, Neul	Baokun Shan	70626
R2-1713189	Trigger for EDT	Huawei, HiSilicon, Neul	Baokun Shan	70626
R2-1713190	Early DL data transmission	Huawei, HiSilicon, Neul	Baokun Shan	70626
R2-1713191	RACH procedure in early data transmission	Huawei, HiSilicon, Neul	Baokun Shan	70626
R2-1713192	Introduction of additional SIB1-NB transmissions in 36.331	Huawei, HiSilicon	Baokun Shan	70626

R2-1713193	Introduction of RRC Connection Release enhancements	Huawei, HiSilicon	Baokun Shan	70626
R2-1713194	Small cell support in NB-IoT	Huawei, HiSilicon, Neul	Baokun Shan	70626
R2-1713195	System information scheduling in TDD mode	Huawei, HiSilicon, Neul	Baokun Shan	70626
R2-1713196	Paging and random access for TDD mode	Huawei, HiSilicon, Neul	Baokun Shan	70626
R2-1713197	Running 36.304 CR for Further NB-IoT enhancements	Nokia, Nokia Shanghai Bell	Jussi-pekka Koskinen	69951
R2-1713198	Autonomous Uplink Access details	Nokia, Nokia Shanghai Bell	Jarkko Koskela	69947
R2-1713199	What is serving frequency in NR?	Nokia, Nokia Shanghai Bell	Jarkko Koskela	69947
R2-1713200	Measurement configuration and measurement gaps	Nokia, Nokia Shanghai Bell	Jarkko Koskela	69947
R2-1713201	Consistent support of RRC_INACTIVE	Nokia, Nokia Shanghai Bell	Jarkko Koskela	69947
R2-1713202	Security in inactive state	Nokia, Nokia Shanghai Bell	Jarkko Koskela	69947
R2-1713203	Cell selection and reselection for NR IDLE - cell quality derivation	Nokia, Nokia Shanghai Bell	Jarkko Koskela	69947
R2-1713204	Cell selection and reselection for NR IDLE - cell selection/reselection criteria	Nokia, Nokia Shanghai Bell	Jarkko Koskela	69947
R2-1713205	Harmonization of the RRC procedures	Nokia, Nokia Shanghai Bell	Jussi-pekka Koskinen	69951
R2-1713206	RRC connection release and inactivation procedures	Nokia, Nokia Shanghai Bell	Jussi-pekka Koskinen	69951
R2-1713207	Stage 3 Procedure and parameters for supporting SUL	Huawei, HiSilicon	Yang Zhao	59675
R2-1713208	Discussion paper on procedures for supporting SUL	Huawei, HiSilicon	Yang Zhao	59675
R2-1713209	TP on LTE RRC for supporting single UL transmission	Huawei, HiSilicon	Yang Zhao	59675
R2-1713210	Network handling on UE static access capability	Huawei, HiSilicon	Yang Zhao	59675
R2-1713211	Structure for NR capability	Huawei, HiSilicon	Yang Zhao	59675
R2-1713212	MN-SN coordination for UE temporary access capability restriction	Huawei, HiSilicon	Yang Zhao	59675
R2-1713213	Support of Rel-14 voice enhancements in SA NR	Huawei, HiSilicon	Yang Zhao	59675
R2-1713214	Discussion on LTE Call Redirection	Huawei, HiSilicon	Yang Zhao	59675
R2-1713215	NB-IoT UE capability extension correction	Nokia, Nokia Shanghai Bell	Jussi-pekka Koskinen	69951
R2-1713216	Clarification on carrier index in PDCCH order	Huawei, HiSilicon	Baokun Shan	70626
R2-1713217	Small corrections for NB-IoT enhancements	Huawei, HiSilicon	Baokun Shan	70626
R2-1713218	Correction of interference in NB-IoT RACH procedure	Huawei, HiSilicon	Baokun Shan	70626
R2-1713219	Correction of interference in NB-IoT RACH procedure	Huawei, HiSilicon	Baokun Shan	70626
R2-1713220	Correction of interference in NB-IoT RACH procedure	Huawei, HiSilicon	Baokun Shan	70626
R2-1713221	NB-IoT UE capability extension correction	Nokia, Nokia Shanghai Bell	Jussi-pekka Koskinen	69951
R2-1713222	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713223	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Brian Martin	72959
R2-1713224	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Brian Martin	72959
R2-1713225	Minor correction on the IE of pusch-EnhancementsConfig in feMTC	Huawei, HiSilicon	Brian Martin	72959
R2-1713226	Initial status of SCell for enhancing CA utilization	LG Electronics Mobile Research	Hanul Lee	69512
R2-1713227	Remaining issues on measurement reports for EN-DC	CMCC	Ningyu Chen	62843
R2-1713228	Common C-RNTI for common PDCCH	CMCC	Ningyu Chen	62843
R2-1713229	RA-RNTI calculation in NR	CMCC	Ningyu Chen	62843
R2-1713230	More considerations on BSR	CMCC	Ningyu Chen	62843
R2-1713231	Considerations on one bit RQI	CMCC	Ningyu Chen	62843
R2-1713232	Requested NSSAI in RRC	CMCC	Ningyu Chen	62843

R2-1713233	Discussion on execution time of SMC	CMCC	Ningyu Chen	62843
R2-1713234	[99#33][LTE/eViLTE] UE assistance information	CMCC	Ningyu Chen	62843
R2-1713235	Introduction of assistance information for local cache	CMCC, Intel Corporation	Ningyu Chen	62843
R2-1713236	Introduction of assistance information for local cache	CMCC, Intel Corporation	Ningyu Chen	62843
R2-1713237	Introduction of assistance information for local cache	CMCC, Intel Corporation	Ningyu Chen	62843
R2-1713238	Introduction of assistance information for local cache	CMCC, Intel Corporation	Ningyu Chen	62843
R2-1713239	DL and UL CE level non-corresponding issue in NB-IoT	CMCC	Ningyu Chen	62843
R2-1713240	Introduction of DL CE level estimation for NB-IoT	CMCC	Ningyu Chen	62843
R2-1713241	Introduction of Measurement Report for NB-IoT	CMCC	Ningyu Chen	62843
R2-1713242	Introduction of a new UE capability for ssp10 with less CRS	CMCC	Ningyu Chen	62843
R2-1713243	Introduction of a new configuration for ssp10 with less CRS	CMCC	Ningyu Chen	62843
R2-1713244	Consideration on HARQ RTT Timer	LG Electronics Mobile Research	Hanul Lee	69512
R2-1713245	SPS in sTTI	LG Electronics Mobile Research	Hanul Lee	69512
R2-1713246	Addition of missing figure for R-PDCCH	Ericsson India Private Limited	Cecilia Eklof	59618
R2-1713247	SR triggered by retransmission BSR	LG Electronics Mobile Research	Hanul Lee	69512
R2-1713248	Autonomous TTI bundling for HRLLC	LG Electronics Mobile Research	Hanul Lee	69512
R2-1713249	Addition of missing figures for R-PDCCH and EPDCCH	Ericsson India Private Limited	Cecilia Eklof	59618
R2-1713250	SR on PUCCH and sPUCCH	LG Electronics Mobile Research	Hanul Lee	69512
R2-1713251	Consideration on the PSCell Change and SCG Change in EN-DC	ZTE Corporation, Sanechips	River Huang	43874
R2-1713252	Addition of missing figures for R-PDCCH and EPDCCH	Ericsson India Private Limited	Cecilia Eklof	59618
R2-1713253	Support NR positioning under dual connectivity	LG Electronics Inc.	Jongwoo Hong	66526
R2-1713254	Addition of missing figures for R-PDCCH, EPDCCH and MPDCCH	Ericsson India Private Limited	Cecilia Eklof	59618
R2-1713255	Solutions for UE camping in high speed railway scenario	CMCC, MediaTek Inc	Ningyu Chen	62843
R2-1713256	Support of accurate UE speed-level estimation and speed-level-based cell (re)selection	CMCC	Ningyu Chen	62843
R2-1713257	Introduction of new measurement collection in MDT	CMCC	Ningyu Chen	62843
R2-1713258	Introduction of new measurement collection in MDT	CMCC	Ningyu Chen	62843
R2-1713259	Introduction of new measurement collection in MDT	CMCC	Ningyu Chen	62843
R2-1713260	Inter-RAT mobility between NR and eLTE for Inactive state	LG Electronics Inc.	Jongwoo Hong	66526
R2-1713261	Addition of missing figures for R-PDCCH, EPDCCH and MPDCCH	Ericsson India Private Limited	Cecilia Eklof	59618
R2-1713262	Support of reportOnLeave for E-UTRA B1 and B2 events	Nokia, Nokia Shanghai Bell	Jedrzej Stanczak	68469
R2-1713263	On the need of multiple filter coefficients in NR	Nokia, Nokia Shanghai Bell	Jedrzej Stanczak	68469
R2-1713264	Mobility enhancements for UAVs – planned route	Nokia, Nokia Shanghai Bell	Jedrzej Stanczak	68469
R2-1713265	Mobility enhancements for UAVs – reference altitude	Nokia, Nokia Shanghai Bell	Jedrzej Stanczak	68469
R2-1713266	Security aspects of supporting LTE connected to 5GC	Ericsson	Malik Wahaj Arshad	72857
R2-1713267	Draft LS on Security aspects of supporting LTE connected to 5GC	Ericsson	Malik Wahaj Arshad	72857
R2-1713268	QoS for LTE connected to 5GC	Ericsson	Malik Wahaj Arshad	72857

R2-1713269	Inactive state in LTE	Ericsson	Malik Wahaj Arshad	72857
R2-1713270	Barring legacy UEs from 5GC only cells	Ericsson	Malik Wahaj Arshad	72857
R2-1713271	Inter-system and inter-RAT mobility for LTE connected to 5GC	Ericsson	Malik Wahaj Arshad	72857
R2-1713272	Handling of Collision netweem UE Identifier in LTE connected to 5GC	Ericsson	Malik Wahaj Arshad	72857
R2-1713273	Message 3.5 in LTE connected to 5GC	Ericsson	Malik Wahaj Arshad	72857
R2-1713274	Coordination of I-RNTI/Resume ID's across RAT's	Ericsson	Malik Wahaj Arshad	72857
R2-1713275	Multiplexing NAS messages with MSG 3	Ericsson	Malik Wahaj Arshad	72857
R2-1713276	Signalling aspects of network slicing	Ericsson	Malik Wahaj Arshad	72857
R2-1713277	Slice availability	Ericsson	Malik Wahaj Arshad	72857
R2-1713278	Key refresh at handover in NR	Ericsson	Malik Wahaj Arshad	72857
R2-1713279	Size of MSG3 in NR	Ericsson	Malik Wahaj Arshad	72857
R2-1713280	Draft LS on MSG3 size	Ericsson	Malik Wahaj Arshad	72857
R2-1713281	Discussion on barring indication in NR-MIB	Huawei, HiSilicon	Brian Martin	72959
R2-1713282	Discussion on maximum idle mode DRX value in NR	Huawei, HiSilicon	Brian Martin	72959
R2-1713283	[DRAFT] Reply LS on maximum idle mode DRX value	Huawei, HiSilicon	Brian Martin	72959
R2-1713284	Detailed design of the contents of System Information	Huawei, HiSilicon	Brian Martin	72959
R2-1713285	Area ID and value tag for SIBs	Huawei, HiSilicon	Brian Martin	72959
R2-1713286	SI Update procedure	Huawei, HiSilicon	Brian Martin	72959
R2-1713287	Considerations on System Information scheduling	Huawei, HiSilicon	Brian Martin	72959
R2-1713288	On demand SI acquisition and failure handling	Huawei, HiSilicon	Brian Martin	72959
R2-1713289	Public Warning system for NR	Huawei, HiSilicon	Brian Martin	72959
R2-1713290	Cell selection and reselection rules	Huawei, HiSilicon	Brian Martin	72959
R2-1713291	Derivation of cell quality in IDLE/INACTIVE	Huawei, HiSilicon	Brian Martin	72959
R2-1713292	Service-based camping	Huawei, HiSilicon	Brian Martin	72959
R2-1713293	Speed dependent mobility in Idle and Inactive mode	Huawei, HiSilicon	Brian Martin	72959
R2-1713294	Cell reservation and forward compatibility for CSG in NR	Huawei, HiSilicon	Brian Martin	72959
R2-1713295	Harmonizing RRC Connection control messages and procedures	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713296	RAN area update in RRC_INACTIVE	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713297	CN area updating in RRC_INACTIVE	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713298	I-RNTI discussion	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713299	Context relocation in NR Release 15	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713300	Context fetch and paging relay via 5GC	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713301	NR RRC States overview and remaining open issues	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713302	Need for MSG5 at RRC resume	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713303	Text proposal to 38.331 on RRC states	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713304	Text proposal to RRC connection control	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713305	Way forward with Security in RRC Inactive	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713306	Security for RRCConnectionResumeRequest message	Ericsson	Icaro Leonardo Da Silva	58721

R2-1713307	Mobility between LTE and NR for inactive Ues	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713308	UE context handling during inter RAT handover	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713309	Standard and Operator defined dictionary capability support for UDC	Ericsson	Ritesh Shreevastav	69655
R2-1713310	Unresolved NR-UNIT in Bj calculation	MediaTek (Wuhan) Inc.	Pradeep Jose	71781
R2-1713311	Selection of Pre-defined Dictionary for UDC	Ericsson	Ritesh Shreevastav	69655
R2-1713312	Pre-Defined Dictionary Configuration for UDC	Ericsson	Ritesh Shreevastav	69655
R2-1713313	Consideration for potential mobility enhancement for aerial UE	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1713314	State manamgement for aerial UEs	Lenovo, Motorola Mobility	Wu Lianhai	70742
R2-1713315	MAC impact of HARQ process sharing between TTI and sTTI	Huawei, HiSilicon	Li Chai	40955
R2-1713316	SR failure handling for sTTI	Huawei, HiSilicon	Li Chai	40955
R2-1713317	Handling of SR triggered by retxBSR-Timer in sTTI	Huawei, HiSilicon	Li Chai	40955
R2-1713318	Handling of SR configurations for CA case in sTTI	Huawei, HiSilicon	Li Chai	40955
R2-1713319	Handling of MAC CE Priority in sTTI	Huawei, HiSilicon	Li Chai	40955
R2-1713320	Impacts of sTTI on L2 Timers	Huawei, HiSilicon	Li Chai	40955
R2-1713321	HARQ Process ID Calculation to support SPS for sTTI	Huawei, HiSilicon	Li Chai	40955
R2-1713322	Remaining Issues for sSPS	Huawei, HiSilicon	Li Chai	40955
R2-1713323	Running CR for SPS in sTTI TS 36.321	Huawei, HiSilicon, Ericsson	Li Chai	40955
R2-1713324	Discussion on New Measurement Events for Drones	Huawei, HiSilicon	Li Chai	40955
R2-1713325	Discussion on Network Coordination solution	Huawei, HiSilicon	Li Chai	40955
R2-1713326	Mobility related field trial result for drones	Huawei, HiSilicon	Li Chai	40955
R2-1713327	Identification of Air-borne UE	Huawei, HiSilicon	Li Chai	40955
R2-1713328	Consideration on PHR for sTTI	Huawei, HiSilicon	Li Chai	40955
R2-1713329	Summary of email discussion [99bis#31][LTE/UAV] Capture handover simulation results with observations	Huawei	Li Chai	40955
R2-1713330	TP outcome of email discussion 99bis#31Capture handover simulation results with observations	Huawei	Li Chai	40955
R2-1713331	Potential enhancements for drones in idle state	Huawei, HiSilicon	Li Chai	40955
R2-1713332	Measurement Report Mechanism for Drones	Huawei, HiSilicon	Li Chai	40955
R2-1713333	Signalling overhead reduction for SCell Configuration	Huawei, HiSilicon	Li Chai	40955
R2-1713334	Message selection for IDLE Mode Measurement Report	Huawei, HiSilicon	Li Chai	40955
R2-1713335	Signalling overhead reduction for SCell (de)Activation	Huawei, HiSilicon	Li Chai	40955
R2-1713336	Delay reduction for SCell Activation	Huawei, HiSilicon	Li Chai	40955
R2-1713337	Discussion on the RRC Impact from Packet Duplication	Huawei, HiSilicon	Li Chai	40955
R2-1713338	Potential enhancements for HRLLC based on sTTI	Huawei, HiSilicon	Li Chai	40955
R2-1713339	MAC Structure and Operation for HRLLC	Huawei, HiSilicon	Li Chai	40955
R2-1713340	Discussion on new scenarios and requirements for URLLC service	Huawei, HiSilicon	Li Chai	40955
R2-1713341	Email disc 17: TP for NR RRC Reconfiguration	Ericsson	Riikka Susitaival	44957
R2-1713342	Email disc 17: TP for LTE RRCConnectionReconfiguration	Ericsson	Riikka Susitaival	44957

R2-1713343	Some remaining terminology issues	Ericsson	Riikka Susitaival	44957
R2-1713344	RRC Reconfiguration of NR-NR DC and NE-DC	Ericsson	Riikka Susitaival	44957
R2-1713345	Async-sync operation and capabilities	Ericsson	Riikka Susitaival	44957
R2-1713346	Remaining open issues for RRC timers in EN-DC	Ericsson	Riikka Susitaival	44957
R2-1713347	single Tx operation and HARQ timing	Ericsson	Riikka Susitaival	44957
R2-1713348	Dual registration and RAN impacts	Ericsson	Riikka Susitaival	44957
R2-1713349	On QCIs for EPC based ULLC	Ericsson	Riikka Susitaival	44957
R2-1713350	CP latency in NR	Ericsson	Riikka Susitaival	44957
R2-1713351	UP latency in NR	Ericsson	Riikka Susitaival	44957
R2-1713352	Pre-Defined Dictionary for UDC	Ericsson	Ritesh Shreevastav	69655
R2-1713353	Understanding the buffer content And Checksum calculation for UDC	Ericsson	Ritesh Shreevastav	69655
R2-1713354	Padding BSR for multiple UL grants	Intel Corporation, Qualcomm Incorporated	Sudeep Palat	63872
R2-1713355	Correction to UE-Capability-NB extension	Sequans Communications	Olivier Marco	63229
R2-1713356	TP on 38.331 for supporting SUL	Huawei, HiSilicon	Yang Zhao	59675
R2-1713357	Release and Reset Behaviour for UDC	Ericsson	Ritesh Shreevastav	69655
R2-1713358	Email discussion report on Timer impact of TDD	Ericsson	Ritesh Shreevastav	69655
R2-1713359	Further considerations on MR-DC capability coordination	Nokia Solutions & Networks (I)	Amaanat Ali	68254
R2-1713360	MIB, SIBs and Paging for NB-IoT TDD	Ericsson	Ritesh Shreevastav	69655
R2-1713361	NR SN serving cell measurements in LTE measurement reports	Nokia, Nokia Shanghai Bell	Amaanat Ali	68254
R2-1713362	Beamformed Random Access: Remaining Issues	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713363	Cell Re-selection: Service Specific Frequency Prioritisation in NR	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713364	Cell Quality Derivation for Cell Reselection	Convida Wireless LLC	Pascal Adjakple	72093
R2-1713365	UE Assisted Paging	Convida Wireless LLC	Pascal Adjakple	72093
R2-1713366	Msg1 based SI Request: DL TX Beam Identification	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713367	Msg1 based SI Request: PRACH Preamble Selection	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713368	Multiple Msg1 Transmissions	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713369	On Demand SI: Remaining Issues	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713370	PO Determination for Paging Reception	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713371	Random Access in NR: RA-RNTI Calculation	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713372	Random Access in RRC Connected: Bandwidth Part Aspects	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713373	SI Message TX/RX in NR	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713374	SI Reception in RRC Connected: Bandwidth Part Aspects	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713375	System Information Update in NR	Samsung R&D Institute India	Anil Agiwal	58101
R2-1713376	Paging in NR – Beamforming Aspects	Samsung R&D Institute India	Anil Agiwal	58101

R2-1713377	Correction on zone configuration in transmission pool selection	Qualcomm Incorporated	Zhibin Wu	49530
R2-1713378	Open issues on switched mode on split bearers	Nokia, Nokia Shanghai Bell	Samuli Turtinen	73832
R2-1713379	Possibility of NR PDCP COUNT wrapping around	Nokia, Nokia Shanghai Bell	Samuli Turtinen	73832
R2-1713380	Beam recovery using RA procedure	Nokia, Nokia Shanghai Bell	Samuli Turtinen	73832
R2-1713381	Clarification on the Preamble group B selection	Nokia, Nokia Shanghai Bell, NTT DOCOMO	Samuli Turtinen	73832
R2-1713382	RLC buffer handling for pre-processed data	Nokia, Nokia Shanghai Bell	Samuli Turtinen	73832
R2-1713383	Clarification of agreement on header-only PDCP Data PDU	Nokia, Nokia Shanghai Bell	Samuli Turtinen	73832
R2-1713384	Transmission of P2X sidelink communication in Exceptional Pool	Qualcomm Incorporated	Zhibin Wu	49530
R2-1713385	UE behavior for using provisioned ITS carrier	Qualcomm Incorporated	Zhibin Wu	49530
R2-1713386	Correction on transmission of V2X sidelink communication in provisioned frequency	Qualcomm Incorporated	Zhibin Wu	49530
R2-1713387	Resource pool sharing between Mode 3 and Mode 4	Qualcomm Incorporated	Zhibin Wu	49530
R2-1713388	LTE re-establishment when using NR PDCP (TP to 36.331 and 38.331)	Ericsson	Oumer Teyeb	47021
R2-1713389	NR re-establishment procedure	Ericsson	Oumer Teyeb	47021
R2-1713390	Full configuration in EN-DC	Ericsson	Oumer Teyeb	47021
R2-1713391	Inclusion of NR SN serving cell measurements in LTE measurement reports	Ericsson	Oumer Teyeb	47021
R2-1713392	Default configurations for SRB3 and split SRBs	Ericsson	Oumer Teyeb	47021
R2-1713393	Discussion and TP on remaining issues on SCG Failure	Ericsson	Oumer Teyeb	47021
R2-1713394	Discussion and TP regarding resuming radio bearers and SCG transmission after SCG failure	Ericsson	Oumer Teyeb	47021
R2-1713395	Scell-RLF discussion	Ericsson	Oumer Teyeb	47021
R2-1713396	Handling of UP integrity protection failure	Ericsson	Oumer Teyeb	47021
R2-1713397	NR RRC procedure for inter-RAT handover	Ericsson	Oumer Teyeb	47021
R2-1713398	Discussion and Stage 2 TP on Race conditions in case of SN release	Ericsson	Oumer Teyeb	47021
R2-1713399	Discussion and TP on preserving NR PDCP version	Ericsson	Oumer Teyeb	47021
R2-1713400	Measurement configurations and signaling for fast setup	Ericsson	Oumer Teyeb	47021
R2-1713401	Support of SRB3 for NR-NR DC	Ericsson	Oumer Teyeb	47021
R2-1713402	0 ms interruption support during handover procedure in NR	Ericsson	Oumer Teyeb	47021
R2-1713403	RACHless HO in NR when UE is in CA or DC	Ericsson	Oumer Teyeb	47021
R2-1713404	Latency reduction for packet transmission in eV2X	Qualcomm Incorporated	Zhibin Wu	49530
R2-1713405	Carrier and resource selection in carrier aggregation for V2X Phase 2	Qualcomm Incorporated	Zhibin Wu	49530
R2-1713406	Discussion on the beam failure recovery impact on RAN2	ZTE Corporation	Eswar Vutukuri	74079
R2-1713407	Coexistence between Rel-14 and Rel-15 V2X UEs	Qualcomm Incorporated	Zhibin Wu	49530
R2-1713408	Interference detection in UAV scenarios	Nokia, Nokia Shanghai Bell	Dawid Koziol	68362
R2-1713409	Discussion on SA2 LS on UAV certification	Nokia, Nokia Shanghai Bell	Dawid Koziol	68362
R2-1713410	TP on mechanism for interference detection and UAV identification	Nokia, Nokia Shanghai Bell	Dawid Koziol	68362
R2-1713411	UE initiated path switch	Nokia, Nokia Shanghai Bell	Dawid Koziol	68362
R2-1713412	Beam Recovery in NR	Nokia, Nokia Shanghai Bell	Dawid Koziol	68362

R2-1713413	Correction to UE capabilities	Nokia, Nokia Shanghai Bell	Dawid Koziol	68362
R2-1713414	Impact of beam management on RAN2	Nokia, Nokia Shanghai Bell	Dawid Koziol	68362
R2-1713415	Details of events A1-A6 and need for C1-C2 events in NR	Nokia, Nokia Shanghai Bell	Dawid Koziol	68362
R2-1713416	NB-IoT and SPS	Ericsson	Emre A. Yavuz	46738
R2-1713417	NB-IoT PHY Scheduling Request	Ericsson	Emre A. Yavuz	46738
R2-1713418	DRAFT LS on dedicated PHY SR signal for Rel-15 NB-IoT	Ericsson	Emre A. Yavuz	46738
R2-1713419	NPRACH reliability and range enhancement for NB-IoT	Ericsson	Emre A. Yavuz	46738
R2-1713420	eNB awareness of critical data in UE buffer	Ericsson	Emre A. Yavuz	46738
R2-1713421	L2 differentiated handling for critical data	Ericsson	Emre A. Yavuz	46738
R2-1713422	L2 differentiated handling of critical data	Ericsson	Emre A. Yavuz	46738
R2-1713423	L2 differentiated handling for critical data	Ericsson	Emre A. Yavuz	46738
R2-1713424	L2 differentiated handling for critical data	Ericsson	Emre A. Yavuz	46738
R2-1713425	Enabling MBMS Bearer Event Notification	Ericsson	Helka-liina Maattanen	61821
R2-1713426	Measurement gap configuration in EN-DC	Ericsson Inc.	Oumer Teyeb	47021
R2-1713427	Corrections on RRM TP	Huawei, HiSilicon	David Lecompte	34967
R2-1713428	UE Capability Restrictions	Ericsson	Henning Wiemann	39956
R2-1713429	UE Capability Compression	Ericsson	Henning Wiemann	39956
R2-1713430	[99bis#19] Summary of NR L1 parameters in RRC	Ericsson	Henning Wiemann	39956
R2-1713431	Serving Cell Index across Cell Groups	Ericsson	Henning Wiemann	39956
R2-1713432	UE Capability Signalling Structure	Ericsson	Henning Wiemann	39956
R2-1713433	Some SIB1 contents and clean-up of Section 7.3 in Stage-2	Samsung R&D Institute India	Mangesh Ingale	73307
R2-1713434	TP for 37340 - Introducing bearer harmonization	Ericsson	Stefan Wager	65332
R2-1713435	PDCP handling in case of PSCell change	Ericsson	Stefan Wager	65332
R2-1713436	Race conditions in case of SCG change	Ericsson	Stefan Wager	65332
R2-1713437	Cell specific parameter handling in EN-DC	Ericsson	Stefan Wager	65332
R2-1713438	PDCP version change for SRBs	Ericsson	Stefan Wager	65332
R2-1713439	Summary of email discussion [99bis#21][NR] RRC reconfiguration processing time for EN-DC	Ericsson	Stefan Wager	65332
R2-1713440	TP for 36.331 on RRC reconfiguration processing time for EN-DC	Ericsson	Stefan Wager	65332
R2-1713441	TP for 38.331 on RRC reconfiguration processing time for EN-DC	Ericsson	Stefan Wager	65332
R2-1713442	TP for 38.331 on security algorithm configuration	Ericsson	Stefan Wager	65332
R2-1713443	5G indicator for EN-DC	Ericsson	Stefan Wager	65332
R2-1713444	Index based approach and Stored SI	Samsung R&D Institute India	Mangesh Ingale	73307
R2-1713445	Security procedure from RRC_INACTIVE state in NR	Samsung R&D Institute India	Mangesh Ingale	73307
R2-1713446	[DRAFT] LS on security framework for INACTIVE in NR	Samsung R&D Institute India	Mangesh Ingale	73307
R2-1713447	Identify certification for drones	Ericsson	Helka-liina Maattanen	61821
R2-1713448	PLMN Selection in RRC INACTIVE state	Samsung R&D Institute India	Mangesh Ingale	73307
R2-1713449	TP with corrections to field trials description	Nokia, Nokia Shanghai Bell	Dawid Koziol	68362
R2-1713450	Considerations on new LTE eNB measurements requirements	Nokia, Nokia Shanghai Bell	Malgorzata Tomala	68485
R2-1713451	Summary on [99b#61][LTE/UAV] Identify potential solutions on mobility enhancement	Ericsson	Zhenhua Zou	73815
R2-1713452	Mobility Simulations of Aerial UEs - full buffer case	Ericsson	Zhenhua Zou	73815

R2-1713453	UE capability, retrieval of fallback combinations	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713454	Report of e-mail [99bis#25][NR] on Inter-node RRC messages	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713455	Introducing support for NR, changes relevant for NSA	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713456	Introducing support for NR in 36.331, remaining issues relevant for NSA	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713457	Introducing support for NR, changes only relevant for SA	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713458	Draft TS 37.324 v111	Rapporteur (Huawei)	Hao Bi	44845
R2-1713459	List of Editor's Notes from TS 37.324 v1.1.0	Rapporteur (Huawei)	Hao Bi	44845
R2-1713460	Introduction of PRB usage distribution measurement and IP Throughput usage distribution	Ericsson	Ritesh Shreevastav	69655
R2-1713461	PRB Usage Distribution and IP Throughput Distribution	Ericsson	Ritesh Shreevastav	69655
R2-1713462	[99bis#42][NR UP/MAC] - NR Unit replacement	Ericsson	Mats Folke	43898
R2-1713463	Text proposal for [99bis#42][NR UP/MAC] - NR Unit replacement	Ericsson	Mats Folke	43898
R2-1713464	Activation and Deactivation time of Secondary Cells	Ericsson	Mats Folke	43898
R2-1713465	[DRAFT] LS on Activation and Deactivation time of Secondary Cells	Ericsson	Mats Folke	43898
R2-1713466	Modelling of PDCCH Monitoring Considering Duplex Modes	Ericsson	Mats Folke	43898
R2-1713467	Open issues on LCP	Ericsson	Mats Folke	43898
R2-1713468	DRX with short on-duration and Wake-up signaling	Ericsson	Mats Folke	43898
R2-1713469	BWP Inactivity Timer and DRX	Ericsson	Mats Folke	43898
R2-1713470	SPS and SR in DRX	Ericsson	Mats Folke	43898
R2-1713471	Remaining issues on DRX timers	Ericsson	Mats Folke	43898
R2-1713472	Differentiation on RACH parameters in NR	Ericsson	Mats Folke	43898
R2-1713473	RAR Contents	Ericsson	Mats Folke	43898
R2-1713474	Open issues for the Random access procedure	Ericsson	Mats Folke	43898
R2-1713475	Preamble transmission power	Ericsson	Mats Folke	43898
R2-1713476	Random Access and SUL	Ericsson	Mats Folke	43898
R2-1713477	Criteria for selection of Preamble group B	Ericsson	Mats Folke	43898
R2-1713478	Backoff Parameter values for Random Access	Ericsson	Mats Folke	43898
R2-1713479	Parameters for Random Access preamble groups when SSBs are configured	Ericsson	Mats Folke	43898
R2-1713480	Open issues for scheduling request	Ericsson	Mats Folke	43898
R2-1713481	Further enhancement to the SR failure handling for multiple pending SRs	Ericsson	Mats Folke	43898
R2-1713482	Values of counters and timers for SR and BSR	Ericsson	Mats Folke	43898
R2-1713483	Open issues on BSR	Ericsson	Mats Folke	43898
R2-1713484	Power Headroom Reporting in NR	Ericsson	Mats Folke	43898
R2-1713485	Power Control Aspects	Ericsson	Mats Folke	43898
R2-1713486	Open issues for PHR in LTE-NR DC	Ericsson	Mats Folke	43898
R2-1713487	Size of the C-RNTI	Ericsson	Mats Folke	43898
R2-1713488	Discussion on LS exchange with SA2 regarding “Certificate/Licence/Authorization”	Qualcomm Incorporated	Umesh Phuyal	71775
R2-1713489	Cleaning up CQI and CSI-RS-related configurations (related to Rel-14 ASN.1 review issue N.099)	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713490	Considerations on fast access inter-site small cells in NR	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713491	Common SCell configuration	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713492	Correction of the remarks for DL reception type of Sidelink and FeMBMS	Ericsson	Robert Karlsson	75012
R2-1713493	Miscellaneous MAC Issues for feLAA	Ericsson	Robert Karlsson	75012

R2-1713494	Definition of Paging Frame and Paging Occasion	Huawei, HiSilicon	Mazin Al-Shalash	47174
R2-1713495	Efficiency of direct and response-driven paging	Huawei, HiSilicon	Mazin Al-Shalash	47174
R2-1713496	Paging mechanism with beam sweeping	Huawei Technologies France	Mazin Al-Shalash	47174
R2-1713497	[DRAFT] Reply LS on Supportable RNTI Length on DCI	Ericsson	Mats Folke	43898
R2-1713498	Inter-node signalling, some remaining issues	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713499	Use of identifier representing NR UE capabilities, baseline	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713500	NR RRC specification, protocol extension aspects & introduction of SA	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713501	UE capability coordination, some remaining aspects	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713502	CE-based access barring and load balancing for idle mode UEs for eFeMTC	Kyocera	Henry Chang	23830
R2-1713503	Remaining issues for basic functionality of EDT in eFeMTC/FeNB-IoT	Kyocera	Henry Chang	23830
R2-1713504	NB-IoT Idle mode SPS for M2M regular reporting	MediaTek Beijing Inc.	Johan Johansson	44956
R2-1713505	Number of SDAP entities in UE for NR DC	Ericsson	Henrik Enbuske	32991
R2-1713506	Transmission Reliability with Early Data Transmission	MediaTek Beijing Inc.	Johan Johansson	44956
R2-1713507	Considerations for cell selection and reselection with UAVs	Kyocera, KT Corp, KDDI	Henry Chang	23830
R2-1713508	L2 Header size and voice packet sizes for NR	Ericsson	Mats Folke	43898
R2-1713509	Clarification to Mapping Between Service Types and V2X Frequencies	Ericsson	Marco Belleschi	61839
R2-1713510	Clarification to Mapping Between Service Types and V2X Frequencies	Ericsson	Marco Belleschi	61839
R2-1713511	Latency reduction for eV2V	Ericsson	Marco Belleschi	61839
R2-1713512	[DRAFT] LS on Reliability Values for eV2X	Ericsson	Marco Belleschi	61839
R2-1713513	Packet duplication for PC5	Ericsson	Marco Belleschi	61839

R2-1713514	Pool Sharing Between Mode-3 and Mode-4	Ericsson	Marco Belleschi	61839
R2-1713515	Sidelink Carrier Selection Criteria for RX	Ericsson	Marco Belleschi	61839
R2-1713516	Sidelink Carrier Selection Criteria for TX	Ericsson	Marco Belleschi	61839
R2-1713517	AUL configuration for feLAA	Ericsson	Marco Belleschi	61839
R2-1713518	Channel Access Priority Classes for feLAA	Ericsson	Marco Belleschi	61839
R2-1713519	Coexistence Between AUL and Dynamically Scheduled UL Grants	Ericsson	Marco Belleschi	61839
R2-1713520	HARQ Retransmissions for Autonomous UL Access	Ericsson	Marco Belleschi	61839
R2-1713521	On AUL Confirmation	Ericsson	Marco Belleschi	61839
R2-1713522	RAN2 Impact on Multiple Starting and Ending Positions in a Subframe	Ericsson	Marco Belleschi	61839
R2-1713523	Control Plane latency reduction	Ericsson	Marco Belleschi	61839
R2-1713524	Control Plane latency reduction	Ericsson	Marco Belleschi	61839
R2-1713525	Control Plane latency reduction	Ericsson	Marco Belleschi	61839
R2-1713526	UE-based mobility solution with Uplink Interference coordination	Kyocera	Henry Chang	23830
R2-1713527	[DRAFT] LS on VoIP packet sizes and transport blocks	Ericsson	Mats Folke	43898
R2-1713528	Unified Access Control	MediaTek Beijing Inc.	Johan Johansson	44956
R2-1713529	DRAFT LS on Preamble transmission power	Ericsson	Mats Folke	43898
R2-1713530	Capturing network restrictions and bearer type changes in Stage-3	Ericsson	Riikka Susitaival	44957
R2-1713531	Aspects of Timing Advance	Ericsson	Mats Folke	43898
R2-1713532	Report of [99bis#33][NB-IoT R14] UE-Capability-NB extension	Sequans Communications	Olivier Marco	63229
R2-1713533	MAC CEs for activating an RS resource and handling corresponding TCI states	Ericsson	Mats Folke	43898
R2-1713534	MAC PDU discard at split bearer / SCG bearer reconfiguration	Ericsson	Mats Folke	43898
R2-1713535	Padding for NR	Samsung	Donggun Kim	64672
R2-1713536	Potential enhancements for UAV interference problem	Ericsson	Zhenhua Zou	73815
R2-1713537	Mobility Simulations of Aerial UEs - full buffer RMa case	Ericsson	Zhenhua Zou	73815
R2-1713538	Mobility performance for aerial vehicles in field trials	Ericsson	Zhenhua Zou	73815
R2-1713539	Potential enhancements for mobility performance	Ericsson	Zhenhua Zou	73815
R2-1713540	DCI monitoring subframes for eIMTA	Huawei, HiSilicon	Simone Provvedi	36483
R2-1713541	Signaling of NCSG Support for Inter-F Measurement	Qualcomm Incorporated	Neha Goel	69738
R2-1713542	DCI monitoring subframes for eIMTA	Huawei, HiSilicon	Simone Provvedi	36483
R2-1713543	TR 36.777 v040	NTT DOCOMO INC.	Wuri Hapsari	59995
R2-1713544	Summary of email discussion [99bis#30][LTE/UAV] Capture potential solutions for DL and UL Interference detection	NTT DOCOMO INC.	Wuri Hapsari	59995
R2-1713545	DCI monitoring subframes for eIMTA	Huawei, HiSilicon	Simone Provvedi	36483
R2-1713546	UAV UE Certification and License Identification	NTT DOCOMO INC.	Wuri Hapsari	59995
R2-1713547	Access Control in RRC_INACTIVE	Huawei, HiSilicon	Mazin Al-Shalash	47174
R2-1713548	UE capability retrieval framework in NR	NTT DOCOMO INC.	Wuri Hapsari	59995
R2-1713549	Tabel 8.2-2 reformatting	Ericsson	Robert Karlsson	75012
R2-1713550	Tabel 8.2-2 reformatting	Ericsson	Robert Karlsson	75012
R2-1713551	Tabel 8.2-2 reformatting	Ericsson	Robert Karlsson	75012

R2-1713552	Duration of the Barring Timer	Nokia, Nokia Shanghai Bell	Manivannan Thyagarajan	68484
R2-1713553	Harmonization of the RRC connection management procedures	NTT DOCOMO INC.	Wuri Hapsari	59995
R2-1713554	Indication for On-Demand SI Broadcast	Nokia, Nokia Shanghai Bell	Manivannan Thyagarajan	68484
R2-1713555	Measurement Gap for MR-DC	NTT DOCOMO INC.	Wuri Hapsari	59995
R2-1713556	Signalling of System Information Area	Nokia, Nokia Shanghai Bell	Manivannan Thyagarajan	68484
R2-1713557	System Information Modification in NR	Nokia, Nokia Shanghai Bell	Manivannan Thyagarajan	68484
R2-1713558	Basic Access Control in NR	Huawei, HiSilicon	Mazin Al-Shalash	47174
R2-1713559	Clarification on csi-RS-ConfigNZPId	Qualcomm Incorporated, Ericsson	Neha Goel	69738
R2-1713560	On Reconfiguration to option 2c/2x for SCG addition/modification and SCG Failure	NTT DOCOMO INC.	Wuri Hapsari	59995
R2-1713561	Signaling of NCSG Support for Inter-F Measurement	Qualcomm Incorporated, Ericsson	Neha Goel	69738
R2-1713562	Access Control in NR for RRC_CONNECTED	Huawei Technologies France	Mazin Al-Shalash	47174
R2-1713563	L2 actions upon UL path switch	Sequans Communications	Olivier Marco	63229
R2-1713564	Clarification on csi-RS-ConfigNZPId	Qualcomm Incorporated, Ericsson	Neha Goel	69738
R2-1713565	Access Control for MT	Huawei, HiSilicon	Mazin Al-Shalash	47174
R2-1713566	Signaling of NCSG Support for Inter-F Measurement	Qualcomm Incorporated, Ericsson,Nokia	Neha Goel	69738
R2-1713567	Discussion on the impact of bandwidth parts in MN/SN coordination	ITRI	Chen Chun-Chia	44197
R2-1713568	Bandwidth part configuration during SN addition procedure	ITRI	Chen Chun-Chia	44197
R2-1713569	Cell reselection for network slicing	ITRI	Chen Chun-Chia	44197
R2-1713570	Discussion on the granularity of SI change notification	ITRI	Chen Chun-Chia	44197
R2-1713571	Discussion on the additional indication for on-demand SI	ITRI	Chen Chun-Chia	44197
R2-1713572	Cell reselection for inactive UE	ITRI	Chen Chun-Chia	44197
R2-1713573	Service-based cell reselection	ITRI, ASUSTeK	Chen Chun-Chia	44197
R2-1713574	PHR Text proposal	Ericsson	Mats Folke	43898
R2-1713575	Inbound mobility to the shared non-CSG small cells	SoftBank, Nokia, Nokia Shanghai Bell	Katsunari Uemura	38351
R2-1713576	Introduction of DL 2Gbps Category	Qualcomm Incorporated	Neha Goel	69738
R2-1713577	Details of Other SI scheduling information	ETRI	KyoungSeok Lee	26185

R2-1713578	Introduction of DL 2Gbps Category	Qualcomm Incorporated, NTT DOCOMO, INC.	Neha Goel	69738
R2-1713579	Other SI broadcast indication mechanism	ETRI	KyoungSeok Lee	26185
R2-1713580	BSR reporting for UL split bearer	Qualcomm Incorporated	Yu-Ting Yu	66425
R2-1713581	Addressing potentially excessive RETX_COUNT increment in RLC AM	Qualcomm Incorporated	Yu-Ting Yu	66425
R2-1713582	SDAP remaining issues	Qualcomm Incorporated	Yu-Ting Yu	66425
R2-1713583	Considerations on Reflective QoS	Qualcomm Incorporated	Yu-Ting Yu	66425
R2-1713584	PDCP duplication	Qualcomm Incorporated	Yu-Ting Yu	66425
R2-1713585	NR data rates effects on the UE and networks	Qualcomm Incorporated	Yu-Ting Yu	66425
R2-1713586	Location of QoS Flow ID in UL and DL packet	LG Electronics France	Geumsan Jo	70566
R2-1713587	Introduction of DL 2Gbps Category	Qualcomm Incorporated, NTT DOCOMO, INC.	Neha Goel	69738
R2-1713588	Remaining open issues of RLM and RLF in NR	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713589	Summary of Email discussion #20: RRM TP	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713590	TP on RRM	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713591	Parameters for cell quality derivation	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713592	Measurement object addition/ modification	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713593	Mobility states and speed based parameter scaling in NR	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713594	ANR framework in NR	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713595	TP on ANR to 36.300	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713596	Triggering of L3 filtered beam measurements	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713597	TP to stage-2 on measurements	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713598	Remaining issues of email discussion # 20 on measurement reporting	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713599	Triggering condition for A1-A6 events in NR	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713600	Impact of cell quality scaling in NR	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713601	Alternative Time To Trigger in NR	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713602	Support SSTD measurement configuration via NR	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713603	UE behavior upon CGI reporting	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713604	Further details of handover execution in NR	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713605	Enhancing Handover Failure	Ericsson	Icaro Leonardo Da Silva	58721

R2-1713606	Conditional Handover	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713607	Conditional Handover Simulation Results	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713608	On Reliability, overhead and controllability aspects of Conditional Handover	Ericsson	Icaro Leonardo Da Silva	58721
R2-1713609	QoS flow to DRB remapping	LG Electronics France	Geumsan Jo	70566
R2-1713610	Consideration on PDCP version change in eLTE	LG Electronics France	Bokyung Byun	69510
R2-1713611	RRC procedures for LTE connectivity to 5G-CN	LG Electronics France	Bokyung Byun	69510
R2-1713612	Support of ECN in NR	Ericsson, Nokia, Nokia Shanghai Bell, Vodafone	Mats Folke	43898
R2-1713613	New Generation Radio Access Network; User Equipment (UE) procedures in Idle mode	Qualcomm Incorporated	Ozcan Ozturk	42607
R2-1713614	Further consideration on INACTIVE feature	LG Electronics France	Bokyung Byun	69510
R2-1713615	Slicing support and cell reselection	Qualcomm Incorporated	Ozcan Ozturk	42607
R2-1713616	Consideration on MICO mode for RRC_INACTIVE	LG Electronics Inc.	Bokyung Byun	69510
R2-1713617	Support for PLMN selection in RRC_INACTIVE	LG Electronics Inc.	Bokyung Byun	69510
R2-1713618	CN-initiated paging for a UE in RRC_INACTIVE	LG Electronics Inc.	Bokyung Byun	69510
R2-1713619	Offloading UEs in RRC_INACTIVE	LG Electronics Inc.	Bokyung Byun	69510
R2-1713620	CA establishment from Idle	Ericsson	Hakan Palm	18830
R2-1713621	RRC Suspended and CA establishment	Ericsson	Hakan Palm	18830
R2-1713622	Direct activation at configuration	Ericsson	Hakan Palm	18830
R2-1713623	Measurement improvements for euCA	Ericsson	Hakan Palm	18830
R2-1713624	Alignment of FGI4 (Short DRX) for Cat M1	Ericsson	Hakan Palm	18830
R2-1713625	Alignment of FGI4 (Short DRX) for Cat M1 and M2	Ericsson	Hakan Palm	18830
R2-1713626	Missing optionality bit in UE capability signalling	Ericsson	Hakan Palm	18830
R2-1713627	Missing optionality bit in UE capability signalling	Ericsson	Hakan Palm	18830
R2-1713628	Discussion on remaining SUL issues for EN-DC	Ericsson	Hakan Palm	18830
R2-1713629	Draft TS 38.331 v0.2.0	Ericsson (Rapporteur)	Hakan Palm	18830
R2-1713630	TS38.331 Open Issues	Ericsson (Rapporteur)	Hakan Palm	18830
R2-1713631	Timer handling of RAN-based location area update	LG Electronics France	Bokyung Byun	69510
R2-1713632	Support for PLMN selection while in INACTIVE state in eLTE	LG Electronics Inc.	Bokyung Byun	69510
R2-1713633	Considerations for RA-RNTI calculation	LG Electronics Inc.	Eunjong Lee	72552
R2-1713634	INACTIVE state in eLTE	LG Electronics Inc.	Bokyung Byun	69510
R2-1713635	Enhance RRC configuration procedure in NR	Qualcomm Incorporated	Keiichi Kubota	43471
R2-1713636	Organization of NR System Information	Qualcomm Incorporated	Keiichi Kubota	43471
R2-1713637	NR SI area ID and value tag	Qualcomm Incorporated	Keiichi Kubota	43471
R2-1713638	Open issues on NR on-demand SI	Qualcomm Incorporated	Keiichi Kubota	43471
R2-1713639	Introduction of NR indicator	Qualcomm Incorporated	Keiichi Kubota	43471
R2-1713640	UL path switch upon SCG failure	Qualcomm Incorporated	Keiichi Kubota	43471
R2-1713641	Configuration of PDCP duplication on default DRB	ITL	Hyosun Yang	72243
R2-1713642	PHR in PDCP duplication with CA	ITL	Hyosun Yang	72243
R2-1713643	Simplification of RRC messages for NR	LG Electronics France	Bokyung Byun	69510
R2-1713644	(N)PRACH resource partitioning for EDT indication	LG Electronics Polska	Gyeongcheol LEE	70554
R2-1713645	PHR for multi-beam operation	LG Electronics Inc.	Eunjong Lee	72552

R2-1713646	Necessity of multi bit confirmation MAC CE	LG Electronics Inc.	Jeonggu Lee	70359
R2-1713647	Reflective QoS acknowledgement	ITL	Hyosun Yang	72243
R2-1713648	QoS Flow Remapping	ITL	Hyosun Yang	72243
R2-1713649	Clarification on MAX grant size for Msg3 and UP solution	LG Electronics Polska	Gyeongcheol LEE	70554
R2-1713650	BWP timer restart for DL SPS	LG Electronics Inc.	Eunjong Lee	72552
R2-1713651	Consideration on security aspect for inactive UEs	LG Electronics France	Bokyung Byun	69510
R2-1713652	Celebration of RAN2#100	Ericsson	Riikka Susitaival	44957
R2-1713653	Further consideration on SPS for NB-IoT	LG Electronics Inc.	Gyeongcheol LEE	70554
R2-1713654	SPS with implicit SCell deactivation	LG Electronics Inc.	Gyeongcheol LEE	70554
R2-1713655	Restart condition of sCellDeactivationTimer with skipping operation	LG Electronics Inc.	Gyeongcheol LEE	70554
R2-1713656	Impact of RAN1's Discontinuous Transmission Indication	ETSI	Zhe Chen	66576
R2-1713657	Simplification of RLC entity re-establishment	LG Electronics Polska	Gyeongcheol LEE	70554
R2-1713658	Impact of RAN1's Discontinuous Transmission Indication	CATT	Zhe Chen	66576
R2-1713659	Configurability for the presence of SDAP header	LG Electronics	Heejeong Cho	69854
R2-1713660	Draft TS 38.323 v101	LG Electronics Inc. (PDCP rapporteur)	SeungJune Yi	20814
R2-1713661	Summary of E-mail [99bis#44] PDCP pre-processing	LG Electronics Inc. (E-mail rapporteur)	SeungJune Yi	20814
R2-1713662	TP of E-mail [99bis#44] PDCP pre-processing	LG Electronics Inc. (E-mail rapporteur)	SeungJune Yi	20814
R2-1713663	PDCP data volume indication to MAC	LG Electronics Inc.	SeungJune Yi	20814
R2-1713664	SFN desynchronizaion between eNB and eDRX UE	NTT DOCOMO INC.	Ryusuke Matsukawa	64580
R2-1713665	UL split with LTE link	Sequans Communications	Olivier Marco	63229
R2-1713666	Considerations on release of a mapping of QoS flow to DRB	LG Electronics	Heejeong Cho	69854
R2-1713667	Discussion on SDAP entity establishment in DC	LG Electronics	Heejeong Cho	69854
R2-1713668	Further discussion on SDAP Configuration	LG Electronics	Heejeong Cho	69854
R2-1713669	SDAP header format	LG Electronics	Heejeong Cho	69854
R2-1713670	Latency reduction on V2X phase 2 for UEs using Mode 4	Samsung R&D Institute UK	Byoung-Yoon MIN	74099
R2-1713671	Correction on PDCCH-subframe	NTT DOCOMO INC.	Ryusuke Matsukawa	64580
R2-1713672	Correction on PDCCH-subframe	NTT DOCOMO INC.	Ryusuke Matsukawa	64580
R2-1713673	Report of Email Discussion 99bis#22 NR Filter Coefficients	MediaTek Inc.	Li-Chuan Tseng	59751
R2-1713674	NR Filter coefficients for different frequencies	MediaTek Inc.	Li-Chuan Tseng	59751
R2-1713675	NR Beam Measurements and UE Complexity	MediaTek Inc.	Li-Chuan Tseng	59751
R2-1713676	TP on capability coordination	HTC Corporation	Jing-Rong Hsieh	63040
R2-1713677	Draft LS on NR Beam Measurements	MediaTek Inc.	Li-Chuan Tseng	59751
R2-1713678	System Information Storage and Validity across NB-IOT Cells	MediaTek Inc.	Li-Chuan Tseng	59751
R2-1713679	On NB-IoT EDT indication via PRACH	MediaTek Inc.	Li-Chuan Tseng	59751
R2-1713680	Capability coordination in Inter-node RRC messages	HTC Corporation	Jing-Rong Hsieh	63040
R2-1713681	Enhancement of SRS antenna switching in TS 36.331	Huawei, HiSilicon	Li Zhao	62841
R2-1713682	Transmitter friendly RLC Status Report	Intel Corporation	Sudeep Palat	63872
R2-1713683	Enhancement of SRS antenna switching in TS 36.306	Huawei, HiSilicon	Li Zhao	62841
R2-1713684	TDM pattern coordination for 1Tx and Harmonic scenario	vivo	LI CHEN	70878
R2-1713685	Discussion on different handling for critical data	LG Electronics France	Geumsan Jo	70566
R2-1713686	Differant handling for critical data	LG Electronics France	Geumsan Jo	70566
R2-1713687	Discussion on a potential issue for BSR	HTC	ShiangRung Ye	41729
R2-1713688	Prioritized random access for beam failure recovery	Lenovo, Motorola Mobility	Wu Lianhai	70742

R2-1713689	Differant handling for critical data	LG Electronics France	Geumsan Jo	70566
R2-1713690	Introduction of further NB-IoT enhancements in 36.306	Ericsson	Martin Van Der Zee	58600
R2-1713691	Introduction of further NB-IoT enhancements in 36.322	Ericsson	Martin Van Der Zee	58600
R2-1713692	AS context in RRC_IDLE	LG Electronics Inc.	Youngdae Lee	33638
R2-1713693	Configurable cause for NR	LG Electronics Inc.	Youngdae Lee	33638
R2-1713694	Access category based access barring for RRC_IDLE and RRC_INACTIVE	LG Electronics Inc.	Youngdae Lee	33638
R2-1713695	CN paging DRX in RRC_IDLE	LG Electronics Inc.	Youngdae Lee	33638
R2-1713696	Impacts of BWP for UE in IDLE and INACTIVE	LG Electronics Inc.	Youngdae Lee	33638
R2-1713697	Remaining issues on on-demand SI request procedure	LG Electronics Inc.	Youngdae Lee	33638
R2-1713698	System information modification	LG Electronics Inc.	Youngdae Lee	33638
R2-1713699	Access category based access barring mechanism for RRC_CONNECTED	LG Electronics Inc.	Youngdae Lee	33638
R2-1713700	Handling of radio bearers and security for data transmission in RRC_INACTIVE	LG Electronics Inc.	Youngdae Lee	33638
R2-1713701	Handling of SRBs in connection re-establishment	LG Electronics Inc.	Youngdae Lee	33638
R2-1713702	Random Access Backoff and Access Barring	LG Electronics Inc.	Youngdae Lee	33638
R2-1713703	RAN paging DRX in RRC_INACTIVE	LG Electronics Inc.	Youngdae Lee	33638
R2-1713704	System information scheduling	LG Electronics Inc.	Youngdae Lee	33638
R2-1713705	UE dedicated on-demand SI delivery in NR	LG Electronics Inc.	Youngdae Lee	33638
R2-1713706	Support of SUL in EN-DC and Standalone NR HO	LG Electronics Inc.	Youngdae Lee	33638
R2-1713707	De-prioritization of duplicated transmission for V2X sidelink communication	LG Electronics Inc.	Youngdae Lee	33638
R2-1713708	Support of PDCP reordering function for DRB mapped on RLC UM	LG Electronics France	Geumsan Jo	70566
R2-1713709	Introduction of the extended number of bearers	Samsung	Alexander Sayenko	47308
R2-1713710	Introduction of Early Data Transmission (eMTC)	Qualcomm Incorporated	Umesh Phuyal	71775
R2-1713711	Introduction of the extended number of bearers	Samsung	Alexander Sayenko	47308
R2-1713712	Deliver stored PDCP SDUs for LWA bearer with RLC UM at PDCP re-establishment	LG Electronics	Geumsan Jo	70566
R2-1713713	Discussion on some FFSes on EDT	Qualcomm Incorporated	Umesh Phuyal	71775
R2-1713714	PDCP data recovery for SRB	LG Electronics France	Geumsan Jo	70566
R2-1713715	UE behaviour upon UL path switch	LG Electronics France	Geumsan Jo	70566
R2-1713716	Issues on PDCP duplication	LG Electronics France	Geumsan Jo	70566
R2-1713717	Reduce LTE UECapabilityInformation signaling size	Qualcomm Korea	Neha Goel	69738
R2-1713718	Reduction of LTE UECapabilityInformation signaling size	Qualcomm Korea	Neha Goel	69738
R2-1713719	Cell quality derivation in IDLEINACTIVE	LG Electronics Inc.	Sangwon Kim	44642
R2-1713720	Details of CSI-RS configuration in MO	LG Electronics Inc.	Sangwon Kim	44642
R2-1713721	Mobility history reporting in NR	LG Electronics Inc.	Sangwon Kim	44642
R2-1713722	NR measurements in LTE measurement report for EN-DC	LG Electronics Inc.	Sangwon Kim	44642
R2-1713723	Other-SI request and acquisition in CONNECTED	LG Electronics Inc.	Sangwon Kim	44642
R2-1713724	Reporting condition of IDLE measurements	LG Electronics Inc.	Sangwon Kim	44642
R2-1713725	Service based cell reselection	LG Electronics Inc.	Sangwon Kim	44642
R2-1713726	SI valid area configuration	LG Electronics Inc.	Sangwon Kim	44642
R2-1713727	SDAP header excluded from PDCP ciphering	Qualcomm Incorporated	Ruiming Zheng	49864
R2-1713728	RLC UM support for split bearers in MR-DC	NEC	Hisashi Futaki	38636
R2-1713729	Clarifications on BWP set configuration	NEC	Hisashi Futaki	38636
R2-1713730	Handling of SCG DRB configuration at RLF in EN-DC	NEC	Hisashi Futaki	38636
R2-1713731	NR data rates effects on the UE and networks	Qualcomm Incorporated	Yu-Ting Yu	66425

R2-1713732	Consideration on NR paging	Qualcomm Incorporated	Ozcan Ozturk	42607
R2-1713733	BWP and RLM in NR	Ericsson	Helka-liina Maattanen	61821
R2-1713734	Beam link monitoring in NR	Ericsson	Helka-liina Maattanen	61821
R2-1713735	Remaining details for MO definition	Ericsson	Helka-liina Maattanen	61821
R2-1713736	Layer 3 mobility based on CSI-RS events	Ericsson	Helka-liina Maattanen	61821
R2-1713737	Configuration of measurement gap in NR	Ericsson	Helka-liina Maattanen	61821
R2-1713738	RRC configuration of CSI-MeasConfig	Ericsson	Helka-liina Maattanen	61821
R2-1713739	Discussion on AllowInterruption in NR and EN-DC	Ericsson	Helka-liina Maattanen	61821
R2-1713740	[DRAFT] LS to RAN4 on need of allowInterruption	Ericsson	Helka-liina Maattanen	61821
R2-1713741	Measurement priority handling in NR	Ericsson	Helka-liina Maattanen	61821
R2-1713742	Discussion on Intra-Cell Handover with CN Type Change	OPPO	Lei Yixue	73172
R2-1713743	Discussion on response beam selection in indication-based paging	ASTRI, TCL Communication Ltd.	Eddy Chiu	62310
R2-1713744	Discussion on RAN-based location area update procedure in NR	ASTRI, TCL Communication Ltd.	Eddy Chiu	62310
R2-1713745	Discussion on CN type selection in RRC connection re-establishment	HTC Corporation	Eric Chen	45162
R2-1713746	Discussion on downlink overhead reduction for NR paging	ASTRI, TCL Communication Ltd.	Eddy Chiu	62310
R2-1713747	Discussion on Conditional Handover in NR	ASTRI, TCL Communication Ltd.	Eddy Chiu	62310
R2-1713748	Mode3/Mode 4 resource pool sharing on V2X phase 2	Samsung R&D Institute UK	Byoung-Yoon MIN	74099
R2-1713749	Mode 3 behaviour in shared resource pools for V2X phase 2	Samsung R&D Institute UK	Byoung-Yoon MIN	74099
R2-1713750	Mode 4 behaviour in shared resource pools for V2X phase 2	Samsung R&D Institute UK	Byoung-Yoon MIN	74099
R2-1713751	Shared resource pool configuration on V2X phase 2	Samsung R&D Institute UK	Byoung-Yoon MIN	74099
R2-1713752	AMF selection based on assistance information	LG Electronics Inc.	HyunJung Choe	74476
R2-1713753	Support for IMS emergency services in NR	LG Electronics Inc.	HyunJung Choe	74476
R2-1713754	Issues on early data transmission (related to email discussion)	LG Electronics Inc.	HyunJung Choe	74476
R2-1713755	Access barring for CE level in efeMTC	LG Electronics Inc.	HyunJung Choe	74476
R2-1713756	Access barring for CE level in feNB-IOT	LG Electronics Inc.	HyunJung Choe	74476
R2-1713757	Assistance information delivery for E-UTRA connected 5GC	LG Electronics Inc.	HyunJung Choe	74476
R2-1713758	Indication of support for EDT	LG Electronics Inc.	HyunJung Choe	74476
R2-1713759	Latency reduction on V2X phase 2 for sidelink SPS UEs	Samsung R&D Institute UK	Byoung-Yoon MIN	74099
R2-1713760	NR forward compatibility issue for CSG	LG Electronics Inc.	Oanyong Lee	70348
R2-1713761	NR inter-RAT mobility to CSG cell	LG Electronics Inc.	Oanyong Lee	70348
R2-1713762	Idle Measurement Enhancement using UE speed	LG Electronics Inc.	Oanyong Lee	70348
R2-1713763	Optimization of SI acquisition in MTC	LG Electronics Inc.	Oanyong Lee	70348
R2-1713764	MIB-NB skipping in NB-IoT	LG Electronics Inc.	Oanyong Lee	70348

R2-1713765	Relaxed monitoring in NB-IoT and MTC	LG Electronics Inc.	Oanyong Lee	70348
R2-1713766	Sidelink SPS confirmation for multiple SPS configurations	Samsung R&D Institute UK	Byoung-Yoon MIN	74099
R2-1713767	Introduction of Operator controlled dictionary for UDC	MediaTek Inc	Randy Liu	74551
R2-1713768	Introduction of Operator-defined dictionary for UDC	MediaTek Inc	Randy Liu	74551
R2-1713769	Introduction of UDC checksum error handling	MediaTek Inc	Randy Liu	74551
R2-1713770	Solutions on UE assisted information for local cache	Qualcomm Incorporated	Ruiming Zheng	49864
R2-1713771	Introduction of assistance information for local cache (PDCP)	Qualcomm Incorporated	Ruiming Zheng	49864
R2-1713772	RAN2 aspect on fast carrier switch	Samsung Electronics	Sunheui Ryoo	73376
R2-1713773	Remaining issues on suspension to INACTIVE in MR dual connectivity	Samsung Electronics	Sunheui Ryoo	73376
R2-1713774	Guaranteed power for Power Headroom in EN-DC	Samsung Electronics	Sunheui Ryoo	73376
R2-1713775	PHR triggering event for beam change	Samsung Electronics	Sunheui Ryoo	73376
R2-1713776	Extended PHR considering beam and TRxP change	Samsung Electronics	Sunheui Ryoo	73376
R2-1713777	UE Assistance Information for energy efficiency enhancement	Samsung Electronics	Sunheui Ryoo	73376
R2-1713778	L2 parameter update for RRC Activation and Inactivation	Samsung Electronics	Sunheui Ryoo	73376
R2-1713779	Introduction of assistance information for local cache (RRC)	Qualcomm Incorporated	Ruiming Zheng	49864
R2-1713780	Introduction of assistance information for local cache (capabilities)	Qualcomm Incorporated	Ruiming Zheng	49864
R2-1713781	Use of multiple P-RNTIs for NR paging	Qualcomm Incorporated	Ozcan Ozturk	42607
R2-1713782	NR UE Capability Size Reduction	LG Electronics Inc.	Hongsuk Kim	70379
R2-1713783	DRB Handling while RRC Connection Re-establishment in NR	LG Electronics Inc.	Hongsuk Kim	70379
R2-1713784	Issues on Wake-Up Signal for NB-IoT	LG Electronics Inc.	Hongsuk Kim	70379
R2-1713785	Early Data Transmission Failure Handling in NB-IoT	LG Electronics Inc.	Hongsuk Kim	70379
R2-1713786	Issues on Wake-Up Signal for MTC	LG Electronics Inc.	Hongsuk Kim	70379
R2-1713787	Early Data Transmission Failure Handling in MTC	LG Electronics Inc.	Hongsuk Kim	70379
R2-1713788	Handover Support using Positioning Identification	LG Electronics Inc.	Hongsuk Kim	70379
R2-1713789	Handover Support using TTT for Aerial UE	LG Electronics Inc.	Hongsuk Kim	70379
R2-1713790	Handover Failure Handling of Aerial UE	LG Electronics Inc.	Hongsuk Kim	70379
R2-1713791	Discussion on the L2 Impact from Packet Duplication	Huawei, HiSilicon	Li Chai	40955
R2-1713792	Aperiodic indications due to Beam Recovery	Samsung Electronics	Byounghoon Jung	66662
R2-1713793	Beamformed NR C-DRX operation	Samsung Electronics	Byounghoon Jung	66662
R2-1713794	Cell quality derivation method for NR IDLE mode	Samsung Electronics	Byounghoon Jung	66662
R2-1713795	Cell selection reselection method for NR IDLE mode	Samsung Electronics	Byounghoon Jung	66662
R2-1713796	NR signals for downlink beam management	Samsung Electronics	Byounghoon Jung	66662
R2-1713797	RAN1 agreements based beam recovery procedure	Samsung Electronics	Byounghoon Jung	66662
R2-1713798	Speed dependant parameters in NR IDLE and INACTIVE mode mobility	Samsung Electronics	Byounghoon Jung	66662
R2-1713799	Cell Barring and Reservations for NR	Qualcomm Incorporated	Ozcan Ozturk	42607
R2-1713800	Details of prioritized random access	AsusTek, CATT, Convida, Ericsson, Huawei, Intel, Interdigital, ITRI, OPPO, Qualcomm, Vivo	Linhai He	72003

R2-1713801	Power management by cross-RAT signaling in NSA configuration	Qualcomm Incorporated	Linhai He	72003
R2-1713802	Wakeup signaling for C-DRX mode	Qualcomm Incorporated, Apple, OPPO	Linhai He	72003
R2-1713803	Wakeup signaling for multi-beam systems	Qualcomm Incorporated	Linhai He	72003
R2-1713804	Power allocation and PHR for UL split bearer	Qualcomm Incorporated	Linhai He	72003
R2-1713805	On BSR cancellation conditions	Qualcomm, Intel, MediaTek	Linhai He	72003
R2-1713806	BWPs for random access in connected mode	Qualcomm Incorporated	Linhai He	72003
R2-1713807	Granularity of HARQ timing parameters with BWP	Qualcomm Incorporated	Linhai He	72003
R2-1713808	Backoff indication in mmW systems	Qualcomm Incorporated	Linhai He	72003
R2-1713809	On RA-RNTI calculation	Qualcomm Incorporated	Linhai He	72003
R2-1713810	On the impact of supplementary uplink on HARQ configurations	Qualcomm Incorporated	Linhai He	72003
R2-1713811	CSG Type Functionality for NR	Qualcomm Incorporated, Deutsche Teleko	Ozcan Ozturk	42607
R2-1713812	Relaxed monitoring in NB-IoT in 36.304	LG Electronics	Oanyong Lee	70348
R2-1713813	Remaining Issues on SR for short TTI	Qualcomm Incorporated	Ozcan Ozturk	42607
R2-1713814	Relaxed monitoring in NB-IoT in 36.331	LG Electronics	Oanyong Lee	70348
R2-1713815	Further details of Autonomous Uplink Access for eLAA	Qualcomm Incorporated	Ozcan Ozturk	42607
R2-1713816	New parameters on NPDCCH for skipping MIB-NB	LG Electronics	Oanyong Lee	70348
R2-1713817	Corrections to V2X functionality	LG Electronics Inc.	Jaewook Lee	56681
R2-1713818	Potential new MAC CE	NTT DOCOMO INC.	Toru Uchino	54995
R2-1713819	ANR for NR	LG Electronics Inc.	Jaewook Lee	56681
R2-1713820	Conditional handover procedure	LG Electronics Inc.	Jaewook Lee	56681
R2-1713821	Measurement gap considering beam	LG Electronics Inc.	Jaewook Lee	56681
R2-1713822	Radio resource pool sharing between UEs using mode 3 and UEs using mode 4	LG Electronics Inc.	Jaewook Lee	56681
R2-1713823	Consideration on packet duplication	LG Electronics Inc.	Jaewook Lee	56681
R2-1713824	RAN2 aspects regarding support of 64QAM and TX diversity	LG Electronics Inc.	Jaewook Lee	56681
R2-1713825	SLSS resource configuration	LG Electronics Inc.	Jaewook Lee	56681
R2-1713826	Correction to SLSS resource configuration	LG Electronics Inc.	Jaewook Lee	56681
R2-1713827	PDCP parameter applicability for SRB	NTT DOCOMO INC.	Toru Uchino	54995
R2-1713828	Considerations on sidelink packet duplication	ITL	Kibum Kwon	58616
R2-1713829	Activation and Deactivation of PDCP Duplication	Samsung	Sangkyu Baek	73380
R2-1713830	Discussion on CA Duplication	Samsung	Sangkyu Baek	73380
R2-1713831	Initial State of Uplink Packet Duplication	Samsung	Sangkyu Baek	73380
R2-1713832	Interaction between RLC Entities for PDCP Duplication	Samsung	Sangkyu Baek	73380
R2-1713833	RLC Max Retransmissions in CA Duplication	Samsung	Sangkyu Baek	73380
R2-1713834	Considerations on operating mode configuration for sidelink CA	ITL	Kibum Kwon	58616
R2-1713835	Correction to SLSS resource configuration	LG Electronics Inc.	Jaewook Lee	56681
R2-1713836	L2 handling for bearer type change covering option 2x/2c	NTT DOCOMO, INC.	Hideaki Takahashi	60906
R2-1713837	Bearer type change with PDPC version change	NTT DOCOMO INC.	Toru Uchino	54995
R2-1713838	Bearer type change with PDPC version change	NTT DOCOMO INC.	Toru Uchino	54995
R2-1713839	Discussion on SPS support with enhanced Carrier Aggregation	Samsung	Youngjoong Mok	70634

R2-1713840	EAB indications in MIB	Sierra Wireless, S.A.	Steven Bennett	58645
R2-1713841	Packet Duplication for the Sidelink Carrier Aggregation	Samsung	Youngjoong Mok	70634
R2-1713842	Beam Refinement Considering RRM Measurement based on NR-SS	Samsung Electronics	Jungmin Moon	58549
R2-1713843	Conditional Handover: Event Design Aspects	Samsung Electronics	Jungmin Moon	58549
R2-1713844	Discussion on Speed-dependent Scaling of Measurement-related Parameters and Mobility History Reporting in NR	Samsung Electronics	Jungmin Moon	58549
R2-1713845	Scenarios of Measurement Gap Considering Bandwidth Part	Samsung Electronics	Jungmin Moon	58549
R2-1713846	The Impact of Beam Sweeping on RRM Measurement	Samsung Electronics	Jungmin Moon	58549
R2-1713847	The Impact of SUL on UL Transmission without Grant	Samsung Electronics	Jungmin Moon	58549
R2-1713848	The Necessity of Fast RLF Recovery based on T312 in NR	Samsung Electronics	Jungmin Moon	58549
R2-1713849	Discussion on the Use of Alternative TTT in NR	Samsung Electronics	Jungmin Moon	58549
R2-1713850	Discussion on intra-frequency DC as an aggregating solution and mobility solution	Samsung R&D Institute UK	June Hwang	60033
R2-1713851	Common C-RNTI for common PDCCH	CMCC	Ningyu Chen	62843
R2-1713852	Re-configuration scenarios for the NR QoS framework	Samsung	Alexander Sayenko	47308
R2-1713853	Problem of DC enhancement for 0 ms interruption time	Samsung R&D Institute UK	June Hwang	60033
R2-1713854	Problem of DC enhancement for 0 ms interruption time	Samsung R&D Institute UK	June Hwang	60033
R2-1713855	Introduction of Conditional handover	Samsung R&D Institute UK	June Hwang	60033
R2-1713856	Introduction of Conditional handover	Samsung R&D Institute UK	June Hwang	60033
R2-1713857	Operational aspects of conditional handover mechanism	Samsung R&D Institute UK	June Hwang	60033
R2-1713858	RLM and RLF signalling structure for NR and TP for TS 38.331	Samsung R&D Institute UK	June Hwang	60033
R2-1713859	RLF signalling for BWP	Samsung R&D Institute UK	June Hwang	60033
R2-1713860	RLF signalling for BWP	Samsung R&D Institute UK	June Hwang	60033
R2-1713861	SI modification for Stored SI	ITL	Kibum Kwon	58616
R2-1713862	PRACH for EDT requests	Sierra Wireless, S.A.	Steven Bennett	58645
R2-1713863	Alignment with QoS section in TS 23.501	SHARP Corporation	Takako Sanda	71762
R2-1713864	Handling of EPS bearer identity in EN-DC	SHARP Corporation	Takako Sanda	71762
R2-1713865	Remaining aspects to support bandwidth part	Samsung	Seung-hoon Park	58554
R2-1713866	Connected mobility aspects to support network slicing	Samsung	Seung-hoon Park	58554
R2-1713867	Issues on timer-based BWP switching	Samsung	Seung-hoon Park	58554
R2-1713868	Remaining issues on bandwidth part configuration	Samsung	Seung-hoon Park	58554
R2-1713869	RRM measurement to support bandwidth parts in NR	Samsung	Seung-hoon Park	58554
R2-1713870	RAN2 impact of non-contiguous CA	Samsung	Seung-hoon Park	58554
R2-1713871	RRM measurement for multiple numerologies in NR	Samsung	Seung-hoon Park	58554
R2-1713872	RRM considerations for adaptive bandwidth in NR	Samsung	Seung-hoon Park	58554
R2-1713873	Paging for wideband carrier in NR	Samsung	Seung-hoon Park	58554
R2-1713874	Consideration on Required Reliability for Tx Carrier Selection	Samsung	Youngjoong Mok	70634
R2-1713875	Clarification on averaging window for RAN assisted codec rate adaptation	Qualcomm Incorporated	Neha Goel	69738
R2-1713876	Control of UL Split or Duplicate MCG SRB	Samsung Electronics GmbH	Jungsoo Jung	40884
R2-1713877	Message 3 support for Sub-PRB Uplink	Sierra Wireless, S.A.	Steven Bennett	58645

R2-1713878	RAN2 aspects to support dual registration	Samsung Electronics GmbH	Jungsoo Jung	40884
R2-1713879	Summary of e-mail discussion [99bis43] Impact of BWP	LG Electronics UK	SunYoung LEE	56452
R2-1713880	TP for outcome of 99bis-43 Impact of BWP	LG Electronics UK	SunYoung LEE	56452
R2-1713881	RAN2 aspect for HARQ in NR	LG Electronics UK	SunYoung LEE	56452
R2-1713882	TTI restriction for retransmission	LG Electronics UK	SunYoung LEE	56452
R2-1713883	HARQ process ID calculation for SPS with SkipULTx	LG Electronics UK	SunYoung LEE	56452
R2-1713884	[Draft] Reply LS on simultaneous transmission and/or reception over EPC/E-UTRAN and 5GC/NR	Samsung Electronics GmbH	Jungsoo Jung	40884
R2-1713885	Remaining control plane issues of BWP	Qualcomm Incorporated	Peng Cheng	62902
R2-1713886	Initial Access considering Network Slices	Samsung Electronics GmbH	Jungsoo Jung	40884
R2-1713887	Discussion on C1/C2 events	Qualcomm Incorporated	Peng Cheng	62902
R2-1713888	Beam recovery request	Qualcomm Incorporated	Peng Cheng	62902
R2-1713889	Slice Information in RRC	Samsung Electronics GmbH	Jungsoo Jung	40884
R2-1713890	Beam reporting and refinement during handover	Qualcomm Incorporated	Peng Cheng	62902
R2-1713891	TDM pattern for single uplink operation	Samsung Electronics GmbH	Jungsoo Jung	40884
R2-1713892	Beam management in C-DRX	Qualcomm Incorporated	Peng Cheng	62902
R2-1713893	RAN2 consideration on control plane latency enhancement	Samsung Electronics GmbH	Jungsoo Jung	40884
R2-1713894	Beam refinement after beam recovery or scheduling request	Qualcomm Incorporated	Peng Cheng	62902
R2-1713895	RAN2 consideration on user plane latency enhancement	Samsung Electronics GmbH	Jungsoo Jung	40884
R2-1713896	RRC configuration of SUL	Qualcomm Incorporated	Peng Cheng	62902
R2-1713897	Simulation Results and Analysis of Mobility Issues for Drones	Huawei, HiSilicon	Li Chai	40955
R2-1713898	RLM RS type and L3 parameter differentiation	Samsung R&D Institute UK	June Hwang	60033
R2-1713899	SCG change failure in EN-DC	Qualcomm Europe Incorporated	Keiichi Kubota	43471
R2-1713900	TP on UE triggered transition from RRC_INACTIVE to RRC_CONNECTED	vivo	LI CHEN	70878
R2-1713901	TP for 37340 - Introducing bearer harmonization	Ericsson, Samsung	Stefan Wager	65332
R2-1713902	Separate configurations for UL and DL PDCP SN lengths	HTC Corporation	Frank Wu	65148
R2-1713903	Unified Access Control in different RRC Modes	Qualcomm Incorporated	Ozcan Ozturk	42607
R2-1713904	Discussion on UDC checksum error handling and message formats	MediaTek Inc., CATT	Randy Liu	74551
R2-1713905	Discussion on new measurements on number of active UEs	China Telecommunications	Sen Xu	56667
R2-1713906	TP for 37340 - Introducing bearer harmonization	Ericsson, Samsung	Stefan Wager	65332
R2-1713907	Summary of email discussion [99bis#29][LTE/UDC] Operator controlled dictionary issue [MTK]	MediaTek Inc.	Randy Liu	74551
R2-1713908	Introduction of new measurement on number of active UEs	China Telecommunications	Sen Xu	56667
R2-1713909	Beam selection enhancement for RACH based HO in NR	OPPO	Jari Isokangas	70516
R2-1713910	UL resource allocation and usage for beam failure recovery	OPPO	Jari Isokangas	70516
R2-1713911	RAN2 Compendium	MCC	Juha Korhonen	21609

R2-1713912	UE capability for increased number of carrier monitoring	Ericsson	Janne Peisa	33372
R2-1713913	Measurement Requirements for Deactivated Secondary Component Carriers	Ericsson	Janne Peisa	33372
R2-1713914	Mobility Enhancements in NR	Ericsson	Janne Peisa	33372
R2-1713915	LocationInfo reporting	Ericsson	Janne Peisa	33372
R2-1713916	NR CSI-RS Configuration for RRM Measurement	Samsung Electronics	Byounghoon Jung	66662
R2-1713917	DL SPS Operation in NR	Samsung	Pravjyot Singh Deogun	64590
R2-1713918	Measurement Gap Configuration for EN-DC	Samsung	Pravjyot Singh Deogun	64590
R2-1713919	Remaining Issues for SCG Failure	Samsung	Pravjyot Singh Deogun	64590
R2-1713920	Supporting Lossless Inter-RAT Handover	Samsung	Pravjyot Singh Deogun	64590
R2-1713921	Inter-RAT Measurement Framework	Samsung	Pravjyot Singh Deogun	64590
R2-1713922	Generic error handling in NR RRC	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1713923	Remaining Issues for SCG Failure	Samsung	Pravjyot Singh Deogun	64590
R2-1713924	Uplink TA maintenance with multi-beam operation	Huawei, HiSilicon	Chong Lou	67583
R2-1713925	LTE Control Plane Latency Reduction	Vodafone Group plc	Alexej Kulakov	32810
R2-1713926	[DRAFT] LS on LTE Control Plane Latency Reduction	Vodafone	Alexej Kulakov	32810
R2-1713927	Liaison Statement on defining a common value for SPID for Unmanned Aircraft	GSM Association	Barbara Pareglio	63010
R2-1713928	Reply LS on short processing time and short TTI (R1-1719223; contact: Ericsson)	RAN1	Laetitia Falconetti	63379
R2-1713929	LS on RRC parameters for WI on shortened TTI and processing time for LTE (R1-1719231; contact: Ericsson)	RAN1	Marten Sundberg	37909
R2-1713930	LS on maximum TA and processing time for LTE shortened processing time and short TTI (R1-1719238; contact: Nokia)	RAN1	Klaus Hugl	68338
R2-1713931	LS reply on SPS for short TTI (R1-1719248; contact: Huawei)	RAN1	Yubo Yang	61945
R2-1713932	RAN initiated paging	Huawei, HiSilicon	Mazin Al-Shalash	47174
R2-1713933	Reply LS on default values for 5GS QoS averaging window for standardised 5QIs (S4-171363; contact: Qualcomm)	SA4	Nikolai Leung	38562
R2-1713934	Clarification on RQI bits	TCL, OPPO	Xin Xia	71232
R2-1713935	On the optionality of the INACTIVE state	Samsung	Alexander Sayenko	47308
R2-1713936	Correction of reference for kPHICH value	Ericsson India Private Limited	Cecilia Eklof	59618
R2-1713937	TP on UE triggered transition from RRC_INACTIVE to RRC_CONNECTED	vivo, Rapporteur (Nokia)	LI CHEN	70878
R2-1713938	Additional Issues of the SR Procedure	Beijing Xiaomi Mobile Software	XIAOWEI JIANG	66759
R2-1713939	Complete text proposal for NR random access procedure	Huawei, HiSilicon	Yinghao Guo	72226
R2-1713940	LS on RRC parameters for NR (R1-1719250; contact: Ericsson)	RAN1	Daniel Larsson	39861
R2-1713941	BWP Inactivity Timer and DRX	Ericsson	Mats Folke	43898
R2-1713942	TP to support BWP operation in stage-3 RRC	MediaTek Inc.	Yuanyuan Zhang	56702
R2-1713943	List of open issues on NR MAC	Samsung (Rapporteur)	Jaehyuk Jang	46012
R2-1713944	Small issues on NR MAC	Samsung	Jaehyuk Jang	46012
R2-1713945	Details on SCell activation/ deactivation	Samsung	Jaehyuk Jang	46012

R2-1713946	Discussion on RACH issue and UE capability for SUL operation	OPPO	Yang Ning	62986
R2-1713947	Discussion on Remaining Issues for RRM Configuration	OPPO	Yang Ning	62986
R2-1713948	Impacts of SUL on PHR	Huawei, HiSilicon	Chong Lou	67583
R2-1713949	Introducing support for NR, changes relevant for NSA	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713950	Harmonised transfer of NR related capabilities	Samsung Telecommunications	Himke Van der Velde	3491
R2-1713951	Correction on NR-PBCH Definition for TS 38.331	OPPO	Lei Yixue	73172
R2-1713952	LS Reply to 3GPP SA2 on Status Icon related to 5G	GSM Association	Dongwook Kim	66121
R2-1713953	TP on potential enhancements for mobility performance	Ericsson	Zhenhua Zou	73815
R2-1713954	Discussion on the beam failure recovery impact on RAN2	ZTE Corporation, Sanechips	Eswar Vutukuri	73442
R2-1713955	Remaining stage-2 issues of SUL carrier for EN-DC	vivo, CATR	Yumin Wu	71221
R2-1713956	Introduction of RLC UM in 36.331	Huawei, HiSilicon	Odile Rollinger	60606
R2-1713957	Reject of unprotected redirect to GERAN	Ericsson	Juha Korhonen	21609
R2-1713958	[DRAFT] Reply LS on LTE call redirection to GERAN	Ericsson	Juha Korhonen	21609
R2-1713959	Correction to UE-Capability-NB extension and provision for late rel-13 corrections	Sequans Communications	Juha Korhonen	21609
R2-1713960	Clarification on eDRX in NB-IoT	Nokia	Juha Korhonen	21609
R2-1713961	Clarification on eDRX in NB-IoT	Nokia	Juha Korhonen	21609
R2-1713962	Small corrections to CarrierConfigDedicated, T322 and t-reordering default configuration	Huawei, HiSilicon	Juha Korhonen	21609
R2-1713963	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Juha Korhonen	21609
R2-1713964	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Juha Korhonen	21609
R2-1713965	Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC	Huawei, HiSilicon	Juha Korhonen	21609
R2-1713966	nn	Johan's tdocs	Juha Korhonen	21609
R2-1713967	Introducing a definition for the term UE in CE	Intel Corporation, Ericsson, Huawei, HiSilicon, LG	Juha Korhonen	21609
R2-1713968	Introducing a definition for the term UE in CE	Intel Corporation, Ericsson, Huawei, HiSilicon, LG	Juha Korhonen	21609
R2-1713969	Correction to cell barring for coverage enhancement	Huawei, HiSilicon, Intel Corporation	Juha Korhonen	21609
R2-1713970	Correction to cell barring for coverage enhancement	Huawei, HiSilicon, Intel Corporation	Juha Korhonen	21609
R2-1713971	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Juha Korhonen	21609
R2-1713972	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Juha Korhonen	21609
R2-1713973	[DRAFT] Reply LS on Issue with handovers in eMTC	Qualcomm Incorporated	Juha Korhonen	21609
R2-1713974	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Juha Korhonen	21609
R2-1713975	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Juha Korhonen	21609
R2-1713976	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Juha Korhonen	21609

R2-1713977	TM6 capabilities in CE mode	Ericsson, Sequans, Qualcomm Incorporated	Juha Korhonen	21609
R2-1713978	Target cell optional PBCH repetition status indication	Qualcomm Incorporated	Juha Korhonen	21609
R2-1713979	Correction on mac-ContentionResolutionTimer for FeMTC and eNB-IoT	Nokia, Nokia Shanghai Bell	Juha Korhonen	21609
R2-1713980	Correction on the field description of ce-PDSCH-TenProcesses	Huawei, HiSilicon	Juha Korhonen	21609
R2-1713981	Clarification on srs-UpPtsAdd in SRS coverage enhancement	Intel Corporation	Juha Korhonen	21609
R2-1713982	Scheduling information of SIB1-BR when skipping MIB during HO	Intel Corporation	Juha Korhonen	21609
R2-1713983	Correction to actions related to InterFreqRSTDMeasurementIndication message	Qualcomm Incorporated	Juha Korhonen	21609
R2-1713984	Correction on PRS hopping configuration	Huawei, HiSilicon	Juha Korhonen	21609
R2-1713985	MBSFN subframes for target cell during handover to CE cell	Qualcomm Incorporated	Juha Korhonen	21609
R2-1713986	MBSFN subframes for target cell during handover to CE cell	Qualcomm Incorporated	Juha Korhonen	21609
R2-1713987	Introduction of relaxed monitoring in NB-IoT	Ericsson	Juha Korhonen	21609
R2-1713988	Introduction of relaxed monitoring in NB-IoT	Ericsson	Juha Korhonen	21609
R2-1713989	Introduction of relaxed monitoring in NB-IoT	Ericsson	Juha Korhonen	21609
R2-1713990	nn	Johan's tdocs	Juha Korhonen	21609
R2-1713991	Correction on downlink reception type combination for SC-PTM in feMTC	Huawei, HiSilicon	Juha Korhonen	21609
R2-1713992	Correction to Radio Resource common configuration during CE->NC Handover for Rel-13 eMTC	Huawei Technologies Co. Ltd.	Brian Martin	72959
R2-1713993	[DRAFT] LS on Rel-15 NB-IoT work progress	Huawei	Juha Korhonen	21609
R2-1713994	Successful acknowledgement of RRCConnectionRelease	Ericsson, Huawei, HiSilicon	Juha Korhonen	21609
R2-1713995	[DRAFT] Reply LS on Data support for "voice centric" UE supporting CE mode B	Intel Corporation	Juha Korhonen	21609
R2-1713996	NRS-CRS power offset configuration for NB-IoT	ZTE Corporation, Sanechips	Juha Korhonen	21609
R2-1713997	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Juha Korhonen	21609
R2-1713998	Corrections on field description of cellSelectionInfoCE for eMTC	Huawei, HiSilicon, CMCC	Juha Korhonen	21609
R2-1713999	Reply LS on Issue with handovers in eMTC	RAN2	Juha Korhonen	21609
R2-1714000	Correction to UE-Capability-NB extension and provision for late rel-13 corrections	Sequans Communications	Juha Korhonen	21609
R2-1714001	Clarification on carrier index in PDCCH order	Huawei, HiSilicon	Juha Korhonen	21609
R2-1714002	Introduction of relaxed monitoring in NB-IoT	Ericsson, Huawei, HiSilicon, LG Electronics	Juha Korhonen	21609
R2-1714003	Introduction of relaxed monitoring in NB-IoT	Ericsson, Huawei, HiSilicon, LG Electronics	Juha Korhonen	21609
R2-1714004	Introduction of relaxed monitoring in NB-IoT	Ericsson	Juha Korhonen	21609
R2-1714005	Introduction of further NB-IoT enhancements in 36.322	Ericsson	Juha Korhonen	21609
R2-1714006	[DRAFT] Reply LS to RAN1 on wake-up signal	Huawei	Juha Korhonen	21609
R2-1714007	Clarification on carrier index in PDCCH order	Huawei, HiSilicon	Juha Korhonen	21609
R2-1714008	Reply LS to RAN1 on wake-up signal	RAN2	Juha Korhonen	21609

R2-1714009	Introduction of the overheating indication	Huawei Device, Huawei, HiSilicon, IPCom, Nokia, Nokia Shanghai Bell, MediaTek	Juha Korhonen	21609
R2-1714010	Introduction of the overheating indication	Huawei Device, Huawei, HiSilicon, IPCom, MediaTek	Juha Korhonen	21609
R2-1714011	Clarifications on V2X SL communications	Intel Corporation	Juha Korhonen	21609
R2-1714012	[DRAFT] Reply LS on LS on default values for 5GS QoS averaging window for standardised 5QIs	Nokia	Juha Korhonen	21609
R2-1714013	Reply LS on unified Access Control for 5G NR	RAN2	Juha Korhonen	21609
R2-1714014	[DRAFT] Reply LS on System acquisition time reduction for Rel-15 LTE MTC	Huawei, HiSilicon	Juha Korhonen	21609
R2-1714015	Reply LS on System acquisition time reduction for Rel-15 LTE MTC	RAN2	Juha Korhonen	21609
R2-1714016	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714017	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714018	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714019	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714020	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714021	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714022	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714023	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714024	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714025	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714026	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714027	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714028	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714029	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714030	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714031	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714032	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714033	nn	Emre's tdocs	Juha Korhonen	21609
R2-1714034	L3 filtering configuration	Ericsson	Juha Korhonen	21609
R2-1714035	Transmission of P2X sidelink communication in Exceptional Pool	Qualcomm Incorporated	Juha Korhonen	21609
R2-1714036	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Juha Korhonen	21609
R2-1714037	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Juha Korhonen	21609
R2-1714038	Table 8.2-2 correction of the remarks for DL reception type of Sidelink and FeMBMS and move of EPDCCH remark to the bottom of the table	Ericsson	Juha Korhonen	21609
R2-1714039	Correction to Inter-frequency reception for V2X sidelink communication	Huawei, HiSilicon	Juha Korhonen	21609

R2-1714040	Introduction of a new UE capability for ssp10 with less CRS	CMCC	Juha Korhonen	21609
R2-1714041	Introduction of a new configuration for ssp10 with less CRS	CMCC	Juha Korhonen	21609
R2-1714042	Introduction of Enhanced CRS and SU-MIMO Interference Mitigation Performance Requirements for LTE	Intel Corporation	Juha Korhonen	21609
R2-1714043	nn	Diana's tdocs	Juha Korhonen	21609
R2-1714044	nn	Diana's tdocs	Juha Korhonen	21609
R2-1714045	[DRAFT] LS on BWP related agreements	LGE	Juha Korhonen	21609
R2-1714046	TP for outcome of 99bis-43 Impact of BWP	LG Electronics UK	Juha Korhonen	21609
R2-1714047	TP on beam recovery	Nokia	Juha Korhonen	21609
R2-1714048	[DRAFT] LS to RAN1 on beam recovery failure	Nokia	Juha Korhonen	21609
R2-1714049	LS on BWP related agreements	RAN2	Juha Korhonen	21609
R2-1714050	LS to RAN1 on beam recovery failure	RAN2	Juha Korhonen	21609
R2-1714051	Correction to V2X descriptions in TS 36.302	Huawei, Ericsson, OPPO, HiSilicon	Juha Korhonen	21609
R2-1714052	TP outcome of Email discussion [99bis#38][NR UP/MAC] – SR open issues - Nokia	Nokia	Juha Korhonen	21609
R2-1714053	Clarification to Mapping Between Service Types and V2X Frequencies	Ericsson	Juha Korhonen	21609
R2-1714054	Clarification on csi-RS-ConfigNZPId	Qualcomm Incorporated, Ericsson	Juha Korhonen	21609
R2-1714055	Clarification on csi-RS-ConfigNZPId	Qualcomm Incorporated, Ericsson	Juha Korhonen	21609
R2-1714056	TP for output of email discussion #39 BSR open issues	vivo	Juha Korhonen	21609
R2-1714057	TP output of email discussion [99b#40][NR UP/MAC] LCP	InterDigital	Juha Korhonen	21609
R2-1714058	TP outcome of [99bis#41][NR/UP] Open issues on SPS and GF	Huawei, HiSilicon	Juha Korhonen	21609
R2-1714059	[DRAFT] LS to RAN1 on GF/SPS agreements	Huawei	Juha Korhonen	21609
R2-1714060	[DRAFT] LS to RAN1 on HARQ agreements	Samsung	Juha Korhonen	21609
R2-1714061	LS to RAN1 on HARQ agreements	RAN2	Juha Korhonen	21609
R2-1714062	LS to RAN1 on GF/SPS agreements	RAN2	Juha Korhonen	21609
R2-1714063	EN-DC impacts to LTE MAC	Huawei, HiSilicon	Juha Korhonen	21609
R2-1714064	Correction to Inter-frequency reception for V2X sidelink communication	Huawei, HiSilicon	Juha Korhonen	21609
R2-1714065	Transmission of P2X sidelink communication in Exceptional Pool	Qualcomm Incorporated	Juha Korhonen	21609
R2-1714066	EN-DC impacts to LTE RLC	Huawei, HiSilicon	Juha Korhonen	21609
R2-1714067	[DRAFT] LS on PHR mapping table for FR1 and FR2	ZTE	Juha Korhonen	21609
R2-1714068	TP on RLC open issue email discussion	Ericsson	Juha Korhonen	21609
R2-1714069	Summary of discussion on RA-RNTI	Intel Corporation	Juha Korhonen	21609
R2-1714070	LS on VoIP packet sizes and transport blocks	RAN2	Juha Korhonen	21609
R2-1714071	Summary of discussion on BI value	vivo	Juha Korhonen	21609
R2-1714072	EN-DC impacts to LTE MAC	Huawei, HiSilicon, Apple	Juha Korhonen	21609
R2-1714073	TP on RLC open issue email discussion	Ericsson	Juha Korhonen	21609
R2-1714074	LS on PHR mapping table for FR1 and FR2	RAN2	Juha Korhonen	21609
R2-1714075	[DRAFT] Reply LS on QCIs for EPC based ULLC	Ericsson	Juha Korhonen	21609
R2-1714076	[DRAFT] LS on maximum data rate of user plane integrity protected data	Qualcomm	Juha Korhonen	21609
R2-1714077	[DRAFT] Reply LS on algorithm selection in E-UTRA-NR Dual Connectivity	Intel Corporation	Juha Korhonen	21609
R2-1714078	[DRAFT] LS on TDM pattern coordination for single UL operation	Apple	Juha Korhonen	21609
R2-1714079	Draft TS 38.300 v122	Rapporteur (Nokia)	Juha Korhonen	21609

R2-1714080	Draft TS 37.340v122	Rapporteur (ZTE Corporation)	Juha Korhonen	21609
R2-1714081	Support of 1024QAM in TS 36.306	Huawei, HiSilicon	Juha Korhonen	21609
R2-1714082	Support of 1024QAM in TS 36.331	Huawei, HiSilicon	Juha Korhonen	21609
R2-1714083	Introduction of assistance information for local cache	CMCC, Intel Corporation	Juha Korhonen	21609
R2-1714084	Introduction of DEFLATE based UDC Solution	CATT	Juha Korhonen	21609
R2-1714085	Introduction of DEFLATE based UDC Solution	CATT	Juha Korhonen	21609
R2-1714086	Resource allocation for AUL	Nokia, Nokia Shanghai Bell	Juha Korhonen	21609
R2-1714087	[DRAFT] LS on LTE Control Plane Latency Reduction	Vodafone	Juha Korhonen	21609
R2-1714088	TP outcome of Email discussion [99bis#31][LTE/UAV] – Capture handover simulation results with observations	Huawei	Juha Korhonen	21609
R2-1714089	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714090	TP on BSR formats	Ericsson	Juha Korhonen	21609
R2-1714091	Text proposal for [99bis#42][NR UP/MAC] – NR Unit replacement	Ericsson (Rapporteur)	Juha Korhonen	21609
R2-1714092	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714093	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714094	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714095	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714096	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714097	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714098	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714099	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714100	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714101	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714102	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714103	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714104	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714105	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714106	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714107	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714108	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714109	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714110	nn	HuNan's tdocs	Juha Korhonen	21609
R2-1714111	[DRAFT] Reply LS on LTE call redirection to GERAN	Ericsson	Juha Korhonen	21609
R2-1714112	LS on NR Idle Mode procedures (S1-174294; contact: Qualcomm)	SA1	Juha Korhonen	21609

R2-1714113	Reply LS on Certification/License and Identification of Aerial Vehicles (S1-174512; contact: Qualcomm)	SA1	Juha Korhonen	21609
R2-1714114	Reply LS on QCIs for EPC based ULLC (S1-174513; contact: Vodafone)	SA1	Juha Korhonen	21609
R2-1714115	Report from Break-Out Session	Vice-Chair (MediaTek)	Juha Korhonen	21609
R2-1714116	Report from Break-Out Session	Vice-Chair (CMCC)	Juha Korhonen	21609
R2-1714117	Report from LTE and NR User Plane Break-Out Session	Session Chair (InterDigital)	Juha Korhonen	21609
R2-1714118	Report from Break-Out Session	Session Chair (Ericsson)	Juha Korhonen	21609
R2-1714119	Report from Break-Out Session	Session Chair (Intel)	Juha Korhonen	21609
R2-1714120	Reply LS on CR for Reference Signals for MBSFN with 1.25kHz and 7.5khz sub-carrier spacing (R1-1721431; contact: Intel)	RAN1	Juha Korhonen	21609
R2-1714121	Reply LS on LTE call redirection to GERAN	RAN2	Juha Korhonen	21609
R2-1714122	Consideration on the PSCell Change and SCG Change in EN-DC	ZTE Corporation, Sanechips	Juha Korhonen	21609
R2-1714123	[DRAFT] LS on replacement of "SCG change" with "SN Security Refresh" indication	ZTE	Juha Korhonen	21609
R2-1714124	Reply LS on algorithm selection in E-UTRA-NR Dual Connectivity	RAN2	Juha Korhonen	21609
R2-1714125	LS on maximum data rate of user plane integrity protected data	RAN2	Juha Korhonen	21609
R2-1714126	Draft TS 38.331 v0.3.0	Ericsson (Rapporteur)	Juha Korhonen	21609
R2-1714127	Measurement related actions upon handover and re-establishment	Ericsson	Juha Korhonen	21609
R2-1714128	Summary of Email discussion #20: RRM TP	Ericsson	Juha Korhonen	21609
R2-1714129	LS on TDM pattern coordination for single UL operation	RAN2	Juha Korhonen	21609
R2-1714130	Email Disc on [99bis#27][NR] L2/3 capabilities	Intel Corporation	Juha Korhonen	21609
R2-1714131	[DRAFT] LS on Reliability for eV2X	Ericsson	Juha Korhonen	21609
R2-1714132	nn	Kyeongin's tdocs	Juha Korhonen	21609
R2-1714133	nn	Kyeongin's tdocs	Juha Korhonen	21609
R2-1714134	nn	Kyeongin's tdocs	Juha Korhonen	21609
R2-1714135	nn	Kyeongin's tdocs	Juha Korhonen	21609
R2-1714136	Reply LS on QCIs for EPC based ULLC	RAN2	Juha Korhonen	21609
R2-1714137	LS on EDCE5 Algorithm Indication between UE and SgNB (S3-173444; contact: Vodafone)	SA3	Juha Korhonen	21609
R2-1714138	TP on UE capability	Intel Corporation	Juha Korhonen	21609
R2-1714139	s-Measure configuration and UE behavior	Ericsson	Juha Korhonen	21609
R2-1714140	LS on NR TDD UL/DL configurations and support of HPUE (R1-1721560; contact: Softbank, Sprint)	RAN1	Juha Korhonen	21609
R2-1714141	Draft TS38.306v005	Intel Corporation	Juha Korhonen	21609
R2-1714142	Introducing support for NR, changes relevant for NSA	Samsung Telecommunications	Juha Korhonen	21609
R2-1714143	[DRAFT] LTE measurement gap patterns for SSTD measurement	Nokia	Juha Korhonen	21609
R2-1714144	LS on additional agreements for shortened TTI and processing time for LTE (R1-1721216; contact: Ericsson)	RAN1	Juha Korhonen	21609
R2-1714145	LS on NR RMSI TTI (R1-1721557; contact: CATT)	RAN1	Juha Korhonen	21609
R2-1714146	Consideration on the PSCell Change and SCG Change in EN-DC	ZTE Corporation, Sanechips	Juha Korhonen	21609
R2-1714147	[DRAFT] LS on replacement of "SCG change indication" with "PDCP change indication"	ZTE	Juha Korhonen	21609

R2-1714148	Reply LS on RAN2 agreements for enhanced CA utilization WID (R4-1713920; contact: Nokia)	RAN4	Juha Korhonen	21609
R2-1714149	LS response on reduced SCell activation time for enhanced CA utilization WID (R4-1713921; contact: Qualcomm)	RAN4	Juha Korhonen	21609
R2-1714150	Explicit indication for only beam ID reporting	Ericsson	Juha Korhonen	21609
R2-1714151	LS on wake-up signal (R1-1721241; contact: HiSilicon)	RAN1	Juha Korhonen	21609
R2-1714152	Text Proposal for Conclusion section of TR36.777	NTT DOCOMO, INC., Ericsson	Juha Korhonen	21609
R2-1714153	Text Proposal for UE Identification	NTT DOCOMO, INC.	Juha Korhonen	21609
R2-1714154	Reply LS on Supportable RNTI Length on DCI	RAN2	Juha Korhonen	21609
R2-1714155	LS on required information for NSA on X2 (R3-174964; contact: Nokia)	RAN3	Juha Korhonen	21609
R2-1714156	LS on early data transmission (R1-1721255; contact: Huawei)	RAN1	Juha Korhonen	21609
R2-1714157	[DRAFT] Reply LS on supported features by 5GC for E-UTRA connected to 5G CN	Nokia	Juha Korhonen	21609
R2-1714158	Introduction of assistance information for local cache	CMCC, Intel Corporation	Juha Korhonen	21609
R2-1714159	Introduction of assistance information for local cache	CMCC, Intel Corporation	Juha Korhonen	21609
R2-1714160	Introduction of assistance information for local cache	CMCC, Intel Corporation	Juha Korhonen	21609
R2-1714161	Reply LS on SPS and Grant-free (R1-1721574; contact: NTT DOCOMO)	RAN1	Juha Korhonen	21609
R2-1714162	LS on RAN1 agreement on UL power sharing for LTE/NR NSA operation (R1-1721606; contact: Intel)	RAN1	Juha Korhonen	21609
R2-1714163	[DRAFT] LS on Security aspects of supporting LTE connected to 5GC	Ericsson	Juha Korhonen	21609
R2-1714164	LS on RRC parameters for NR (R1-1721616; contact: Ericsson)	RAN1	Juha Korhonen	21609
R2-1714165	Offline discussion on Bearer type redefinitions	Intel corporation (rapporteur)	Juha Korhonen	21609
R2-1714166	TP for the maximum data rate of user plane integrity protection	Qualcomm Incorporated	Juha Korhonen	21609
R2-1714167	Reply LS on maximum data rate of user plane integrity protected data (S3-173420; contact: Qualcomm)	SA3	Juha Korhonen	21609
R2-1714168	LS on Wake-up signal features for Rel-15 LTE-MTC (R1-1721282; contact: Ericsson)	RAN1	Juha Korhonen	21609
R2-1714169	LS on replacement of "SCG change indication" with "PDCP change indication"	RAN2	Juha Korhonen	21609
R2-1714170	Offline discussion #05: stage3 details to be captured for SCellIndex coordination	CATT	Juha Korhonen	21609
R2-1714171	LS reply on support of Trace and MDT in NG-RAN in rel-15 (S5-176477; contact: Nokia)	SA5	Juha Korhonen	21609
R2-1714172	TS38.331 Methodology session	Erisson	Juha Korhonen	21609
R2-1714173	Offline discussion report for SUL remaining issues	Huawei	Juha Korhonen	21609
R2-1714174	Report from offline discussion #037	Huawei	Juha Korhonen	21609
R2-1714175	Correction to UE-Capability-NB extension and provision for late rel-13 corrections	Sequans Communications	Juha Korhonen	21609
R2-1714176	Consideration on the PSCell Change and SCG Change in EN-DC	ZTE Corporation, Sanechips	Juha Korhonen	21609
R2-1714177	Clarification on averaging window for RAN assisted codec rate adaptation	Qualcomm Incorporated	Juha Korhonen	21609
R2-1714178	Offline discussion#18 (on the beam failure recovery impact on RAN2)	Offline discussion rapporteur (ZTE)	Juha Korhonen	21609
R2-1714179	Introduction of assistance information for local cache	CMCC, Intel Corporation	Juha Korhonen	21609
R2-1714180	Reply LS on the number of bearers (S2-179536; contact: Samsung)	SA2	Juha Korhonen	21609
R2-1714181	Offline discussion #36-the principles on capturing eLTE into RRC	Intel	Juha Korhonen	21609
R2-1714182	Offline discussion for BWP	Huawei, HiSilicon	Juha Korhonen	21609

R2-1714183	Stage2 TP to update bearer type description	ZTE Corporation, Sanechips	Juha Korhonen	21609
R2-1714184	[DRAFT] LS on cells not broadcasting SIB1	Ericsson	Juha Korhonen	21609
R2-1714185	Offline discussion #31 report	Qualcomm Incorporated	Juha Korhonen	21609
R2-1714186	LS on LTE Control Plane Latency Reduction	RAN2	Juha Korhonen	21609
R2-1714187	LS on Reliability for eV2X	RAN2	Juha Korhonen	21609
R2-1714188	Summary of offline#40 (neighbour cells on serving frequencies)	Ericsson	Juha Korhonen	21609
R2-1714189	LS on SRS PHR reporting (R1-1721680; contact: Huawei)	RAN1	Juha Korhonen	21609
R2-1714190	TP on BSR formats	Ericsson	Juha Korhonen	21609
R2-1714191	Text proposal for [99bis#42][NR UP/MAC] - NR Unit replacement	Ericsson	Juha Korhonen	21609
R2-1714192	MAC PDU discard at split bearer / SCG bearer reconfiguration	Ericsson	Juha Korhonen	21609
R2-1714193	nn	Diana's tdocs	Juha Korhonen	21609
R2-1714194	nn	Diana's tdocs	Juha Korhonen	21609
R2-1714195	nn	Diana's tdocs	Juha Korhonen	21609
R2-1714196	nn	Diana's tdocs	Juha Korhonen	21609
R2-1714197	nn	Diana's tdocs	Juha Korhonen	21609
R2-1714198	nn	Diana's tdocs	Juha Korhonen	21609
R2-1714199	nn	Diana's tdocs	Juha Korhonen	21609
R2-1714200	Summary of offline discussion #28 on L2 buffer size capability	Intel Corporation	Juha Korhonen	21609
R2-1714201	LS reply on SSTD measurements for EN-DC (R4-1714289; contact: Ericsson)	RAN4	Juha Korhonen	21609
R2-1714202	LS on correction of interference in NB-IoT RACH procedure (R1-1721302; contact: Huawei)	RAN1	Juha Korhonen	21609
R2-1714203	Reply LS on supported features by 5GC for E-UTRA connected to 5G CN	RAN2	Juha Korhonen	21609
R2-1714204	Report of Offline#39 Serving cell measurement and reporting	Samsung	Juha Korhonen	21609
R2-1714205	LS on cells not broadcasting SIB1	RAN2	Juha Korhonen	21609
R2-1714206	Report of Offline#39 Serving cell measurement and reporting	Samsung	Juha Korhonen	21609
R2-1714207	Full configuration in EN-DC	Ericsson	Juha Korhonen	21609
R2-1714208	OFFLINE#22 LTE re-establishment and resume while using NR PDCP	Ericsson	Juha Korhonen	21609
R2-1714209	LS to RAN2 on the occasion of their centenary meeting (R4-1714481; contact: James Clerk Maxwell)	RAN4	Juha Korhonen	21609
R2-1714210	Introduction of relaxed monitoring in NB-IoT	Ericsson, Huawei, HiSilicon, LG Electronics	Juha Korhonen	21609
R2-1714211	CR on SIB21 reading	OPPO, Qualcomm Incorporated	Qianxi Lu	71851
R2-1714212	Define requirement for reception of number of simultaneous SC-PTM services	Qualcomm Incorporated	Mungal Singh Dhanda	38917
R2-1714213	Cleaning up CQI and CSI-RS-related configurations (related to Rel-14 ASN.1 review issue N.099)	Nokia, Nokia Shanghai Bell	Tero Henttonen	69943
R2-1714214	Deliver stored PDCP SDUs for LWA bearer with RLC UM at PDCP re-establishment	LG Electronics	Geumsan Jo	70566
R2-1714215	Correction to cell barring for coverage enhancement	Huawei, HiSilicon, Intel Corporation	Brian Martin	72959

R2-1714216	Correction to actions related to InterFreqRSTDMeasurementIndication message	Qualcomm Incorporated	Sven Fischer	20628
R2-1714217	nn	Johan's tdocs	Juha Korhonen	21609
R2-1714218	nn	Johan's tdocs	Juha Korhonen	21609
R2-1714219	nn	Johan's tdocs	Juha Korhonen	21609
R2-1714220	nn	Johan's tdocs	Juha Korhonen	21609
R2-1714221	nn	Johan's tdocs	Juha Korhonen	21609
R2-1714222	nn	Johan's tdocs	Juha Korhonen	21609
R2-1714223	nn	Johan's tdocs	Juha Korhonen	21609
R2-1714224	nn	Johan's tdocs	Juha Korhonen	21609
R2-1714225	Offline discussion #32: support of whiteCellList for NR measurements reporting in LTE (Bx events)	CATT	Juha Korhonen	21609
R2-1714226	Offline discussion output on L2/3 capabilities	Intel Corporation	Juha Korhonen	21609
R2-1714227	LS on LTE measurement gap patterns for SSTD measurement	RAN2	Juha Korhonen	21609
R2-1714228	Full configuration in EN-DC	Ericsson	Juha Korhonen	21609
R2-1714229	Reject of unprotected redirect to GERAN	Ericsson	Juha Korhonen	21609
R2-1714230	QoS Update	Rapporteur (Nokia)	Juha Korhonen	21609
R2-1714231	Text Proposal for Conclusion section of TR36.777	NTT DOCOMO, INC., Ericsson	Juha Korhonen	21609
R2-1714232	Text Proposal for UE Identification	NTT DOCOMO, INC.	Juha Korhonen	21609
R2-1714233	Offline discussion #34: Capturing of default configuration of SRB	CATT	Juha Korhonen	21609
R2-1714234	Stage-2 TP for single UL transmission	Apple	Juha Korhonen	21609
R2-1714235	L2 parameter content of RRCReconfiguration message	Huawei (Rapporteur)	Juha Korhonen	21609
R2-1714236	LS on MAC CE parameters for NR MIMO (R1-1721663; contact: NTT DOCOMO)	RAN1	Juha Korhonen	21609
R2-1714237	Clarification for the MR-DC QoS framework	Samsung	Juha Korhonen	21609
R2-1714238	Stage-2 TP for single UL transmission	Apple	Juha Korhonen	21609
R2-1714239	LS about LTE CA SCell New State agreements	RAN2	Veera Prasada Kadiri	72325
R2-1714240	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Juha Korhonen	21609
R2-1714241	UE capabilities for Tx antenna selection	Qualcomm Incorporated, Ericsson, SoftBank	Juha Korhonen	21609
R2-1714242	[DRAFT] Reply LS on certification/License and Identification of Aerial Vehicles	Nokia	Juha Korhonen	21609
R2-1714243	[DRAFT] LS on MAC Ces for beam management and CSI	Ericsson	Juha Korhonen	21609
R2-1714244	LS on Security aspects of supporting LTE connected to 5GC	RAN2	Juha Korhonen	21609
R2-1714245	Reply LS on LS on default values for 5GS QoS averaging window for standardised 5QIs	RAN2	Juha Korhonen	21609
R2-1714246	LS on MAC Ces for beam management and CSI	RAN2	Juha Korhonen	21609
R2-1714247	LS on RAN1 Conclusions and TPs approved in RAN1#91 (R1-1721310; contact: Ericsson)	RAN1	Juha Korhonen	21609
R2-1714248	Reply LS on Certification/License and Identification of Aerial Vehicles	RAN2	Juha Korhonen	21609
R2-1714249	Clarifications CR	Huawei, HiSilicon, ITL	Nathan Tenny	63312
R2-1714250	NRS-CRS power offset configuration for NB-IoT	ZTE Corporation, Sanechips	Ting Lu	63111

R2-1714251	Draft TS 37.340v130	Rapporteur (ZTE Corporation)	Sergio Parolari	26217
R2-1714252	Draft TS 38.300 v130	Rapporteur (Nokia)	Benoist SEBIRE	68461
R2-1714253	Draft TS 38.321 v1.2.0	Samsung (Rapporteur)	Jaehyuk Jang	46012
R2-1714254	Correction to random access power control in 36.306	Huawei, HiSilicon	Odile Rollinger	60606
R2-1714255	Correction to random access power control in 36.321	Huawei, HiSilicon	Odile Rollinger	60606
R2-1714256	Correction to random access power control in 36.331	Huawei, HiSilicon	Odile Rollinger	60606
R2-1714257	Introduction of further NB-IoT enhancements in 36.331	Huawei, HiSilicon	Odile Rollinger	60606
R2-1714258	LS on Rel-15 NB-IoT work progress	RAN2	Odile Rollinger	60606
R2-1714259	Draft TS 38.331 v0.4.0	Ericsson (Rapporteur)	Hakan Palm	18830
R2-1714260	[DRAFT] LS on UE capability clarification for simultaneousRxTx for NR	Intel	Naveen Palle	74356
R2-1714261	Draft TS 38.322 v120	MediaTek Inc.	Pavan Nuggehalli	60166
R2-1714262	Running Rel-15 36.321 CR for NB-IoT	Ericsson	Tuomas Tirronen	66696
R2-1714263	LS on UE capability clarification for simultaneousRxTx for NR	RAN2	Naveen Palle	74356
R2-1714264	Change to actions upon mac-ContentionResolutionTimer expiry for FeMTC and eNB-IoT	Nokia, Nokia Shanghai Bell	Haitao Li	73693
R2-1714265	Introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1714266	Introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1714267	Introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1714268	Introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1714269	Introduction of shortened TTI and processing time for LTE	Ericsson	Cecilia Eklof	59618
R2-1714270	TP on UE capability	Intel	Kyeongin Jeong	72747
R2-1714271	Draft TS38.306v010	Intel	Kyeongin Jeong	72747
R2-1714272	Introduction of further NB-IoT enhancements in 36.331	Huawei, HiSilicon	Odile Rollinger	60606
R2-1714273	Draft TS 38.323 v110	LG Electronics	SeungJune Yi	20814
R2-1714274	Protection of Redirection to GERAN	RAN3 (Nokia, Nokia Shanghai Bell)	Juha Korhonen	21609
R2-1714275	Baseline CR for Rel.15 NR (RAN3 part)	RAN3 (Nokia, Nokia Shanghai Bell, ZTE)	Juha Korhonen	21609
R2-1714276	TR 36.777 v050	NTT DOCOMO INC.	Wuri Hapsari	59995
R2-1714277	L2 parameter content of RRCReconfiguration message	Huaweii	David Lecompte	34967
R2-1714278	Introduction of DEFLATE based UDC Solution	CATT	Haiyang Quan	35212
R2-1714279	Introduction of DEFLATE based UDC Solution	CATT	Haiyang Quan	35212
R2-1714280	Baseline CR for Rel.15 NR (RAN3 part)	RAN3 (Nokia, Nokia Shanghai Bell, ZTE)	Tero Henttonen	69943
R2-1714281	Introduction of assistance information for local cache	CMCC, Intel Corporation	Ningyu Chen	62843
R2-1714282	Introduction of assistance information for local cache	CMCC, Intel Corporation	Ningyu Chen	62843
R2-1714283	Introduction of assistance information for local cache	CMCC, Intel Corporation	Ningyu Chen	62843
R2-1714284	Reject of unprotected redirect to GERAN	Ericsson	Hakan Palm	18830
R2-1714285	Introduction of LTE connectivity to 5GCN (Running 36.300 CR)	Huawei	Lei Liu	59582
R2-1714286	Running 36.331 CR for E-UTRA connected to 5GC	Intel Corporation	Yi Guo	74545

Type	For	Abstract	Secretary Remarks	Agenda item sort order	Agenda item
agenda	Approval			5	2.1
report	Approval			6	2.2
LS in	Action			147	10.1
LS in	Action			91	9.7.1
LS in	Action			131	9.14.1
LS in	Action			147	10.1
LS in	Information			41	8.12
LS in	Action			9	3
LS in	Action			147	10.1
LS in	Action			147	10.1
LS in	Action			9	3
LS in	Action			16	7.1
LS in	Action			41	8.12
LS in	Action			147	10.1
LS in	Action			131	9.14.1
LS in	Action			106	9.10.1
LS in	Action			70	9.2
LS in	Information			106	9.10.1
LS in	Action			147	10.1
LS in	Action			58	8.20
LS in	Action			70	9.2
LS in	Action			131	9.14.1
LS in	Action			120	9.13.1
LS in	Action			73	9.4.1
LS in	Action			141	9.15
LS in	Information			147	10.1
LS in	Action			147	10.1
LS in	Action			111	9.11.1
LS in	Action			147	10.1
LS in	Action			147	10.1

LS in	Action			147	10.1
LS in	Information			147	10.1
LS in	Action			147	10.1
LS in	Information			147	10.1
LS in	Information			147	10.1
LS in	Action			9	3
LS in	Action			147	10.1
LS in	Action			147	10.1
LS in	Information			70	9.2
LS in	Information			147	10.1
LS in	Action			147	10.1
LS in	Action			147	10.1
LS in	Information			120	9.13.1
LS in	Action			147	10.1
LS in	Action			147	10.1
LS in	Information			147	10.1
LS in	Action			19	7.2
LS in	Information			9	3
LS in	Action			67	9.1
LS in	Action			147	10.1
LS in	Action			147	10.1
LS in	Action			9	3
LS in	Action			73	9.4.1
LS in	Action			41	8.12
LS in	Action			131	9.14.1
LS in	Action			106	9.10.1
LS in	Information			147	10.1
LS in	Information			147	10.1
LS in	Action			147	10.1
LS in	Action			87	9.6
LS in	Information			9	3

LS in	Action			91	9.7.1
discussion				168	10.2.17
discussion				168	10.2.17
pCR				207	10.3.4.1
pCR				207	10.3.4.1
discussion				208	10.3.4.2
discussion				209	10.3.4.3
pCR		The TP is agreed.		170	10.2.19
discussion				219	10.4.1.3.5
discussion				171	10.2.20
discussion				92	9.7.2
discussion				92	9.7.2
discussion		NR_newRAT-Core		209	10.3.4.3
discussion		NR_newRAT-Core		209	10.3.4.3
discussion		NR_newRAT-Core		162	10.2.11
discussion		NR_newRAT-Core		248	10.4.1.8
discussion		NR QoS		208	10.3.4.2
discussion	Discussion			107	9.10.2
discussion	Discussion			107	9.10.2
discussion	Discussion			108	9.10.3
discussion	Discussion			109	9.10.4
discussion	Discussion			109	9.10.4
discussion	Discussion			107	9.10.2
discussion	Discussion			69	9.1.1
discussion	Discussion			69	9.1.1
discussion	Discussion			202	10.3.3.4
discussion	Discussion			205	10.3.3.7
discussion	Discussion			141	9.15
discussion	Discussion			141	9.15
discussion	Discussion			141	9.15
discussion	Discussion			141	9.15
CR	Agreement			46	8.13.0
discussion				242	10.4.1.7.1
discussion				243	10.4.1.7.2
discussion				244	10.4.1.7.3
discussion				245	10.4.1.7.4

pCR				245	10.4.1.7.4
discussion				145	9.19
discussion	Decision			129	9.13.10
discussion	Agreement			208	10.3.4.2
discussion	Agreement			187	10.3.1.10
discussion	Agreement			190	10.3.1.13
discussion	Agreement			180	10.3.1.4.3
discussion	Agreement			187	10.3.1.10
CR	Agreement			129	9.13.10
discussion	Decision			209	10.3.4.3
discussion	Decision			209	10.3.4.3
discussion	Decision			220	10.4.1.3.6
discussion	Decision			247	10.4.1.7.6
discussion	Decision			188	10.3.1.11
discussion	Decision			190	10.3.1.13
discussion	Decision			187	10.3.1.10
discussion	Decision			164	10.2.13
discussion	Decision			239	10.4.1.6.6
discussion	Decision			184	10.3.1.7
discussion	Discussion			141	9.15
discussion	Decision			92	9.7.2
discussion	Decision			92	9.7.2
discussion	Decision			215	10.4.1.3.1
discussion	Decision			93	9.7.3
discussion	Decision			248	10.4.1.8
discussion	Decision			92	9.7.2
discussion	Decision			92	9.7.2
discussion	Decision			248	10.4.1.8
discussion	Decision			234	10.4.1.6.1
discussion	Decision			167	10.2.16
discussion	Decision			237	10.4.1.6.4
discussion	Decision			239	10.4.1.6.6
discussion	Decision			235	10.4.1.6.2
discussion	Decision			238	10.4.1.6.5
discussion	Discussion			136	9.14.6
draftCR	Agreement			136	9.14.6
discussion	Decision			136	9.14.6
discussion	Discussion			129	9.13.10
CR	Agreement	Related to LS from RAN1 in R2-1712112/R1-1719093		44	8.12.2
CR	Agreement	Related to LS from RAN1 in R2-1712112/R1-1719093		44	8.12.2
discussion	Approval			220	10.4.1.3.6
discussion	Approval			163	10.2.12
discussion	Approval			253	10.4.2.2

discussion	Approval			226	10.4.1.4.5
discussion	Approval			226	10.4.1.4.5
discussion	Approval			155	10.2.4
discussion	Approval			225	10.4.1.4.4
discussion	Decision			236	10.4.1.6.3
report	Decision			142	9.16
discussion	Agreement			189	10.3.1.12
discussion	Approval			159	10.2.8
discussion	Approval			160	10.2.9
discussion	Approval			160	10.2.9
discussion	Approval			154	10.2.3
discussion	Approval			156	10.2.5
discussion	Approval			242	10.4.1.7.1
discussion	Approval			247	10.4.1.7.6
discussion	Approval			247	10.4.1.7.6
discussion	Agreement	Offline#144 (Qualcomm)		102	9.9.2
discussion	Agreement			102	9.9.2
discussion	Agreement			103	9.9.3
LS out	Approval			102	9.9.2
discussion				162	10.2.11
discussion				162	10.2.11
LS out	Approval			92	9.7.2
discussion	Agreement			92	9.7.2
discussion	Agreement			92	9.7.2
discussion	Agreement			92	9.7.2
discussion	Agreement			93	9.7.3
draft TS	Endorsement			149	10.2.1
discussion	Decision			182	10.3.1.5
discussion	Decision			248	10.4.1.8
discussion	Decision			248	10.4.1.8
discussion	Decision			225	10.4.1.4.4
discussion	Decision			156	10.2.5
discussion	Decision			160	10.2.9
discussion	Decision			226	10.4.1.4.5
discussion	Decision			225	10.4.1.4.4

discussion	Decision			154	10.2.3
discussion	Decision			163	10.2.12
discussion				159	10.2.8
discussion				159	10.2.8
discussion				181	10.3.1.4.4
discussion				181	10.3.1.4.4
discussion				158	10.2.7
discussion				158	10.2.7
discussion	Discussion			129	9.13.10
discussion				182	10.3.1.5
discussion	Decision			92	9.7.2
discussion	Decision			92	9.7.2
discussion	Decision			217	10.4.1.3.3
CR	Agreement			21	7.3.0
CR	Agreement			21	7.3.0
CR	Agreement			42	8.12.0
CR	Agreement			19	7.2
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
LS out	Approval			18	7.1.1
discussion	Discussion			125	9.13.6
discussion	Discussion			125	9.13.6
discussion	Decision			128	9.13.9
LS in	Action			147	10.1
LS in	Information			9	3
LS in	Information			147	10.1
draft TS	Endorsement			149	10.2.1
draft TS	Endorsement			149	10.2.1
discussion	Information			149	10.2.1
pCR	Information			149	10.2.1
discussion	Information			147	10.1

discussion	Agreement			79	9.4.4.3
discussion				239	10.4.1.6.6
discussion				203	10.3.3.5
discussion				254	10.4.2.3
discussion				156	10.2.5
CR	Agreement			14	6.1
CR	Agreement			14	6.1
CR	Agreement			14	6.1
CR	Agreement			14	6.1
discussion	Discussion			132	9.14.2
discussion	Agreement			183	10.3.1.6
discussion	Agreement			209	10.3.4.3
discussion	Agreement			187	10.3.1.10
discussion	Agreement			187	10.3.1.10
discussion	Agreement			196	10.3.2.5
discussion	Agreement			197	10.3.2.6
discussion	Agreement	Offline#15 (Huawei)		154	10.2.3
discussion	Agreement			171	10.2.20
discussion	Agreement			170	10.2.19
discussion	Agreement			153	10.2.2.3
discussion	Agreement			175	10.3.1.2
CR	Agreement			51	8.14.0
discussion	Agreement			197	10.3.2.6
discussion				125	9.13.6
discussion				124	9.13.5
discussion				129	9.13.10
discussion				129	9.13.10
discussion				140	9.14.10
discussion				128	9.13.9
discussion				135	9.14.5
discussion				136	9.14.6
discussion				133	9.14.3
discussion	Decision			265	10.4.4.3
discussion	Decision			268	10.4.4.6
discussion	Decision			267	10.4.4.5
discussion	Decision			267	10.4.4.5
discussion	Decision			267	10.4.4.5
discussion	Decision			267	10.4.4.5
discussion	Decision			264	10.4.4.2
discussion	Decision			267	10.4.4.5

discussion	Decision			245	10.4.1.7.4
discussion	Decision	TP option1 from the document can be merged into the draft TS, together with the agreements made.		230	10.4.1.5.1
report	Agreement			14	6.1
CR	Agreement			65	8.25.1
discussion				167	10.2.16
discussion				248	10.4.1.8
discussion				248	10.4.1.8
discussion				248	10.4.1.8
discussion				248	10.4.1.8
draft TS	Endorsement			149	10.2.1
discussion	Discussion			149	10.2.1
discussion	Discussion			149	10.2.1
discussion	Discussion			168	10.2.17
discussion	Discussion			170	10.2.19
discussion	Discussion	The TP is agreed.		170	10.2.19
discussion	Discussion			209	10.3.4.3
discussion	Discussion			209	10.3.4.3
discussion	Discussion			209	10.3.4.3
discussion	Discussion			209	10.3.4.3
discussion				184	10.3.1.7
discussion	Decision			225	10.4.1.4.4
discussion	Decision			254	10.4.2.3
CR	Agreement			254	10.4.2.3
discussion	Decision	Offline#24 (Qualcomm)		256	10.4.3.1
discussion	Decision			158	10.2.7
discussion	Decision			217	10.4.1.3.3
discussion	Decision			222	10.4.1.4.1
discussion	Decision			181	10.3.1.4.4
discussion	Decision			184	10.3.1.7
discussion	Decision			189	10.3.1.12
discussion	Decision			190	10.3.1.13
discussion	Decision			208	10.3.4.2

discussion	Decision			209	10.3.4.3
discussion	Decision			179	10.3.1.4.2
discussion	Decision			268	10.4.4.6
discussion	Decision			178	10.3.1.4.1
discussion	Decision			169	10.2.18
discussion	Decision			268	10.4.4.6
discussion	Decision			268	10.4.4.6
LS out	Approval			171	10.2.20
discussion	Decision			167	10.2.16
discussion	Decision			167	10.2.16
discussion	Decision			167	10.2.16
discussion	Decision			167	10.2.16
discussion	Decision			168	10.2.17
discussion	Decision			168	10.2.17
discussion	Decision			207	10.3.4.1
discussion	Decision			208	10.3.4.2
discussion	Decision			209	10.3.4.3
discussion	Decision			209	10.3.4.3
discussion	Decision			209	10.3.4.3
discussion	Decision			209	10.3.4.3
LS out	Approval			171	10.2.20
discussion				65	8.25.1
discussion				65	8.25.1
CR	Agreement			65	8.25.1
discussion				14	6.1
LS out	Approval			14	6.1
CR	Agreement			14	6.1
discussion				167	10.2.16
discussion	Decision			169	10.2.18
discussion	Approval			164	10.2.13
discussion	Decision			161	10.2.10
discussion	Decision			236	10.4.1.6.3
discussion	Decision			167	10.2.16
discussion	Decision			219	10.4.1.3.5
discussion	Decision			220	10.4.1.3.6
discussion	Decision			220	10.4.1.3.6
discussion	Decision	Offline#34 (CATT)		218	10.4.1.3.4
discussion	Decision			222	10.4.1.4.1
discussion	Decision			224	10.4.1.4.3
discussion	Decision			226	10.4.1.4.5
discussion	Decision			234	10.4.1.6.1
discussion	Decision			236	10.4.1.6.3
discussion	Decision			237	10.4.1.6.4
discussion	Decision			239	10.4.1.6.6
discussion	Decision			244	10.4.1.7.3
discussion	Decision			243	10.4.1.7.2

discussion	Decision			246	10.4.1.7.5
discussion	Decision			249	10.4.1.9
discussion	Decision	Offline#31 (Qualcomm), Offline#32 (CATT)		253	10.4.2.2
discussion	Decision			266	10.4.4.4
discussion	Decision			267	10.4.4.5
discussion	Decision			265	10.4.4.3
discussion	Agreement			157	10.2.6
discussion	Discussion			189	10.3.1.12
discussion	Discussion			181	10.3.1.4.4
discussion	Discussion			175	10.3.1.2
discussion	Discussion			179	10.3.1.4.2
discussion	Discussion			203	10.3.3.5
discussion	Discussion			182	10.3.1.5
discussion	Discussion			208	10.3.4.2
discussion	Discussion			166	10.2.15
discussion	Discussion			155	10.2.4
discussion	Discussion			231	10.4.1.5.2
discussion	Discussion			156	10.2.5
discussion	Discussion			187	10.3.1.10
discussion	Discussion			180	10.3.1.4.3
discussion				70	9.2
discussion				70	9.2
discussion				70	9.2
discussion				70	9.2
draftCR				70	9.2
draftCR				70	9.2
draftCR				70	9.2
draftCR				70	9.2
draftCR				70	9.2
draftCR				70	9.2
discussion				70	9.2
discussion				70	9.2
draftCR				70	9.2
discussion				141	9.15

discussion				141	9.15
discussion				141	9.15
discussion				141	9.15
discussion				89	9.6.1
CR	Agreement			89	9.6.1
CR	Agreement			89	9.6.1
discussion	Decision			89	9.6.1
CR	Agreement			89	9.6.1
CR	Agreement			89	9.6.1
CR	Agreement			89	9.6.1
discussion	Agreement			157	10.2.6
discussion	Decision			79	9.4.4.3
CR	Agreement			44	8.12.2
discussion	Decision			169	10.2.18
discussion	Decision			183	10.3.1.6
discussion	Decision			169	10.2.18
discussion	Decision			169	10.2.18
discussion	Decision			169	10.2.18
discussion	Decision			169	10.2.18
discussion	Decision			169	10.2.18
draft TS	Endorsement			192	10.3.2.1
discussion	Decision			202	10.3.3.4
discussion	Decision			202	10.3.3.4
discussion	Decision			208	10.3.4.2
discussion	Decision			209	10.3.4.3
discussion	Decision			235	10.4.1.6.2
discussion	Decision			235	10.4.1.6.2
discussion	Decision			236	10.4.1.6.3
discussion	Decision			237	10.4.1.6.4
discussion	Decision			238	10.4.1.6.5
discussion	Decision			239	10.4.1.6.6
discussion	Decision			235	10.4.1.6.2
discussion	Decision			240	10.4.1.6.7
discussion	Decision			235	10.4.1.6.2
discussion	Decision			234	10.4.1.6.1
discussion	Decision			240	10.4.1.6.7
discussion	Decision			240	10.4.1.6.7
discussion	Decision			240	10.4.1.6.7
discussion	Decision			239	10.4.1.6.6
discussion	Decision			240	10.4.1.6.7
discussion	Decision			239	10.4.1.6.6

discussion	Decision			239	10.4.1.6.6
discussion	Decision			222	10.4.1.4.1
discussion	Decision			249	10.4.1.9
discussion	Decision			253	10.4.2.2
discussion	Decision			162	10.2.11
discussion	Decision			171	10.2.20
discussion	Decision			258	10.4.3.3
discussion	Decision			161	10.2.10
discussion	Decision			230	10.4.1.5.1
discussion	Decision			162	10.2.11
discussion	Decision			162	10.2.11
discussion	Decision			162	10.2.11
discussion	Decision			162	10.2.11
discussion	Decision			162	10.2.11
discussion	Decision			162	10.2.11
discussion	Decision			162	10.2.11
discussion	Decision			162	10.2.11
discussion	Decision			162	10.2.11
discussion	Decision			162	10.2.11
discussion	Decision			165	10.2.14
discussion	Decision			165	10.2.14
discussion	Decision			224	10.4.1.4.3
discussion	Decision			244	10.4.1.7.3
discussion	Decision			171	10.2.20
discussion	Decision			171	10.2.20
discussion	Decision			171	10.2.20
discussion	Decision			171	10.2.20
discussion	Decision			268	10.4.4.6
LS out	Approval			268	10.4.4.6
discussion	Decision			268	10.4.4.6
discussion	Decision			267	10.4.4.5
discussion	Decision			267	10.4.4.5
discussion	Decision			248	10.4.1.8
discussion	Decision			248	10.4.1.8
discussion	Decision			248	10.4.1.8
discussion	Decision			248	10.4.1.8
LS out	Approval			248	10.4.1.8
LS out	Approval			248	10.4.1.8
discussion	Decision			250	10.4.1.10
discussion	Decision			266	10.4.4.4
discussion	Decision			166	10.2.15
discussion	Decision			157	10.2.6
discussion	Decision			169	10.2.18
discussion	Decision			213	10.4.1.2
discussion	Decision			213	10.4.1.2
discussion	Decision			268	10.4.4.6
discussion	Decision			268	10.4.4.6
discussion	Decision			166	10.2.15
LS out	Approval			166	10.2.15
discussion	Decision			166	10.2.15
discussion	Decision			162	10.2.11
discussion	Decision			226	10.4.1.4.5
discussion	Decision			223	10.4.1.4.2
discussion	Decision			225	10.4.1.4.4
discussion	Decision			247	10.4.1.7.6

CR	Agreement			68	9.1.0
discussion	Decision			69	9.1.1
CR	Agreement			64	8.25.0
CR	Agreement			64	8.25.0
CR	Agreement			64	8.25.0
CR	Agreement			46	8.13.0
discussion	Discussion			163	10.2.12
discussion	Discussion			226	10.4.1.4.5
discussion	Discussion	Offline#17 (Ericsson)		164	10.2.13
discussion	Discussion			164	10.2.13
discussion	Discussion			164	10.2.13
discussion	Discussion			246	10.4.1.7.5
LS out	Approval			246	10.4.1.7.5
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			227	10.4.1.4.6
discussion	Discussion			225	10.4.1.4.4
discussion	Discussion			253	10.4.2.2
discussion	Discussion			228	10.4.1.4.7
discussion	Discussion			243	10.4.1.7.2
discussion	Discussion			245	10.4.1.7.4
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion			242	10.4.1.7.1
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion	Offline#537		216	10.4.1.3.2
discussion	Discussion			219	10.4.1.3.5
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			226	10.4.1.4.5
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			220	10.4.1.3.6
LS out	Approval			220	10.4.1.3.6
discussion	Discussion			171	10.2.20
report		The TP is agreed.		78	9.4.4.2
draft TS				261	10.4.3.6
discussion	Discussion			92	9.7.2
discussion	Discussion			167	10.2.16
discussion	Discussion			248	10.4.1.8
discussion	Discussion			248	10.4.1.8

discussion	Discussion			248	10.4.1.8
LS out	Approval			248	10.4.1.8
discussion	Discussion			268	10.4.4.6
discussion	Discussion			268	10.4.4.6
discussion	Discussion			268	10.4.4.6
discussion	Discussion			248	10.4.1.8
discussion	Discussion			234	10.4.1.6.1
discussion	Discussion			235	10.4.1.6.2
discussion	Discussion			236	10.4.1.6.3
discussion	Discussion			154	10.2.3
discussion	Discussion			225	10.4.1.4.4
discussion	Discussion			161	10.2.10
discussion	Discussion			162	10.2.11
discussion	Discussion			162	10.2.11
discussion	Discussion			224	10.4.1.4.3
discussion	Discussion			227	10.4.1.4.6
discussion	Discussion			168	10.2.17
discussion	Discussion			168	10.2.17
discussion	Discussion			92	9.7.2
discussion	Discussion			166	10.2.15
discussion	Discussion			168	10.2.17
discussion	Discussion			160	10.2.9
discussion	Discussion			242	10.4.1.7.1
discussion	Discussion			243	10.4.1.7.2
discussion				145	9.19
discussion				85	9.5.3
CR	Agreement			85	9.5.3
CR	Agreement			85	9.5.3
CR	Agreement			85	9.5.3
CR	Agreement			85	9.5.3
discussion				49	8.13.3
discussion				116	9.12.2
discussion				116	9.12.2
discussion				107	9.10.2

discussion				107	9.10.2
discussion				107	9.10.2
discussion				107	9.10.2
discussion				107	9.10.2
discussion				108	9.10.3
discussion				69	9.1.1
CR	Agreement			44	8.12.2
CR	Agreement			44	8.12.2
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement			131	9.14.1
LS out	Approval			44	8.12.2
discussion		Offline#305 (Intel)		44	8.12.2
discussion				132	9.14.2
discussion				135	9.14.5
discussion				143	9.17
draftCR				143	9.17
draftCR				143	9.17
CR	Agreement			62	8.24
CR	Agreement			62	8.24
discussion				154	10.2.3
discussion				222	10.4.1.4.1
discussion				223	10.4.1.4.2
LS out	Approval			223	10.4.1.4.2
discussion				225	10.4.1.4.4
discussion				162	10.2.11
discussion				180	10.3.1.4.3
discussion				179	10.3.1.4.2
report				248	10.4.1.8
LS out	Approval			248	10.4.1.8
discussion				248	10.4.1.8
discussion				248	10.4.1.8
discussion				92	9.7.2
discussion				92	9.7.2

discussion				92	9.7.2
discussion		Offline#36 (Intel)		91	9.7.1
CR	Agreement			91	9.7.1
discussion				92	9.7.2
discussion				218	10.4.1.3.4
discussion				253	10.4.2.2
discussion				215	10.4.1.3.1
discussion				215	10.4.1.3.1
discussion				218	10.4.1.3.4
discussion				151	10.2.2.1
discussion				242	10.4.1.7.1
discussion				244	10.4.1.7.3
discussion				219	10.4.1.3.5
discussion				246	10.4.1.7.5
discussion				247	10.4.1.7.6
discussion				159	10.2.8
discussion				260	10.4.3.5
discussion				256	10.4.3.1
discussion				258	10.4.3.3
discussion				256	10.4.3.1
CR	Agreement			256	10.4.3.1
discussion				261	10.4.3.6
discussion				247	10.4.1.7.6
discussion				264	10.4.4.2
discussion				265	10.4.4.3
discussion				266	10.4.4.4
discussion				268	10.4.4.6
discussion		The TP is agreed.		170	10.2.19
discussion				171	10.2.20
discussion				215	10.4.1.3.1
discussion				197	10.3.2.6
discussion				205	10.3.3.7
discussion		Offline#28 (Intel)		258	10.4.3.3
discussion				225	10.4.1.4.4
discussion				256	10.4.3.1
discussion				160	10.2.9
discussion				158	10.2.7
discussion				157	10.2.6
draft TS	Endorsement			174	10.3.1.1
discussion	Agreement			186	10.3.1.9
discussion	Agreement			187	10.3.1.10
discussion	Agreement			189	10.3.1.12
discussion	Agreement			190	10.3.1.13
discussion	Agreement			190	10.3.1.13
discussion	Agreement			190	10.3.1.13
CR	Agreement			88	9.6.0
CR	Agreement			88	9.6.0
CR	Agreement			88	9.6.0
discussion	Agreement			145	9.19

discussion	Agreement			145	9.19
discussion	Agreement			145	9.19
CR	Agreement			145	9.19
CR	Agreement			145	9.19
discussion	Agreement			142	9.16
CR	Agreement			142	9.16
discussion	Agreement			142	9.16
CR	Agreement			142	9.16
CR	Agreement			142	9.16
discussion	Agreement			142	9.16
discussion	Agreement			142	9.16
discussion	Agreement			142	9.16
discussion	Agreement			142	9.16
discussion	Agreement			142	9.16
CR	Agreement			142	9.16
discussion	Agreement			84	9.5.2
discussion	Agreement			85	9.5.3
CR	Agreement			85	9.5.3
CR	Agreement			85	9.5.3
CR	Agreement			85	9.5.3
CR	Agreement			85	9.5.3
discussion	Agreement			188	10.3.1.11
discussion	Agreement			188	10.3.1.11
discussion	Agreement			188	10.3.1.11
discussion	Agreement			195	10.3.2.4
discussion	Agreement			195	10.3.2.4
discussion	Agreement			195	10.3.2.4
discussion	Agreement			203	10.3.3.5
discussion	Agreement			203	10.3.3.5
discussion	Agreement			203	10.3.3.5
discussion	Agreement			203	10.3.3.5
CR	Agreement			49	8.13.3
CR	Agreement			46	8.13.0
CR	Agreement			47	8.13.1
discussion	Agreement			109	9.10.4
discussion	Agreement			107	9.10.2
discussion	Agreement			107	9.10.2
discussion	Agreement			107	9.10.2
discussion	Agreement			108	9.10.3
discussion	Agreement			108	9.10.3
discussion	Agreement			107	9.10.2

discussion	Agreement			106	9.10.1
discussion	Agreement			107	9.10.2
discussion	Agreement			107	9.10.2
discussion	Discussion			163	10.2.12
discussion	Discussion			164	10.2.13
discussion	Discussion			166	10.2.15
discussion	Discussion			167	10.2.16
discussion	Discussion			167	10.2.16
discussion	Discussion			168	10.2.17
discussion	Discussion			154	10.2.3
discussion	Discussion			159	10.2.8
discussion	Discussion			161	10.2.10
discussion	Discussion			181	10.3.1.4.4
discussion	Discussion			218	10.4.1.3.4
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			225	10.4.1.4.4
discussion	Discussion			222	10.4.1.4.1
discussion	Discussion			232	10.4.1.5.3
discussion	Discussion			236	10.4.1.6.3
discussion	Discussion			237	10.4.1.6.4
discussion	Discussion			238	10.4.1.6.5
discussion	Discussion			239	10.4.1.6.6
discussion	Discussion			246	10.4.1.7.5
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion			259	10.4.3.4
discussion	Discussion			264	10.4.4.2
discussion	Discussion			265	10.4.4.3
discussion	Discussion			267	10.4.4.5
discussion	Discussion			92	9.7.2
discussion	Discussion			92	9.7.2
discussion	Discussion			92	9.7.2
discussion	Agreement			176	10.3.1.3
discussion	Approval			179	10.3.1.4.2
discussion	Approval			181	10.3.1.4.4
discussion	Approval			182	10.3.1.5
discussion	Approval			180	10.3.1.4.3
discussion	Approval			184	10.3.1.7
discussion	Approval			184	10.3.1.7
discussion	Approval			189	10.3.1.12
discussion	Approval			223	10.4.1.4.2
discussion	Approval			224	10.4.1.4.3
discussion	Approval			220	10.4.1.3.6
discussion	Approval			246	10.4.1.7.5
discussion	Approval			253	10.4.2.2
discussion	Approval			162	10.2.11
discussion	Approval			154	10.2.3
discussion	Approval			219	10.4.1.3.5
discussion	Approval			220	10.4.1.3.6
discussion	Approval			224	10.4.1.4.3
discussion	Approval			236	10.4.1.6.3
discussion	Approval			237	10.4.1.6.4

discussion	Approval			239	10.4.1.6.6
discussion	Approval			243	10.4.1.7.2
discussion	Approval			268	10.4.4.6
discussion	Approval			268	10.4.4.6
discussion	Approval			159	10.2.8
discussion	Decision			254	10.4.2.3
discussion	Decision	The TP is agreed.		199	10.3.3.1
discussion	Decision			142	9.16
CR	Agreement			142	9.16
CR	Agreement			142	9.16
CR	Agreement			142	9.16
discussion	Decision	Revision of R2-1708860		135	9.14.5
discussion	Decision			155	10.2.4
discussion	Decision	Resubmission of R2-1708864 i.e. TP for TS38.321 after offline discussions with the rapporteur		183	10.3.1.6
discussion	Decision			180	10.3.1.4.3
discussion	Decision	Revision of R2-1708865		182	10.3.1.5
discussion	Decision	TP for TS38.322 after offline discussions with the rapporteur		197	10.3.2.6
discussion	Decision			202	10.3.3.4
discussion	Decision	Resubmission of R2-1708869		236	10.4.1.6.3
discussion	Decision	Revision of R2-1708863		253	10.4.2.2
discussion	Decision			135	9.14.5
discussion	Decision			161	10.2.10
discussion	Decision			176	10.3.1.3
discussion	Decision			183	10.3.1.6
discussion	Decision			236	10.4.1.6.3
discussion	Decision			249	10.4.1.9
discussion				183	10.3.1.6
discussion				183	10.3.1.6
discussion				187	10.3.1.10
discussion				176	10.3.1.3
discussion				102	9.9.2
discussion				102	9.9.2
discussion				188	10.3.1.11
discussion				187	10.3.1.10
discussion				176	10.3.1.3
discussion				159	10.2.8
discussion				178	10.3.1.4.1
discussion	Discussion	The TP is agreed with changes.		170	10.2.19
discussion				240	10.4.1.6.7
discussion				248	10.4.1.8
discussion				248	10.4.1.8
discussion				248	10.4.1.8
discussion				248	10.4.1.8

discussion				248	10.4.1.8
discussion				248	10.4.1.8
discussion	Discussion			108	9.10.3
discussion	Decision			158	10.2.7
discussion	Decision			158	10.2.7
discussion	Decision			158	10.2.7
discussion	Decision			158	10.2.7
discussion	Decision			256	10.4.3.1
discussion	Decision			107	9.10.2
discussion	Decision			108	9.10.3
discussion	Decision			107	9.10.2
discussion	Decision	Offline#05 (CATT)		156	10.2.5
discussion	Decision			180	10.3.1.4.3
discussion	Decision			185	10.3.1.8
discussion	Decision			187	10.3.1.10
discussion	Decision			188	10.3.1.11
discussion	Decision			189	10.3.1.12
discussion	Decision			187	10.3.1.10
discussion	Decision			208	10.3.4.2
discussion	Decision			154	10.2.3
discussion	Decision			92	9.7.2
discussion	Decision			93	9.7.3
discussion	Decision			253	10.4.2.2
discussion	Decision			232	10.4.1.5.3
discussion	Decision			190	10.3.1.13
discussion				107	9.10.2
discussion				179	10.3.1.4.2
discussion	Decision			164	10.2.13
discussion	Decision			162	10.2.11
discussion				107	9.10.2
discussion	Decision			162	10.2.11
discussion	Discussion			145	9.19
draftCR	Endorsement			142	9.16
draftCR	Endorsement			142	9.16
discussion	Discussion			142	9.16
discussion	Discussion			142	9.16
discussion	Discussion			142	9.16
discussion	Discussion			142	9.16
discussion	Decision			253	10.4.2.2
discussion	Decision			154	10.2.3
discussion	Discussion			69	9.1.1
discussion	Decision			161	10.2.10
discussion	Decision			225	10.4.1.4.4
discussion	Discussion			222	10.4.1.4.1
discussion	Decision			225	10.4.1.4.4
discussion	Decision			217	10.4.1.3.3

discussion	Decision	Offline#13 (Intel)		151	10.2.2.1
discussion	Decision			217	10.4.1.3.3
discussion	Decision			232	10.4.1.5.3
discussion	Agreement			116	9.12.2
discussion	Agreement			116	9.12.2
discussion	Agreement			116	9.12.2
discussion	Agreement			116	9.12.2
CR	Agreement			143	9.17
CR	Agreement			113	9.11.3
CR	Agreement			112	9.11.2
discussion	Approval			184	10.3.1.7
discussion	Decision			75	9.4.3
discussion	Decision			205	10.3.3.7
discussion	Decision			180	10.3.1.4.3
discussion	Decision			179	10.3.1.4.2
discussion	Decision			181	10.3.1.4.4
discussion	Decision			180	10.3.1.4.3
discussion	Decision			202	10.3.3.4
discussion	Decision			153	10.2.2.3
discussion	Decision			153	10.2.2.3
discussion	Decision			180	10.3.1.4.3
discussion	Decision			178	10.3.1.4.1
discussion	Decision			184	10.3.1.7
discussion	Decision			260	10.4.3.5
discussion	Decision			203	10.3.3.5
discussion	Decision			189	10.3.1.12
discussion	Decision			189	10.3.1.12
discussion	Discussion			153	10.2.2.3
discussion	Discussion			93	9.7.3
discussion				168	10.2.17
discussion	Discussion			209	10.3.4.3
discussion	Discussion			168	10.2.17
discussion	Discussion			209	10.3.4.3
discussion	Discussion			208	10.3.4.2
discussion	Discussion			209	10.3.4.3
discussion	Discussion			205	10.3.3.7
discussion	Discussion			203	10.3.3.5
discussion	Discussion			205	10.3.3.7
discussion	Discussion			203	10.3.3.5
discussion	Discussion			203	10.3.3.5
discussion	Discussion			205	10.3.3.7
discussion	Discussion			202	10.3.3.4
discussion	Discussion			203	10.3.3.5
discussion	Discussion			188	10.3.1.11
discussion	Discussion			197	10.3.2.6

discussion	Discussion	Offline#535 (Ericsson)		197	10.3.2.6
discussion	Discussion			196	10.3.2.5
discussion	Discussion			185	10.3.1.8
CR	Agreement			44	8.12.2
CR	Agreement			44	8.12.2
discussion	Decision			132	9.14.2
discussion	Decision			108	9.10.3
discussion	Decision			107	9.10.2
discussion	Discussion			171	10.2.20
discussion	Decision			80	9.4.5
discussion	Decision			80	9.4.5
discussion				162	10.2.11
discussion	Decision			107	9.10.2
discussion	Decision			107	9.10.2
discussion				248	10.4.1.8
discussion	Decision			162	10.2.11
discussion				145	9.19
CR	Agreement			145	9.19
CR	Agreement			145	9.19
CR	Agreement			30	8.5
discussion				145	9.19
CR	Agreement			145	9.19
discussion				145	9.19
discussion				162	10.2.11
discussion	Decision			164	10.2.13
discussion	Decision			243	10.4.1.7.2
discussion	Decision			129	9.13.10
discussion		In this paper, we discuss the inter-RAT cell reselection rules.		264	10.4.4.2
discussion	Decision			209	10.3.4.3
discussion	Decision			203	10.3.3.5
discussion	Decision			203	10.3.3.5
discussion				188	10.3.1.11
discussion				108	9.10.3
discussion				239	10.4.1.6.6
discussion				187	10.3.1.10
discussion				107	9.10.2
discussion	Discussion			234	10.4.1.6.1
discussion	Discussion			70	9.2

discussion	Discussion			182	10.3.1.5
discussion	Discussion			182	10.3.1.5
discussion	Discussion			187	10.3.1.10
discussion	Decision			135	9.14.5
discussion	Decision			180	10.3.1.4.3
discussion	Decision			247	10.4.1.7.6
discussion				116	9.12.2
CR	Agreement			174	10.3.1.1
CR	Agreement			192	10.3.2.1
discussion				132	9.14.2
discussion				19	7.2
discussion	Decision			235	10.4.1.6.2
discussion				158	10.2.7
discussion				219	10.4.1.3.5
discussion				167	10.2.16
discussion				239	10.4.1.6.6
discussion				92	9.7.2
discussion				154	10.2.3
discussion				80	9.4.5
discussion				79	9.4.4.3
discussion				128	9.13.9
CR	Agreement			19	7.2
discussion	Discussion			171	10.2.20
LS out	Approval			171	10.2.20
discussion	Discussion			230	10.4.1.5.1
discussion	Discussion			156	10.2.5
discussion	Discussion			159	10.2.8
discussion	Discussion			171	10.2.20
CR	Agreement			19	7.2
discussion				189	10.3.1.12
discussion				209	10.3.4.3
discussion				203	10.3.3.5
discussion				203	10.3.3.5
discussion				203	10.3.3.5
discussion				189	10.3.1.12
discussion				202	10.3.3.4
discussion				203	10.3.3.5
report				123	9.13.4
discussion				123	9.13.4
discussion				123	9.13.4

CR	Agreement			123	9.13.4
CR	Agreement			123	9.13.4
CR	Agreement			123	9.13.4
CR	Agreement			123	9.13.4
CR	Agreement			123	9.13.4
draftCR	Discussion			129	9.13.10
draftCR				129	9.13.10
discussion	Decision			65	8.25.1
CR	Agreement			65	8.25.1
draftCR				129	9.13.10
CR	Agreement			123	9.13.4
discussion				125	9.13.6
CR	Agreement			125	9.13.6
CR	Agreement			125	9.13.6
CR	Agreement			125	9.13.6
CR	Agreement			125	9.13.6
discussion				126	9.13.7
LS out	Approval			126	9.13.7
discussion				129	9.13.10
LS out	Approval			129	9.13.10
discussion				128	9.13.9
CR	Agreement			128	9.13.9
CR	Agreement			128	9.13.9
CR	Agreement			128	9.13.9
CR	Agreement			128	9.13.9
CR	Agreement			40	8.11.1
CR	Agreement			39	8.11.0
CR	Agreement			39	8.11.0
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1

CR	Agreement			18	7.1.1
draftCR				129	9.13.10
discussion	Decision			140	9.14.10
CR	Agreement			140	9.14.10
CR	Agreement			140	9.14.10
CR	Agreement			140	9.14.10
discussion	Decision			133	9.14.3
discussion	Decision			133	9.14.3
CR	Agreement			133	9.14.3
LS out	Approval			133	9.14.3
discussion	Decision			132	9.14.2
discussion	Decision			132	9.14.2
discussion	Decision			132	9.14.2
report				132	9.14.2
discussion	Presentation			132	9.14.2
discussion	Decision			136	9.14.6
CR	Agreement			136	9.14.6
CR	Agreement			136	9.14.6
CR	Agreement			136	9.14.6
discussion	Decision			140	9.14.10
CR	Agreement			138	9.14.8
CR	Agreement			138	9.14.8
CR	Agreement			137	9.14.7
CR	Agreement			137	9.14.7
discussion	Decision			135	9.14.5
CR	Agreement			135	9.14.5
discussion				107	9.10.2
discussion				107	9.10.2
discussion				107	9.10.2
discussion				236	10.4.1.6.3
discussion				237	10.4.1.6.4
discussion				239	10.4.1.6.6
discussion				180	10.3.1.4.3
discussion				186	10.3.1.9
discussion				108	9.10.3
discussion				109	9.10.4
discussion				109	9.10.4
CR	Agreement			61	8.23

CR	Agreement	Merged with R2-1713013		123	9.13.4
CR	Agreement	Merged with R2-1713014		123	9.13.4
CR	Agreement	Merged with R2-1713015		123	9.13.4
draftCR	Discussion			123	9.13.4
draftCR	Discussion			123	9.13.4
draftCR	Discussion			123	9.13.4
CR	Agreement			17	7.1.0
CR	Agreement			17	7.1.0
CR	Agreement			17	7.1.0
CR	Agreement			17	7.1.0
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement			17	7.1.0
CR	Agreement			17	7.1.0
CR	Agreement	Offline#304 (Huawei)		42	8.12.0
CR	Agreement			42	8.12.0
CR	Agreement			42	8.12.0
CR	Agreement			44	8.12.2
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement	Offline#307 (Huawei)		18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement			44	8.12.2
discussion	Discussion			133	9.14.3
discussion	Discussion			133	9.14.3
LS out	Approval			133	9.14.3
discussion	Discussion			133	9.14.3
discussion	Discussion			133	9.14.3
draftCR	Discussion			133	9.14.3
draftCR	Discussion			133	9.14.3
discussion	Discussion			135	9.14.5
discussion	Discussion			135	9.14.5
discussion	Discussion			136	9.14.6

discussion	Discussion			136	9.14.6
discussion	Discussion			137	9.14.7
LS out	Approval			137	9.14.7
draftCR	Discussion			137	9.14.7
draftCR	Discussion			137	9.14.7
discussion	Discussion			138	9.14.8
discussion	Discussion			140	9.14.10
LS out	Approval			140	9.14.10
draftCR	Discussion			140	9.14.10
draftCR	Discussion			140	9.14.10
draftCR	Discussion			140	9.14.10
discussion	Discussion			140	9.14.10
discussion	Discussion			140	9.14.10
CR	Agreement			61	8.23
CR	Agreement			19	7.2
discussion	Decision			92	9.7.2
LS out	Approval			92	9.7.2
discussion	Decision			92	9.7.2
discussion	Decision			92	9.7.2
discussion	Decision	Offline#37 (Huawei)		92	9.7.2
discussion	Decision			92	9.7.2
discussion	Decision			92	9.7.2
discussion	Decision			155	10.2.4
discussion	Decision			157	10.2.6
discussion	Endorsement			232	10.4.1.5.3
draftCR	Endorsement			254	10.4.2.3
discussion	Endorsement	Agreed except the first change.		170	10.2.19
discussion	Decision	The TP is agreed.		218	10.4.1.3.4
discussion	Decision			232	10.4.1.5.3
discussion	Decision			249	10.4.1.9
discussion	Decision			253	10.4.2.2
discussion	Decision			253	10.4.2.2
discussion	Decision			257	10.4.3.2
discussion	Decision			153	10.2.2.3
discussion	Decision			156	10.2.5
discussion	Decision			160	10.2.9
discussion	Decision			151	10.2.2.1
discussion	Discussion			14	6.1
CR	Agreement			14	6.1
discussion	Discussion			14	6.1
CR	Agreement			22	7.3.1
CR	Agreement			22	7.3.1

CR	Agreement			64	8.25.0
discussion	Discussion			101	9.9.1
discussion	Discussion			101	9.9.1
discussion	Discussion			101	9.9.1
discussion	Discussion			102	9.9.2
discussion	Discussion			102	9.9.2
LS out	Approval			102	9.9.2
discussion	Discussion			102	9.9.2
discussion	Discussion			103	9.9.3
discussion	Discussion			141	9.15
discussion	Discussion			158	10.2.7
report	Decision			158	10.2.7
discussion	Decision			160	10.2.9
report	Discussion			102	9.9.2
discussion	Decision			230	10.4.1.5.1
discussion	Decision			175	10.3.1.2
discussion	Decision			185	10.3.1.8
discussion	Decision			185	10.3.1.8
discussion	Decision			186	10.3.1.9
discussion	Decision			189	10.3.1.12
discussion	Decision			189	10.3.1.12
discussion	Decision			189	10.3.1.12
discussion	Decision			190	10.3.1.13
CR	Agreement			19	7.2
discussion	Decision			250	10.4.1.10
report	Decision			132	9.14.2
draftCR	Approval			132	9.14.2
discussion	Decision			132	9.14.2
discussion	Decision			132	9.14.2
report	Decision			128	9.13.9
LS out	Approval			128	9.13.9
discussion	Decision			132	9.14.2
discussion	Decision			132	9.14.2
discussion	Decision			132	9.14.2
discussion	Decision			132	9.14.2
draftCR	Decision	Merged into the 36.331 Running CR		122	9.13.3

draftCR	Decision	Offline#309 (Ericsson, Huawei) Merged wiith R2-1713028.		125	9.13.6
discussion	Decision			129	9.13.10
discussion	Decision			127	9.13.8
discussion	Decision			127	9.13.8
draftCR				120	9.13.1
discussion	Decision			116	9.12.2
discussion	Decision			222	10.4.1.4.1
discussion	Decision			225	10.4.1.4.4
discussion	Decision			247	10.4.1.7.6
discussion	Decision			246	10.4.1.7.5
discussion	Decision			265	10.4.4.3
discussion	Decision			264	10.4.4.2
discussion				219	10.4.1.3.5
discussion				220	10.4.1.3.6
discussion	Decision			217	10.4.1.3.3
discussion	Decision	Offline#16 (Huawei)		159	10.2.8
discussion	Endorsement			158	10.2.7
discussion	Decision			260	10.4.3.5
discussion	Endorsement	Offline#25 (Huawei)		256	10.4.3.1
discussion	Decision			259	10.4.3.4
discussion	Decision			171	10.2.20
discussion	Decision			14	6.1
CR	Agreement			19	7.2
CR	Agreement			40	8.11.1
CR	Agreement			40	8.11.1
CR	Agreement			40	8.11.1
CR	Agreement			40	8.11.1
CR	Agreement			40	8.11.1
CR	Agreement			19	7.2
CR	Agreement			17	7.1.0
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement			42	8.12.0
discussion				102	9.9.2
discussion				253	10.4.2.2
discussion				175	10.3.1.2
discussion				180	10.3.1.4.3
discussion				183	10.3.1.6
discussion				208	10.3.4.2
discussion				167	10.2.16

discussion				92	9.7.2
discussion				84	9.5.2
CR	Agreement			84	9.5.2
CR	Agreement			84	9.5.2
CR	Agreement			84	9.5.2
CR	Agreement			84	9.5.2
discussion				40	8.11.1
CR	Agreement			40	8.11.1
discussion				40	8.11.1
CR	Agreement			58	8.20
CR	Agreement			58	8.20
discussion				187	10.3.1.10
discussion				70	9.2
CR	Agreement			65	8.25.1
discussion				70	9.2
discussion				141	9.15
CR	Agreement			65	8.25.1
discussion				70	9.2
discussion	Discussion			160	10.2.9
CR	Agreement			65	8.25.1
discussion	Discussion			169	10.2.18
CR	Agreement			65	8.25.1
discussion				145	9.19
CR	Agreement			145	9.19
discussion				145	9.19
CR	Agreement			145	9.19
CR	Agreement			145	9.19
discussion	Discussion			245	10.4.1.7.4
CR	Agreement			65	8.25.1
discussion	Decision			253	10.4.2.2
discussion	Decision			223	10.4.1.4.2
discussion	Decision			79	9.4.4.3
discussion	Decision			79	9.4.4.3
discussion	Discussion			92	9.7.2
LS out	Approval			92	9.7.2
discussion	Discussion			92	9.7.2

discussion	Discussion			92	9.7.2
discussion	Discussion			92	9.7.2
discussion	Discussion			92	9.7.2
discussion	Discussion			92	9.7.2
discussion	Discussion			92	9.7.2
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			167	10.2.16
discussion	Discussion			167	10.2.16
discussion	Discussion			166	10.2.15
discussion	Discussion			220	10.4.1.3.6
LS out	Approval			220	10.4.1.3.6
discussion	Discussion			234	10.4.1.6.1
discussion	Discussion			234	10.4.1.6.1
LS out	Approval			234	10.4.1.6.1
discussion	Discussion			235	10.4.1.6.2
discussion	Discussion			236	10.4.1.6.3
discussion	Discussion			237	10.4.1.6.4
discussion	Discussion			238	10.4.1.6.5
discussion	Discussion			239	10.4.1.6.6
discussion	Discussion			240	10.4.1.6.7
discussion	Discussion			264	10.4.4.2
discussion	Discussion			265	10.4.4.3
discussion	Discussion			266	10.4.4.4
discussion	Discussion			267	10.4.4.5
discussion	Discussion			267	10.4.4.5
discussion	Discussion			219	10.4.1.3.5
discussion	Discussion			243	10.4.1.7.2
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			166	10.2.15
discussion	Discussion			166	10.2.15
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			166	10.2.15
discussion	Discussion			166	10.2.15

discussion	Discussion			245	10.4.1.7.4
discussion	Discussion			245	10.4.1.7.4
CR	Agreement			142	9.16
discussion	Decision			175	10.3.1.2
CR	Agreement			142	9.16
CR	Agreement			142	9.16
discussion	Decision			79	9.4.4.3
discussion	Decision			79	9.4.4.3
discussion	Agreement			70	9.2
discussion	Agreement			70	9.2
discussion	Agreement			70	9.2
discussion	Agreement			70	9.2
discussion	Agreement			70	9.2
discussion	Agreement			70	9.2
discussion	Agreement			70	9.2
discussion	Agreement			70	9.2
CR	Agreement			70	9.2
discussion	Agreement			77	9.4.4.1
discussion	Agreement			77	9.4.4.1
discussion	Agreement			78	9.4.4.2
discussion	Agreement			80	9.4.5
discussion	Agreement			70	9.2
discussion	Discussion			77	9.4.4.1
discussion	Discussion			77	9.4.4.1
discussion	Agreement			80	9.4.5
discussion	Agreement			77	9.4.4.1
discussion	Agreement			103	9.9.3
discussion	Agreement			102	9.9.2
discussion	Agreement			103	9.9.3
discussion	Agreement			102	9.9.2
discussion	Agreement			141	9.15
discussion	Agreement			141	9.15
discussion	Agreement			141	9.15
discussion	Agreement			141	9.15
discussion	Decision			215	10.4.1.3.1
discussion	Decision			215	10.4.1.3.1

discussion	Decision			215	10.4.1.3.1
discussion	Decision			215	10.4.1.3.1
discussion	Decision	Offline#27 (Intel)		258	10.4.3.3
discussion	Decision			232	10.4.1.5.3
discussion	Decision			158	10.2.7
discussion	Decision			171	10.2.20
discussion	Decision			9	3
discussion	Decision			171	10.2.20
discussion	Decision			171	10.2.20
discussion	Decision			142	9.16
discussion	Decision			142	9.16
discussion				183	10.3.1.6
CR	Agreement			40	8.11.1
pCR	Endorsement			217	10.4.1.3.3
discussion	Decision			142	9.16
report	Decision			127	9.13.8
discussion	Decision			257	10.4.3.2
discussion	Decision			127	9.13.8
discussion	Discussion			253	10.4.2.2
discussion				179	10.3.1.4.2
discussion	Decision			266	10.4.4.4
discussion	Decision			265	10.4.4.3
discussion	Decision			268	10.4.4.6
discussion	Decision			180	10.3.1.4.3
discussion				180	10.3.1.4.3
discussion	Decision			181	10.3.1.4.4
discussion				239	10.4.1.6.6
discussion	Decision			268	10.4.4.6
discussion				180	10.3.1.4.3
discussion				181	10.3.1.4.4
discussion	Decision			238	10.4.1.6.5
discussion				240	10.4.1.6.7
discussion	Decision			237	10.4.1.6.4
discussion	Decision			268	10.4.4.6

CR	Agreement	Offline#507 (Qualcommi)		49	8.13.3
discussion	Discussion			153	10.2.2.3
discussion	Discussion	Offline#09 (Nokia)		157	10.2.6
discussion	Discussion			179	10.3.1.4.2
discussion	Discussion			180	10.3.1.4.3
discussion	Discussion			202	10.3.3.4
discussion	Discussion			205	10.3.3.7
CR	Agreement			49	8.13.3
discussion	Decision			49	8.13.3
CR	Agreement			49	8.13.3
discussion				108	9.10.3
discussion	Discussion	Offline#22 (Ericsson)		215	10.4.1.3.1
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion	Offline#21 (Ericsson)		215	10.4.1.3.1
discussion	Discussion			253	10.4.2.2
discussion	Discussion			218	10.4.1.3.4
discussion	Discussion			232	10.4.1.5.3
discussion	Discussion			232	10.4.1.5.3
discussion	Discussion			232	10.4.1.5.3
discussion	Discussion			157	10.2.6
discussion	Discussion			220	10.4.1.3.6
discussion	Discussion			160	10.2.9
discussion	Discussion			218	10.4.1.3.4
discussion	Discussion			226	10.4.1.4.5
discussion	Discussion			171	10.2.20
discussion	Discussion			162	10.2.11
discussion	Discussion			162	10.2.11
discussion	Decision			109	9.10.4
discussion	Decision			107	9.10.2
discussion				164	10.2.13
discussion	Decision			109	9.10.4
discussion	Discussion			75	9.4.3
discussion	Discussion			80	9.4.5
discussion	Approval			75	9.4.3
discussion	Discussion			69	9.1.1
discussion	Discussion			164	10.2.13

CR	Agreement			46	8.13.0
discussion	Discussion			164	10.2.13
discussion	Discussion			224	10.4.1.4.3
discussion	Decision			124	9.13.5
discussion	Decision			129	9.13.10
LS out	Approval			129	9.13.10
discussion	Decision			129	9.13.10
discussion	Decision	Offline#123 (Ericsson)		85	9.5.3
discussion	Decision			85	9.5.3
CR	Agreement			85	9.5.3
CR	Agreement			85	9.5.3
CR	Agreement			85	9.5.3
CR	Agreement			145	9.19
discussion	Discussion			225	10.4.1.4.4
discussion	Decision			222	10.4.1.4.1
discussion	Agreement			259	10.4.3.4
discussion	Agreement			260	10.4.3.5
discussion	Agreement	Offline#		217	10.4.1.3.3
discussion	Agreement			156	10.2.5
discussion	Agreement			256	10.4.3.1
discussion				235	10.4.1.6.2
discussion	Decision			151	10.2.2.1
discussion	Decision			153	10.2.2.3
discussion	Decision			156	10.2.5
discussion	Decision			217	10.4.1.3.3
discussion	Decision			218	10.4.1.3.4
discussion	Decision			218	10.4.1.3.4
discussion	Decision			218	10.4.1.3.4
discussion	Decision			218	10.4.1.3.4
discussion	Decision			218	10.4.1.3.4
discussion	Decision			254	10.4.2.3
discussion				236	10.4.1.6.3
discussion				246	10.4.1.7.5
LS out	Approval			246	10.4.1.7.5
discussion	Decision			80	9.4.5
discussion				247	10.4.1.7.6
discussion	Discussion			78	9.4.4.2
discussion				145	9.19
discussion	Decision			79	9.4.4.3
discussion	Decision			77	9.4.4.1

CR	Agreement			62	8.24
report				249	10.4.1.9
CR	Agreement			252	10.4.2.1
report	Endorsement			252	10.4.2.1
CR	Information			252	10.4.2.1
draft TS	Endorsement			207	10.3.4.1
discussion	Decision			207	10.3.4.1
CR	Agreement			145	9.19
discussion	Discussion			145	9.19
discussion				175	10.3.1.2
discussion		Offline#507 (Ericsson)		175	10.3.1.2
discussion				153	10.2.2.3
LS out	Approval			153	10.2.2.3
discussion				187	10.3.1.10
discussion				184	10.3.1.7
discussion				187	10.3.1.10
discussion				187	10.3.1.10
discussion				187	10.3.1.10
discussion				187	10.3.1.10
discussion				178	10.3.1.4.1
discussion				176	10.3.1.3
discussion				180	10.3.1.4.3
discussion				181	10.3.1.4.4
discussion				181	10.3.1.4.4
discussion				181	10.3.1.4.4
discussion				181	10.3.1.4.4
discussion				179	10.3.1.4.2
discussion				182	10.3.1.5
discussion				190	10.3.1.13
discussion				216	10.4.1.3.2
discussion				183	10.3.1.6
discussion				189	10.3.1.12
discussion				189	10.3.1.12
discussion				189	10.3.1.12
discussion				218	10.4.1.3.4
discussion				80	9.4.5
CR	Agreement			64	8.25.0
discussion	Decision			160	10.2.9
discussion	Discussion			103	9.9.3
CR	Agreement	The changes of this CR will be combined with R2-1713551		65	8.25.1
discussion				116	9.12.2

discussion	Decision	This document makes some proposals towards determining how the paging occasions are to be calculated and assigned. The analysis depends on RAN1 decisions about the structure of paging, some of which have yet to be taken. This document attempts to progres		268	10.4.4.6
discussion	Decision	Paging discussions for NR have considered that, as an alternative to sending the paging message on all beams (“direct paging”), a response-driven paging scheme could be used, in which some form of short paging indicator is sent on all beams, and UEs that		268	10.4.4.6
discussion	Decision	In this paper, we discuss the NR paging mechanism in the high frequency scenario based on RAN1’s agreements		268	10.4.4.6
LS out	Approval			218	10.4.1.3.4
discussion	Decision			249	10.4.1.9
discussion	Decision			260	10.4.3.5
discussion	Decision			213	10.4.1.2
discussion	Decision			257	10.4.3.2
discussion				135	9.14.5
discussion				132	9.14.2
discussion				124	9.13.5
discussion	Decision			209	10.3.4.3
discussion				132	9.14.2
discussion				79	9.4.4.3
discussion				190	10.3.1.13
CR	Agreement			47	8.13.1
discussion				47	8.13.1
discussion				109	9.10.4
LS out	Approval			107	9.10.2
discussion				107	9.10.2

discussion				108	9.10.3
discussion				107	9.10.2
discussion				107	9.10.2
discussion				116	9.12.2
discussion				116	9.12.2
discussion				116	9.12.2
discussion				116	9.12.2
discussion				116	9.12.2
discussion				117	9.12.3
CR	Agreement			145	9.19
CR	Agreement			145	9.19
discussion				145	9.19
discussion				79	9.4.4.3
LS out	Approval			190	10.3.1.13
discussion				248	10.4.1.8
LS out	Approval			181	10.3.1.4.4
discussion	Decision			215	10.4.1.3.1
discussion				190	10.3.1.13
discussion	Decision	Offline#300 (Sequans)		40	8.11.1
discussion				164	10.2.13
discussion				176	10.3.1.3
discussion	Decision			176	10.3.1.3
discussion	Decision	The TP is endorsed.		75	9.4.3
discussion	Decision			77	9.4.4.1
discussion	Decision			78	9.4.4.2
discussion	Decision			79	9.4.4.3
CR	Agreement			13	6.0
CR	Agreement			53	8.15
CR	Agreement			13	6.0
draft TR				73	9.4.1
discussion		The TP is endorsed.		75	9.4.3
CR	Agreement			13	6.0
discussion				80	9.4.5
discussion	Decision	In this contribution, we will further discuss the additional aspects of access control for an INACTIVE UE compared with IDLE state		248	10.4.1.8
discussion				260	10.4.3.5
CR	Agreement			14	6.1
CR	Agreement			14	6.1
CR	Agreement			14	6.1

discussion	Decision			234	10.4.1.6.1
discussion		resubmission of R2-1711747		219	10.4.1.3.5
discussion	Decision			238	10.4.1.6.5
discussion				225	10.4.1.4.4
discussion	Decision			236	10.4.1.6.3
discussion	Decision			237	10.4.1.6.4
discussion	Decision	In this paper, we will continue to discuss the access control mechanism for NR		248	10.4.1.8
CR	Agreement			22	7.3.1
discussion				151	10.2.2.1
CR	Agreement			22	7.3.1
discussion	Decision	In this paper, we give further analysis on AC mechanisms for a NR UE in RRC-CONNECTED, and related triggering conditions.		248	10.4.1.8
discussion	Decision			205	10.3.3.7
CR	Agreement			22	7.3.1
discussion	Decision	In this paper, the access control mechanism for mobile terminating services is analyzed		248	10.4.1.8
CR	Agreement			53	8.15
discussion	Decision			154	10.2.3
discussion	Decision			154	10.2.3
discussion	Decision			167	10.2.16
discussion	Decision			237	10.4.1.6.4
discussion	Decision			239	10.4.1.6.6
discussion	Decision			247	10.4.1.7.6
discussion	Decision			266	10.4.4.4
discussion				189	10.3.1.12
discussion	Decision			145	9.19
CR	Agreement	a. Not seen by RAN2 b1. N/A b2. According to the decision in RAN#76; we were asked to bring necessary CRs to RAN#77		68	9.1.0
discussion				238	10.4.1.6.5

CR	Agreement	a. Not seen by RAN2 b1. N/A b2. According to the decision in RAN#76; we were asked to bring necessary CRs to RAN#77		64	8.25.0
discussion				239	10.4.1.6.6
discussion	Decision			202	10.3.3.4
discussion	Decision			196	10.3.2.5
discussion	Decision			209	10.3.4.3
discussion	Decision			208	10.3.4.2
discussion	Decision			203	10.3.3.5
discussion	Decision			153	10.2.2.3
discussion				208	10.3.4.2
CR	Agreement	a. Not seen by RAN2 b1. N/A b2. According to the decision in RAN#76; we were asked to bring necessary CRs to RAN#77		64	8.25.0
discussion	Discussion			163	10.2.12
discussion	Discussion			222	10.4.1.4.1
discussion	Discussion			222	10.4.1.4.1
discussion	Discussion			222	10.4.1.4.1
discussion	Discussion			222	10.4.1.4.1
discussion	Discussion			226	10.4.1.4.5
discussion	Discussion			160	10.2.9
discussion	Discussion			160	10.2.9
discussion	Discussion			226	10.4.1.4.5
discussion	Discussion			170	10.2.19
discussion	Discussion	Offline#39 (Samsung), Offline#40 (Ericsson)		222	10.4.1.4.1
discussion	Discussion			224	10.4.1.4.3
discussion	Discussion			226	10.4.1.4.5
discussion	Discussion			228	10.4.1.4.7
discussion	Discussion			228	10.4.1.4.7
discussion	Discussion			228	10.4.1.4.7
discussion	Discussion			230	10.4.1.5.1
discussion	Discussion			162	10.2.11

discussion	Discussion			162	10.2.11
discussion	Discussion			162	10.2.11
discussion	Discussion			162	10.2.11
discussion	Decision			209	10.3.4.3
discussion				92	9.7.2
discussion				92	9.7.2
discussion				153	10.2.2.3
draft TS				263	10.4.4.1
discussion				247	10.4.1.7.6
discussion				167	10.2.16
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion			247	10.4.1.7.6
discussion	Discussion			244	10.4.1.7.3
discussion	Discussion			247	10.4.1.7.6
discussion				102	9.9.2
discussion				102	9.9.2
discussion				102	9.9.2
discussion				102	9.9.2
CR	Agreement			17	7.1.0
CR	Agreement			17	7.1.0
CR	Agreement			22	7.3.1
CR	Agreement			22	7.3.1
discussion				159	10.2.8
draft TS				212	10.4.1.1
discussion				212	10.4.1.1
discussion				243	10.4.1.7.2
discussion	Discussion			93	9.7.3
discussion				180	10.3.1.4.3
discussion	Discussion			93	9.7.3
discussion	Decision			220	10.4.1.3.6
discussion	Decision			235	10.4.1.6.2
discussion	Decision			236	10.4.1.6.3
discussion	Decision			239	10.4.1.6.6
CR	Agreement			254	10.4.2.3
discussion	Decision			232	10.4.1.5.3
discussion	Discussion			203	10.3.3.5
discussion	Discussion			189	10.3.1.12
discussion	Discussion			219	10.4.1.3.5
discussion				132	9.14.2
discussion				189	10.3.1.12

discussion	Decision			116	9.12.2
discussion	Discussion			209	10.3.4.3
discussion	Discussion			209	10.3.4.3
discussion				132	9.14.2
discussion				185	10.3.1.8
discussion				246	10.4.1.7.5
discussion				278	13
discussion	Discussion			124	9.13.5
discussion	Discussion			190	10.3.1.13
discussion	Discussion			190	10.3.1.13
discussion				164	10.2.13
discussion	Decision	The TP is agreed.		197	10.3.2.6
discussion				190	10.3.1.13
discussion				209	10.3.4.3
draft TR	Endorsement			199	10.3.3.1
report	Approval			202	10.3.3.4
discussion	Approval			202	10.3.3.4
discussion	Decision			202	10.3.3.4
CR	Agreement			21	7.3.0
discussion	Decision			202	10.3.3.4
discussion				209	10.3.4.3
discussion				209	10.3.4.3
discussion				209	10.3.4.3
discussion				208	10.3.4.2
discussion				109	9.10.4
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
report				223	10.4.1.4.2
discussion				223	10.4.1.4.2
discussion				226	10.4.1.4.5
discussion	Decision			170	10.2.19
LS out	Approval			226	10.4.1.4.5
discussion				133	9.14.3
discussion				132	9.14.2
discussion	Decision			249	10.4.1.9
CR	Agreement			145	9.19
discussion	Decision			196	10.3.2.5
CR	Agreement			145	9.19
discussion	Discussion			158	10.2.7
discussion	Decision			85	9.5.3
CR	Agreement			85	9.5.3
discussion				183	10.3.1.6
discussion	Decision			164	10.2.13

CR	Agreement			85	9.5.3
CR	Agreement			120	9.13.1
CR	Agreement			120	9.13.1
discussion	Decision			171	10.2.20
discussion	Decision			220	10.4.1.3.6
discussion	Decision			248	10.4.1.8
discussion	Decision			268	10.4.4.6
discussion	Decision			171	10.2.20
discussion	Decision			239	10.4.1.6.6
discussion	Decision			237	10.4.1.6.4
discussion	Decision			248	10.4.1.8
discussion	Decision			247	10.4.1.7.6
discussion	Decision			162	10.2.11
discussion	Decision			248	10.4.1.8
discussion	Decision			244	10.4.1.7.3
discussion	Decision			238	10.4.1.6.5
discussion	Decision			240	10.4.1.6.7
discussion	Decision			159	10.2.8
discussion	Decision			107	9.10.2
CR	Agreement			141	9.15
draftCR		The CR is for the informative purposes only.		145	9.19
draftCR	Endorsement			131	9.14.1
draftCR				145	9.19
CR	Agreement			64	8.25.0
discussion				132	9.14.2
discussion	Decision			205	10.3.3.7
discussion	Decision			205	10.3.3.7
discussion	Decision			141	9.15
discussion				65	8.25.1
CR	Agreement			65	8.25.1
discussion	Discussion			265	10.4.4.3
discussion	Discussion			226	10.4.1.4.5
discussion	Discussion			171	10.2.20
discussion	Discussion			253	10.4.2.2
discussion	Discussion			239	10.4.1.6.6
discussion	Discussion			102	9.9.2
discussion	Discussion			266	10.4.4.4
discussion	Discussion			236	10.4.1.6.3
discussion	Decision			205	10.3.3.7
discussion	Decision			151	10.2.2.1
discussion	Decision			154	10.2.3
discussion	Decision	including TP to running CR for 36.331		254	10.4.2.3
discussion	Decision	Offline#14 (Qualcomm)		153	10.2.2.3

discussion				268	10.4.4.6
discussion	Decision			154	10.2.3
discussion	Decision			164	10.2.13
discussion	Decision			222	10.4.1.4.1
discussion	Decision			224	10.4.1.4.3
discussion	Decision			225	10.4.1.4.4
discussion	Decision			164	10.2.13
discussion	Decision			225	10.4.1.4.4
LS out	Approval			225	10.4.1.4.4
discussion	Decision			226	10.4.1.4.5
discussion	Decision			92	9.7.2
discussion				268	10.4.4.6
discussion				243	10.4.1.7.2
discussion				92	9.7.2
discussion				268	10.4.4.6
discussion				162	10.2.11
discussion				108	9.10.3
discussion				108	9.10.3
discussion				108	9.10.3
discussion				108	9.10.3
discussion	Discussion			167	10.2.16
discussion	Discussion			171	10.2.20
discussion	Discussion			132	9.14.2
discussion	Discussion			135	9.14.5
discussion	Discussion			129	9.13.10
discussion	Discussion			93	9.7.3
discussion	Discussion			132	9.14.2
discussion				109	9.10.4
discussion	Discussion			267	10.4.4.5
discussion	Discussion			165	10.2.14
discussion	Discussion			267	10.4.4.5
discussion	Discussion			133	9.14.3
discussion	Discussion			133	9.14.3

discussion	Discussion			123	9.13.4
discussion				109	9.10.4
draftCR	Endorsement			142	9.16
draftCR	Endorsement			142	9.16
draftCR	Endorsement			142	9.16
discussion	Decision			84	9.5.2
draftCR	Approval			84	9.5.2
discussion	Decision			171	10.2.20
discussion	Decision			160	10.2.9
discussion	Decision			189	10.3.1.12
discussion	Decision			189	10.3.1.12
discussion	Decision			189	10.3.1.12
discussion	Decision			250	10.4.1.10
discussion	Decision			220	10.4.1.3.6
draftCR	Approval			84	9.5.2
draftCR	Approval			84	9.5.2
discussion				268	10.4.4.6
discussion	Discussion			156	10.2.5
discussion	Discussion			162	10.2.11
discussion	Discussion			128	9.13.9
discussion	Discussion			132	9.14.2
discussion	Discussion			139	9.14.9
discussion	Discussion			132	9.14.2
discussion	Discussion			79	9.4.4.3
discussion	Discussion			79	9.4.4.3
discussion	Discussion			79	9.4.4.3
discussion	Agreement			141	9.15
discussion	Decision			164	10.2.13
discussion	Decision			164	10.2.13
discussion	Decision			265	10.4.4.3
discussion	Decision			264	10.4.4.2
discussion	Decision			164	10.2.13
discussion	Decision			164	10.2.13
discussion	Decision			267	10.4.4.5
discussion				267	10.4.4.5
discussion	Decision			178	10.3.1.4.1

discussion	Decision			160	10.2.9
discussion	Decision			187	10.3.1.10
discussion	Decision			187	10.3.1.10
discussion	Decision			189	10.3.1.12
discussion	Decision			183	10.3.1.6
discussion	Decision			175	10.3.1.2
discussion	Decision			186	10.3.1.9
discussion	Decision			179	10.3.1.4.2
discussion	Decision			180	10.3.1.4.3
discussion	Decision			159	10.2.8
discussion				267	10.4.4.5
CR	Agreement	Merged with R2-1713013		123	9.13.4
discussion				70	9.2
CR	Agreement	Merged with R2-1713015		123	9.13.4
discussion				116	9.12.2
CR	Agreement			133	9.14.3
CR	Agreement			48	8.13.2
discussion	Discussion			190	10.3.1.13
discussion	Discussion			226	10.4.1.4.5
discussion	Discussion			162	10.2.11
discussion	Discussion			225	10.4.1.4.4
discussion	Discussion			108	9.10.3
discussion	Discussion			107	9.10.2
discussion	Discussion			109	9.10.4
discussion	Discussion			49	8.13.3
discussion	Discussion			49	8.13.3
discussion	Discussion			205	10.3.3.7
discussion				107	9.10.2
discussion	Decision			203	10.3.3.5
discussion	Decision			203	10.3.3.5
discussion	Decision			203	10.3.3.5
discussion	Decision			195	10.3.2.4
discussion	Decision			195	10.3.2.4
discussion				107	9.10.2
CR	Agreement			49	8.13.3
discussion	Decision			152	10.2.2.2
discussion	Decision			153	10.2.2.3
discussion	Decision			153	10.2.2.3
discussion				107	9.10.2

discussion	Decision			133	9.14.3
discussion	Decision			107	9.10.2
discussion	Discussion			228	10.4.1.4.7
discussion	Discussion			162	10.2.11
discussion	Discussion			228	10.4.1.4.7
discussion	Discussion			228	10.4.1.4.7
discussion	Discussion			228	10.4.1.4.7
discussion	Discussion			185	10.3.1.8
discussion	Discussion			162	10.2.11
discussion	Discussion			228	10.4.1.4.7
discussion				162	10.2.11
discussion				175	10.3.1.2
discussion				168	10.2.17
discussion				162	10.2.11
discussion				162	10.2.11
discussion				162	10.2.11
discussion				162	10.2.11
discussion				162	10.2.11
discussion				217	10.4.1.3.3
discussion				217	10.4.1.3.3
discussion				217	10.4.1.3.3
discussion				237	10.4.1.6.4
discussion	Decision			132	9.14.2
discussion	Decision			207	10.3.4.1
discussion	Decision			254	10.4.2.3
discussion				154	10.2.3
discussion				167	10.2.16
discussion				187	10.3.1.10
discussion				217	10.4.1.3.3
discussion				226	10.4.1.4.5
discussion				226	10.4.1.4.5
discussion				228	10.4.1.4.7
discussion				228	10.4.1.4.7
discussion				268	10.4.4.6
discussion				107	9.10.2
CR	Agreement			56	8.18
discussion				153	10.2.2.3
discussion	Decision			138	9.14.8

discussion				171	10.2.20
discussion				175	10.3.1.2
discussion				175	10.3.1.2
discussion				186	10.3.1.9
discussion				70	9.2
discussion				116	9.12.2
LS out	Approval			171	10.2.20
discussion	Agreement			154	10.2.3
discussion				167	10.2.16
discussion	Agreement			224	10.4.1.4.3
discussion	Agreement			164	10.2.13
discussion				167	10.2.16
discussion	Agreement			164	10.2.13
discussion				254	10.4.2.3
discussion	Agreement			164	10.2.13
discussion				171	10.2.20
discussion	Agreement			164	10.2.13
discussion				190	10.3.1.13
discussion	Agreement			217	10.4.1.3.3
discussion	Agreement			77	9.4.4.1
discussion				163	10.2.12
discussion	Decision			231	10.4.1.5.2
discussion	Discussion			170	10.2.19
discussion	Decision			151	10.2.2.1
discussion				216	10.4.1.3.2
discussion				248	10.4.1.8
discussion	Decision			142	9.16
discussion	Agreement			145	9.19
discussion	Decision			151	10.2.2.1
report	Decision			142	9.16
CR	Agreement			145	9.19
discussion	Agreement			230	10.4.1.5.1
discussion	Agreement			164	10.2.13
other	Information			8	2.4

discussion	Decision			240	10.4.1.6.7
discussion	Decision			240	10.4.1.6.7
discussion	Decision			240	10.4.1.6.7
discussion	Decision			240	10.4.1.6.7
discussion	Discussion			228	10.4.1.4.7
discussion				185	10.3.1.8
discussion				225	10.4.1.4.4
discussion				232	10.4.1.5.3
discussion				165	10.2.14
discussion				253	10.4.2.2
discussion	Discussion			213	10.4.1.2
discussion				232	10.4.1.5.3
discussion	Decision			190	10.3.1.13
discussion	Decision	Offline#150 (Vodafone)		145	9.19
LS out	Approval			145	9.19
LS in	Action			73	9.4.1
LS in	Action			70	9.2
LS in	Action			70	9.2
LS in	Action			70	9.2
LS in	Action			70	9.2
discussion	Decision	In this contribution, we will further discuss the paging ID and RAN initiated paging and paging response for INACTIVE UE		244	10.4.1.7.3
LS in	Information			147	10.1
discussion		NR QoS		208	10.3.4.2
discussion				247	10.4.1.7.6
CR	Agreement			64	8.25.0
discussion	Discussion	The TP is agreed with changes.		170	10.2.19
discussion	Decision			182	10.3.1.5
discussion	Decision			180	10.3.1.4.3
LS in	Action			147	10.1
discussion				187	10.3.1.10
pCR	Agreement			217	10.4.1.3.3
discussion	Agreement			174	10.3.1.1
discussion	Agreement			174	10.3.1.1
discussion	Agreement			190	10.3.1.13

discussion	Approval			159	10.2.8
discussion	Approval			226	10.4.1.4.5
discussion	Decision			189	10.3.1.12
CR	Agreement			252	10.4.2.1
discussion				258	10.4.3.3
discussion	Decision			217	10.4.1.3.3
LS in	Action			147	10.1
discussion	Decision			79	9.4.4.3
discussion	Decision	Offline#18 (ZTE)		164	10.2.13
discussion	Discussion			159	10.2.8
draftCR	Approval	Merged into 36.331 NB-IoT running CR		129	9.13.10
CR	Agreement	Offline#02 (Ericsson)		14	6.1
LS out	Approval	Offline#01 (Ericsson)		14	6.1
CR	Agreement			40	8.11.1
CR	Agreement	Offline#301 (Nokia)		19	7.2
CR	Agreement			19	7.2
CR	Agreement			40	8.11.1
CR	Agreement			17	7.1.0
CR	Agreement			17	7.1.0
CR	Agreement			17	7.1.0
other	Discussion			279	14
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement	Offline#302 (Huawei)		18	7.1.1
CR	Agreement	Offline#302 (Huawei)		18	7.1.1
CR	Agreement	Offline#303 (Huawei)		18	7.1.1
CR	Agreement	Offline#303 (Huawei)		18	7.1.1
LS out	Approval			18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1

CR	Agreement			18	7.1.1
CR	Agreement			42	8.12.0
CR	Agreement	Offline#306 (Nokia)		44	8.12.2
CR	Agreement			44	8.12.2
CR	Agreement			44	8.12.2
CR	Agreement			44	8.12.2
CR	Agreement			44	8.12.2
CR	Agreement			44	8.12.2
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
CR	Agreement	Offline#307 (Ericsson)		123	9.13.4
CR	Agreement	Offline#307 (Ericsson)		123	9.13.4
CR	Agreement			123	9.13.4
other	Discussion			279	14
CR	Agreement			42	8.12.0
CR	Agreement			18	7.1.1
LS out	Approval			120	9.13.1
CR	Agreement			125	9.13.6
LS out	Approval			44	8.12.2
CR	Agreement			19	7.2
CR	Agreement			18	7.1.1
CR	Agreement			18	7.1.1
LS out	Approval			18	7.1.1
CR	Agreement			40	8.11.1
CR	Agreement			40	8.11.1
CR	Agreement			123	9.13.4
CR	Agreement			123	9.13.4
CR	Agreement			123	9.13.4
CR	Agreement			120	9.13.1
LS out	Approval			128	9.13.9
CR	Agreement			40	8.11.1
LS out	Approval			128	9.13.9

CR	Agreement	Offline#03 (Nokia)		64	8.25.0
CR	Agreement	Offline#03 (Nokia)		64	8.25.0
discussion				49	8.13.3
LS out	Approval	Offline#04 (Nokia)		147	10.1
LS out	Approval			248	10.4.1.8
LS out	Approval	Offline#401 (Huawei)		133	9.14.3
LS out	Approval	Offline#401 (Huawei)		133	9.14.3
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
discussion	Decision			223	10.4.1.4.2
CR	Agreement	Offline#508 (Qualcomm)		49	8.13.3
CR	Agreement	Offline#500 (Qualcomm)		14	6.1
CR	Agreement			14	6.1
CR	Agreement	Offline#504 (Ericsson)		14	6.1
CR	Agreement	Offline#506 (Huawei)		49	8.13.3

CR	Agreement	Offline#502 (CMCC)		58	8.20
CR	Agreement	Offline#502 (CMCC)		58	8.20
CR	Agreement	Offline#501 (Intel)		62	8.24
other	Discussion			279	14
other	Discussion			279	14
LS out	Approval	Offline#510		175	10.3.1.2
discussion		Offline#511 (LGE) The TP is agreed.		175	10.3.1.2
pCR	Agreement	Offline#516 (Nokia) The TP is agreed.		179	10.3.1.4.2
LS out	Approval	Offline#515 (Nokia)		179	10.3.1.4.2
LS out	Approval			175	10.3.1.2
LS out	Approval			179	10.3.1.4.2
CR	Agreement	Offline#522 (Huawei)		47	8.13.1
discussion	Discussion	Offline#520 (Nokia) The TP is agreed.		182	10.3.1.5
CR	Agreement	Offline#521 (Ericsson)		47	8.13.1
CR	Agreement	Offline#524 (Qualcomm)		22	7.3.1
CR	Agreement	Offline#524 (Qualcomm)		22	7.3.1
discussion		Offline#527 (vivo)		183	10.3.1.6
discussion	Approval	Offline#528 (InterDigital) The TP is agreed.		184	10.3.1.7
discussion	Decision	Offline#531 (Huawei)		185	10.3.1.8
LS out	Approval	Offline#532 (Huawei)		185	10.3.1.8
LS out	Approval			186	10.3.1.9
LS out	Approval			186	10.3.1.9
LS out	Approval			185	10.3.1.8
CR	Agreement	Offline#540 (Huawei)		174	10.3.1.1
CR	Agreement			49	8.13.3
CR	Agreement			49	8.13.3
CR	Agreement			192	10.3.2.1
LS out	Approval	Offline#541 (ZTE)		189	10.3.1.12
discussion	Discussion	Offline#535 (Ericsson)		197	10.3.2.6
discussion	Discussion	Offline#517 (Intel)		180	10.3.1.4.3
LS out	Approval			190	10.3.1.13
report	Information	Offline#514 (vivo)		176	10.3.1.3
CR	Agreement			174	10.3.1.1
discussion	Discussion	The TP is agreed.		197	10.3.2.6
LS out	Approval			189	10.3.1.12
LS out	Approval	Offline#06 (Ericsson)		9	3
LS out	Approval	Offline#07 (Qualcomm)		157	10.2.6
LS out	Approval	Offline#08 (Intel)		157	10.2.6
LS out	Approval	Offline#10 (Apple)		158	10.2.7
draft TS	Endorsement	Offline#11 (Nokia)		149	10.2.1

draft TS	Endorsement	Offline#12 (ZTE)		149	10.2.1
CR	Agreement			112	9.11.2
CR	Agreement			113	9.11.3
CR	Agreement	Offline#124 (CMCC)		84	9.5.2
draftCR	Endorsement	Endorsed as a running CR		142	9.16
draftCR	Endorsement	Endorsed as a running CR		142	9.16
discussion	Decision			115	9.12.1
LS out	Approval	Offline#150 (Vodafone)		145	9.19
pCR	Agreement	Offline#111		77	9.4.4.1
other	Discussion			279	14
discussion	Decision			183	10.3.1.6
discussion	Decision			175	10.3.1.2
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
LS out	Approval			14	6.1
LS in	Action			147	10.1

LS in	Action			73	9.4.1
LS in	Information			147	10.1
report	Approval			272	11.1.2
report	Approval			271	11.1.1
report	Approval			273	11.1.3
report	Approval			274	11.1.4
report	Approval			275	11.1.5
LS in	Action			35	8.10
LS out	Approval			14	6.1
discussion	Discussion	Offline#19 (ZTE)		160	10.2.9
LS out	Approval			160	10.2.9
LS out	Approval			157	10.2.6
LS out	Approval			157	10.2.6
draft TS				212	10.4.1.1
discussion	Discussion			222	10.4.1.4.1
discussion	Discussion			222	10.4.1.4.1
LS out	Approval			158	10.2.7
discussion		Offline#26 (Intel)		258	10.4.3.3
LS out	Approval	Offline#600 (Ericsson)		107	9.10.2
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
LS out	Approval			9	3
LS in	Action			147	10.1
discussion		Offline#23 (Intel)		256	10.4.3.1
discussion	Decision			222	10.4.1.4.1
LS in	Information			147	10.1
draft TS		Offline#29 (Intel)		261	10.4.3.6
CR	Agreement	Outcome of Email approval #44.		252	10.4.2.1
LS out	Approval	Offline#33 (Nokia)		253	10.4.2.2
LS in	Action			70	9.2
LS in	Action			147	10.1
discussion	Discussion			160	10.2.9
LS out	Approval			160	10.2.9

LS in	Action			101	9.9.1
LS in	Action			101	9.9.1
discussion	Decision			222	10.4.1.4.1
LS in	Action			120	9.13.1
pCR	Agreement	Offline#169 (NTT DOCOMO)		73	9.4.1
pCR	Agreement	Offline#168 (NTT DOCOMO)		80	9.4.5
LS out	Approval			218	10.4.1.3.4
LS in	Action			147	10.1
LS in	Action			120	9.13.1
LS out	Approval	Offline#35 (Nokia)		91	9.7.1
CR	Agreement			84	9.5.2
CR	Agreement			84	9.5.2
CR	Agreement			84	9.5.2
LS in	Action			147	10.1
LS in	Action			147	10.1
LS out	Approval	Offline#38 (Ericsson)		92	9.7.2
LS in	Action			147	10.1
report	Information			151	10.2.2.1
pCR	Agreement			157	10.2.6
LS in	Action			147	10.1
LS in	Action			120	9.13.1
LS out	Approval			160	10.2.9
discussion	Decision			156	10.2.5
LS in	Information			147	10.1
report	Information			213	10.4.1.2
report	Information			159	10.2.8
report	Information			92	9.7.2
CR	Agreement			40	8.11.1
discussion	Discussion	The TP is agreed.		160	10.2.9
CR	Agreement			56	8.18
report	Information			164	10.2.13
CR	Agreement			84	9.5.2
LS in	Action			9	3
discussion	Discussion			91	9.7.1
discussion	Discussion			154	10.2.3

discussion	Decision			151	10.2.2.1
LS out	Approval	Offline#41 (Ericsson)		217	10.4.1.3.3
report	Information			253	10.4.2.2
LS out	Approval			145	9.19
LS out	Approval			107	9.10.2
discussion	Decision	The proposals are agreed		222	10.4.1.4.1
LS in	Action			189	10.3.1.12
pCR	Agreement	The TP is agreed.		183	10.3.1.6
discussion		The TP is agreeable.		175	10.3.1.2
discussion				176	10.3.1.3
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
discussion	Discussion	To Email		258	10.4.3.3
LS in	Action			147	10.1
LS in	Action			38	8.11
LS out	Approval			91	9.7.1
report	Discussion			222	10.4.1.4.1
LS out	Approval			217	10.4.1.3.3
report	Discussion			222	10.4.1.4.1
discussion	Discussion			215	10.4.1.3.1
discussion	Decision			215	10.4.1.3.1
LS in	Action			9	3
CR	Agreement			123	9.13.4
CR	Agreement			46	8.13.0
CR	Agreement			21	7.3.0
CR	Agreement			64	8.25.0
CR	Agreement			64	8.25.0
CR	Agreement			18	7.1.1

CR	Agreement			44	8.12.2
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
other	Discussion			279	14
discussion	Decision			253	10.4.2.2
report	Discussion			258	10.4.3.3
LS out	Approval			253	10.4.2.2
discussion	Discussion			215	10.4.1.3.1
CR	Agreement			14	6.1
discussion	Discussion			170	10.2.19
pCR	Agreement	The TP is agreed.		73	9.4.1
pCR	Agreement	The TP is agreed.		80	9.4.5
discussion	Decision			218	10.4.1.3.4
discussion	Decision			158	10.2.7
discussion	Discussion	To Email		216	10.4.1.3.2
LS in	Action			147	10.1
pCR		The TP is agreed.		170	10.2.19
discussion	Decision	The TP is agreed.		158	10.2.7
LS out	Approval			102	9.9.2
CR	Agreement			14	6.1
CR	Agreement			14	6.1
LS out	Approval			80	9.4.5
LS out	Agreement			164	10.2.13
LS out	Approval			92	9.7.2
LS out	Approval			147	10.1
LS out	Approval			164	10.2.13
LS in	Action			73	9.4.1
LS out	Approval			73	9.4.1
CR	Approval			68	9.1.0
CR	Agreement			19	7.2

draft TS	Endorsement	Offline#12 (ZTE)		149	10.2.1
draft TS	Endorsement			149	10.2.1
draft TS	Endorsement			174	10.3.1.1
CR	Agreement			40	8.11.1
CR	Agreement			40	8.11.1
CR	Agreement			40	8.11.1
draftCR	Endorsement			40	8.11.1
LS out	Approval			120	9.13.1
draft TS				212	10.4.1.1
LS out	Approval			258	10.4.3.3
draft TS	Endorsement			192	10.3.2.1
draftCR	Endorsement	Endorsed as a running CR.		120	9.13.1
LS out	Approval			258	10.4.3.3
CR	Agreement			44	8.12.2
CR	Agreement			70	9.2
CR	Agreement			70	9.2
CR	Agreement			70	9.2
CR	Agreement			70	9.2
CR	Agreement			70	9.2
pCR	Agreement	Email Approval #18		261	10.4.3.6
draft TS		Email Approval #18		261	10.4.3.6
draftCR	Endorsement			40	8.11.1
draft TR	Endorsement			199	10.3.3.1
CR	Agreement	This CR was endorsed by RAN3 in R3-174963.		278	13
CR	Agreement	Endorsed in R3-175067 by RAN3.		278	13
draft TR				73	9.4.1
discussion	Discussion	Results of Email#19.		216	10.4.1.3.2
draftCR	Endorsement	Endorsed as a running CR		142	9.16
draftCR	Endorsement	Endorsed as a running CR		142	9.16
CR	Agreement	Endorsed in R3-175067 by RAN3.		278	13
CR	Agreement	Results of Email#43		84	9.5.2
CR	Agreement			84	9.5.2
CR	Agreement			84	9.5.2
CR	Agreement			14	6.1
draftCR	Endorsement			91	9.7.1
CR	Agreement			91	9.7.1

Agenda item description	TDoc sort order within agenda item	TDoc Status	Reservation date
Approval of the agenda	21000	approved	2017-11-10 20:09:25
Approval of the report of the previous meeting	21010	approved	2017-11-10 20:10:23
Organisational	21020	noted	2017-11-10 20:25:18
Organisational	21030	noted	2017-11-10 20:30:21
Organisational	21040	noted	2017-11-10 20:40:47
Organisational	21050	noted	2017-11-10 20:43:05
WI: Further Enhanced MTC for LTE	21060	noted	2017-11-10 20:45:14
INCOMING LIAISONS	21070	noted	2017-11-10 20:47:36
Organisational	21080	noted	2017-11-10 20:50:00
Organisational	21090	noted	2017-11-10 20:52:42
INCOMING LIAISONS	21100	noted	2017-11-10 20:55:01
WI: Further LTE Physical Layer Enhancements for MTC	21110	noted	2017-11-10 20:57:17
WI: Further Enhanced MTC for LTE	21120	noted	2017-11-10 20:59:02
Organisational	21130	noted	2017-11-10 21:00:26
Organisational	21140	noted	2017-11-10 21:02:22
General	21150	noted	2017-11-10 21:03:46
WI: Shortened TTI and processing time for LTE	21160	noted	2017-11-10 21:05:30
General	21170	noted	2017-11-10 21:07:13
Organisational	21180	noted	2017-11-10 21:09:01
Uplink Capacity Enhancements for LTE	21190	noted	2017-11-10 21:11:27
WI: Shortened TTI and processing time for LTE	21200	noted	2017-11-10 21:13:42
Organisational	21210	noted	2017-11-10 21:16:00
Organisational	21220	noted	2017-11-10 21:18:34
General	21230	noted	2017-11-10 21:20:41
Highly Reliable Low Latency Communication for LTE	21240	noted	2017-11-10 21:29:44
Organisational	21500	noted	2017-11-10 21:33:50
Organisational	21250	noted	2017-11-10 22:17:59
General	21270	noted	2017-11-10 22:21:56
Organisational	21260	noted	2017-11-10 22:24:13
Organisational	21280	noted	2017-11-10 22:29:16

Organisational	21290	noted	2017-11-10 22:31:12
Organisational	23000	noted	2017-11-10 22:34:03
Organisational	21300	noted	2017-11-10 22:35:45
Organisational	23050	noted	2017-11-10 22:37:37
Organisational	39330	noted	2017-11-10 22:40:06
INCOMING LIAISONS	21350	noted	2017-11-10 22:43:03
Organisational	21310	noted	2017-11-10 22:45:46
Organisational	21320	noted	2017-11-10 22:48:07
WI: Shortened TTI and processing time for LTE	21380	noted	2017-11-10 22:50:00
Organisational	39400	noted	2017-11-10 22:51:44
Organisational	21330	noted	2017-11-10 22:57:30
Organisational	21340	noted	2017-11-10 23:00:29
Organisational	21420	noted	2017-11-10 23:03:06
Organisational	21360	noted	2017-11-10 23:05:12
Organisational	21370	noted	2017-11-10 23:07:32
Organisational	39520	noted	2017-11-10 23:09:32
WI: Narrowband IOT	21460	withdrawn	2017-11-10 23:11:28
INCOMING LIAISONS	21510	noted	2017-11-10 23:13:21
SI: Further Enhancements to LTE Device to Device, UE to Network Relays for IoT and Wearables	21480	noted	2017-11-10 23:16:51
Organisational	21390	noted	2017-11-11 11:53:26
Organisational	21410	noted	2017-11-11 11:55:30
INCOMING LIAISONS	21470	noted	2017-11-11 11:58:06
General	21520	noted	2017-11-11 12:03:02
WI: Further Enhanced MTC for LTE	21530	noted	2017-11-11 12:06:15
Organisational	21540	noted	2017-11-11 12:09:35
General	21575	noted	2017-11-11 12:12:03
Organisational	21560	noted	2017-11-11 12:17:02
Organisational	22980	noted	2017-11-11 12:19:33
Organisational	21430	noted	2017-11-11 12:22:44
QoE Measurement Collection for streaming services in E-UTRAN	21590	noted	2017-11-11 12:25:44
INCOMING LIAISONS	21600	noted	2017-11-11 12:28:48

Organisational	21610	noted	2017-11-11 12:33:37
QoS	21620	available	2017-11-13 01:15:37
QoS	21630	available	2017-11-13 01:18:53
TS	21650	not treated	2017-11-13 01:23:06
TS	23920	not treated	2017-11-13 01:27:08
Header Format	21770	not treated	2017-11-13 01:33:02
Other	21670	not treated	2017-11-13 01:36:52
Stage 2 corrections	23590	revised	2017-11-13 01:45:43
Connection control message harmonisation	21690	available	2017-11-13 01:52:03
Other (non EN-DC)	21700	available	2017-11-13 01:58:08
Stage 2 aspects independent from NR/5GC	22640	available	2017-11-13 02:11:05
Stage 2 aspects independent from NR/5GC	22850	available	2017-11-13 02:16:04
Other	21730	not treated	2017-11-13 02:39:34
Other	21740	not treated	2017-11-13 02:40:33
Mobility mechanisms - other	21750	available	2017-11-13 02:42:03
Access control	22240	available	2017-11-13 02:46:49
Header Format	22000	revised	2017-11-13 02:49:25
Carrier aggregation (up to 8 PC5 carriers)	26280	noted	2017-11-13 03:46:48
Carrier aggregation (up to 8 PC5 carriers)	27520	available	2017-11-13 03:46:48
Radio resource pool sharing between UEs using mode 3 and mode 4	21800	available	2017-11-13 03:46:48
Others	21810	available	2017-11-13 03:46:48
Others	21820	available	2017-11-13 03:46:48
Carrier aggregation (up to 8 PC5 carriers)	28520	available	2017-11-13 03:46:48
Other	21840	noted	2017-11-13 03:46:48
Other	21850	noted	2017-11-13 03:46:48
UL data split	35800	not treated	2017-11-13 03:46:48
Other	21870	noted	2017-11-13 03:46:48
Highly Reliable Low Latency Communication for LTE	21910	available	2017-11-13 03:50:08
Highly Reliable Low Latency Communication for LTE	31660	noted	2017-11-13 03:51:42
Highly Reliable Low Latency Communication for LTE	22160	available	2017-11-13 03:53:13
Highly Reliable Low Latency Communication for LTE	24580	available	2017-11-13 03:54:40
In principle agreed CRs	0	revised	2017-11-13 03:59:59
RAN area configuration	21930	available	2017-11-13 04:46:04
RAN area update procedure	21940	available	2017-11-13 04:49:19
Paging in inactive	21950	available	2017-11-13 04:52:26
Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive	21960	available	2017-11-13 04:56:58

Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive	21970	available	2017-11-13 05:00:45
LTE TEI15 enhancements	32580	available	2017-11-13 06:07:00
Other	29610	available	2017-11-13 07:16:31
Header Format	23930	not treated	2017-11-13 07:37:28
DRX	34660	not treated	2017-11-13 07:46:12
Other	36540	not treated	2017-11-13 07:46:12
Random access procedures	22030	available	2017-11-13 07:46:12
DRX	34680	not treated	2017-11-13 07:46:12
Other	30180	available	2017-11-13 08:01:28
Other	22060	not treated	2017-11-13 08:07:19
Other	22070	not treated	2017-11-13 08:07:19
Other (for non EN-DC)	22080	available	2017-11-13 08:07:19
Inactive - other	22090	available	2017-11-13 08:07:19
Impact of PDCP duplication on MAC	22100	not treated	2017-11-13 08:07:19
Other	36550	not treated	2017-11-13 08:07:19
DRX	28290	not treated	2017-11-13 08:07:19
Mobility without RRC involvement	29590	available	2017-11-13 08:07:19
On demand system information	22140	available	2017-11-13 08:07:19
LCP	27860	not treated	2017-11-13 08:07:19
Highly Reliable Low Latency Communication for LTE	33400	available	2017-11-13 09:05:35
Stage 2 aspects independent from NR/5GC	22860	available	2017-11-13 09:16:55
Stage 2 aspects independent from NR/5GC	417700	withdrawn	2017-11-13 09:16:55
Connection reconfiguration message and bearer handling	420700	noted	2017-11-13 09:16:55
Stage 2 aspects dependent on NR/5GC	22200	available	2017-11-13 09:16:55
Access control	22680	available	2017-11-13 09:16:55
Stage 2 aspects independent from NR/5GC	25880	available	2017-11-13 09:16:55
Stage 2 aspects independent from NR/5GC	32710	available	2017-11-13 09:16:55
Access control	22690	available	2017-11-13 09:16:55
MIB content	22250	available	2017-11-13 09:16:55
Slicing	22260	available	2017-11-13 09:16:55
System information modification	22270	available	2017-11-13 09:16:55
On demand system information	22280	available	2017-11-13 09:16:55
System information content/structure	22290	available	2017-11-13 09:16:55
System information scheduling	22300	available	2017-11-13 09:16:55
Uplink HARQ-ACK feedback	22330	available	2017-11-13 10:25:43
Uplink HARQ-ACK feedback	23360	available	2017-11-13 10:32:28
Uplink HARQ-ACK feedback	30590	available	2017-11-13 10:50:37
Other	39560	withdrawn	2017-11-13 15:06:16
Other	22350	agreed	2017-11-13 19:18:05
Other	22360	agreed	2017-11-13 19:19:43
Other (for non EN-DC)	22370	available	2017-11-14 00:11:53
Mobility - RLM,RLF	22380	available	2017-11-14 00:11:53
RRM measurements	26650	available	2017-11-14 00:11:53

Other (for EN-DC)	22400	revised	2017-11-14 00:11:53
Other (for EN-DC)	22410	available	2017-11-14 00:11:53
MN/SN measurement coordination	28130	available	2017-11-14 00:11:53
Measurement gaps	26500	available	2017-11-14 00:11:53
Stored system information	22440	available	2017-11-14 01:49:38
UL data compression in LTE	27190	withdrawn	2017-11-14 03:59:54
PHR	31780	not treated	2017-11-14 05:07:02
Supplementary uplink	28050	revised	2017-11-14 05:12:12
EN-DC - other aspects	31500	available	2017-11-14 05:12:12
EN-DC - other aspects	31690	available	2017-11-14 05:12:12
Impact of bandwidth parts	26460	available	2017-11-14 05:12:12
MN/SN procedures for EN-DC	31490	available	2017-11-14 05:12:12
RAN area configuration	22520	available	2017-11-14 05:12:12
Inactive - other	22530	available	2017-11-14 05:12:12
Inactive - other	22540	available	2017-11-14 05:12:12
Delay reduction for SCell set-up	22560	available	2017-11-14 05:46:43
Delay reduction for SCell set-up	28320	available	2017-11-14 05:52:39
Signalling overhead reduction for configuration activation	22570	available	2017-11-14 05:59:15
Delay reduction for SCell set-up	31600	available	2017-11-14 06:08:52
Mobility mechanisms - other	22590	available	2017-11-14 06:14:02
Mobility mechanisms - other	22600	available	2017-11-14 06:18:10
Stage 2 aspects independent from NR/5GC	31350	available	2017-11-14 06:22:24
Stage 2 aspects independent from NR/5GC	31360	available	2017-11-14 06:28:37
Stage 2 aspects independent from NR/5GC	22170	available	2017-11-14 06:35:02
Stage 2 aspects independent from NR/5GC	26100	available	2017-11-14 06:41:34
Stage 2 aspects dependent on NR/5GC	22650	available	2017-11-14 06:47:08
Stage 2 TSs and running CR	22660	noted	2017-11-14 06:55:05
SR	28160	not treated	2017-11-14 08:07:40
Access control	23510	available	2017-11-14 08:07:40
Access control	23520	available	2017-11-14 08:07:40
Measurement gaps	26930	available	2017-11-14 08:07:40
MN/SN procedures for EN-DC	417700	withdrawn	2017-11-11 20:47:55
EN-DC - other aspects	38010	withdrawn	2017-11-11 20:47:55
Other (for EN-DC)	22730	available	2017-11-14 08:07:40
Measurement gaps	27650	available	2017-11-14 08:07:40

Impact of bandwidth parts	27590	**available**	2017-11-14 08:07:40
Mobility - RLM,RLF	22760	**available**	2017-11-14 08:07:40
Supplementary uplink	27600	**available**	2017-11-14 09:14:30
Supplementary uplink	29990	**available**	2017-11-14 09:15:34
Other aspects related to RA	34780	**not treated**	2017-11-14 09:16:51
Other aspects related to RA	34750	**noted**	2017-11-14 09:17:52
Single Tx	31670	**available**	2017-11-14 09:18:52
Single Tx	22820	**available**	2017-11-14 09:19:52
Other	34190	**available**	2017-11-14 10:21:02
SR	29730	**not treated**	2017-11-14 12:20:08
Stage 2 aspects independent from NR/5GC	26580	**available**	2017-11-14 14:16:08
Stage 2 aspects independent from NR/5GC	32720	**available**	2017-11-14 14:16:10
Connection reconfiguration message - L1 parameters	38960	**revised**	2017-11-14 14:16:10
In principle agreed CRs	0	**revised**	2017-11-14 17:45:57
In principle agreed CRs	22890	**agreed**	2017-11-14 17:46:02
In principle agreed CRs	22900	**revised**	2017-11-14 17:46:02
WI: Narrowband IOT	22910	**postponed**	2017-11-14 17:46:03
Other	30930	**revised**	2017-11-14 17:46:04
Other	31000	**revised**	2017-11-14 17:46:05
Other	31010	**revised**	2017-11-11 20:47:55
RRC Connection Release Enhancements	22950	**noted**	2017-11-14 17:46:06
RRC Connection Release Enhancements	22960	**not treated**	2017-11-14 17:46:06
Wake Up Signal	29930	**not treated**	2017-11-14 17:46:06
Organisational	21440	**noted**	2017-11-14 18:21:47
INCOMING LIAISONS	22990	**noted**	2017-11-14 18:22:25
Organisational	21570	**noted**	2017-11-14 18:22:57
Stage 2 TSs and running CR	23040	**noted**	2017-11-14 21:55:33
Stage 2 TSs and running CR	23560	**revised**	2017-11-14 21:56:57
Stage 2 TSs and running CR	23550	**noted**	2017-11-14 21:58:05
Stage 2 TSs and running CR	23570	**noted**	2017-11-14 22:02:20
Organisational	423600	**noted**	2017-11-15 01:13:28

Potential enhancements solutions	33140	**noted**	2017-11-15 02:01:30
On demand system information	23070	**available**	2017-11-15 02:20:06
PDCP duplication	23080	**not treated**	2017-11-15 03:08:36
Other	36390	**noted**	2017-11-15 04:30:52
MN/SN procedures for EN-DC	34310	**available**	2017-11-15 06:02:21
Other	24021	**revised**	2017-11-15 06:38:38
Other	24040	**revised**	2017-11-15 06:42:53
Other	30000	**revised**	2017-11-15 06:44:34
Other	31530	**revised**	2017-11-15 06:45:38
Early data transmission	36790	**available**	2017-11-15 07:23:01
BSR	32300	**not treated**	2017-11-15 07:31:40
Other	23170	**not treated**	2017-11-15 07:31:40
DRX	22010	**noted**	2017-11-15 07:31:40
DRX	34690	**not treated**	2017-11-15 07:31:40
RLC AM operation	29360	**noted**	2017-11-15 07:31:40
Other	28170	**not treated**	2017-11-15 07:31:40
Impact of bandwidth parts	22500	**available**	2017-11-15 07:31:40
Other (non EN-DC)	23230	**available**	2017-11-15 07:31:40
Stage 2 corrections	23600	**noted**	2017-11-15 07:31:40
Other	29080	**noted**	2017-11-15 07:31:40
MAC general aspects	38790	**not treated**	2017-11-15 07:31:40
In principle agreed CRs	23270	**agreed**	2017-11-15 07:58:49
Other	29340	**not treated**	2017-11-15 08:53:22
RRC Connection Release Enhancements	23290	**not treated**	2017-11-15 10:00:38
Semi-Persistent Scheduling	23300	**available**	2017-11-15 10:02:45
Other	22830	**available**	2017-11-15 10:04:47
Other	30190	**available**	2017-11-15 10:06:34
Other	23330	**available**	2017-11-15 10:08:29
Wake Up Signal	30340	**not treated**	2017-11-15 10:12:30
Access/load control of idle mode UEs	23350	**available**	2017-11-15 10:14:44
Uplink HARQ-ACK feedback	30600	**available**	2017-11-15 10:16:21
System acquisition time enhancements	30530	**available**	2017-11-15 10:19:36
Cell quality derivation	23380	**available**	2017-11-15 10:29:31
Idle/inactive paging	23390	**available**	2017-11-15 10:29:31
Selection/reselection - other aspects	23400	**available**	2017-11-15 10:29:31
Selection/reselection - other aspects	23410	**available**	2017-11-15 10:29:31
Selection/reselection - other aspects	23420	**available**	2017-11-15 10:29:31
Selection/reselection - other aspects	23430	**available**	2017-11-15 10:29:31
Selection/reselection rules	23440	**available**	2017-11-15 10:29:31
Selection/reselection - other aspects	23450	**available**	2017-11-15 10:29:31

Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive	23460	available	2017-11-15 10:29:31
Beam selection for HO access	23470	noted	2017-11-15 10:29:31
Other	31540	noted	2017-11-15 10:32:44
Other	23490	not pursued	2017-11-15 10:32:44
Slicing	23500	available	2017-11-15 10:32:46
Access control	23530	available	2017-11-15 10:32:46
Access control	23540	available	2017-11-15 10:32:46
Access control	25300	available	2017-11-15 10:32:46
Access control	25310	available	2017-11-15 10:32:46
Stage 2 TSs and running CR	23030	revised	2017-11-15 11:19:00
Stage 2 TSs and running CR	23010	noted	2017-11-15 11:21:40
Stage 2 TSs and running CR	23020	noted	2017-11-15 11:21:40
QoS	23580	available	2017-11-15 11:21:40
Stage 2 corrections	21680	revised	2017-11-15 11:21:40
Stage 2 corrections	26870	agreed	2017-11-15 11:21:40
Other	23610	not treated	2017-11-15 11:21:40
Other	23620	withdrawn	2017-11-11 20:47:55
Other	23630	not treated	2017-11-15 11:21:40
Other	23640	not treated	2017-11-15 11:21:40
LCP	27870	not treated	2017-11-15 11:39:56
Measurement gaps	22740	noted	2017-11-15 11:50:39
Other	31400	noted	2017-11-15 11:50:39
Other	34430	available	2017-11-15 11:50:39
UE capability structure	26790	noted	2017-11-15 11:50:40
Single Tx	28500	available	2017-11-15 11:50:40
Connection reconfiguration message - L1 parameters	38680	available	2017-11-15 11:50:40
RRM TP	35900	available	2017-11-15 11:50:40
Other aspects related to RA	35290	not treated	2017-11-15 12:08:45
LCP	29000	not treated	2017-11-15 12:10:45
PHR	37760	not treated	2017-11-15 12:12:37
Other	22020	noted	2017-11-15 12:15:40
Header Format	24370	not treated	2017-11-15 12:17:40

Other	23780	**not treated**	2017-11-15 12:20:01
Random access in presence of multi-beam operation	27820	**not treated**	2017-11-15 12:21:58
Idle/inactive paging	23800	**available**	2017-11-15 12:23:35
Differentiation of RA parameters	23810	**not treated**	2017-11-15 12:25:05
Positioning	23820	**available**	2017-11-15 13:01:52
Idle/inactive paging	23830	**available**	2017-11-15 13:07:33
Idle/inactive paging	23840	**available**	2017-11-15 13:07:33
Other (non EN-DC)	23850	**available**	2017-11-15 13:08:41
Slicing	23860	**available**	2017-11-15 13:12:48
Slicing	23870	**available**	2017-11-15 13:12:48
Slicing	23880	**available**	2017-11-15 13:12:48
Slicing	23890	**available**	2017-11-15 13:12:48
QoS	23900	**available**	2017-11-15 13:12:48
QoS	23910	**available**	2017-11-15 13:12:48
TS	34580	**not treated**	2017-11-15 13:12:48
Header Format	24810	**not treated**	2017-11-15 13:12:48
Other	23940	**not treated**	2017-11-15 13:12:48
Other	23950	**not treated**	2017-11-15 13:12:48
Other	23960	**not treated**	2017-11-15 13:12:48
Other	23970	**not treated**	2017-11-15 13:12:48
Other (non EN-DC)	23980	**available**	2017-11-15 13:15:40
Other	37180	**noted**	2017-11-15 13:18:40
Other	24010	**noted**	2017-11-15 13:18:40
Other	30200	**not treated**	2017-11-15 13:18:40
Other	23110	**available**	2017-11-15 13:18:41
Other	23120	**revised**	2017-11-11 20:47:55
Other	23131	**revised**	2017-11-15 13:18:41
Slicing	24050	**available**	2017-11-15 13:19:59
Positioning	24060	**available**	2017-11-15 13:25:44
Mobility without RRC involvement	34060	**available**	2017-11-15 14:33:22
Mobility mechanisms - basic handover	24080	**available**	2017-11-15 14:36:53
Stored system information	24090	**available**	2017-11-15 14:39:00
Slicing	24100	**available**	2017-11-15 15:57:57
Connection control message harmonisation	24110	**available**	2017-11-15 15:57:57
Other (for non EN-DC)	24120	**available**	2017-11-15 15:57:58
Other (for non EN-DC)	24130	**available**	2017-11-15 15:57:58
Other (for EN-DCs)	27630	**available**	2017-11-15 15:57:58
RRM TP	35910	**available**	2017-11-15 15:57:58
Measurement events	24160	**available**	2017-11-15 15:57:58
Other (for EN-DC)	24170	**available**	2017-11-15 15:57:58
MIB content	24180	**available**	2017-11-15 15:57:58
Stored system information	24190	**available**	2017-11-15 15:57:58
System information modification	24200	**available**	2017-11-15 15:57:58
On demand system information	24210	**available**	2017-11-15 15:57:58
Paging in inactive	24220	**available**	2017-11-15 15:57:58
RAN area update procedure	24230	**available**	2017-11-15 15:57:58

Security framework for inactive	24240	**available**	2017-11-15 15:57:58
Inter-Node RRC messages	31440	**available**	2017-11-15 15:57:58
RRM measurements	24260	**noted**	2017-11-15 15:57:58
Service based reselection	24270	**available**	2017-11-15 15:57:58
Selection/reselection - other aspects	24280	**available**	2017-11-15 15:57:58
Cell quality derivation	24290	**available**	2017-11-15 15:57:58
Security for EN-DC	33960	**available**	2017-11-15 17:07:21
PHR	23750	**noted**	2017-11-15 17:30:18
Other aspects related to RA	22800	**not treated**	2017-11-15 17:30:18
MAC general aspects	34620	**not treated**	2017-11-15 17:30:18
Random access in presence of multi-beam operation	24340	**noted**	2017-11-15 17:30:18
PDCP duplication	24350	**not treated**	2017-11-15 17:30:18
SR	24360	**noted**	2017-11-15 17:30:18
Header Format	28620	**not treated**	2017-11-15 17:30:18
Security (non EN-DC)	24380	**available**	2017-11-15 17:30:18
MN/SN measurement coordination	22420	**available**	2017-11-15 17:30:18
SCG change for EN-DC	24400	**available**	2017-11-15 17:30:18
MN/SN procedures for EN-DC	23100	**available**	2017-11-15 17:30:18
DRX	32440	**not treated**	2017-11-15 17:30:18
Random access procedures	29030	**not treated**	2017-11-15 17:30:18
WI: Shortened TTI and processing time for LTE	24540	**noted**	2017-11-15 17:32:27
WI: Shortened TTI and processing time for LTE	24530	**noted**	2017-11-15 17:32:27
WI: Shortened TTI and processing time for LTE	24550	**noted**	2017-11-15 17:32:27
WI: Shortened TTI and processing time for LTE	32450	**noted**	2017-11-15 17:32:27
WI: Shortened TTI and processing time for LTE	33160	**available**	2017-11-11 20:47:55
WI: Shortened TTI and processing time for LTE	24480	**endorsed**	2017-11-15 17:32:27
WI: Shortened TTI and processing time for LTE	24490	**endorsed**	2017-11-15 17:32:27
WI: Shortened TTI and processing time for LTE	24500	**endorsed**	2017-11-15 17:32:27
WI: Shortened TTI and processing time for LTE	24510	**endorsed**	2017-11-15 17:32:28
WI: Shortened TTI and processing time for LTE	24520	**endorsed**	2017-11-15 17:32:28
WI: Shortened TTI and processing time for LTE	33200	**available**	2017-11-15 17:32:28
WI: Shortened TTI and processing time for LTE	33210	**noted**	2017-11-15 17:32:28
WI: Shortened TTI and processing time for LTE	33220	**noted**	2017-11-15 17:32:28
Highly Reliable Low Latency Communication for LTE	21890	**noted**	2017-11-15 17:32:28

Highly Reliable Low Latency Communication for LTE	33380	**available**	2017-11-15 17:32:28
Highly Reliable Low Latency Communication for LTE	24590	**noted**	2017-11-15 17:32:28
Highly Reliable Low Latency Communication for LTE	32480	**available**	2017-11-15 17:32:28
Others	24650	**noted**	2017-11-15 17:32:28
Others	24660	**available**	2017-11-15 17:32:28
Others	24670	**available**	2017-11-15 17:32:29
Others	24610	**available**	2017-11-15 17:32:30
Others	24620	**available**	2017-11-15 17:32:30
Others	24630	**available**	2017-11-15 17:32:31
Others	24640	**available**	2017-11-15 17:32:32
Security for EN-DC	24300	**noted**	2017-11-15 17:50:57
Potential enhancements solutions	35070	**available**	2017-11-15 17:58:18
Other	30990	**revised**	2017-11-15 18:16:33
Positioning	24710	**available**	2017-11-15 18:19:30
BSR	28240	**not treated**	2017-11-15 18:20:00
Positioning	24730	**available**	2017-11-15 18:21:26
Positioning	24740	**available**	2017-11-15 18:22:28
Positioning	24750	**available**	2017-11-15 18:23:42
Positioning	24760	**available**	2017-11-15 18:24:56
Positioning	24770	**available**	2017-11-15 18:26:10
TS	24780	**endorsed**	2017-11-15 18:30:26
UL data split	33820	**not treated**	2017-11-15 18:34:41
UL data split	36610	**not treated**	2017-11-15 18:40:04
Header Format	21660	**noted**	2017-11-15 18:45:52
Other	24820	**not treated**	2017-11-15 18:48:41
System information content/structure	24830	**available**	2017-11-15 18:49:27
System information content/structure	24840	**available**	2017-11-15 18:49:27
Stored system information	24850	**available**	2017-11-15 18:49:27
System information modification	24860	**available**	2017-11-15 18:49:27
System information scheduling	24870	**available**	2017-11-15 18:49:27
On demand system information	24880	**available**	2017-11-15 18:49:27
System information content/structure	24890	**available**	2017-11-15 18:49:27
System information -other	24900	**available**	2017-11-15 18:49:27
System information content/structure	24910	**available**	2017-11-15 18:49:27
MIB content	24920	**available**	2017-11-15 18:49:27
System information -other	24930	**available**	2017-11-15 18:49:27
System information -other	24940	**available**	2017-11-15 18:49:27
System information -other	24950	**available**	2017-11-15 18:49:27
On demand system information	24960	**available**	2017-11-15 18:49:27
System information -other	24970	**available**	2017-11-15 18:49:27
On demand system information	24980	**available**	2017-11-15 18:49:27

On demand system information	24990	**available**	2017-11-15 18:49:27
RRM TP	34390	**available**	2017-11-15 19:11:28
Inter-Node RRC messages	34540	**available**	2017-11-15 19:11:28
RRM measurements	33910	**available**	2017-11-15 19:11:28
Mobility mechanisms - other	25030	**available**	2017-11-15 19:11:28
Other (non EN-DC)	25040	**available**	2017-11-15 19:11:28
Other aspects for EN-DC	33450	**noted**	2017-11-15 19:11:28
Mobility mechanisms - basic handover	25060	**available**	2017-11-15 19:56:12
Beam selection for HO access	31710	**available**	2017-11-15 19:56:12
Mobility mechanisms - other	25080	**available**	2017-11-15 19:56:12
Mobility mechanisms - other	25090	**available**	2017-11-15 19:56:12
Mobility mechanisms - other	25100	**available**	2017-11-15 19:56:12
Mobility mechanisms - other	25110	**available**	2017-11-15 19:56:12
Mobility mechanisms - other	25120	**available**	2017-11-15 19:56:12
Mobility mechanisms - other	25130	**available**	2017-11-15 19:56:12
Mobility mechanisms - other	25140	**available**	2017-11-15 19:56:12
Mobility mechanisms - other	25150	**available**	2017-11-15 19:56:12
Mobility mechanisms - other	25160	**available**	2017-11-15 19:56:12
Mobility - Inter-RAT	25170	**available**	2017-11-15 19:56:12
Mobility - Inter-RAT	25180	**available**	2017-11-15 19:56:12
Measurement events	25190	**available**	2017-11-15 19:56:12
Paging in inactive	25200	**available**	2017-11-15 20:22:35
Other (non EN-DC)	25210	**available**	2017-11-15 20:22:35
Other (non EN-DC)	25220	**available**	2017-11-15 20:22:35
Other (non EN-DC)	25230	**available**	2017-11-15 20:22:35
Other (non EN-DC)	25240	**available**	2017-11-15 20:22:35
Idle/inactive paging	25250	**available**	2017-11-15 20:22:35
Idle/inactive paging	25260	**available**	2017-11-15 20:22:35
Idle/inactive paging	25270	**available**	2017-11-15 20:22:35
Selection/reselection - other aspects	25280	**available**	2017-11-15 20:22:35
Selection/reselection - other aspects	25290	**available**	2017-11-15 20:22:35
Access control	25320	**available**	2017-11-15 20:22:35
Access control	25330	**available**	2017-11-15 20:22:35
Access control	25340	**available**	2017-11-15 20:22:35
Access control	25350	**available**	2017-11-15 20:22:35
Access control	25900	**available**	2017-11-15 20:22:35
Access control	25910	**available**	2017-11-15 20:22:35
Other (non EN-DC)	25360	**available**	2017-11-15 20:22:35
Service based reselection	25370	**available**	2017-11-15 20:22:35
Security (non EN-DC)	25380	**available**	2017-11-15 20:51:46
Security for EN-DC	407600	**available**	2017-11-15 20:53:56
Positioning	25400	**available**	2017-11-15 20:57:54
Specification methodology	35000	**available**	2017-11-15 20:59:35
Specification methodology	39220	**available**	2017-11-15 21:01:09
Idle/inactive paging	25430	withdrawn	2017-11-15 21:02:54
Idle/inactive paging	25440	withdrawn	2017-11-15 21:04:37
Security (non EN-DC)	25450	**available**	2017-11-15 21:06:36
Security (non EN-DC)	25460	**available**	2017-11-15 21:08:48
Security (non EN-DC)	25470	**available**	2017-11-15 21:10:09
Mobility mechanisms - other	25480	**available**	2017-11-15 21:11:38
Other (for EN-DC)	25490	**available**	2017-11-15 21:13:43
L3 filter configuration	32630	**available**	2017-11-15 21:15:25
Measurement gaps	28860	**available**	2017-11-15 21:17:57
Inactive - other	25520	**available**	2017-11-15 21:19:25

In principle agreed CRs	0	**not pursued**	2017-11-15 21:21:27
Other	34110	**noted**	2017-11-15 21:23:29
In principle agreed CRs	25550	**revised**	2017-11-15 21:25:22
In principle agreed CRs	25560	**agreed**	2017-11-15 21:26:59
In principle agreed CRs	25570	**revised**	2017-11-15 21:28:19
In principle agreed CRs	25580	**agreed**	2017-11-15 21:49:00
Mobility - RLM,RLF	25590	**available**	2017-11-15 22:06:37
Other (for EN-DC)	25600	**available**	2017-11-15 22:06:37
Mobility without RRC involvement	24070	**available**	2017-11-15 22:06:37
Mobility without RRC involvement	34120	**available**	2017-11-15 22:06:37
Mobility without RRC involvement	34140	**available**	2017-11-15 22:06:37
Security framework for inactive	25640	**available**	2017-11-15 22:06:37
Security framework for inactive	25650	**available**	2017-11-15 22:06:37
Other (for non EN-DC)	25660	**available**	2017-11-15 22:06:37
Other (for non EN-DC)	25670	**available**	2017-11-15 22:06:37
Inter-RAT measurements	25680	**available**	2017-11-15 22:06:37
Measurement gaps	28880	**available**	2017-11-15 22:06:37
RRM measurements	37220	**available**	2017-11-15 22:06:37
Other (for non EN-DC)	25710	**available**	2017-11-15 22:06:37
RAN area update procedure	25720	**available**	2017-11-15 22:06:37
Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive	25730	**available**	2017-11-15 22:06:37
Inactive - other	25740	**available**	2017-11-15 22:06:37
Inactive - other	25750	**available**	2017-11-15 22:06:37
RAN area configuration	25760	**available**	2017-11-15 22:06:37
Inactive - other	25770	**available**	2017-11-15 22:06:37
Connection reconfiguration message - L2 parameters	25780	**revised**	2017-11-15 22:06:37
Connection control message harmonisation	25790	**available**	2017-11-15 22:06:37
Other (for non EN-DC)	25800	**available**	2017-11-15 22:06:37
Other (for EN-DC)	25810	**available**	2017-11-15 22:06:37
Other (for non EN-DC)	25820	**available**	2017-11-15 22:06:37
Other (for non EN-DC)	25830	**available**	2017-11-15 22:06:37
Other (for non EN-DC)	25840	**available**	2017-11-15 22:06:37
Other (non EN-DC)	25850	**available**	2017-11-15 22:06:37
Mobility related field trial result	25860	**noted**	2017-11-15 22:12:52
TS	0	**revised**	2017-11-15 23:01:06
Stage 2 aspects independent from NR/5GC	26590	**available**	2017-11-15 23:40:00
Slicing	25890	**available**	2017-11-15 23:40:00
Access control	25920	**available**	2017-11-15 23:40:01
Access control	25930	**available**	2017-11-15 23:40:01

Access control	25970	**available**	2017-11-15 23:40:01
Access control	26540	**available**	2017-11-15 23:40:01
Idle/inactive paging	25940	**available**	2017-11-15 23:40:01
Idle/inactive paging	25950	**available**	2017-11-15 23:40:01
Idle/inactive paging	25960	**available**	2017-11-15 23:40:01
Access control	26550	**available**	2017-11-15 23:40:01
MIB content	25980	**available**	2017-11-15 23:40:01
System information content/structure	25990	**available**	2017-11-15 23:40:01
Stored system information	26000	**available**	2017-11-15 23:40:01
Impact of bandwidth parts	27950	**available**	2017-11-15 23:40:01
Measurement gaps	32000	**available**	2017-11-15 23:40:01
Mobility mechanisms - basic handover	26030	**available**	2017-11-15 23:40:01
Mobility mechanisms - other	26040	**available**	2017-11-15 23:40:01
Mobility mechanisms - other	26050	**available**	2017-11-15 23:40:01
Measurement events	26060	**available**	2017-11-15 23:40:01
Inter-RAT measurements	26070	**available**	2017-11-15 23:40:01
QoS	26080	**available**	2017-11-15 23:40:01
QoS	26090	**available**	2017-11-15 23:40:01
Stage 2 aspects independent from NR/5GC	22180	**available**	2017-11-15 23:40:01
Security (non EN-DC)	26110	**available**	2017-11-15 23:40:01
QoS	26120	**available**	2017-11-15 23:40:01
EN-DC - other aspects	26130	**noted**	2017-11-15 23:40:01
RAN area configuration	26140	reserved	2017-11-15 23:40:01
RAN area update procedure	26150	**available**	2017-11-15 23:40:01
LTE TEI15 enhancements	28750	**noted**	2017-11-15 23:53:14
Enhancement to solve the problem of critical data discard	26170	**noted**	2017-11-15 23:53:14
Enhancement to solve the problem of critical data discard	26180	**available**	2017-11-15 23:53:14
Enhancement to solve the problem of critical data discard	26190	**available**	2017-11-15 23:53:15
Enhancement to solve the problem of critical data discard	26200	**available**	2017-11-15 23:53:16
Enhancement to solve the problem of critical data discard	26210	**available**	2017-11-15 23:53:17
Control plane	26220	**revised**	2017-11-15 23:53:18
Autonomous uplink access on Frame structure type 3	26230	**available**	2017-11-15 23:53:18
Autonomous uplink access on Frame structure type 3	29790	**available**	2017-11-15 23:53:18
Carrier aggregation (up to 8 PC5 carriers)	28540	**available**	2017-11-15 23:53:18

Carrier aggregation (up to 8 PC5 carriers)	27450	**available**	2017-11-15 23:53:18
Carrier aggregation (up to 8 PC5 carriers)	28690	**available**	2017-11-15 23:53:18
Carrier aggregation (up to 8 PC5 carriers)	28730	**available**	2017-11-15 23:53:18
Carrier aggregation (up to 8 PC5 carriers)	29420	**available**	2017-11-15 23:53:18
Radio resource pool sharing between UEs using mode 3 and mode 4	26300	**noted**	2017-11-15 23:53:18
Other	25540	**noted**	2017-11-15 23:53:18
Other	29380	**revised**	2017-11-15 23:53:18
Other	29390	**revised**	2017-11-15 23:53:19
Other	22920	**revised**	2017-11-15 23:53:20
Other	22930	**revised**	2017-11-15 23:53:21
Organisational	26360	**noted**	2017-11-15 23:53:22
Other	26320	**revised**	2017-11-15 23:53:23
Other	24700	**noted**	2017-11-15 23:53:23
Early data transmission	31830	**available**	2017-11-15 23:53:23
Access/load control of idle mode UEs	28120	**available**	2017-11-15 23:53:23
Further enhancements to CoMP for LTE	26410	**noted**	2017-11-15 23:53:23
Further enhancements to CoMP for LTE	26420	**postponed**	2017-11-15 23:53:23
Further enhancements to CoMP for LTE	26430	**postponed**	2017-11-15 23:53:23
Other LTE Rel-14 WIs	26450	withdrawn	2017-11-15 23:53:23
Other LTE Rel-14 WIs	26440	**revised**	2017-11-15 23:53:24
Impact of bandwidth parts	28630	**available**	2017-11-16 00:59:28
RRM TP	35920	**noted**	2017-11-16 00:59:28
L3 filter configuration	36740	**available**	2017-11-16 00:59:28
L3 filter configuration	403400	**available**	2017-11-16 00:59:28
Measurement gaps	22430	**noted**	2017-11-16 00:59:28
Mobility mechanisms - other	26510	**available**	2017-11-16 00:59:28
Random access procedures	24430	**noted**	2017-11-16 00:59:28
Random access in presence of multi-beam operation	404800	**not treated**	2017-11-16 00:59:28
Access control	21760	**noted**	2017-11-16 00:59:28
Access control	22210	**revised**	2017-11-16 00:59:28
Access control	26560	**available**	2017-11-16 00:59:28
Access control	26570	**available**	2017-11-16 00:59:28
Stage 2 aspects independent from NR/5GC	22220	**available**	2017-11-16 00:59:28
Stage 2 aspects independent from NR/5GC	22630	**noted**	2017-11-16 00:59:28

Stage 2 aspects independent from NR/5GC	32330	available	2017-11-16 00:59:28
Organisational	26620	noted	2017-11-16 00:59:28
Organisational	418100	revised	2017-11-16 00:59:28
Stage 2 aspects independent from NR/5GC	32700	available	2017-11-16 00:59:29
Other (for EN-DCs)	34380	noted	2017-11-16 00:59:29
RRM measurements	27930	available	2017-11-16 00:59:29
Connection reconfiguration message and bearer handling	26670	noted	2017-11-16 00:59:29
Connection reconfiguration message and bearer handling	33420	noted	2017-11-16 00:59:29
Other (for EN-DCs)	26680	available	2017-11-16 00:59:29
Bearer type harmonisation	35600	noted	2017-11-16 00:59:29
RAN area configuration	26700	available	2017-11-16 00:59:29
Paging in inactive	26710	available	2017-11-16 00:59:29
Connection control message harmonisation	26720	available	2017-11-16 00:59:29
Security framework for inactive	26730	available	2017-11-16 00:59:29
Inactive - other	26740	available	2017-11-16 00:59:29
Supplementary uplink	22780	available	2017-11-16 00:59:30
Other aspects for non EN-DC	26760	available	2017-11-16 00:59:30
UE capability structure	23690	noted	2017-11-16 00:59:30
Other aspects for EN-DC	25050	revised	2017-11-16 00:59:30
UE capability structure	26770	revised	2017-11-16 00:59:30
UE capability structure	34320	withdrawn	2017-11-16 00:59:30
TS	26810	noted	2017-11-16 00:59:31
Inactive - other	26820	available	2017-11-16 00:59:31
Selection/reselection rules	26830	available	2017-11-16 00:59:31
Cell quality derivation	26840	available	2017-11-16 00:59:31
Service based reselection	26850	available	2017-11-16 00:59:31
Idle/inactive paging	26860	available	2017-11-16 00:59:31
Stage 2 corrections	23240	agreed	2017-11-16 00:59:31
Other (non EN-DC)	26880	available	2017-11-16 00:59:31
Connection reconfiguration message and bearer handling	33430	noted	2017-11-16 00:59:31
Other	29350	not treated	2017-11-16 00:59:31
Other	29020	not treated	2017-11-16 00:59:31
Other aspects for EN-DC	39500	noted	2017-11-16 00:59:31
Measurement gaps	23660	available	2017-11-16 00:59:31
UE capability structure	28510	reserved	2017-11-16 00:59:31
EN-DC - other aspects	26950	noted	2017-11-16 00:59:31
Single Tx	31680	available	2017-11-16 00:59:31
Security for EN-DC	25390	available	2017-11-16 00:59:31
TS	26980	endorsed	2017-11-16 01:01:49
HARQ	26990	noted	2017-11-16 01:03:33
DRX	28610	not treated	2017-11-16 01:04:48
PHR	38040	not treated	2017-11-16 01:07:23
Other	23760	noted	2017-11-16 01:08:42
Other	22130	noted	2017-11-16 01:10:15
Other	27020	noted	2017-11-16 01:11:12
In principle agreed CRs	27050	agreed	2017-11-16 01:18:34
In principle agreed CRs	27060	agreed	2017-11-16 01:18:37
In principle agreed CRs	27070	agreed	2017-11-16 01:18:38
LTE TEI15 enhancements	35230	noted	2017-11-16 01:18:39

LTE TEI15 enhancements	35250	noted	2017-11-16 01:18:39
LTE TEI15 enhancements	35750	available	2017-11-16 01:18:39
LTE TEI15 enhancements	36810	available	2017-11-16 01:18:39
LTE TEI15 enhancements	36830	available	2017-11-16 01:18:40
UL data compression in LTE	27230	available	2017-11-16 01:18:41
UL data compression in LTE	28080	available	2017-11-16 01:18:41
UL data compression in LTE	28110	available	2017-11-16 01:18:42
UL data compression in LTE	28760	available	2017-11-16 01:18:42
UL data compression in LTE	28770	available	2017-11-16 01:18:43
UL data compression in LTE	33110	noted	2017-11-16 01:18:44
UL data compression in LTE	27160	available	2017-11-16 01:18:44
UL data compression in LTE	27170	available	2017-11-16 01:18:44
UL data compression in LTE	28800	available	2017-11-16 01:18:44
UL data compression in LTE	28810	noted	2017-11-16 01:18:44
UL data compression in LTE	33090	available	2017-11-16 01:18:44
Local caching for UE assistance video request	32380	available	2017-11-16 01:18:47
Enhancement to solve the problem of critical data discard	27250	noted	2017-11-16 01:18:47
Enhancement to solve the problem of critical data discard	27290	available	2017-11-16 01:18:47
Enhancement to solve the problem of critical data discard	34200	available	2017-11-16 01:18:48
Enhancement to solve the problem of critical data discard	34210	available	2017-11-16 01:18:49
Enhancement to solve the problem of critical data discard	34220	available	2017-11-16 01:18:50
Impact of PDCP duplication on MAC	27300	not treated	2017-11-16 01:42:34
Impact of PDCP duplication on MAC	27310	not treated	2017-11-16 01:42:34
Impact of PDCP duplication on MAC	27320	not treated	2017-11-16 01:42:34
Impact of PDCP duplication to RLC	27330	not treated	2017-11-16 01:42:34
Impact of PDCP duplication to RLC	27340	not treated	2017-11-16 01:42:34
Impact of PDCP duplication to RLC	27350	not treated	2017-11-16 01:42:34
PDCP duplication	27360	not treated	2017-11-16 01:42:34
PDCP duplication	27370	not treated	2017-11-16 01:42:34
PDCP duplication	27380	not treated	2017-11-16 01:42:35
PDCP duplication	27390	not treated	2017-11-16 01:42:35
Control plane	27400	revised	2017-11-16 02:11:52
In principle agreed CRs	27410	agreed	2017-11-16 02:11:53
Stage 2	27420	revised	2017-11-16 02:11:54
Others	27430	available	2017-11-16 03:24:11
Carrier aggregation (up to 8 PC5 carriers)	29470	available	2017-11-16 03:24:11
Carrier aggregation (up to 8 PC5 carriers)	21790	noted	2017-11-16 03:24:11
Carrier aggregation (up to 8 PC5 carriers)	29480	available	2017-11-16 03:24:11
Radio resource pool sharing between UEs using mode 3 and mode 4	27470	available	2017-11-16 03:24:11
Radio resource pool sharing between UEs using mode 3 and mode 4	28460	available	2017-11-16 03:24:11
Carrier aggregation (up to 8 PC5 carriers)	29700	available	2017-11-16 03:24:11

General	21155	**noted**	2017-11-16 03:24:11
Carrier aggregation (up to 8 PC5 carriers)	26290	**noted**	2017-11-16 03:24:11
Carrier aggregation (up to 8 PC5 carriers)	30700	**available**	2017-11-16 03:24:11
Mobility - RLM,RLF	27530	**available**	2017-11-16 03:43:19
Mobility without RRC involvement	35080	**available**	2017-11-16 03:43:19
Security (non EN-DC)	27550	**available**	2017-11-16 03:43:19
Slicing	27560	**available**	2017-11-16 03:43:19
Slicing	27570	**available**	2017-11-16 03:43:19
QoS	27580	**available**	2017-11-16 03:43:19
Impact of bandwidth parts	28830	**available**	2017-11-16 03:43:19
Supplementary uplink	32080	**available**	2017-11-16 03:43:19
Mobility mechanisms - basic handover	27610	**available**	2017-11-16 03:43:19
Other aspects related to RA	33720	**noted**	2017-11-16 03:43:19
Other (for EN-DCs)	34870	**noted**	2017-11-16 03:43:20
Other (for non EN-DC)	27640	**available**	2017-11-16 03:43:20
Measurement gaps	34260	**available**	2017-11-16 03:43:20
RRM TP	35891	**available**	2017-11-16 03:43:20
SCG failure for EN-DC	27670	**available**	2017-11-16 03:43:20
Stored system information	27680	**available**	2017-11-16 03:43:20
System information modification	27690	**available**	2017-11-16 03:43:20
System information scheduling	27700	**available**	2017-11-16 03:43:20
On demand system information	27710	**available**	2017-11-16 03:43:20
Security framework for inactive	27720	**available**	2017-11-16 03:43:20
Inactive - other	27730	**available**	2017-11-16 03:43:20
Temporary capability restriction	27740	**available**	2017-11-16 03:43:20
Selection/reselection rules	27750	**available**	2017-11-16 03:43:20
Cell quality derivation	27760	**available**	2017-11-16 03:43:20
Selection/reselection - other aspects	27770	**available**	2017-11-16 03:43:20
Stage 2 aspects independent from NR/5GC	26600	**available**	2017-11-16 03:43:20
Stage 2 aspects independent from NR/5GC	22230	**available**	2017-11-16 03:43:20
Stage 2 aspects independent from NR/5GC	31300	**available**	2017-11-16 03:43:20
MAC PDU format	27810	**noted**	2017-11-16 03:43:24
Random access in presence of multi-beam operation	26530	**not treated**	2017-11-16 04:06:39
Other aspects related to RA	34770	**not treated**	2017-11-16 04:06:39
SR	29740	withdrawn	2017-11-16 04:06:39
Random access procedures	30760	**not treated**	2017-11-16 04:06:39
LCP	22150	**noted**	2017-11-16 04:08:00
LCP	23650	**revised**	2017-11-16 04:08:00
PHR	29150	**noted**	2017-11-16 04:08:00
L3 filter configuration	26480	**noted**	2017-11-16 04:09:29
Measurement events	27900	**available**	2017-11-16 04:09:29
Other (for non EN-DC)	27910	**available**	2017-11-16 04:09:29
Security framework for inactive	27920	**available**	2017-11-16 04:09:29
RRM measurements	28200	**available**	2017-11-16 04:09:29
Mobility mechanisms - other	27940	**available**	2017-11-16 04:09:29
Impact of bandwidth parts	29900	**available**	2017-11-16 04:09:29
Connection control message harmonisation	27960	**available**	2017-11-16 04:09:29
Other (for non EN-DC)	27970	**available**	2017-11-16 04:09:29
Measurement events	27980	**available**	2017-11-16 04:09:29
Stored system information	27990	**available**	2017-11-16 04:09:29
System information modification	28000	**available**	2017-11-16 04:09:29

On demand system information	28010	**available**	2017-11-16 04:09:29
RAN area update procedure	28020	**available**	2017-11-16 04:09:29
Idle/inactive paging	28030	**available**	2017-11-16 04:09:29
Idle/inactive paging	28040	**available**	2017-11-16 04:09:29
Supplementary uplink	26750	**noted**	2017-11-16 04:09:29
Other	23680	**available**	2017-11-16 04:35:04
TS	36600	**agreed**	2017-11-16 05:19:32
UL data compression in LTE	28100	**withdrawn**	2017-11-16 05:38:51
UL data compression in LTE	39070	withdrawn	2017-11-16 05:38:51
UL data compression in LTE	408400	withdrawn	2017-11-16 05:38:51
UL data compression in LTE	408500	withdrawn	2017-11-16 05:38:52
Access/load control of idle mode UEs	31130	withdrawn	2017-11-16 06:05:08
MN/SN measurement coordination	33610	withdrawn	2017-11-16 06:05:08
BSR	33540	withdrawn	2017-11-16 06:05:08
Random access procedures	32290	not treated	2017-11-16 06:05:08
SR	34800	withdrawn	2017-11-16 06:05:08
Other	36570	withdrawn	2017-11-16 06:05:08
UL data split	36650	withdrawn	2017-11-16 06:05:08
Stored system information	28190	withdrawn	2017-11-16 06:05:08
RRM measurements	422500	withdrawn	2017-11-16 06:05:09
Access/load control of idle mode UEs	35020	withdrawn	2017-11-16 06:06:22
Mobility mechanisms - basic handover	28220	**available**	2017-11-16 06:06:22
MAC PDU format	34730	**not treated**	2017-11-16 06:06:22
BSR	34830	**not treated**	2017-11-16 06:06:22
Stored system information	28250	**available**	2017-11-16 06:06:22
Inter-Node RRC messages	34980	**available**	2017-11-16 06:06:22
BSR	23160	**noted**	2017-11-16 06:16:45
BSR	24721	**revised**	2017-11-16 06:16:46
DRX	34700	**not treated**	2017-11-16 06:16:46
MAC PDU format	38510	**noted**	2017-11-16 06:16:46
Delay reduction for SCell set-up	31640	**noted**	2017-11-16 06:16:46
Delay reduction for SCell set-up	32260	**available**	2017-11-16 06:16:46
Impact of PDCP duplication on MAC	28330	**not treated**	2017-11-16 06:16:46
DRX	34710	**not treated**	2017-11-16 06:16:46
MAC PDU format	407100	**available**	2017-11-16 06:16:46
Supplementary uplink	36280	**available**	2017-11-16 06:19:13
Differentiation of RA parameters	28370	**not treated**	2017-11-16 06:21:40
Stage 2 corrections	28380	**agreed**	2017-11-16 06:22:38
System information -other	28390	**available**	2017-11-16 06:26:19
Access control	28400	withdrawn	2017-11-16 06:28:46
Access control	28410	**available**	2017-11-16 06:29:07
Access control	28420	**available**	2017-11-16 06:31:43
Access control	28430	**available**	2017-11-16 06:33:54

Access control	28440	available	2017-11-16 06:35:36
Access control	28450	available	2017-11-16 06:37:06
Radio resource pool sharing between UEs using mode 3 and mode 4	28530	available	2017-11-16 06:37:56
Single Tx	23700	available	2017-11-16 06:46:09
Single Tx	32090	available	2017-11-16 06:46:18
Single Tx	36840	revised	2017-11-16 06:46:18
Single Tx	28470	noted	2017-11-16 06:46:18
UE capability structure	26940	noted	2017-11-16 06:58:18
Carrier aggregation (up to 8 PC5 carriers)	30710	available	2017-11-16 06:58:24
Radio resource pool sharing between UEs using mode 3 and mode 4	29410	available	2017-11-16 06:58:24
Carrier aggregation (up to 8 PC5 carriers)	30720	available	2017-11-16 06:58:24
MN/SN procedures for EN-DC	22510	noted	2017-11-16 06:58:24
Random access procedures	28560	not treated	2017-11-16 06:58:24
SPS/Grant-free	39170	not treated	2017-11-16 06:58:24
DRX	22040	noted	2017-11-16 06:58:24
Impact of PDCP duplication on MAC	28590	not treated	2017-11-16 06:58:24
PHR	27010	noted	2017-11-16 06:58:24
DRX	28340	not treated	2017-11-16 06:58:24
Header Format	29230	not treated	2017-11-16 06:58:24
Impact of bandwidth parts	35670	available	2017-11-16 06:58:24
Stage 2 aspects independent from NR/5GC	26630	available	2017-11-16 06:58:24
Stage 2 aspects dependent on NR/5GC	28650	available	2017-11-16 06:58:24
RRM measurements	28660	available	2017-11-16 07:26:44
SCG failure for EN-DC	28670	available	2017-11-16 07:34:51
Other	22110	noted	2017-11-16 07:42:47
Carrier aggregation (up to 8 PC5 carriers)	27440	noted	2017-11-16 07:43:21
Random access in presence of multi-beam operation	38080	noted	2017-11-16 07:44:08
Mobility without RRC involvement	35330	available	2017-11-16 07:45:32
Mobility mechanisms - other	28720	available	2017-11-16 07:46:44
Carrier aggregation (up to 8 PC5 carriers)	34050	available	2017-11-16 07:47:34
Mobility mechanisms - other	28740	available	2017-11-16 07:48:06
LTE TEI15 enhancements	29520	available	2017-11-16 07:48:48
UL data compression in LTE	33520	available	2017-11-16 07:48:53
UL data compression in LTE	33530	available	2017-11-16 07:48:53
UL data compression in LTE	27210	noted	2017-11-16 07:48:53
UL data compression in LTE	28790	noted	2017-11-16 07:48:53
UL data compression in LTE	33120	available	2017-11-16 07:48:53
UL data compression in LTE	27200	available	2017-11-16 07:48:53
RRM measurements	39210	available	2017-11-16 07:50:15
Impact of bandwidth parts	35680	available	2017-11-16 07:50:17
Other	26310	noted	2017-11-16 07:52:15
Mobility mechanisms - basic handover	28850	available	2017-11-16 07:52:35
Measurement gaps	35550	available	2017-11-16 07:52:50
RRM TP	31990	noted	2017-11-16 07:55:33
Measurement gaps	37370	available	2017-11-16 07:55:57
Connection reconfiguration message - L1 parameters	28890	noted	2017-11-16 07:57:05

Bearer type harmonisation	26690	revised	2017-11-16 07:58:23
Connection reconfiguration message - L1 parameters	28910	revised	2017-11-16 08:00:00
SCG failure for EN-DC	28920	available	2017-11-16 08:02:08
Autonomous uplink access on Frame structure type 3	35170	available	2017-11-16 08:04:49
Autonomous uplink access on Frame structure type 3	35210	available	2017-11-16 08:04:49
Autonomous uplink access on Frame structure type 3	35200	available	2017-11-16 08:04:49
Autonomous uplink access on Frame structure type 3	31980	available	2017-11-16 08:04:49
Further enhancements to CoMP for LTE	28970	available	2017-11-16 08:04:49
Corresponding higher-layer procedures and signalling	28980	revised	2017-11-16 08:04:50
UE capability and potential new categories	28990	revised	2017-11-16 08:04:51
LCP	29120	withdrawn	2017-11-16 08:04:52
Potential enhancements for UAV interference problem	35440	available	2017-11-16 08:09:25
Other	37140	not treated	2017-11-16 08:16:14
Random access procedures	33660	not treated	2017-11-16 08:16:14
Random access in presence of multi-beam operation	23790	noted	2017-11-16 08:16:14
Other aspects related to RA	33680	noted	2017-11-16 08:16:14
Random access procedures	33670	not treated	2017-11-16 08:16:14
UL data split	36620	not treated	2017-11-16 08:16:14
Other	35850	available	2017-11-16 08:16:14
Other	36120	available	2017-11-16 08:16:14
Random access procedures	33810	not treated	2017-11-16 08:16:14
Differentiation of RA parameters	29110	not treated	2017-11-16 08:16:14
LCP	23740	reissued	2017-11-16 08:17:39
Other aspects for non EN-DC	29130	available	2017-11-16 08:19:10
PDCP duplication	29140	not treated	2017-11-16 08:19:37
PHR	29160	noted	2017-11-16 08:20:57
PHR	22460	noted	2017-11-16 08:22:36
Other	34350	noted	2017-11-16 08:27:24
Stage 2 aspects dependent on NR/5GC	29180	available	2017-11-16 08:27:24
QoS	29190	available	2017-11-16 08:27:24
Other	29200	not treated	2017-11-16 08:27:24
QoS	29210	available	2017-11-16 08:27:24
Other	29220	not treated	2017-11-16 08:27:24
Header Format	32310	not treated	2017-11-16 08:27:24
Other	29240	not treated	2017-11-16 08:27:24
Other	29250	not treated	2017-11-16 08:27:24
PDCP duplication	29260	not treated	2017-11-16 08:27:24
Other	37150	not treated	2017-11-16 08:27:24
PDCP duplication	29280	not treated	2017-11-16 08:27:24
PDCP duplication	29290	not treated	2017-11-16 08:27:24
Other	35630	not treated	2017-11-16 08:27:24
UL data split	30080	not treated	2017-11-16 08:27:24
PDCP duplication	29320	not treated	2017-11-16 08:27:24
Impact of PDCP duplication on MAC	29330	not treated	2017-11-16 08:27:24
Other	23210	noted	2017-11-16 08:27:24

Other	23280	revised	2017-11-16 08:27:24
RLC AM operation	35810	not treated	2017-11-16 08:27:24
SPS/Grant-free	405900	not treated	2017-11-16 08:27:24
Other	26330	revised	2017-11-16 08:32:35
Other	26370	not pursued	2017-11-16 08:32:36
Early data transmission	36490	available	2017-11-16 08:32:37
Radio resource pool sharing between UEs using mode 3 and mode 4	29670	available	2017-11-16 08:32:37
Carrier aggregation (up to 8 PC5 carriers)	26270	noted	2017-11-16 08:32:37
Other (non EN-DC)	29430	available	2017-11-16 08:47:03
Identify certification	33270	available	2017-11-16 08:50:37
Identify certification	33310	available	2017-11-16 08:52:59
Mobility mechanisms - other	29460	available	2017-11-16 08:55:57
Carrier aggregation (up to 8 PC5 carriers)	27460	available	2017-11-16 08:56:33
Carrier aggregation (up to 8 PC5 carriers)	35120	available	2017-11-16 08:58:39
Access control	29490	available	2017-11-16 09:04:53
Mobility mechanisms - other	29500	available	2017-11-16 09:05:32
LTE TEI15 enhancements	32550	available	2017-11-16 09:08:29
LTE TEI15 enhancements	32560	available	2017-11-16 09:08:31
LTE TEI15 enhancements	32570	available	2017-11-16 09:08:32
WI: Enhanced LTE-WLAN Aggregation (eLWA)	29540	agreed	2017-11-16 09:08:33
LTE TEI15 enhancements	34250	available	2017-11-16 09:08:34
LTE TEI15 enhancements	34500	available	2017-11-16 09:08:34
LTE TEI15 enhancements	32590	available	2017-11-16 09:08:35
Mobility mechanisms - other	29580	available	2017-11-16 09:10:24
Mobility without RRC involvement	36560	available	2017-11-16 09:11:21
RAN area update procedure	29600	withdrawn	2017-11-16 09:14:42
Other	34180	available	2017-11-16 09:16:25
Selection/reselection rules	29620	available	2017-11-16 09:17:20
Other	29630	not treated	2017-11-16 09:23:02
PDCP duplication	29640	not treated	2017-11-16 09:27:18
PDCP duplication	29650	not treated	2017-11-16 09:28:11
Impact of PDCP duplication on MAC	29660	not treated	2017-11-16 09:30:44
Radio resource pool sharing between UEs using mode 3 and mode 4	30780	available	2017-11-16 09:30:52
On demand system information	29680	available	2017-11-16 09:30:52
DRX	38020	not treated	2017-11-16 09:30:52
Carrier aggregation (up to 8 PC5 carriers)	35130	available	2017-11-16 09:30:52
MIB content	29710	available	2017-11-16 09:35:52
WI: Shortened TTI and processing time for LTE	32470	noted	2017-11-16 09:40:14

SR	22670	noted	2017-11-16 09:40:14
SR	22840	revised	2017-11-16 09:40:14
DRX	22120	noted	2017-11-16 09:40:14
Access/load control of idle mode UEs	37550	available	2017-11-16 09:48:12
Random access procedures	34740	not treated	2017-11-16 09:48:12
Inactive - other	29780	available	2017-11-16 09:54:46
Autonomous uplink access on Frame structure type 3	26240	available	2017-11-16 09:59:41
TS	39430	revised	2017-11-16 10:24:09
TS	29810	revised	2017-11-16 10:24:10
Early data transmission	36440	available	2017-11-16 10:25:05
WI: Narrowband IOT	29830	noted	2017-11-16 10:27:51
System information content/structure	29840	available	2017-11-16 10:27:55
Single Tx	407800	available	2017-11-16 10:29:26
Connection control message harmonisation	29860	available	2017-11-16 10:29:28
Slicing	29870	available	2017-11-16 10:29:28
On demand system information	29880	available	2017-11-16 10:29:28
Stage 2 aspects independent from NR/5GC	31310	available	2017-11-16 10:29:28
Impact of bandwidth parts	37290	available	2017-11-16 10:29:28
Identify certification	34090	available	2017-11-16 10:29:28
Potential enhancements solutions	39530	available	2017-11-16 10:29:28
Wake Up Signal	30350	not treated	2017-11-16 10:29:28
WI: Narrowband IOT	29940	not pursued	2017-11-16 10:32:21
Other (non EN-DC)	29950	available	2017-11-16 10:34:28
Other (non EN-DC)	29960	available	2017-11-16 10:34:28
Beam selection for HO access	29970	available	2017-11-16 10:34:28
MN/SN procedures for EN-DC	28550	available	2017-11-16 10:34:28
Supplementary uplink	37060	revised	2017-11-16 10:34:28
Other (non EN-DC)	30000	available	2017-11-16 10:34:28
WI: Narrowband IOT	30010	revised	2017-11-16 10:35:25
PHR	39480	not treated	2017-11-16 10:40:37
Other	30030	not treated	2017-11-16 10:40:37
PDCP duplication	30040	not treated	2017-11-16 10:40:37
PDCP duplication	30050	not treated	2017-11-16 10:40:37
PDCP duplication	30060	not treated	2017-11-16 10:40:37
PHR	34840	not treated	2017-11-16 10:40:37
UL data split	36630	not treated	2017-11-16 10:40:37
PDCP duplication	30090	not treated	2017-11-16 10:40:37
Relaxed Monitoring for cell reselection	30100	noted	2017-11-16 10:44:42
Relaxed Monitoring for cell reselection	30120	noted	2017-11-16 10:44:42
Relaxed Monitoring for cell reselection	30130	noted	2017-11-16 10:44:42

Relaxed Monitoring for cell reselection	30820	revised	2017-11-16 10:44:42
Relaxed Monitoring for cell reselection	30835	revised	2017-11-16 10:44:43
Relaxed Monitoring for cell reselection	30845	revised	2017-11-16 10:44:44
Relaxed Monitoring for cell reselection	37650	not treated	2017-11-16 10:44:45
Relaxed Monitoring for cell reselection	38120	not treated	2017-11-16 10:44:46
Other	30220	available	2017-11-16 10:45:26
Other	30310	available	2017-11-16 10:49:03
Other	23990	noted	2017-11-16 10:52:25
Other	24000	not treated	2017-11-16 10:54:21
Other	30320	available	2017-11-16 11:03:06
Relaxed Monitoring for cell reselection	38140	not treated	2017-11-16 11:03:52
RRC Connection Release Enhancements	30240	not treated	2017-11-16 11:03:52
RRC Connection Release Enhancements	30250	not treated	2017-11-16 11:03:52
RRC Connection Release Enhancements	30260	not treated	2017-11-16 11:03:53
RRC Connection Release Enhancements	30270	not treated	2017-11-16 11:03:54
RRC Connection Release Enhancements	30280	revised	2017-11-16 11:03:55
UE differentiation	30290	noted	2017-11-16 11:03:56
UE differentiation	0	available	2017-11-16 11:03:56
Other	22050	available	2017-11-16 11:03:56
Other	0	available	2017-11-16 11:03:56
Wake Up Signal	30330	not treated	2017-11-16 11:03:56
Wake Up Signal	30360	not treated	2017-11-16 11:03:56
Wake Up Signal	30370	not treated	2017-11-16 11:03:57
Wake Up Signal	31860	not treated	2017-11-16 11:03:58
Wake Up Signal	31870	not treated	2017-11-16 11:03:59
Other	32180	not pursued	2017-11-16 11:04:00
In principle agreed CRs	30400	agreed	2017-11-16 11:04:01
In principle agreed CRs	30390	agreed	2017-11-16 11:04:01
Other	31020	revised	2017-11-16 11:04:02
Other	31030	revised	2017-11-16 11:04:03
Other	32230	revised	2017-11-16 11:04:04

Other	32240	**revised**	2017-11-16 11:04:05
Other	30450	**available**	2017-11-16 11:06:01
Other	30460	**available**	2017-11-16 11:07:12
Other	30470	**available**	2017-11-16 11:07:12
Other	30480	**available**	2017-11-16 11:07:13
Other	30490	**available**	2017-11-16 11:07:14
System acquisition time enhancements	23370	**available**	2017-11-16 11:07:15
System acquisition time enhancements	31070	**available**	2017-11-16 11:07:15
System acquisition time enhancements	31080	**available**	2017-11-16 11:07:15
System acquisition time enhancements	30510	**available**	2017-11-16 11:07:16
Early data transmission	30540	**available**	2017-11-16 11:07:16
Early data transmission	31820	**available**	2017-11-16 11:07:16
Early data transmission	30560	**available**	2017-11-16 11:07:16
Early data transmission	23150	**noted**	2017-11-16 11:07:16
Early data transmission	37870	**available**	2017-11-16 11:07:16
Uplink HARQ-ACK feedback	30610	**available**	2017-11-16 11:07:16
Uplink HARQ-ACK feedback	30620	**available**	2017-11-16 11:07:16
Uplink HARQ-ACK feedback	31140	**available**	2017-11-16 11:07:17
Uplink HARQ-ACK feedback	31150	**available**	2017-11-16 11:07:17
Other	31260	**available**	2017-11-16 11:07:18
Increased PUSCH spectral efficiency	31200	**available**	2017-11-16 11:07:18
Increased PUSCH spectral efficiency	38770	**available**	2017-11-16 11:07:19
Increased PDSCH spectral efficiency	31180	**available**	2017-11-16 11:07:20
Increased PDSCH spectral efficiency	31190	**available**	2017-11-16 11:07:21
Access/load control of idle mode UEs	30680	**available**	2017-11-16 11:07:22
Access/load control of idle mode UEs	30690	**available**	2017-11-16 11:07:22
Carrier aggregation (up to 8 PC5 carriers)	27490	**available**	2017-11-16 11:15:55
Carrier aggregation (up to 8 PC5 carriers)	35150	**available**	2017-11-16 11:17:43
Carrier aggregation (up to 8 PC5 carriers)	35160	**available**	2017-11-16 11:19:02
Stored system information	30730	**available**	2017-11-16 11:20:19
System information modification	30740	**available**	2017-11-16 11:20:19
On demand system information	30750	**available**	2017-11-16 11:20:19
Random access procedures	26520	**noted**	2017-11-16 11:20:19
HARQ	30770	**noted**	2017-11-16 11:20:20
Radio resource pool sharing between UEs using mode 3 and mode 4	33870	**available**	2017-11-16 11:24:31
Others	30790	**available**	2017-11-16 11:26:40
Others	30800	**available**	2017-11-16 11:28:22
WI: Downlink Multiuser Superposition Transmission for LTE	30810	**agreed**	2017-11-16 11:33:36

Relaxed Monitoring for cell reselection	30140	merged	2017-11-16 11:34:19
Relaxed Monitoring for cell reselection	30150	merged	2017-11-16 11:34:19
Relaxed Monitoring for cell reselection	30160	merged	2017-11-16 11:34:20
Relaxed Monitoring for cell reselection	30855	not treated	2017-11-16 11:34:21
Relaxed Monitoring for cell reselection	30860	not treated	2017-11-16 11:34:21
Relaxed Monitoring for cell reselection	30870	not treated	2017-11-16 11:34:21
In principle agreed CRs	30880	revised	2017-11-16 11:34:21
In principle agreed CRs	30890	revised	2017-11-16 11:34:22
In principle agreed CRs	36250	withdrawn	2017-11-16 11:34:23
In principle agreed CRs	30910	revised	2017-11-16 11:34:24
Other	36710	withdrawn	2017-11-16 11:34:25
Other	36720	withdrawn	2017-11-16 11:34:26
In principle agreed CRs	30940	agreed	2017-11-16 11:34:27
In principle agreed CRs	30950	agreed	2017-11-16 11:34:28
In principle agreed CRs	30960	revised	2017-11-16 11:34:29
In principle agreed CRs	32250	withdrawn	2017-11-16 11:34:30
In principle agreed CRs	30970	agreed	2017-11-16 11:34:31
Other	31040	revised	2017-11-16 11:34:32
Other	22940	revised	2017-11-16 11:34:33
Other	26340	revised	2017-11-16 11:34:33
Other	30440	postponed	2017-11-16 11:34:34
Other	30920	not pursued	2017-11-16 11:34:35
Other	26380	revised	2017-11-16 11:34:36
System acquisition time enhancements	37640	available	2017-11-16 11:34:37
System acquisition time enhancements	30500	noted	2017-11-16 11:34:37
System acquisition time enhancements	30520	revised	2017-11-16 11:34:37
System acquisition time enhancements	31050	available	2017-11-16 11:34:37
System acquisition time enhancements	36780	available	2017-11-16 11:34:37
System acquisition time enhancements	31060	available	2017-11-16 11:34:37
System acquisition time enhancements	37630	available	2017-11-16 11:34:37
Access/load control of idle mode UEs	28210	available	2017-11-16 11:34:37
Access/load control of idle mode UEs	29760	available	2017-11-16 11:34:37
Uplink HARQ-ACK feedback	22310	available	2017-11-16 11:34:37

Uplink HARQ-ACK feedback	22320	**available**	2017-11-16 11:34:37
Increased PDSCH spectral efficiency	30660	**available**	2017-11-16 11:34:37
Increased PDSCH spectral efficiency	30670	**available**	2017-11-16 11:34:37
Increased PDSCH spectral efficiency	31160	**available**	2017-11-16 11:34:37
Increased PDSCH spectral efficiency	31170	**available**	2017-11-16 11:34:37
Increased PUSCH spectral efficiency	30640	**available**	2017-11-16 11:34:37
Other	30630	**available**	2017-11-16 11:34:37
Other	31210	**available**	2017-11-16 11:34:37
Other	31220	**available**	2017-11-16 11:34:37
Other	31230	**available**	2017-11-16 11:34:38
Other	31240	**available**	2017-11-16 11:34:38
Other	31250	**available**	2017-11-16 11:34:38
Other	31270	**available**	2017-11-16 11:34:38
WI: Downlink Multiuser Superposition Transmission for LTE	31280	**agreed**	2017-11-16 11:37:11
WI: Narrowband IOT	32150	**revised**	2017-11-16 11:38:20
Stage 2 aspects independent from NR/5GC	27780	**available**	2017-11-16 11:47:14
Stage 2 aspects independent from NR/5GC	27790	**available**	2017-11-16 11:47:14
Stage 2 aspects independent from NR/5GC	27800	**available**	2017-11-16 11:47:14
Stage 2 aspects independent from NR/5GC	32730	**available**	2017-11-16 11:47:14
Stage 2 aspects independent from NR/5GC	21710	**noted**	2017-11-16 11:47:14
Stage 2 aspects independent from NR/5GC	31320	**available**	2017-11-16 11:47:14
Stage 2 aspects independent from NR/5GC	32660	**available**	2017-11-16 11:47:14
MN/SN measurement coordination	24390	**available**	2017-11-16 11:47:14
Security for EN-DC	407700	**available**	2017-11-16 11:47:14
SCG failure for EN-DC	31390	**available**	2017-11-16 11:47:14
Other	39490	**available**	2017-11-16 11:47:14
Stage 2 corrections	39370	**agreed**	2017-11-16 11:47:14
Other (for EN-DCs)	33920	**agreed**	2017-11-16 11:47:14
SCG failure for EN-DC	31430	**available**	2017-11-16 11:47:14
Inter-Node RRC messages	25010	**noted**	2017-11-16 11:47:14
RRM measurements	414300	**available**	2017-11-16 11:47:14
RRM measurements	31450	**noted**	2017-11-16 11:47:14
UE capability coordination	31470	**available**	2017-11-16 11:47:14
Other	34650	**available**	2017-11-16 11:47:14
MN/SN procedures for EN-DC	29980	**noted**	2017-11-16 11:47:14
EN-DC - other aspects	22480	**noted**	2017-11-16 11:47:14
Bearer type harmonisation	37280	**noted**	2017-11-16 11:47:14
Other	23145	**available**	2017-11-16 11:50:24
Other	23480	**not treated**	2017-11-16 11:50:24
Other	32140	**noted**	2017-11-16 11:50:26
Other	31550	**not pursued**	2017-11-16 11:50:26
Other	31560	**not pursued**	2017-11-16 11:50:27

In principle agreed CRs	39360	withdrawn	2017-11-16 11:50:27
General	31580	**noted**	2017-11-16 11:50:28
General	31590	**noted**	2017-11-16 11:50:28
General	37240	**noted**	2017-11-16 11:50:28
Delay reduction for SCell set-up	33340	**available**	2017-11-16 11:50:28
Delay reduction for SCell set-up	31700	**available**	2017-11-16 11:50:28
Delay reduction for SCell set-up	33360	**available**	2017-11-16 11:50:29
Delay reduction for SCell set-up	28310	**available**	2017-11-16 11:50:29
Signalling overhead reduction for configuration activation	33330	withdrawn	2017-11-16 11:50:29
Highly Reliable Low Latency Communication for LTE	37910	withdrawn	2017-11-16 11:50:29
Single Tx	29850	**available**	2017-11-16 11:50:29
Single Tx	22810	**noted**	2017-11-16 11:50:29
EN-DC - other aspects	412300	withdrawn	2017-11-16 11:50:29
Delay reduction for SCell set-up	22550	**noted**	2017-11-16 12:06:46
Beam selection for HO access	25070	**available**	2017-11-16 12:11:16
MAC general aspects	34630	**not treated**	2017-11-16 12:21:09
SPS/Grant-free	28570	**noted**	2017-11-16 12:21:09
SPS/Grant-free	29370	**revised**	2017-11-16 12:21:09
HARQ	31750	**noted**	2017-11-16 12:21:09
PHR	34850	**not treated**	2017-11-16 12:21:09
PHR	30070	**not treated**	2017-11-16 12:21:09
PHR	406700	**revised**	2017-11-16 12:21:09
Other	27030	**revised**	2017-11-16 12:21:09
WI: Narrowband IOT	32210	**revised**	2017-11-16 12:21:55
Other (non EN-DC)	31810	**available**	2017-11-16 12:22:56
Early data transmission	30550	**noted**	2017-11-16 12:29:37
Early data transmission	38620	**available**	2017-11-16 12:29:37
Early data transmission	30570	**available**	2017-11-16 12:29:37
Early data transmission	30580	**available**	2017-11-16 12:29:37
Wake Up Signal	22970	**noted**	2017-11-16 12:29:37
Wake Up Signal	23340	**revised**	2017-11-16 12:29:37
Early data transmission	31880	**available**	2017-11-16 12:29:37
Early data transmission	29400	**available**	2017-11-16 12:29:37
Early data transmission	31840	**available**	2017-11-16 12:29:37
Early data transmission	29820	**available**	2017-11-16 12:29:37
System Acquisition Enhancements	38400	**noted**	2017-11-16 12:29:37

RRC Connection Release Enhancements	31930	**noted**	2017-11-16 12:29:37
Other	34170	**available**	2017-11-16 12:29:37
TDD	31960	**available**	2017-11-16 12:29:37
TDD	33580	**available**	2017-11-16 12:29:37
Organisational	399300	**not treated**	2017-11-16 12:33:24
Autonomous uplink access on Frame structure type 3	35190	**available**	2017-11-16 12:34:30
RRM TP	34270	**noted**	2017-11-16 12:34:30
Measurement gaps	26020	**available**	2017-11-16 12:34:30
Inactive - other	32010	**available**	2017-11-16 12:34:30
Security framework for inactive	32020	**available**	2017-11-16 12:34:30
Cell quality derivation	32030	**available**	2017-11-16 12:34:30
Selection/reselection rules	32040	**available**	2017-11-16 12:34:30
Connection control message harmonisation	32050	**available**	2017-11-16 12:38:19
Other (for non EN-DC)	32060	**available**	2017-11-16 12:40:56
Connection reconfiguration message - L1 parameters	34370	**noted**	2017-11-16 12:49:02
Supplementary uplink	22470	**noted**	2017-11-16 12:49:02
Single Tx	26960	**available**	2017-11-16 12:49:02
Other aspects for non EN-DC	32100	**available**	2017-11-16 12:49:02
UE capability structure	26800	**noted**	2017-11-16 12:49:02
Temporary capability restriction	32120	**available**	2017-11-16 12:49:02
Other (non EN-DC)	32130	**available**	2017-11-16 12:49:02
Other	24020	**available**	2017-11-16 12:49:02
WI: Narrowband IOT	31290	reserved	2017-11-16 12:53:56
Other	32181	**revised**	2017-11-16 12:54:34
Other	32190	**revised**	2017-11-16 12:54:35
Other	32390	**revised**	2017-11-16 12:54:36
Other	32400	**revised**	2017-11-16 12:54:37
Other	32410	**revised**	2017-11-16 12:54:38
WI: Narrowband IOT	31800	reserved	2017-11-16 12:55:48
In principle agreed CRs	30900	**agreed**	2017-11-16 12:58:38
Other	26350	**revised**	2017-11-16 12:58:39
Other	30410	**revised**	2017-11-16 12:58:40
In principle agreed CRs	30980	**agreed**	2017-11-16 12:58:41
Delay reduction for SCell set-up	31610	**available**	2017-11-16 13:06:49
RRM measurements	31370	**available**	2017-11-16 13:08:23
MAC general aspects	35340	**revised**	2017-11-16 13:08:23
Random access procedures	36330	**not treated**	2017-11-16 13:08:23
BSR	36870	**not treated**	2017-11-16 13:08:23
Header Format	35830	**not treated**	2017-11-16 13:08:23
Slicing	32320	**available**	2017-11-16 13:08:23

Stage 2 aspects independent from NR/5GC	32670	**available**	2017-11-16 13:08:24
Local caching for UE assistance video request	27240	**noted**	2017-11-16 13:08:24
Local caching for UE assistance video request	32360	**revised**	2017-11-16 13:08:24
Local caching for UE assistance video request	32340	**revised**	2017-11-16 13:08:25
Local caching for UE assistance video request	32350	**revised**	2017-11-16 13:08:25
Local caching for UE assistance video request	32352	**revised**	2017-11-16 13:08:26
Other	33550	**noted**	2017-11-16 13:08:27
Other	35320	**available**	2017-11-16 13:08:27
Other	417700	**noted**	2017-11-16 13:08:28
Uplink Capacity Enhancements for LTE	32420	**revised**	2017-11-16 13:08:28
Uplink Capacity Enhancements for LTE	32430	**revised**	2017-11-16 13:08:29
DRX	38030	**not treated**	2017-11-16 13:08:50
WI: Shortened TTI and processing time for LTE	29720	**noted**	2017-11-16 13:11:04
Other	30210	**not treated**	2017-11-16 13:11:04
WI: Shortened TTI and processing time for LTE	32500	**not treated**	2017-11-16 13:12:25
Highly Reliable Low Latency Communication for LTE	24600	**noted**	2017-11-16 13:14:13
Other	32460	**not treated**	2017-11-16 13:14:36
WI: Shortened TTI and processing time for LTE	33150	**not treated**	2017-11-16 13:15:46
EN-DC - other aspects	22490	**revised**	2017-11-16 13:17:15
Other	32490	**not treated**	2017-11-16 13:19:21
Positioning	32530	**available**	2017-11-16 13:20:24
Other	32520	**not treated**	2017-11-16 13:22:15
LTE TEI15 enhancements	27120	**noted**	2017-11-16 13:23:02
LTE TEI15 enhancements	29510	**available**	2017-11-16 13:23:02
LTE TEI15 enhancements	29550	**noted**	2017-11-16 13:23:03
LTE TEI15 enhancements	29560	**available**	2017-11-16 13:23:03
LTE TEI15 enhancements	29570	**available**	2017-11-16 13:23:05
Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive	32600	**available**	2017-11-16 13:24:37
Other	32540	**postponed**	2017-11-16 13:24:50
RRM measurements	32620	**noted**	2017-11-16 13:30:59
L3 filter configuration	27890	**noted**	2017-11-16 13:30:59
Potential enhancements solutions	29920	**available**	2017-11-16 13:30:59
Potential enhancements solutions	32640	**available**	2017-11-16 13:30:59
Stage 2 aspects independent from NR/5GC	31330	**available**	2017-11-16 13:40:25
Stage 2 aspects independent from NR/5GC	32680	**available**	2017-11-16 13:40:25
Stage 2 aspects independent from NR/5GC	36100	**available**	2017-11-16 13:40:25

Stage 2 aspects independent from NR/5GC	36110	**available**	2017-11-16 13:40:25
Stage 2 aspects independent from NR/5GC	22620	**available**	2017-11-16 13:40:25
Stage 2 aspects independent from NR/5GC	29890	**available**	2017-11-16 13:40:25
Stage 2 aspects independent from NR/5GC	37420	**available**	2017-11-16 13:40:25
Stage 2 aspects independent from NR/5GC	37450	**available**	2017-11-16 13:40:25
Inactive - other	32740	**available**	2017-11-16 13:40:25
Other (for non EN-DC)	32750	**available**	2017-11-16 13:40:25
Slicing	32760	**available**	2017-11-16 13:40:25
Slicing	32770	**available**	2017-11-16 13:40:25
Security (non EN-DC)	32780	**available**	2017-11-16 13:40:25
Other (for non EN-DC)	32790	**available**	2017-11-16 13:40:25
Other (for non EN-DC)	32800	**available**	2017-11-16 13:40:25
MIB content	32810	**available**	2017-11-16 13:44:10
MIB content	32820	**available**	2017-11-16 13:44:10
MIB content	32830	**available**	2017-11-16 13:44:10
System information content/structure	32840	**available**	2017-11-16 13:44:10
Stored system information	32850	**available**	2017-11-16 13:44:10
System information modification	32860	**available**	2017-11-16 13:44:10
System information scheduling	32870	**available**	2017-11-16 13:44:10
On demand system information	32880	**available**	2017-11-16 13:44:10
System information -other	32890	**available**	2017-11-16 13:44:10
Selection/reselection rules	32900	**available**	2017-11-16 13:44:10
Cell quality derivation	32910	**available**	2017-11-16 13:44:10
Service based reselection	32920	**available**	2017-11-16 13:44:10
Selection/reselection - other aspects	32930	**available**	2017-11-16 13:44:10
Selection/reselection - other aspects	32940	**available**	2017-11-16 13:44:10
Connection control message harmonisation	32950	**available**	2017-11-16 13:57:21
RAN area update procedure	32960	**available**	2017-11-16 13:57:21
Inactive - other	32970	**available**	2017-11-16 13:57:21
Inactive - other	32980	**available**	2017-11-16 13:57:21
Inactive - other	32990	**available**	2017-11-16 13:57:21
Other (for non EN-DC)	33000	**available**	2017-11-16 13:57:21
Security (non EN-DC)	33010	**available**	2017-11-16 13:57:21
Security (non EN-DC)	33020	**available**	2017-11-16 13:57:21
Other (for non EN-DC)	33030	**available**	2017-11-16 13:57:21
Other (for non EN-DC)	33040	**available**	2017-11-16 13:57:21
Security (non EN-DC)	33050	**available**	2017-11-16 13:57:21
Security (non EN-DC)	33060	**available**	2017-11-16 13:57:21

Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive	33070	**available**	2017-11-16 13:57:21
Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive	33080	**available**	2017-11-16 13:57:21
UL data compression in LTE	27180	**available**	2017-11-16 14:07:12
MAC general aspects	38800	**not treated**	2017-11-16 14:08:32
UL data compression in LTE	37680	**available**	2017-11-16 14:10:23
UL data compression in LTE	37690	**available**	2017-11-16 14:14:24
Potential enhancements solutions	35260	**available**	2017-11-16 14:14:41
Potential enhancements solutions	35390	**available**	2017-11-16 14:17:04
WI: Shortened TTI and processing time for LTE	33230	**noted**	2017-11-16 14:18:42
WI: Shortened TTI and processing time for LTE	33170	**not treated**	2017-11-16 14:18:42
WI: Shortened TTI and processing time for LTE	33190	**not treated**	2017-11-16 14:18:42
WI: Shortened TTI and processing time for LTE	33180	**noted**	2017-11-16 14:18:42
WI: Shortened TTI and processing time for LTE	33280	**not treated**	2017-11-16 14:18:42
WI: Shortened TTI and processing time for LTE	38130	**not treated**	2017-11-16 14:18:42
WI: Shortened TTI and processing time for LTE	38820	**not treated**	2017-11-16 14:18:42
WI: Shortened TTI and processing time for LTE	24560	**noted**	2017-11-16 14:18:42
WI: Shortened TTI and processing time for LTE	39280	**not treated**	2017-11-16 14:18:42
Handover simulation results	33300	**available**	2017-11-16 14:18:43
Handover simulation results	33320	**available**	2017-11-16 14:18:43
Mobility related field trial result	34490	**available**	2017-11-16 14:18:43
Identify certification	34470	**available**	2017-11-16 14:18:43
WI: Shortened TTI and processing time for LTE	39290	**noted**	2017-11-16 14:18:43
Handover simulation results	33240	**noted**	2017-11-16 14:18:43
Handover simulation results	33250	**available**	2017-11-16 14:18:43
Identify certification	29450	**noted**	2017-11-16 14:18:43
Handover simulation results	34520	**available**	2017-11-16 14:18:43
Signalling overhead reduction for configuration activation	33350	**available**	2017-11-16 14:18:43
Delay reduction for SCell set-up	36200	**available**	2017-11-16 14:18:43
Signalling overhead reduction for configuration activation	34910	**available**	2017-11-16 14:18:43
Delay reduction for SCell set-up	31630	**noted**	2017-11-16 14:18:43
Highly Reliable Low Latency Communication for LTE	24570	**available**	2017-11-16 14:18:43
Highly Reliable Low Latency Communication for LTE	33370	**available**	2017-11-16 14:18:43
Highly Reliable Low Latency Communication for LTE	33390	**available**	2017-11-16 14:18:43
Highly Reliable Low Latency Communication for LTE	37080	**noted**	2017-11-16 14:18:43
Connection reconfiguration message and bearer handling	22190	**noted**	2017-11-16 14:21:14
Connection reconfiguration message and bearer handling	26660	**noted**	2017-11-16 14:21:14

Connection reconfiguration message and bearer handling	33440	**noted**	2017-11-16 14:21:14
Connection reconfiguration message and bearer handling	420800	**noted**	2017-11-16 14:21:14
Other aspects for EN-DC	26920	**available**	2017-11-16 14:21:14
SCG failure for EN-DC	33460	**available**	2017-11-16 14:21:14
Single Tx	33470	**available**	2017-11-16 14:21:14
Other (non EN-DC)	33480	**available**	2017-11-16 14:21:14
INCOMING LIAISONS	33490	**available**	2017-11-16 14:21:14
Other (non EN-DC)	33500	**available**	2017-11-16 14:21:14
Other (non EN-DC)	33510	**available**	2017-11-16 14:21:14
UL data compression in LTE	27150	**noted**	2017-11-16 14:24:56
UL data compression in LTE	27220	**noted**	2017-11-16 14:27:51
BSR	28270	**not treated**	2017-11-16 14:40:54
Other	30381	**revised**	2017-11-16 15:00:57
Connection reconfiguration message - L1 parameters	38580	**available**	2017-11-16 15:07:10
UL data compression in LTE	28780	**available**	2017-11-16 15:26:03
TDD	31950	**available**	2017-11-16 15:35:08
UE capability coordination	33590	**available**	2017-11-16 15:40:55
TDD	33600	**available**	2017-11-16 15:41:43
RRM measurements	22390	**noted**	2017-11-16 15:46:11
Random access in presence of multi-beam operation	29040	**not treated**	2017-11-16 15:46:44
Service based reselection	33630	**available**	2017-11-16 15:50:31
Cell quality derivation	33640	**available**	2017-11-16 15:51:12
Idle/inactive paging	33650	**available**	2017-11-16 15:53:19
Random access procedures	29100	**not treated**	2017-11-16 15:54:21
Random access procedures	29770	**not treated**	2017-11-16 15:57:15
Other aspects related to RA	23730	**not treated**	2017-11-16 16:00:34
On demand system information	33690	**available**	2017-11-16 16:03:06
Idle/inactive paging	33700	**available**	2017-11-16 16:06:16
Random access procedures	38090	**not treated**	2017-11-16 16:08:15
Other aspects related to RA	24320	**not treated**	2017-11-16 16:10:53
System information scheduling	33730	**available**	2017-11-16 16:12:46
System information -other	33740	**available**	2017-11-16 16:15:03
System information modification	33750	**available**	2017-11-16 16:17:07
Idle/inactive paging	33760	**available**	2017-11-16 16:18:57

Control plane	0	agreed	2017-11-16 16:20:08
Other	29170	noted	2017-11-16 16:21:21
Security for EN-DC	33790	noted	2017-11-16 16:21:21
Random access in presence of multi-beam operation	33620	noted	2017-11-16 16:21:21
Random access procedures	39390	not treated	2017-11-16 16:21:21
UL data split	28180	noted	2017-11-16 16:21:21
Other	37270	not treated	2017-11-16 16:21:21
Control plane	33840	revised	2017-11-16 16:24:22
Control plane	33850	noted	2017-11-16 16:26:56
Control plane	33860	available	2017-11-16 16:28:38
Radio resource pool sharing between UEs using mode 3 and mode 4	27480	available	2017-11-16 16:31:59
Connection reconfiguration message and bearer handling	33880	noted	2017-11-16 16:34:25
Other (for non EN-DC)	33890	available	2017-11-16 16:34:25
Connection reconfiguration message and bearer handling	26890	noted	2017-11-16 16:34:25
RRM measurements	28820	available	2017-11-16 16:34:25
Other (for EN-DCs)	33990	available	2017-11-16 16:34:25
SCG failure for EN-DC	33930	available	2017-11-16 16:34:25
SCG failure for EN-DC	33940	available	2017-11-16 16:34:25
SCG failure for EN-DC	33950	available	2017-11-16 16:34:25
Security for EN-DC	416600	available	2017-11-16 16:34:25
Other (for non EN-DC)	33970	available	2017-11-16 16:34:26
EN-DC - other aspects	32510	available	2017-11-16 16:34:26
Other (for EN-DCs)	34400	noted	2017-11-16 16:34:26
Other (for EN-DC)	34000	available	2017-11-16 16:34:26
Other (non EN-DC)	34010	available	2017-11-16 16:34:26
Mobility mechanisms - other	34020	available	2017-11-16 16:34:26
Mobility mechanisms - other	34030	available	2017-11-16 16:34:26
Others	34040	available	2017-11-16 16:37:57
Carrier aggregation (up to 8 PC5 carriers)	27500	available	2017-11-16 16:43:02
Mobility without RRC involvement	25630	revised	2017-11-16 16:43:28
Others	34070	available	2017-11-16 16:51:05
Potential enhancements for UAV interference problem	34080	noted	2017-11-16 17:00:07
Identify certification	29910	available	2017-11-16 17:00:07
Potential enhancements for UAV interference problem	34100	noted	2017-11-16 17:00:07
Other	28840	noted	2017-11-16 17:00:07
Mobility without RRC involvement	36880	available	2017-11-16 17:00:07

In principle agreed CRs	34130	**agreed**	2017-11-16 17:00:07
Mobility without RRC involvement	37340	**available**	2017-11-16 17:00:08
Measurement events	34150	**available**	2017-11-16 17:00:08
Semi-Persistent Scheduling	34160	**available**	2017-11-16 17:17:30
Other	23310	**available**	2017-11-16 17:17:30
Other	23320	**available**	2017-11-16 17:17:30
Other	31940	**available**	2017-11-16 17:17:30
Enhancement to solve the problem of critical data discard	27280	**noted**	2017-11-16 17:17:30
Enhancement to solve the problem of critical data discard	27260	**available**	2017-11-16 17:17:30
Enhancement to solve the problem of critical data discard	34230	**available**	2017-11-16 17:17:30
Enhancement to solve the problem of critical data discard	34240	**available**	2017-11-16 17:17:31
Enhancement to solve the problem of critical data discard	36850	**available**	2017-11-16 17:17:32
LTE TEI15 enhancements	39250	**available**	2017-11-16 17:19:20
Measurement gaps	22700	**noted**	2017-11-16 17:19:46
RRM TP	35980	**available**	2017-11-16 17:21:51
Temporary capability restriction	34280	**available**	2017-11-16 17:22:48
Other aspects for non EN-DC	34290	**available**	2017-11-16 17:22:48
Connection reconfiguration message - L1 parameters	22870	**noted**	2017-11-16 17:22:48
MN/SN procedures for EN-DC	24410	**available**	2017-11-16 17:22:48
UE capability structure	32110	**available**	2017-11-16 17:22:48
System information content/structure	34330	**available**	2017-11-16 17:41:21
Bearer type harmonisation	39060	**withdrawn**	2017-11-16 17:43:37
Other	29090	**not treated**	2017-11-16 17:43:37
MN/SN procedures for EN-DC	34360	**available**	2017-11-16 17:43:37
Connection reconfiguration message - L1 parameters	33560	**noted**	2017-11-16 17:43:37
Other (for EN-DCs)	34410	**noted**	2017-11-16 17:43:37
Other (for EN-DCs)	23720	**noted**	2017-11-16 17:43:37
Other (for EN-DCs)	24140	**agreed**	2017-11-16 17:43:37
Other (for EN-DCs)	26640	**agreed**	2017-11-16 17:43:37
Other (for EN-DCs)	34420	**noted**	2017-11-16 17:43:37
Other	23670	**noted**	2017-11-16 17:43:37
Stored system information	34440	**available**	2017-11-16 17:44:08
Security framework for inactive	34450	**available**	2017-11-16 17:46:33
Security framework for inactive	34460	**available**	2017-11-16 17:48:37
Identify certification	34880	**available**	2017-11-16 17:48:49
Inactive - other	34480	**available**	2017-11-16 17:50:24
Mobility related field trial result	33260	**available**	2017-11-16 18:17:05
LTE TEI15 enhancements	35240	**noted**	2017-11-16 18:26:54
Potential enhancements solutions	23060	**noted**	2017-11-16 18:29:03
Handover simulation results	35370	**available**	2017-11-16 18:47:24

Other LTE Rel-14 WIs	34530	**not pursued**	2017-11-16 19:01:30
Inter-Node RRC messages	24250	**endorsed**	2017-11-16 19:01:31
Running CR	23090	**revised**	2017-11-16 19:01:31
Running CR	34560	**noted**	2017-11-16 19:01:32
Running CR	34570	**noted**	2017-11-16 19:01:32
TS	21640	**endorsed**	2017-11-16 19:04:30
TS	34590	**not treated**	2017-11-16 19:04:32
LTE TEI15 enhancements	37090	**available**	2017-11-16 19:13:27
LTE TEI15 enhancements	37110	**available**	2017-11-16 19:22:13
MAC general aspects	23260	**noted**	2017-11-16 19:45:23
MAC general aspects	24330	**revised**	2017-11-16 19:45:23
Other	37310	**available**	2017-11-16 19:45:23
Other	38360	**available**	2017-11-16 19:45:23
DRX	29690	**not treated**	2017-11-16 19:45:23
LCP	34670	**not treated**	2017-11-16 19:45:23
DRX	38670	**not treated**	2017-11-16 19:45:23
DRX	24420	**revised**	2017-11-16 19:45:23
DRX	28580	**not treated**	2017-11-16 19:45:23
DRX	23180	**noted**	2017-11-16 19:45:23
Differentiation of RA parameters	34720	**not treated**	2017-11-16 19:45:23
MAC PDU format	28300	**noted**	2017-11-16 19:45:23
Random access procedures	29060	**not treated**	2017-11-16 19:45:23
Other aspects related to RA	27620	**not treated**	2017-11-16 19:45:23
Other aspects related to RA	34760	**not treated**	2017-11-16 19:45:23
Other aspects related to RA	22790	**not treated**	2017-11-16 19:45:23
Other aspects related to RA	27830	**not treated**	2017-11-16 19:45:23
Random access in presence of multi-beam operation	38920	**noted**	2017-11-16 19:45:23
SR	27840	**not treated**	2017-11-16 19:45:23
Other	36580	**not treated**	2017-11-16 19:45:24
Connection reconfiguration message - L2 parameters	34820	**not treated**	2017-11-16 19:45:24
BSR	38050	**not treated**	2017-11-16 19:45:24
PHR	28600	**noted**	2017-11-16 19:45:24
PHR	31760	**not treated**	2017-11-16 19:45:24
PHR	30020	**noted**	2017-11-16 19:45:24
Other (for EN-DCs)	34970	**noted**	2017-11-16 19:45:24
Identify certification	35460	**available**	2017-11-16 19:46:34
In principle agreed CRs	0	**revised**	2017-11-16 20:16:27
EN-DC - other aspects	33980	**available**	2017-11-16 20:21:44
Signalling overhead reduction for configuration activation	31650	**available**	2017-11-16 20:53:52
Other	32610	**not pursued**	2017-11-16 21:13:38
Autonomous uplink access on Frame structure type 3	36460	**available**	2017-11-16 21:13:39

Idle/inactive paging	34940	**available**	2017-11-16 21:36:26
Idle/inactive paging	34950	**available**	2017-11-16 21:43:02
Idle/inactive paging	34960	**available**	2017-11-16 22:03:34
Other (for EN-DCs)	34971	**revised**	2017-11-16 22:13:47
Inter-Node RRC messages	28260	**noted**	2017-11-16 22:16:14
Other aspects for non EN-DC	34990	**available**	2017-11-16 22:16:16
Specification methodology	25410	**noted**	2017-11-16 22:16:16
UE capability coordination	35010	**available**	2017-11-16 22:16:16
Access/load control of idle mode UEs	26400	**available**	2017-11-16 22:22:27
Early data transmission	31890	**available**	2017-11-16 22:24:18
Semi-Persistent Scheduling	35040	**available**	2017-11-16 22:26:12
Other	35050	**not treated**	2017-11-16 22:29:40
Early data transmission	31850	**available**	2017-11-16 22:30:48
Potential enhancements solutions	32650	**available**	2017-11-16 22:33:17
Other	28680	**noted**	2017-11-16 22:35:12
Stage 2	35090	**revised**	2017-11-16 22:35:38
Stage 2	35100	**not treated**	2017-11-16 22:35:39
Others	35110	**available**	2017-11-16 22:35:39
Carrier aggregation (up to 8 PC5 carriers)	37070	**available**	2017-11-16 22:35:39
Carrier aggregation (up to 8 PC5 carriers)	26250	**noted**	2017-11-16 22:35:39

Radio resource pool sharing between UEs using mode 3 and mode 4	35140	available	2017-11-16 22:35:39
Carrier aggregation (up to 8 PC5 carriers)	21830	noted	2017-11-16 22:35:39
Carrier aggregation (up to 8 PC5 carriers)	27510	available	2017-11-16 22:35:39
Autonomous uplink access on Frame structure type 3	38150	available	2017-11-16 22:35:39
Autonomous uplink access on Frame structure type 3	38830	available	2017-11-16 22:35:39
Autonomous uplink access on Frame structure type 3	28930	noted	2017-11-16 22:35:39
Autonomous uplink access on Frame structure type 3	28940	available	2017-11-16 22:35:39
Autonomous uplink access on Frame structure type 3	34930	available	2017-11-16 22:35:39
Other operation on Frame structure type 3	35220	available	2017-11-16 22:35:39
LTE TEI15 enhancements	27100	available	2017-11-16 22:35:39
LTE TEI15 enhancements	27110	available	2017-11-16 22:35:40
LTE TEI15 enhancements	21980	noted	2017-11-16 22:35:41
Potential enhancements solutions	37880	available	2017-11-16 22:35:47
Other	31790	revised	2017-11-16 22:37:17
Access control	35280	available	2017-11-16 22:40:42
Other aspects related to RA	29050	not treated	2017-11-16 22:48:42
Connection reconfiguration message and bearer handling	35300	noted	2017-11-16 22:53:01
Other	34810	noted	2017-11-16 22:54:01
Other	30380	noted	2017-11-16 22:59:13
Mobility without RRC involvement	417800	available	2017-11-16 22:59:38
MAC PDU format	28230	revised	2017-11-16 23:07:28
MAC PDU format	35350	noted	2017-11-16 23:17:47
Potential enhancements for UAV interference problem	35360	endorsed	2017-11-16 23:26:48
Handover simulation results	38970	noted	2017-11-16 23:26:48
Mobility related field trial result	35380	noted	2017-11-16 23:26:48
Potential enhancements solutions	33130	available	2017-11-16 23:26:48
In principle agreed CRs	35400	agreed	2017-11-16 23:30:34
WI: Measurement Gap Enhancement for LTE	35660	withdrawn	2017-11-16 23:37:22
In principle agreed CRs	35420	agreed	2017-11-16 23:37:25
General	411300	revised	2017-11-16 23:38:13
Potential enhancements for UAV interference problem	29010	endorsed	2017-11-16 23:39:36
In principle agreed CRs	35450	agreed	2017-11-16 23:40:02
Identify certification	415300	available	2017-11-16 23:41:20
Access control	35470	available	2017-11-16 23:45:24
Other aspects for non EN-DC	35480	available	2017-11-16 23:46:38
Other	35490	not pursued	2017-11-16 23:46:49
Other	35500	not pursued	2017-11-16 23:46:50
Other	35510	revised	2017-11-16 23:46:51

MIB content	35520	**available**	2017-11-16 23:47:31
Connection control message harmonisation	35530	**available**	2017-11-16 23:48:44
System information scheduling	35540	**available**	2017-11-16 23:49:00
Measurement gaps	37390	**available**	2017-11-16 23:50:21
Stored system information	35560	**available**	2017-11-16 23:50:22
System information modification	35570	**available**	2017-11-16 23:52:07
Access control	35580	**available**	2017-11-16 23:52:55
Other	35590	**revised**	2017-11-16 23:55:10
Bearer type harmonisation	31510	**available**	2017-11-16 23:55:27
Other	35640	**withdrawn**	2017-11-16 23:58:21
Access control	35620	**available**	2017-11-16 23:58:32
Other	29270	**not treated**	2017-11-16 23:59:26
Other	35610	**revised**	2017-11-17 00:00:52
Access control	35650	**available**	2017-11-17 00:02:28
WI: Measurement Gap Enhancement for LTE	35410	**agreed**	2017-11-17 00:03:25
Impact of bandwidth parts	37330	**available**	2017-11-17 00:03:33
Impact of bandwidth parts	38850	**available**	2017-11-17 00:03:33
Slicing	35690	**available**	2017-11-17 00:03:33
System information modification	35700	**available**	2017-11-17 00:03:33
On demand system information	35710	**available**	2017-11-17 00:03:33
Inactive - other	35720	**available**	2017-11-17 00:03:33
Service based reselection	35730	**available**	2017-11-17 00:03:33
PHR	34860	**not treated**	2017-11-17 00:04:53
LTE TEI15 enhancements	29530	**noted**	2017-11-17 00:07:59
In principle agreed CRs	35760	withdrawn	2017-11-17 00:26:06
System information scheduling	35770	**available**	2017-11-17 00:29:30

In principle agreed CRs	34890	**endorsed**	2017-11-17 00:30:50
On demand system information	35790	**available**	2017-11-17 00:30:59
UL data split	29070	**noted**	2017-11-17 00:32:46
RLC AM operation	23200	**noted**	2017-11-17 00:32:46
Other	35820	**not treated**	2017-11-17 00:32:46
Header Format	35860	**not treated**	2017-11-17 00:32:46
PDCP duplication	35840	**not treated**	2017-11-17 00:32:46
Other	38380	**withdrawn**	2017-11-17 00:32:46
Header Format	36690	**not treated**	2017-11-17 00:39:16
In principle agreed CRs	35780	**endorsed**	2017-11-17 00:41:27
Mobility - RLM,RLF	35880	**available**	2017-11-17 00:43:03
RRM TP	24150	**revised**	2017-11-17 00:43:03
RRM TP	26470	**noted**	2017-11-17 00:43:03
RRM TP	37350	**available**	2017-11-17 00:43:03
RRM TP	412700	**available**	2017-11-17 00:43:03
Other (for EN-DC)	35930	**available**	2017-11-17 00:43:03
EN-DC - other aspects	34900	**available**	2017-11-17 00:43:03
EN-DC - other aspects	35940	**available**	2017-11-17 00:43:04
Other (for EN-DC)	35960	**available**	2017-11-17 00:43:04
Stage 2 corrections	31410	**noted**	2017-11-17 00:43:04
RRM TP	27660	**noted**	2017-11-17 00:43:04
Measurement events	35990	**available**	2017-11-17 00:43:04
Other (for EN-DC)	36000	**available**	2017-11-17 00:43:04
Other (for non EN-DC)	36010	**available**	2017-11-17 00:43:04
Other (for non EN-DC)	36020	**available**	2017-11-17 00:43:04
Other (for non EN-DC)	36030	**available**	2017-11-17 00:43:04
Beam selection for HO access	39090	withdrawn	2017-11-17 00:43:04
Mobility mechanisms - other	36050	**available**	2017-11-17 00:43:04

Mobility mechanisms - other	36060	**available**	2017-11-17 00:43:04
Mobility mechanisms - other	36070	**available**	2017-11-17 00:43:04
Mobility mechanisms - other	36080	**available**	2017-11-17 00:43:04
Other	36090	**not treated**	2017-11-17 00:43:29
Stage 2 aspects independent from NR/5GC	22610	**available**	2017-11-17 00:49:00
Stage 2 aspects independent from NR/5GC	416300	**available**	2017-11-17 00:52:18
Other	38370	**available**	2017-11-17 00:52:32
TS	36130	**available**	2017-11-17 00:53:56
Inactive - other	36140	**available**	2017-11-17 00:54:31
Slicing	36150	**available**	2017-11-17 00:55:43
Inactive - other	36160	**available**	2017-11-17 00:56:48
Inactive - other	36170	**available**	2017-11-17 00:58:36
Paging in inactive	36180	**available**	2017-11-17 01:00:31
Inactive - other	36190	**available**	2017-11-17 01:02:36
Delay reduction for SCell set-up	36210	**available**	2017-11-17 01:04:05
Delay reduction for SCell set-up	36230	**available**	2017-11-17 01:04:05
Delay reduction for SCell set-up	31620	**available**	2017-11-17 01:04:05
Delay reduction for SCell set-up	423900	**available**	2017-11-17 01:04:05
In principle agreed CRs	32220	**agreed**	2017-11-17 01:04:05
In principle agreed CRs	36240	**agreed**	2017-11-17 01:04:07
Other	36260	**not pursued**	2017-11-17 01:04:08
Other	36270	**not treated**	2017-11-17 01:04:09
Supplementary uplink	417700	**available**	2017-11-17 01:04:10
TS	36290	**revised**	2017-11-17 01:04:10
TS	36300	**noted**	2017-11-17 01:04:13
RAN area update procedure	36310	**available**	2017-11-17 01:04:13
Stage 2 aspects dependent on NR/5GC	36320	**available**	2017-11-17 01:05:34
Random access procedures	406900	**not treated**	2017-11-17 01:06:26
Stage 2 aspects dependent on NR/5GC	36340	**available**	2017-11-17 01:06:46
Other (for non EN-DC)	36350	**available**	2017-11-17 01:07:53
System information content/structure	36360	**available**	2017-11-17 01:07:53
Stored system information	36370	**available**	2017-11-17 01:07:53
On demand system information	36380	**available**	2017-11-17 01:07:53
Other	28060	**available**	2017-11-17 01:07:53
SCG failure for EN-DC	36400	**available**	2017-11-17 01:07:54
PDCP duplication	36410	**not treated**	2017-11-17 01:08:11
PHR	35740	**not treated**	2017-11-17 01:09:40
Connection control message harmonisation	36430	**available**	2017-11-17 01:09:49
Early data transmission	31910	**available**	2017-11-17 01:10:18
PHR	36420	**not treated**	2017-11-17 01:10:22

Autonomous uplink access on Frame structure type 3	35180	available	2017-11-17 01:10:44
Other	36470	not treated	2017-11-17 01:10:46
Other	36480	not treated	2017-11-17 01:12:17
Early data transmission	35030	available	2017-11-17 01:12:18
SPS/Grant-free	36500	not treated	2017-11-17 01:13:04
Security framework for inactive	36510	available	2017-11-17 01:13:14
ANY OTHER BUSINESS	36520	approved	2017-11-17 01:13:24
Semi-Persistent Scheduling	36530	available	2017-11-17 01:13:44
Other	38180	not treated	2017-11-17 01:14:48
Other	38950	not treated	2017-11-17 01:15:46
Mobility without RRC involvement	424800	withdrawn	2017-11-17 01:16:17
Other	26900	agreed	2017-11-17 01:17:25
Other	39240	withdrawn	2017-11-17 01:19:26
Other	36590	not treated	2017-11-17 01:21:22
TS	28070	endorsed	2017-11-17 01:22:05
UL data split	21860	noted	2017-11-17 01:22:07
UL data split	24790	not treated	2017-11-17 01:22:07
UL data split	24800	noted	2017-11-17 01:22:07
In principle agreed CRs	36640	agreed	2017-11-17 01:22:31
UL data split	29310	noted	2017-11-17 01:23:04
Other	36660	not treated	2017-11-17 01:23:16
Other	36670	not treated	2017-11-17 01:25:30
Other	36680	not treated	2017-11-17 01:27:16
Header Format	39340	not treated	2017-11-17 01:28:28
Others	36700	available	2017-11-17 01:30:27
Other	30420	not pursued	2017-11-17 01:31:38
Other	30430	not pursued	2017-11-17 01:33:27
L3 filter configuration	25500	noted	2017-11-17 01:34:09
L3 filter configuration	26490	noted	2017-11-17 01:35:03
Other (for EN-DC)	36750	available	2017-11-17 01:35:58
Stage 2 corrections	35970	noted	2017-11-17 01:36:14
Other (for EN-DC)	36770	available	2017-11-17 01:37:19
System acquisition time enhancements	31090	available	2017-11-17 01:38:01
Early data transmission	26390	available	2017-11-17 01:39:44
Inter-Node RRC messages	36800	available	2017-11-17 01:40:01
LTE TEI15 enhancements	39260	available	2017-11-17 01:42:33
RLC AM operation	36820	not treated	2017-11-17 01:42:46
LTE TEI15 enhancements	408700	available	2017-11-17 01:45:19
Single Tx	28480	available	2017-11-17 01:48:05
Enhancement to solve the problem of critical data discard	27270	available	2017-11-17 01:49:45
Enhancement to solve the problem of critical data discard	36860	available	2017-11-17 01:52:10
BSR	419000	not treated	2017-11-17 01:52:40
Mobility without RRC involvement	37380	available	2017-11-17 01:53:05

Enhancement to solve the problem of critical data discard	36890	**available**	2017-11-17 01:55:28
Organisational	415100	**not treated**	2017-11-17 01:57:32
Organisational	415600	**revised**	2017-11-17 01:57:33
Other (non EN-DC)	36920	**available**	2017-11-17 01:59:22
Other (for non EN-DC)	36930	**available**	2017-11-17 01:59:22
Access control	36940	**available**	2017-11-17 01:59:22
Idle/inactive paging	36950	**available**	2017-11-17 01:59:22
Other (non EN-DC)	36960	**available**	2017-11-17 01:59:22
On demand system information	36970	**available**	2017-11-17 01:59:22
System information modification	36980	**available**	2017-11-17 01:59:22
Access control	36990	**available**	2017-11-17 01:59:22
Inactive - other	37000	**available**	2017-11-17 01:59:22
Mobility mechanisms - other	37010	**available**	2017-11-17 01:59:22
Access control	37020	**available**	2017-11-17 01:59:22
Paging in inactive	37030	**available**	2017-11-17 01:59:22
System information scheduling	37040	**available**	2017-11-17 01:59:22
System information -other	37050	**available**	2017-11-17 01:59:22
Supplementary uplink	39460	**available**	2017-11-17 01:59:22
Carrier aggregation (up to 8 PC5 carriers)	38230	**available**	2017-11-17 01:59:22
Highly Reliable Low Latency Communication for LTE	37160	**available**	2017-11-17 02:00:11
LTE TEI15 enhancements	34600	**available**	2017-11-17 02:01:35
Organisational	37100	**noted**	2017-11-17 02:01:47
LTE TEI15 enhancements	34610	**available**	2017-11-17 02:04:27
In principle agreed CRs	0	**revised**	2017-11-17 02:04:33
Early data transmission	31900	**available**	2017-11-17 02:05:36
Other	29300	**not treated**	2017-11-17 02:07:22
Other	33830	**not treated**	2017-11-17 02:09:46
Highly Reliable Low Latency Communication for LTE	21900	**available**	2017-11-17 02:11:55
Other	34920	**noted**	2017-11-17 02:20:05
Other	37170	**not treated**	2017-11-17 02:23:18
Cell quality derivation	37190	**available**	2017-11-17 02:28:12
Other (for EN-DC)	37200	**available**	2017-11-17 02:28:12
Other (non EN-DC)	37210	**available**	2017-11-17 02:28:12
RRM measurements	418700	**available**	2017-11-17 02:28:12
On demand system information	37230	**available**	2017-11-17 02:28:12
Delay reduction for SCell set-up	36220	**available**	2017-11-17 02:28:12
Service based reselection	37250	**available**	2017-11-17 02:28:12
Stored system information	37260	**available**	2017-11-17 02:28:12
Other	38270	**not treated**	2017-11-17 02:49:45
Bearer type harmonisation	39010	**noted**	2017-11-17 03:00:29
Impact of bandwidth parts	23220	**available**	2017-11-17 03:00:29
Other	38640	**available**	2017-11-17 03:00:29
Other	34640	**noted**	2017-11-17 03:14:49

Idle/inactive paging	37320	**available**	2017-11-17 03:17:51
Impact of bandwidth parts	26010	**available**	2017-11-17 03:35:01
Mobility without RRC involvement	37920	**available**	2017-11-17 03:35:01
RRM TP	35890	**available**	2017-11-17 03:35:01
Measurement events	37360	**noted**	2017-11-17 03:35:01
Measurement gaps	37400	**available**	2017-11-17 03:35:01
Mobility without RRC involvement	25620	**noted**	2017-11-17 03:35:01
Measurement gaps	25510	**available**	2017-11-17 03:35:01
Measurement gaps	25690	**available**	2017-11-17 03:35:01
Other (for EN-DC)	37410	**available**	2017-11-17 03:35:01
Stage 2 aspects independent from NR/5GC	32690	**available**	2017-11-17 03:42:19
Idle/inactive paging	37430	**available**	2017-11-17 03:52:58
RAN area update procedure	37440	**available**	2017-11-17 03:55:21
Stage 2 aspects independent from NR/5GC	28640	**available**	2017-11-17 03:57:53
Idle/inactive paging	37460	**available**	2017-11-17 03:58:41
Mobility mechanisms - other	37470	**available**	2017-11-17 04:01:24
Radio resource pool sharing between UEs using mode 3 and mode 4	37480	withdrawn	2017-11-17 04:07:36
Radio resource pool sharing between UEs using mode 3 and mode 4	37490	**available**	2017-11-17 04:07:59
Radio resource pool sharing between UEs using mode 3 and mode 4	37500	**available**	2017-11-17 04:12:17
Radio resource pool sharing between UEs using mode 3 and mode 4	37510	**available**	2017-11-17 04:14:11
Slicing	37520	**available**	2017-11-17 04:14:13
Other (non EN-DC)	37530	**available**	2017-11-17 04:14:13
Early data transmission	37130	**available**	2017-11-17 04:14:13
Access/load control of idle mode UEs	31120	**available**	2017-11-17 04:14:13
Other	37560	**available**	2017-11-17 04:14:13
Stage 2 aspects dependent on NR/5GC	37570	**available**	2017-11-17 04:14:13
Early data transmission	37540	**available**	2017-11-17 04:14:13
Others	37590	**available**	2017-11-17 04:16:02
Selection/reselection - other aspects	37600	**available**	2017-11-17 04:20:41
Mobility - Inter-RAT	37610	**available**	2017-11-17 04:20:41
Selection/reselection - other aspects	37620	**available**	2017-11-17 04:20:41
System acquisition time enhancements	31920	**available**	2017-11-17 04:20:41
System acquisition time enhancements	31100	**available**	2017-11-17 04:20:41

Relaxed Monitoring for cell reselection	30110	**noted**	2017-11-17 04:20:41
Others	37660	**available**	2017-11-17 04:21:40
UL data compression in LTE	33570	**available**	2017-11-17 04:26:50
UL data compression in LTE	37670	**available**	2017-11-17 04:26:50
UL data compression in LTE	39040	**available**	2017-11-17 04:26:50
Local caching for UE assistance video request	37700	**available**	2017-11-17 04:27:29
Local caching for UE assistance video request	37710	**available**	2017-11-17 04:29:47
Other (non EN-DC)	37720	**available**	2017-11-17 04:30:37
EN-DC - other aspects	35950	**available**	2017-11-17 04:30:37
PHR	31770	**not treated**	2017-11-17 04:30:37
PHR	36450	**not treated**	2017-11-17 04:30:37
PHR	37740	**not treated**	2017-11-17 04:30:37
Other (non EN-DC)	37770	**available**	2017-11-17 04:30:37
Other (for non EN-DC)	37780	**available**	2017-11-17 04:30:37
Local caching for UE assistance video request	37790	**available**	2017-11-17 04:31:43
Local caching for UE assistance video request	37800	**available**	2017-11-17 04:33:52
Idle/inactive paging	37810	**available**	2017-11-17 04:34:00
MN/SN procedures for EN-DC	37820	**available**	2017-11-17 04:34:38
Mobility mechanisms - other	37830	**available**	2017-11-17 04:34:38
Wake Up Signal	37840	withdrawn	2017-11-17 04:34:38
Early data transmission	35060	**available**	2017-11-17 04:34:38
Wake Up Signal	37860	withdrawn	2017-11-17 04:34:38
Early data transmission	37580	**available**	2017-11-17 04:34:38
Potential enhancements solutions	37890	**available**	2017-11-17 04:34:38
Potential enhancements solutions	37900	**available**	2017-11-17 04:34:38
Potential enhancements solutions	34510	**available**	2017-11-17 04:34:39
Highly Reliable Low Latency Communication for LTE	21880	**noted**	2017-11-17 04:34:44
Mobility without RRC involvement	37930	**available**	2017-11-17 04:35:30
Mobility without RRC involvement	28710	**available**	2017-11-17 04:35:30
Cell quality derivation	37940	**available**	2017-11-17 04:35:30
Selection/reselection rules	37950	**available**	2017-11-17 04:35:30
Mobility without RRC involvement	37960	**available**	2017-11-17 04:35:30
Mobility without RRC involvement	37970	**available**	2017-11-17 04:35:30
Selection/reselection - other aspects	37980	**available**	2017-11-17 04:35:30
Selection/reselection - other aspects	37990	**available**	2017-11-17 04:36:58
Differentiation of RA parameters	38000	**not treated**	2017-11-17 04:38:56

EN-DC - other aspects	37730	**available**	2017-11-17 04:38:56
DRX	29750	**not treated**	2017-11-17 04:38:57
DRX	39410	**not treated**	2017-11-17 04:38:57
PHR	37750	**not treated**	2017-11-17 04:38:57
BSR	28280	**not treated**	2017-11-17 04:38:57
MAC general aspects	33100	**not treated**	2017-11-17 04:38:57
HARQ	38100	**not treated**	2017-11-17 04:38:57
Random access in presence of multi-beam operation	404700	**not treated**	2017-11-17 04:38:57
Random access procedures	27850	**noted**	2017-11-17 04:38:57
Supplementary uplink	39550	**available**	2017-11-17 04:38:57
Selection/reselection - other aspects	38110	**available**	2017-11-17 04:39:58
Relaxed Monitoring for cell reselection	30170	**merged**	2017-11-17 04:41:32
WI: Shortened TTI and processing time for LTE	39300	**not treated**	2017-11-17 04:43:00
Relaxed Monitoring for cell reselection	30230	**merged**	2017-11-17 04:44:02
Autonomous uplink access on Frame structure type 3	28960	**available**	2017-11-17 04:46:26
System acquisition time enhancements	31110	**available**	2017-11-17 04:47:07
User plane	38170	**agreed**	2017-11-17 04:49:33
Other	35270	**noted**	2017-11-17 04:49:52
Other (for EN-DC)	38190	**available**	2017-11-17 04:51:06
Mobility mechanisms - other	38200	**available**	2017-11-17 04:51:06
Measurement gaps	38210	**available**	2017-11-17 04:51:06
Radio resource pool sharing between UEs using mode 3 and mode 4	38220	**available**	2017-11-17 04:51:06
Carrier aggregation (up to 8 PC5 carriers)	38280	**available**	2017-11-17 04:51:06
Others	38240	**available**	2017-11-17 04:51:06
Control plane	38250	**noted**	2017-11-17 04:51:06
Control plane	38350	withdrawn	2017-11-17 04:51:06
Other	26910	**noted**	2017-11-17 04:51:52
Carrier aggregation (up to 8 PC5 carriers)	38340	**available**	2017-11-17 04:53:32
PDCP duplication	38290	**not treated**	2017-11-17 04:55:58
PDCP duplication	38300	**not treated**	2017-11-17 04:55:58
PDCP duplication	38310	**not treated**	2017-11-17 04:55:58
Impact of PDCP duplication to RLC	38320	**not treated**	2017-11-17 04:55:58
Impact of PDCP duplication to RLC	38330	**not treated**	2017-11-17 04:55:58
Carrier aggregation (up to 8 PC5 carriers)	38390	**available**	2017-11-17 04:56:10
Control plane	38260	**not treated**	2017-11-17 05:03:25
Bearer type change	23250	**available**	2017-11-17 05:06:53
Other	38760	withdrawn	2017-11-17 05:07:05
Other	31480	**noted**	2017-11-17 05:07:07
Carrier aggregation (up to 8 PC5 carriers)	38410	**available**	2017-11-17 05:08:05

System acquisition time enhancements	38160	**available**	2017-11-17 05:12:18
Carrier aggregation (up to 8 PC5 carriers)	38740	**available**	2017-11-17 05:17:53
Other (for non EN-DC)	38420	**available**	2017-11-17 05:20:45
Mobility mechanisms - other	38430	**available**	2017-11-17 05:20:45
Other (for non EN-DC)	38440	**available**	2017-11-17 05:20:45
Other (for non EN-DC)	38450	**available**	2017-11-17 05:20:45
Other (for non EN-DC)	38460	**available**	2017-11-17 05:20:45
SPS/Grant-free	38470	**not treated**	2017-11-17 05:20:45
Mobility mechanisms - other	38480	**available**	2017-11-17 05:20:45
Other (for non EN-DC)	38490	**available**	2017-11-17 05:20:45
Mobility mechanisms - other	38500	**available**	2017-11-17 05:21:47
MAC general aspects	38060	**not treated**	2017-11-17 05:22:08
QoS	38520	**available**	2017-11-17 05:23:40
Mobility mechanisms - other	38530	withdrawn	2017-11-17 05:23:48
Mobility mechanisms - other	38540	**available**	2017-11-17 05:24:12
Mobility mechanisms - other	38550	withdrawn	2017-11-17 05:25:40
Mobility mechanisms - other	38560	**available**	2017-11-17 05:26:20
Mobility mechanisms - other	38570	**available**	2017-11-17 05:27:33
Connection reconfiguration message - L1 parameters	38600	**noted**	2017-11-17 05:28:59
Connection reconfiguration message - L1 parameters	418400	withdrawn	2017-11-17 05:31:19
Connection reconfiguration message - L1 parameters	39510	**noted**	2017-11-17 05:31:36
System information modification	38610	**available**	2017-11-17 05:34:00
Early data transmission	37850	**available**	2017-11-17 05:36:26
TS	38630	**not treated**	2017-11-17 05:39:01
Other	37300	**available**	2017-11-17 05:39:01
Impact of bandwidth parts	38650	**available**	2017-11-17 05:42:55
Slicing	38660	**available**	2017-11-17 05:42:55
DRX	23190	**noted**	2017-11-17 05:42:55
Connection reconfiguration message - L1 parameters	34300	**noted**	2017-11-17 05:42:55
Other (for EN-DC)	38690	**available**	2017-11-17 05:42:55
Other (for EN-DC)	38700	**available**	2017-11-17 05:42:55
Other (for non EN-DC)	38710	**available**	2017-11-17 05:42:55
Other (for non EN-DC)	38720	**available**	2017-11-17 05:42:55
Idle/inactive paging	38730	**available**	2017-11-17 05:42:55
Carrier aggregation (up to 8 PC5 carriers)	413100	**available**	2017-11-17 05:48:44
WI: Voice and Video enhancement for LTE	38750	**revised**	2017-11-17 05:52:21
Other	33780	**noted**	2017-11-17 05:52:44
Increased PUSCH spectral efficiency	30650	**available**	2017-11-17 05:52:46

Other (non EN-DC)	38780	available	2017-11-17 05:56:48
MAC general aspects	28350	noted	2017-11-17 05:59:26
MAC general aspects	32280	revised	2017-11-17 05:59:26
HARQ	406000	not treated	2017-11-17 05:59:26
WI: Shortened TTI and processing time for LTE	39310	not treated	2017-11-17 05:59:26
Autonomous uplink access on Frame structure type 3	28950	noted	2017-11-17 05:59:26
Other (non EN-DC)	38840	available	2017-11-17 06:01:17
Impact of bandwidth parts	22750	available	2017-11-17 06:02:18
Slicing	38860	available	2017-11-17 06:03:16
Measurement events	38870	available	2017-11-17 06:03:32
Mobility without RRC involvement	38880	available	2017-11-17 06:04:35
Slicing	38890	available	2017-11-17 06:04:38
Mobility without RRC involvement	38900	available	2017-11-17 06:05:22
Other	38910	available	2017-11-17 06:06:05
Mobility without RRC involvement	38940	available	2017-11-17 06:07:17
Other (non EN-DC)	38930	available	2017-11-17 06:08:03
Mobility without RRC involvement	39100	available	2017-11-17 06:08:07
Other	39450	not treated	2017-11-17 06:09:16
Connection reconfiguration message - L1 parameters	38590	noted	2017-11-17 06:14:10
Handover simulation results	408800	available	2017-11-17 06:21:01
Mobility - RLM,RLF	38980	available	2017-11-17 06:31:06
SCG change for EN-DC	38990	available	2017-11-17 06:32:51
Stage 2 corrections	36760	revised	2017-11-17 06:48:28
Bearer type harmonisation	416500	withdrawn	2017-11-17 06:59:00
Connection reconfiguration message - L2 parameters	39020	not treated	2017-11-17 06:59:19
Access control	39030	available	2017-11-17 07:02:34
UL data compression in LTE	28090	noted	2017-11-17 07:11:19
LTE TEI15 enhancements	39050	available	2017-11-17 07:15:13
Bearer type harmonisation	34340	available	2017-11-17 07:19:27
UL data compression in LTE	27140	noted	2017-11-17 07:24:57
LTE TEI15 enhancements	39080	available	2017-11-17 07:28:50
Beam selection for HO access	36040	available	2017-11-17 07:31:43
Mobility without RRC involvement	39540	available	2017-11-17 07:31:43
Others	39110	noted	2017-11-17 07:49:25

System information -other	39120	available	2017-11-17 07:51:30
System information -other	39130	available	2017-11-17 07:51:30
System information -other	39140	available	2017-11-17 07:51:30
System information -other	39150	available	2017-11-17 07:51:30
Other (for non EN-DC)	39160	available	2017-11-17 07:56:55
SPS/Grant-free	31740	not treated	2017-11-17 07:58:58
Measurement gaps	39180	available	2017-11-17 08:00:08
SCG failure for EN-DC	39190	withdrawn	2017-11-17 08:01:09
Mobility - Inter-RAT	39200	available	2017-11-17 08:04:16
RRM measurements	32270	noted	2017-11-17 08:05:51
Specification methodology	417700	available	2017-11-17 08:06:17
SCG failure for EN-DC	39230	available	2017-11-17 08:12:19
Other	27040	noted	2017-11-17 10:02:02
LTE TEI15 enhancements	26160	noted	2017-11-17 10:54:54
LTE TEI15 enhancements	27090	available	2017-11-17 12:49:11
General	39270	noted	2017-11-17 17:00:52
WI: Shortened TTI and processing time for LTE	24440	noted	2017-11-17 17:08:55
WI: Shortened TTI and processing time for LTE	24450	noted	2017-11-17 17:11:20
WI: Shortened TTI and processing time for LTE	24460	noted	2017-11-17 17:13:13
WI: Shortened TTI and processing time for LTE	24470	noted	2017-11-17 20:16:18
Paging in inactive	39320	available	2017-11-17 21:47:19
Organisational	21580	noted	2017-11-18 10:58:51
Header Format	23770	not treated	2017-11-20 11:25:43
Inactive - other	39350	available	2017-11-20 11:40:13
In principle agreed CRs	37120	available	2017-11-20 11:54:16
Stage 2 corrections	39000	agreed	2017-11-21 11:14:36
SR	39380	available	2017-11-21 11:32:14
Random access procedures	33710	not treated	2017-11-21 11:38:27
Organisational	21450	noted	2017-11-21 13:20:22
DRX	27000	available	2017-11-21 15:03:57
Connection reconfiguration message - L1 parameters	32070	available	2017-11-22 09:07:49
TS	29800	not treated	2017-11-22 09:19:22
TS	39440	noted	2017-11-22 09:21:18
Other	35310	noted	2017-11-22 09:22:35

Supplementary uplink	28360	**available**	2017-11-22 09:28:20
Other (for EN-DC)	39470	**available**	2017-11-22 09:48:35
PHR	416700	**not treated**	2017-11-22 10:56:52
Running CR	34550	**revised**	2017-11-22 15:09:28
Other aspects for EN-DC	422600	**noted**	2017-11-22 15:11:18
Connection reconfiguration message - L1 parameters	39420	**noted**	2017-11-23 10:30:53
Organisational	21490	**noted**	2017-11-23 10:50:10
Potential enhancements solutions	24690	**noted**	2017-11-23 18:10:46
Mobility without RRC involvement	27540	**available**	2017-11-24 10:27:03
Supplementary uplink	38810	**available**	2017-11-24 10:29:33
Other	21990	**noted**	2017-11-24 10:37:34
Other	23140	**revised**	2017-11-17 20:47:55
Other	23130	**revised**	2017-11-17 20:47:55
Other	32160	**revised**	2017-11-17 20:47:55
WI: Narrowband IOT	0	**agreed**	2017-11-17 20:47:55
WI: Narrowband IOT	0	**agreed**	2017-11-17 20:47:55
Other	0	**agreed**	2017-11-17 20:47:55
In principle agreed CRs	0	**agreed**	2017-11-17 20:47:55
In principle agreed CRs	30891	**agreed**	2017-11-17 20:47:55
In principle agreed CRs	30911	**agreed**	2017-11-30 20:47:55
CLOSING OF THE MEETING (17:00)	396600	reserved	2017-12-05 21:08:14
Other	22921	**agreed**	2017-11-30 20:47:55
Other	22931	**agreed**	2017-11-30 20:47:55
Other	22941	**agreed**	2017-11-30 20:47:55
Other	0	**revised**	2017-11-30 20:47:55
Other	26351	**revised**	2017-11-30 20:47:55
Other	30411	**revised**	2017-11-30 20:47:55
Other	31011	**revised**	2017-11-30 20:47:55
Other	31021	**agreed**	2017-11-30 20:47:55
Other	31031	**agreed**	2017-11-30 20:47:55
Other	32231	**agreed**	2017-11-30 20:47:55

Other	32241	agreed	2017-11-30 20:47:55
In principle agreed CRs	22901	agreed	2017-11-30 20:47:55
Other	26331	revised	2017-11-30 20:47:55
Other	26381	agreed	2017-11-30 20:47:55
Other	29381	agreed	2017-11-30 20:47:55
Other	29391	agreed	2017-11-30 20:47:55
Other	0	revised	2017-11-30 20:47:55
Other	31041	agreed	2017-11-30 20:47:55
Other	30931	agreed	2017-11-30 20:47:55
Other	31001	agreed	2017-11-30 20:47:55
Relaxed Monitoring for cell reselection	30830	revised	2017-11-30 20:47:55
Relaxed Monitoring for cell reselection	30840	revised	2017-11-30 20:47:55
Relaxed Monitoring for cell reselection	30850	revised	2017-11-30 20:47:55
CLOSING OF THE MEETING (17:00)	399000	reserved	2017-12-05 21:08:45
In principle agreed CRs	30961	agreed	2017-11-30 20:47:55
Other	0	not pursued	2017-11-30 20:47:55
Organisational	416801	revised	2017-11-30 20:47:55
RRC Connection Release Enhancements	0	agreed	2017-11-30 20:47:55
Other	26321	postponed	2017-11-30 20:47:55
WI: Narrowband IOT	30011	revised	2017-11-30 20:47:55
Other	0	agreed	2017-11-30 20:47:55
Other	30412	agreed	2017-11-30 20:47:55
Other	31012	approved	2017-11-30 20:47:55
Other	32161	agreed	2017-11-30 20:47:55
Other	32182	revised	2017-11-30 20:47:55
Relaxed Monitoring for cell reselection	0	agreed	2017-11-30 20:47:55
Relaxed Monitoring for cell reselection	0	agreed	2017-11-30 20:47:55
Relaxed Monitoring for cell reselection	30851	revised	2017-11-30 20:47:55
Organisational	416800	endorsed	2017-11-30 20:47:55
Wake Up Signal	23341	revised	2017-11-30 20:47:55
Other	32183	agreed	2017-11-30 20:47:55
Wake Up Signal	23342	approved	2017-11-30 20:47:55

In principle agreed CRs	0	**agreed**	2017-11-30 20:47:55
In principle agreed CRs	0	**agreed**	2017-11-30 20:47:55
Control plane	26221	**noted**	2017-11-30 20:47:55
Organisational	21400	**revised**	2017-11-30 20:47:55
Access control	22211	**approved**	2017-11-30 20:47:55
System acquisition time enhancements	30521	**revised**	2017-11-30 20:47:55
System acquisition time enhancements	30521	**approved**	2017-11-30 20:47:55
CLOSING OF THE MEETING (17:00)	401600	reserved	2017-12-05 21:09:10
CLOSING OF THE MEETING (17:00)	401700	reserved	2017-12-05 21:09:11
CLOSING OF THE MEETING (17:00)	401800	reserved	2017-12-05 21:09:11
CLOSING OF THE MEETING (17:00)	401900	reserved	2017-12-05 21:09:12
CLOSING OF THE MEETING (17:00)	402000	reserved	2017-12-05 21:09:12
CLOSING OF THE MEETING (17:00)	402100	reserved	2017-12-05 21:09:12
CLOSING OF THE MEETING (17:00)	402200	reserved	2017-12-05 21:09:13
CLOSING OF THE MEETING (17:00)	402300	reserved	2017-12-05 21:09:13
CLOSING OF THE MEETING (17:00)	402400	reserved	2017-12-05 21:09:14
CLOSING OF THE MEETING (17:00)	402500	reserved	2017-12-05 21:09:14
CLOSING OF THE MEETING (17:00)	402600	reserved	2017-12-05 21:09:15
CLOSING OF THE MEETING (17:00)	402700	reserved	2017-12-05 21:09:15
CLOSING OF THE MEETING (17:00)	402800	reserved	2017-12-05 21:09:16
CLOSING OF THE MEETING (17:00)	402900	reserved	2017-12-05 21:09:16
CLOSING OF THE MEETING (17:00)	403000	reserved	2017-12-05 21:09:16
CLOSING OF THE MEETING (17:00)	403100	reserved	2017-12-05 21:09:17
CLOSING OF THE MEETING (17:00)	403200	reserved	2017-12-05 21:09:17
CLOSING OF THE MEETING (17:00)	403300	reserved	2017-12-05 21:09:18
L3 filter configuration	36730	**available**	2017-11-30 20:47:55
Control plane	33841	**revised**	2017-11-30 20:47:55
Other	24030	**agreed**	2017-11-30 20:47:55
Other	31520	**agreed**	2017-11-30 20:47:55
Other	0	**agreed**	2017-11-30 20:47:55
Control plane	27401	**revised**	2017-11-30 20:47:55

Uplink Capacity Enhancements for LTE	32421	agreed	2017-11-30 20:47:55
Uplink Capacity Enhancements for LTE	32431	agreed	2017-11-30 20:47:55
Other LTE Rel-14 WIs	26441	agreed	2017-11-30 20:47:55
CLOSING OF THE MEETING (17:00)	404300	reserved	2017-12-05 21:09:30
CLOSING OF THE MEETING (17:00)	404400	reserved	2017-12-05 21:09:31
MAC general aspects	31720	revised	2017-11-30 20:47:55
MAC general aspects	32281	agreed	2017-11-30 20:47:55
Random access in presence of multi-beam operation	34790	agreed	2017-11-30 20:47:55
Random access in presence of multi-beam operation	33800	revised	2017-11-30 20:47:55
MAC general aspects	31721	approved	2017-11-30 20:47:55
Random access in presence of multi-beam operation	33801	approved	2017-11-30 20:47:55
Stage 2	0	agreed	2017-11-30 20:47:55
SR	22841	agreed	2017-11-30 20:47:55
Stage 2	35091	agreed	2017-11-30 20:47:55
Other	35591	agreed	2017-11-30 20:47:55
Other	35611	agreed	2017-11-30 20:47:55
BSR	28140	noted	2017-11-30 20:47:55
LCP	23651	agreed	2017-11-30 20:47:55
SPS/Grant-free	0	agreed	2017-12-05 21:09:41
SPS/Grant-free	31730	revised	2017-11-30 20:47:55
HARQ	38070	revised	2017-11-30 20:47:55
HARQ	38071	approved	2017-11-30 20:47:55
SPS/Grant-free	31731	approved	2017-11-30 20:47:55
TS	39431	revised	2017-11-30 20:47:55
Control plane	27402	agreed	2017-11-30 20:47:55
Control plane	33842	agreed	2017-11-30 20:47:55
TS	29811	agreed	2017-11-30 20:47:55
PHR	24310	revised	2017-11-30 20:47:55
Other	23281	revised	2017-11-30 20:47:55
Random access procedures	28150	noted	2017-11-30 20:47:55
Other	31791	approved	2017-11-30 20:47:55
MAC PDU format	404500	noted	2017-11-30 20:47:55
TS	0	agreed	2017-11-30 20:47:55
Other	23282	agreed	2017-11-30 20:47:55
PHR	24311	approved	2017-11-30 20:47:55
INCOMING LIAISONS	407500	revised	2017-11-30 20:47:55
Security for EN-DC	24680	revised	2017-11-30 20:47:55
Security for EN-DC	26971	revised	2017-11-30 20:47:55
Single Tx	28490	revised	2017-11-30 20:47:55
Stage 2 TSs and running CR	23031	revised	2017-12-05 21:09:56

Stage 2 TSs and running CR	0	**agreed**	2017-12-05 21:10:00
UE capability and potential new categories	28991	**postponed**	2017-11-30 20:47:55
Corresponding higher-layer procedures and signalling	28981	**postponed**	2017-11-30 20:47:55
Local caching for UE assistance video request	32370	**revised**	2017-11-30 20:47:55
UL data compression in LTE	22450	**endorsed**	2017-11-30 20:47:55
UL data compression in LTE	27130	**endorsed**	2017-11-30 20:47:55
General	408600	**noted**	2017-11-30 20:47:55
LTE TEI15 enhancements	27080	**revised**	2017-11-30 20:47:55
Handover simulation results	0	**available**	2017-11-30 20:47:55
CLOSING OF THE MEETING (17:00)	408900	reserved	2017-12-05 21:10:11
BSR	0	**available**	2017-11-30 20:47:55
MAC general aspects	0	**available**	2017-11-30 20:47:55
CLOSING OF THE MEETING (17:00)	409200	reserved	2017-12-05 21:10:12
CLOSING OF THE MEETING (17:00)	409300	reserved	2017-12-05 21:10:13
CLOSING OF THE MEETING (17:00)	409400	reserved	2017-12-05 21:10:13
CLOSING OF THE MEETING (17:00)	409500	reserved	2017-12-05 21:10:14
CLOSING OF THE MEETING (17:00)	409600	reserved	2017-12-05 21:10:14
CLOSING OF THE MEETING (17:00)	409700	reserved	2017-12-05 21:10:15
CLOSING OF THE MEETING (17:00)	409800	reserved	2017-12-05 21:10:15
CLOSING OF THE MEETING (17:00)	409900	reserved	2017-12-05 21:10:16
CLOSING OF THE MEETING (17:00)	410000	reserved	2017-12-05 21:10:16
CLOSING OF THE MEETING (17:00)	410100	reserved	2017-12-05 21:10:16
CLOSING OF THE MEETING (17:00)	410200	reserved	2017-12-05 21:10:17
CLOSING OF THE MEETING (17:00)	410300	reserved	2017-12-05 21:10:17
CLOSING OF THE MEETING (17:00)	410400	reserved	2017-12-05 21:10:18
CLOSING OF THE MEETING (17:00)	410500	reserved	2017-12-05 21:10:18
CLOSING OF THE MEETING (17:00)	410600	reserved	2017-12-05 21:10:19
CLOSING OF THE MEETING (17:00)	410700	reserved	2017-12-05 21:10:19
CLOSING OF THE MEETING (17:00)	410800	reserved	2017-12-05 21:10:20
CLOSING OF THE MEETING (17:00)	410900	reserved	2017-12-05 21:10:20
CLOSING OF THE MEETING (17:00)	411000	reserved	2017-12-05 21:10:21
Other	23131	**revised**	2017-11-30 20:47:55
Organisational	401200	**noted**	2017-11-30 20:47:55

General	35430	**noted**	2017-11-30 20:47:55
Organisational	411200	**noted**	2017-11-30 20:47:55
Report from Break-Out session	411500	**approved**	2017-11-30 20:47:55
Report from Break-Out session	411600	**approved**	2017-11-30 20:47:55
Report from Break-Out session	411700	**approved**	2017-11-30 20:47:55
Report from Break-Out session	411800	**approved**	2017-11-30 20:47:55
Report from Break-Out session	411900	**approved**	2017-11-30 20:47:55
WI: eMBMS enhancements for LTE	412400	**noted**	2017-11-30 20:47:55
Other	23132	**approved**	2017-11-30 20:47:55
EN-DC - other aspects	22491	**revised**	2017-11-30 20:47:55
EN-DC - other aspects	22720	**revised**	2017-11-30 20:47:55
Security for EN-DC	31380	**approved**	2017-11-30 20:47:55
Security for EN-DC	24681	**approved**	2017-11-30 20:47:55
TS	36291	**revised**	2017-11-30 20:47:55
RRM TP	413900	**available**	2017-11-30 20:47:55
RRM TP	25000	**noted**	2017-11-30 20:47:55
Single Tx	28491	**approved**	2017-11-30 20:47:55
Other aspects for EN-DC	26780	**noted**	2017-11-30 20:47:55
Carrier aggregation (up to 8 PC5 carriers)	26260	**revised**	2017-11-30 20:47:55
CLOSING OF THE MEETING (17:00)	413200	reserved	2017-12-05 21:10:35
CLOSING OF THE MEETING (17:00)	413300	reserved	2017-12-05 21:10:36
CLOSING OF THE MEETING (17:00)	413400	reserved	2017-12-05 21:10:36
CLOSING OF THE MEETING (17:00)	413500	reserved	2017-12-05 21:10:37
INCOMING LIAISONS	407501	**approved**	2017-11-30 20:47:55
Organisational	411400	**noted**	2017-11-30 20:47:55
UE capability structure	26771	**agreed**	2017-11-30 20:47:55
RRM TP	415000	**available**	2017-11-30 20:47:55
Organisational	413700	**noted**	2017-11-30 20:47:55
TS	0	**endorsed**	2017-11-30 20:47:55
Running CR	0	**agreed**	2017-12-05 21:10:42
RRM measurements	31460	**revised**	2017-11-30 20:47:55
WI: Shortened TTI and processing time for LTE	414400	**noted**	2017-11-30 20:47:55
Organisational	414000	**noted**	2017-11-30 20:47:55
EN-DC - other aspects	22492	revised	2017-12-05 21:10:45
EN-DC - other aspects	22721	**revised**	2017-11-30 20:47:55

General	414800	noted	2017-11-30 20:47:55
General	414900	noted	2017-11-30 20:47:55
RRM TP	418800	available	2017-11-30 20:47:55
Organisational	36900	noted	2017-11-30 20:47:55
General	415200	revised	2017-11-30 20:47:55
Identify certification	29440	revised	2017-11-30 20:47:55
Other (for EN-DCs)	423300	approved	2017-11-30 20:47:55
Organisational	414500	noted	2017-11-30 20:47:55
Organisational	36910	noted	2017-11-30 20:47:55
Organisational	26610	revised	2017-11-30 20:47:55
Local caching for UE assistance video request	32341	revised	2017-11-30 20:47:55
Local caching for UE assistance video request	32351	noted	2017-11-30 20:47:55
Local caching for UE assistance video request	32353	revised	2017-11-30 20:47:55
Organisational	415500	noted	2017-11-30 20:47:55
Organisational	416100	noted	2017-11-30 20:47:55
Stage 2 aspects independent from NR/5GC	31340	revised	2017-11-30 20:47:55
Organisational	416200	noted	2017-11-30 20:47:55
Bearer type harmonisation	28900	noted	2017-11-30 20:47:55
Security for EN-DC	26970	available	2017-11-30 20:47:55
Organisational	416400	noted	2017-11-30 20:47:55
Organisational	31970	noted	2017-11-30 20:47:55
EN-DC - other aspects	22722	approved	2017-11-30 20:47:55
MN/SN procedures for EN-DC	22710	noted	2017-11-30 20:47:55
Organisational	420100	noted	2017-11-30 20:47:55
Specification methodology	25420	available	2017-11-30 20:47:55
Supplementary uplink	22770	noted	2017-11-30 20:47:55
Stage 2 aspects independent from NR/5GC	21720	noted	2017-11-30 20:47:55
Other	0	agreed	2017-11-30 20:47:55
EN-DC - other aspects	22493	agreed	2017-11-30 20:47:55
WI: Voice and Video enhancement for LTE	38751	agreed	2017-11-30 20:47:55
Mobility without RRC involvement	28700	noted	2017-11-30 20:47:55
Local caching for UE assistance video request	32371	agreed	2017-11-30 20:47:55
INCOMING LIAISONS	418000	noted	2017-11-30 20:47:55
Organisational	415700	noted	2017-11-30 20:47:55
Impact of bandwidth parts	0	not treated	2017-12-05 21:11:12

Bearer type harmonisation	26691	noted	2017-11-30 20:47:55
Connection reconfiguration message - L1 parameters	23710	revised	2017-11-30 20:47:55
RRM measurements	25020	noted	2017-11-30 20:47:55
LTE TEI15 enhancements	27081	approved	2017-11-30 20:47:55
Carrier aggregation (up to 8 PC5 carriers)	26261	approved	2017-11-30 20:47:55
RRM TP	420400	noted	2017-11-30 20:47:55
PHR	27880	noted	2017-11-30 20:47:55
BSR	24720	agreed	2017-11-30 20:47:55
MAC general aspects	24331	agreed	2017-11-30 20:47:55
MAC PDU format	28231	noted	2017-11-30 20:47:55
CLOSING OF THE MEETING (17:00)	419300	reserved	2017-12-05 21:11:18
CLOSING OF THE MEETING (17:00)	419400	reserved	2017-12-05 21:11:18
CLOSING OF THE MEETING (17:00)	419500	reserved	2017-12-05 21:11:19
CLOSING OF THE MEETING (17:00)	419600	reserved	2017-12-05 21:11:19
CLOSING OF THE MEETING (17:00)	419700	reserved	2017-12-05 21:11:20
CLOSING OF THE MEETING (17:00)	419800	reserved	2017-12-05 21:11:20
CLOSING OF THE MEETING (17:00)	419900	reserved	2017-12-05 21:11:21
Other aspects for EN-DC	420000	available	2017-11-30 20:47:55
Organisational	417700	noted	2017-11-30 20:47:55
WI: Enhancements of NB-IoT	30370	noted	2017-11-30 20:47:55
Organisational	26611	approved	2017-11-30 20:47:55
RRM TP	28870	revised	2017-11-30 20:47:55
Connection reconfiguration message - L1 parameters	23711	approved	2017-11-30 20:47:55
RRM TP	28871	noted	2017-11-30 20:47:55
Connection reconfiguration message and bearer handling	33410	revised	2017-11-30 20:47:55
Connection reconfiguration message and bearer handling	33900	noted	2017-11-30 20:47:55
INCOMING LIAISONS	420900	rejected	2017-11-30 20:47:55
Relaxed Monitoring for cell reselection	0	agreed	2017-11-30 20:47:55
In principle agreed CRs	0	agreed	2017-12-05 21:11:28
In principle agreed CRs	0	agreed	2017-12-05 21:11:28
In principle agreed CRs	0	agreed	2017-12-05 21:11:29
In principle agreed CRs	0	agreed	2017-12-05 21:11:29
Other	0	agreed	2017-12-05 21:11:30

Other	0	agreed	2017-12-05 21:11:30
CLOSING OF THE MEETING (17:00)	421700	reserved	2017-12-05 21:11:31
CLOSING OF THE MEETING (17:00)	421800	reserved	2017-12-05 21:11:31
CLOSING OF THE MEETING (17:00)	421900	reserved	2017-12-05 21:11:32
CLOSING OF THE MEETING (17:00)	422000	reserved	2017-12-05 21:11:32
CLOSING OF THE MEETING (17:00)	422100	reserved	2017-12-05 21:11:33
CLOSING OF THE MEETING (17:00)	422200	reserved	2017-12-05 21:11:33
CLOSING OF THE MEETING (17:00)	422300	reserved	2017-12-05 21:11:34
CLOSING OF THE MEETING (17:00)	422400	reserved	2017-12-05 21:11:34
RRM measurements	25700	noted	2017-11-30 20:47:55
Other aspects for EN-DC	26781	noted	2017-11-30 20:47:55
RRM measurements	31461	approved	2017-11-30 20:47:55
Connection reconfiguration message and bearer handling	33411	noted	2017-11-30 20:47:55
Other	0	revised	2017-11-30 20:47:55
Stage 2 corrections	21681	available	2017-11-30 20:47:55
General	415201	agreed	2017-11-30 20:47:55
Identify certification	29441	agreed	2017-11-30 20:47:55
Other (for EN-DCs)	31420	noted	2017-11-30 20:47:55
Single Tx	36841	revised	2017-11-30 20:47:55
Connection reconfiguration message - L2 parameters	25781	noted	2017-11-30 20:47:55
Organisational	418900	noted	2017-11-30 20:47:55
Stage 2 corrections	23591	agreed	2017-11-30 20:47:55
Single Tx	36842	agreed	2017-11-30 20:47:55
Delay reduction for SCell set-up	0	approved	2017-12-05 21:11:43
Other	24041	agreed	2017-12-05 21:11:43
Other	31531	agreed	2017-12-05 21:11:45
Identify certification	424800	revised	2017-11-30 20:47:55
Mobility without RRC involvement	25610	revised	2017-11-30 20:47:55
Stage 2 aspects independent from NR/5GC	31341	approved	2017-11-30 20:47:55
Organisational	21401	approved	2017-12-05 21:11:48
Mobility without RRC involvement	25611	approved	2017-11-30 20:47:55
General	424600	noted	2017-11-30 20:47:55
General	424801	approved	2017-12-05 21:11:49
In principle agreed CRs	0	agreed	2017-12-07 10:18:10
WI: Narrowband IOT	0	agreed	2017-12-07 14:49:26

Stage 2 TSs and running CR	0	agreed	2017-12-07 18:27:57
Stage 2 TSs and running CR	0	agreed	2017-12-08 07:39:17
TS	0	agreed	2017-12-08 09:17:40
Other	0	agreed	2017-12-08 09:50:33
Other	0	agreed	2017-12-08 09:57:25
Other	0	agreed	2017-12-08 09:58:38
Other	0	revised	2017-12-08 10:05:25
Organisational	0	approved	2017-12-08 10:10:59
TS	0	available	2017-12-08 13:23:47
Other aspects for EN-DC	0	revised	2017-12-08 16:39:04
TS	0	agreed	2017-12-08 16:43:41
Organisational	0	endorsed	2017-12-08 17:34:43
Other aspects for EN-DC	0	approved	2017-12-08 17:37:13
Other	0	agreed	2017-12-08 17:42:17
WI: Shortened TTI and processing time for LTE	0	agreed	2017-12-08 19:09:55
WI: Shortened TTI and processing time for LTE	0	agreed	2017-12-08 19:14:32
WI: Shortened TTI and processing time for LTE	0	agreed	2017-12-08 19:17:55
WI: Shortened TTI and processing time for LTE	0	agreed	2017-12-08 19:19:44
WI: Shortened TTI and processing time for LTE	0	agreed	2017-12-08 19:21:14
TS	0	agreed	2017-12-09 11:15:49
TS	0	agreed	2017-12-09 11:31:53
Other	0	endorsed	2017-12-09 12:07:47
TS	0	available	2017-12-11 15:04:20
ANY OTHER BUSINESS	0	agreed	2017-12-12 11:21:53
ANY OTHER BUSINESS	0	revised	2017-12-12 11:28:34
General	0	agreed	2017-12-13 09:58:17
Connection reconfiguration message - L2 parameters	0	agreed	2017-12-13 10:01:34
UL data compression in LTE	0	available	2017-12-13 12:39:04
UL data compression in LTE	0	available	2017-12-13 12:42:13
ANY OTHER BUSINESS	0	agreed	2017-12-13 14:28:18
Local caching for UE assistance video request	0	agreed	2017-12-13 15:04:14
Local caching for UE assistance video request	0	agreed	2017-12-13 15:09:10
Local caching for UE assistance video request	0	agreed	2017-12-13 15:10:22
Other	0	agreed	2017-12-14 00:18:30
Organisational	0	available	2017-12-15 08:15:32
Organisational	0	available	2017-12-15 12:06:45

Uploaded	Is revision of	Revised to	Release	Spec	Version
2017-11-17 14:48:37					
2017-12-02 06:07:57					
2017-11-11 12:44:30					
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-14		
2017-11-11 12:44:30			Rel-13		
2017-11-11 12:44:30			Rel-14		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-14		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:30			Rel-15		

2017-11-11 12:44:30			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-14		
2017-11-11 12:44:31			Rel-13		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-14		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:31			Rel-15		
2017-11-11 12:44:30			Rel-14		

2017-11-11 12:44:30			Rel-15		
2017-11-17 06:32:51			Rel-15		
2017-11-17 06:32:51			Rel-15		
2017-11-17 06:32:51			Rel-15	37.324	1.0.1
2017-11-17 06:32:51			Rel-15	37.324	1.0.1
2017-11-17 06:32:51			Rel-15		
2017-11-17 06:32:51			Rel-15		
2017-11-18 02:13:24		R2-1714237	Rel-15	37.340	1.1.1
2017-11-18 05:06:11			Rel-15		
2017-11-18 02:25:51			Rel-15		
2017-11-18 06:29:15			Rel-15		
2017-11-18 06:29:15			Rel-15		
2017-11-17 02:36:48	R2-1710166				
2017-11-17 02:36:48	R2-1710167				
2017-11-17 02:36:48	R2-1710169				
2017-11-17 02:36:48	R2-1710170				
2017-11-17 02:36:48		R2-1713934			
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12	R2-1710149		Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 01:01:12	R2-1711860	R2-1714211	Rel-14	36.331	14.4.0
2017-11-18 07:46:39			Rel-15		
2017-11-18 05:06:11			Rel-15		
2017-11-18 05:06:11			Rel-15		
2017-11-18 03:42:46			Rel-15		

2017-11-18 03:42:46			Rel-15	38.300	1.1.1
2017-11-18 01:52:36			Rel-15		
2017-11-17 04:31:06	R2-1711343		Rel-15	36.321	
2017-11-17 04:58:06			Rel-15		
2017-11-17 06:24:46			Rel-15		
2017-11-17 04:58:06			Rel-15		
2017-11-17 04:58:06			Rel-15		
2017-11-17 04:58:06			Rel-15		
2017-11-17 04:31:06	R2-1711344		Rel-15	36.321	14.4.0
2017-11-16 01:36:59	R2-1711077		Rel-15		
2017-11-16 01:36:59	R2-1711078		Rel-15		
2017-11-16 01:36:59	R2-1711076		Rel-15		
2017-11-16 01:36:59	R2-1711079		Rel-15		
2017-11-16 01:36:59			Rel-15		
2017-11-16 01:36:59	R2-1711082		Rel-15		
2017-11-16 01:36:59			Rel-15		
2017-11-16 01:36:59	R2-1711081		Rel-15		
2017-11-16 01:36:59			Rel-15		
2017-11-16 01:36:59			Rel-15		
2017-11-17 01:01:12			Rel-15		
2017-11-17 04:11:51			Rel-15		
2017-11-16 10:46:02	R2-1710176		Rel-15		
2017-11-17 04:06:50			Rel-15		
2017-11-16 10:39:51			Rel-15		
2017-11-16 10:39:51			Rel-15		
2017-11-17 04:11:51			Rel-15		
2017-11-16 10:46:02			Rel-15		
2017-11-16 10:39:51			Rel-15		
2017-11-17 04:06:50			Rel-15		
2017-11-17 04:06:50	R2-1710172		Rel-15		
2017-11-16 10:33:20	R2-1710181		Rel-15		
2017-11-16 10:33:20	R2-1710178		Rel-15		
2017-11-16 10:33:20	R2-1710180		Rel-15		
2017-11-16 10:33:20	R2-1710179		Rel-15		
2017-11-17 04:31:06	R2-1711300		Rel-15	36.321	
2017-11-17 04:31:06	R2-1711310		Rel-15	36.321	14.4.0
2017-11-17 04:31:06	R2-1711359		Rel-15	36.321	
2017-11-14 10:09:54			Rel-15		
2017-11-15 23:35:42			Rel-14	36.331	14.4.0
2017-11-15 23:35:42			Rel-14	36.306	14.4.0
2017-11-17 01:41:38	R2-1710240				
2017-11-17 01:41:38					
2017-11-17 01:41:38					

2017-11-17 01:41:38		R2-1713947			
2017-11-17 01:41:38					
2017-11-17 01:41:38					
2017-11-17 01:41:38					
2017-11-14 02:01:12	R2-1710139				
2017-11-17 04:42:52			Rel-15		
2017-11-17 04:58:06					
2017-11-17 01:39:34		R2-1713946			
2017-11-17 01:39:34					
2017-11-17 01:39:34					
2017-11-17 01:39:34					
2017-11-17 01:39:34					
2017-11-17 01:39:34					
2017-11-17 01:39:34					
2017-11-17 01:39:34					
2017-11-16 20:53:56	R2-1710138		Rel-15		
2017-11-16 20:54:51			Rel-15		
2017-11-16 20:54:51	R2-1710154		Rel-15		
2017-11-16 20:54:51	R2-1710770		Rel-15		
2017-11-18 05:16:09			Rel-15		
2017-11-18 05:16:09			Rel-15		
2017-11-16 20:55:42			Rel-15		
2017-11-16 20:55:42	R2-1710159		Rel-15		
2017-11-16 20:55:42			Rel-15		
2017-11-16 20:55:42	R2-1710157		Rel-15		
2017-11-16 20:55:42			Rel-15		
2017-11-14 07:02:47			Rel-15	38.300	1.2.0
2017-11-16 14:06:29			Rel-15		
2017-11-16 14:06:29			Rel-15		
2017-11-16 14:06:29			Rel-15		
2017-11-16 14:06:29	R2-1710373		Rel-15		
2017-11-11 20:47:55			Rel-15		
2017-11-11 20:47:55			Rel-15		
2017-11-16 14:06:29	R2-1710378		Rel-15		
2017-11-16 14:06:29	R2-1710375		Rel-15		

2017-11-16 14:06:29			Rel-15		
2017-11-16 14:06:29			Rel-15		
2017-11-17 02:35:57					
2017-11-17 02:35:57					
2017-11-17 02:35:57					
2017-11-17 02:35:57					
2017-11-17 02:35:57					
2017-11-17 02:35:57					
2017-11-14 10:23:46			Rel-15		
2017-11-14 12:32:25					
2017-11-17 04:06:50					
2017-11-16 10:39:51	R2-1710201				
2017-11-17 04:06:50		R2-1713951			
2017-11-16 20:37:24	R2-1711444	R2-1714212	Rel-13	36.331	13.7.1
2017-11-16 20:37:24	R2-1711453		Rel-14	36.331	14.4.0
2017-11-16 20:37:24	R2-1711889	R2-1713978	Rel-14	36.331	14.4.0
2017-11-16 20:37:24			Rel-14	36.300	14.4.0
2017-11-16 20:37:24		R2-1713985	Rel-13	36.331	13.7.1
2017-11-16 20:37:24		R2-1713986	Rel-14	36.331	14.4.0
2017-11-16 20:37:24		R2-1713973	Rel-13		
2017-11-16 20:37:24			Rel-15		
2017-11-16 20:37:24			Rel-15		
2017-11-16 20:37:24			Rel-15		
2017-11-14 18:41:42			Rel-15		
2017-11-14 18:41:42			Rel-15		
2017-11-14 18:41:42			Rel-15		
2017-11-14 22:19:49			Rel-15	37.340	1.2.0
2017-11-17 05:09:43		R2-1714080	Rel-15	37.340	1.2.1
2017-11-17 05:09:43			Rel-15		
2017-11-17 05:09:41			Rel-15	37.340	1.2.0
2017-11-17 01:37:36			Rel-15		

2017-11-16 07:23:39					
2017-11-16 07:01:01	R2-1710250				
2017-11-17 02:36:48					
2017-11-17 06:54:27					
2017-11-17 06:54:27					
2017-11-15 16:44:20	R2-1710551	R2-1714036	Rel-13	36.331	13.7.0
2017-11-15 16:44:20	R2-1710552	R2-1714240	Rel-14	36.331	14.4.0
2017-11-15 16:44:20	R2-1711846	R2-1714037	Rel-13	36.306	13.7.0
2017-11-15 16:44:20	R2-1710554	R2-1714241	Rel-14	36.306	14.4.0
2017-11-16 09:26:08			Rel-15		
2017-11-17 06:47:28			Rel-15		
2017-11-17 06:47:28	R2-1710205		Rel-15		
2017-11-17 06:47:28			Rel-15		
2017-11-17 06:47:28	R2-1710209		Rel-15		
2017-11-17 06:47:28	R2-1710211		Rel-15		
2017-11-17 06:47:28			Rel-15		
2017-11-17 06:47:28			Rel-15		
2017-11-17 06:47:28			Rel-15		
2017-11-17 06:47:28			Rel-15		
2017-11-17 06:47:28			Rel-15		
2017-11-17 06:47:28			Rel-15		
2017-11-15 23:41:42	R2-1710891		Rel-14	36.331	14.4.0
2017-11-17 04:58:07					
2017-11-17 07:01:12			Rel-15		
2017-11-17 07:01:26			Rel-15		
2017-11-17 07:01:48			Rel-15		
2017-11-17 07:05:54			Rel-15		
2017-11-17 07:02:04			Rel-15		
2017-11-17 07:02:18			Rel-15		
2017-11-17 07:02:29			Rel-15		
2017-11-17 07:02:42			Rel-15		
2017-11-17 07:02:55			Rel-15		
2017-11-16 09:03:08					
2017-11-17 06:28:29					
2017-11-16 09:03:08					
2017-11-16 17:23:45	R2-1710448				
2017-11-16 09:03:08					
2017-11-16 09:03:08					
2017-11-17 06:28:29					
2017-11-16 17:23:45	R2-1710452				

2017-11-16 17:23:45					
2017-11-17 07:57:42					
2017-11-17 07:46:52			Rel-11		
2017-11-17 07:46:52			Rel-14	36.331	14.4.0
2017-11-17 07:46:52			Rel-15		
2017-11-17 07:46:52					
2017-11-17 07:46:52					
2017-11-17 07:46:52					
2017-11-17 07:46:52					
2017-11-17 00:49:57		R2-1714079	Rel-15	38.300	1.2.1
2017-11-17 01:01:07			Rel-15		
2017-11-17 01:01:07			Rel-15		
2017-11-17 01:01:07			Rel-15		
2017-11-17 01:01:07		R2-1714230	Rel-15		
2017-11-17 04:12:54			Rel-15		
2017-11-17 01:01:07			Rel-15		
2017-11-11 20:47:55			Rel-15		
2017-11-17 01:01:07			Rel-15		
2017-11-17 01:01:07			Rel-15		
2017-11-15 12:32:10					
2017-11-17 05:41:15			Rel-15		
2017-11-17 05:41:15			Rel-15		
2017-11-17 05:41:15			Rel-15	36.331	14.4.0
2017-11-17 05:41:15			Rel-15		
2017-11-17 05:41:15			Rel-15		
2017-11-17 06:59:14			Rel-15		
2017-11-17 06:59:14			Rel-15		
2017-11-16 09:07:19			Rel-15		
2017-11-16 09:07:19			Rel-15		
2017-11-16 09:07:19			Rel-15		
2017-11-16 09:07:19			Rel-15		
2017-11-16 09:07:19			Rel-15		

2017-11-16 09:07:19	R2-1711068		Rel-15		
2017-11-16 09:07:19	R2-1711050		Rel-15		
2017-11-16 09:07:19	R2-1711046		Rel-15		
2017-11-16 09:09:36	R2-1711040		Rel-15		
2017-11-16 21:04:19			Rel-15		
2017-11-17 06:28:29					
2017-11-17 06:28:29					
2017-11-16 15:04:07	R2-1710156		Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-17 03:31:53			Rel-15		
2017-11-16 15:04:07	R2-1711828		Rel-15		
2017-11-17 02:07:05			Rel-14		
2017-11-17 02:07:05			Rel-14		
2017-11-17 02:07:05			Rel-14	36.306	14.4.0
2017-11-17 02:07:05			Rel-12		
2017-11-17 02:07:05		R2-1713958	Rel-12		
2017-11-17 02:07:05		R2-1713957	Rel-14	36.331	14.4.0
2017-11-16 15:04:07	R2-1710163				
2017-11-16 21:04:19			Rel-15	38.305	
2017-11-16 16:25:58			Rel-15		
2017-11-16 16:25:58			Rel-15		
2017-11-16 16:25:58			Rel-15		
2017-11-17 05:10:49					
2017-11-17 05:10:49	R2-1710279				
2017-11-17 05:10:49	R2-1710280				
2017-11-17 05:10:49	R2-1710313				
2017-11-17 05:10:49					
2017-11-17 05:10:49	R2-1710281				
2017-11-17 06:32:43	R2-1710282				
2017-11-17 05:10:49					
2017-11-17 05:10:49					
2017-11-17 05:10:49	R2-1710285				
2017-11-17 05:10:49	R2-1710286				
2017-11-17 05:10:49	R2-1707905				
2017-11-17 05:10:49	R2-1710288				
2017-11-17 05:10:49	R2-1711760				

2017-11-17 05:10:49					
2017-11-17 05:10:49					
2017-11-17 05:10:49					
2017-11-17 05:10:49	R2-1707913				
2017-11-17 05:10:49	R2-1707911				
2017-11-17 05:10:49	R2-1707912				
2017-11-16 15:04:07			Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-17 03:30:17			Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-16 15:37:45	R2-1710439		Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-16 15:37:45			Rel-15		
2017-11-17 01:20:41			Rel-15		
2017-11-16 20:23:43			Rel-15		
2017-11-16 20:23:43			Rel-15		
2017-11-16 20:23:43			Rel-15		
2017-11-16 20:23:43			Rel-15		
2017-11-11 20:47:55			Rel-15	36.321	14.4.0
2017-11-16 20:23:43			Rel-15	36.300	14.4.0
2017-11-16 20:23:43			Rel-15	36.302	14.3.0
2017-11-16 20:23:43			Rel-15	36.306	14.4.0
2017-11-16 20:23:43			Rel-15	36.321	14.4.0
2017-11-16 20:23:43			Rel-15	36.331	14.4.0
2017-11-16 20:23:43			Rel-15		
2017-11-16 20:23:43			Rel-15		
2017-11-16 20:23:43			Rel-15	36.321	14.4.0
2017-11-16 20:00:17			Rel-15		

2017-11-16 20:00:17			Rel-15		
2017-11-16 20:00:17			Rel-15		
2017-11-16 20:00:17			Rel-15		
2017-11-16 19:58:04			Rel-15		
2017-11-16 19:58:04			Rel-15	36.300	14.4.0
2017-11-16 19:58:04			Rel-15	36.331	14.4.0
2017-11-16 19:58:04			Rel-15		
2017-11-16 19:58:04			Rel-15	36.300	14.4.0
2017-11-16 19:58:04			Rel-15	36.306	14.4.0
2017-11-16 19:58:04			Rel-15	36.331	14.4.0
2017-11-17 06:03:45			Rel-15		
2017-11-16 16:32:45					
2017-11-17 07:13:12		R2-1713983	Rel-14	36.331	14.4.0
2017-11-17 07:13:12	R2-1711045		Rel-15		
2017-11-17 02:20:31	R2-1710695		Rel-15		
2017-11-17 07:13:12	R2-1711047		Rel-15		
2017-11-17 07:13:12	R2-1711048				
2017-11-17 07:13:12	R2-1711049				
2017-11-17 07:13:12	R2-1711051				
2017-11-17 07:13:12	R2-1711052				
2017-11-17 02:20:32		R2-1714261	Rel-15	38.322	1.1.0
2017-11-17 02:20:32	R2-1711547		Rel-15		
2017-11-17 02:20:31			Rel-15		
2017-11-17 02:20:32			Rel-15		
2017-11-17 02:20:32	R2-1710699		Rel-15		
2017-11-16 19:19:34					
2017-11-16 21:16:18					
2017-11-16 21:16:18					
2017-11-17 06:23:54					
2017-11-16 19:08:57	R2-1710387				
2017-11-16 17:23:45	R2-1710388				
2017-11-16 19:08:57	R2-1710389				
2017-11-17 06:23:54					
2017-11-16 17:23:45					
2017-11-16 21:16:18					
2017-11-16 21:16:18					
2017-11-16 21:16:18					
2017-11-16 19:08:57					
2017-11-17 06:23:54					
2017-11-17 06:23:54					
2017-11-16 17:23:45					

2017-11-17 06:23:54					
2017-11-17 04:52:10					
2017-11-17 04:52:10					
2017-11-17 04:52:10					
2017-11-17 04:52:10					
2017-11-17 04:52:10					
2017-11-17 04:52:10					
2017-11-17 05:26:43	R2-1710262		Rel-15		
2017-11-17 05:26:43			Rel-15		
2017-11-17 05:26:43	R2-1710264		Rel-15		
2017-11-17 05:26:43	R2-1710265		Rel-15		
2017-11-17 05:26:43	R2-1710266		Rel-15		
2017-11-17 05:26:43	R2-1710267		Rel-15		
2017-11-17 05:26:43	R2-1710268		Rel-15		
2017-11-17 05:26:43	R2-1710270		Rel-15		
2017-11-17 05:26:43	R2-1710271		Rel-15		
2017-11-17 05:26:43	R2-1710272		Rel-15		
2017-11-17 05:26:43	R2-1710273		Rel-15		
2017-11-17 05:26:43	R2-1710566		Rel-15		
2017-11-17 05:26:43	R2-1710567		Rel-15		
2017-11-17 05:26:43			Rel-15		
2017-11-16 17:23:45	R2-1711366		Rel-15		
2017-11-16 17:23:45					
2017-11-16 17:23:45					
2017-11-16 17:23:45					
2017-11-16 17:23:45					
2017-11-16 17:23:45					
2017-11-16 17:23:45					
2017-11-16 17:23:45					
2017-11-16 17:23:45	R2-1710475				
2017-11-16 17:23:45					
2017-11-16 10:40:40					
2017-11-16 10:40:40					
2017-11-16 10:40:40					
2017-11-16 10:40:40					
2017-11-16 10:40:40					
2017-11-16 10:40:40					
2017-11-16 17:23:45					
2017-11-16 17:23:45					
2017-11-16 23:53:13			Rel-15		
2017-11-16 23:53:13			Rel-15		
2017-11-16 23:53:13			Rel-15		
2017-11-16 23:53:13			Rel-15		
2017-11-16 23:53:13			Rel-15		
			Rel-15		
			Rel-15		
2017-11-16 23:53:13	R2-1710346		Rel-15		
2017-11-16 23:53:13	R2-1710347		Rel-15		
2017-11-16 23:53:13			Rel-15		
2017-11-16 23:53:13	R2-1710543		Rel-15		
2017-11-16 23:53:13			Rel-15		
2017-11-16 23:53:13			Rel-15		
2017-11-16 23:53:13			Rel-15		
2017-11-16 23:53:13	R2-1710545		Rel-15		

2017-11-16 23:53:13	R2-1710547		Rel-15	36.746	15.0.0
2017-11-16 23:53:13			Rel-15		
2017-11-16 23:53:13	R2-1712039	R2-1714009	Rel-14	36.300	14.4.0
2017-11-16 23:53:13	R2-1711878		Rel-14	36.306	14.4.0
2017-11-16 23:53:13	R2-1712053	R2-1714010	Rel-14	36.331	14.4.0
2017-11-17 01:17:23	R2-1711848		Rel-14	36.331	14.4.0
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:55:32			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-12-02 06:07:57		R2-1714235	Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-17 07:07:45			Rel-15		
2017-11-16 20:00:11			Rel-15		
2017-12-02 06:07:57		R2-1714141	Rel-15	38.306	0.0.4
2017-11-16 22:42:53	R2-1710420		Rel-15		
2017-11-16 22:42:53	R2-1710422		Rel-15		
2017-11-16 22:42:53	R2-1710423		Rel-15		
2017-11-16 22:42:53	R2-1710424		Rel-15		

2017-11-16 22:42:53			Rel-15		
2017-11-16 22:42:53			Rel-15		
2017-11-16 22:42:53	R2-1710425		Rel-15		
2017-11-16 22:42:53	R2-1710426		Rel-15		
2017-11-16 22:42:53	R2-1710427		Rel-15		
2017-11-16 22:42:53			Rel-15		
2017-11-17 00:40:23			Rel-15		
2017-11-16 22:42:53			Rel-15		
2017-11-16 22:42:53	R2-1710418		Rel-15		
2017-11-16 22:42:53			Rel-15		
2017-11-16 22:42:53			Rel-15		
2017-11-16 22:42:53	R2-1710430		Rel-15		
2017-11-16 22:42:53	R2-1710434		Rel-15		
2017-11-16 22:42:53	R2-1710435		Rel-15		
2017-11-16 22:42:53	R2-1710432		Rel-15		
2017-11-16 22:42:53	R2-1710437		Rel-15		
2017-11-16 22:42:53			Rel-15		
2017-11-16 22:42:53	R2-1710440		Rel-15		
2017-11-16 22:42:53			Rel-15		
2017-11-16 22:42:53			Rel-15		
2017-11-16 22:42:53	R2-1710441		Rel-15		
2017-11-16 22:42:53			Rel-15		
	R2-1710428		Rel-15		
2017-11-16 22:42:53	R2-1710429		Rel-15		
2017-11-17 07:27:24			Rel-15		
2017-11-17 07:27:24			Rel-15		
2017-11-17 07:27:24			Rel-15	36.321	14.4.0
2017-11-17 07:27:24			Rel-15	36.321	14.4.0
2017-11-17 07:27:24			Rel-15	36.331	14.4.0
2017-11-17 07:27:24			Rel-15	36.306	14.4.0
2017-11-17 07:27:24		R2-1714011	Rel-14		
2017-11-17 07:27:24			Rel-15		
2017-11-17 07:27:24			Rel-15		
2017-11-17 07:27:24			Rel-15		

2017-11-17 07:27:24			Rel-15		
2017-11-17 07:27:24			Rel-15		
2017-11-17 07:27:24	R2-1710650		Rel-15		
2017-11-17 07:27:24			Rel-15		
2017-11-17 07:27:24	R2-1710652		Rel-15		
2017-11-17 07:27:24			Rel-15		
2017-11-17 07:27:24		R2-1713981	Rel-14	36.331	14.4.0
2017-11-17 07:27:24		R2-1713982	Rel-14	36.331	14.4.0
2017-11-17 07:27:24		R2-1713967	Rel-13	36.331	13.7.0
2017-11-17 07:27:24		R2-1713968	Rel-14	36.331	14.4.0
2017-11-17 07:27:24			Rel-15	36.321	14.4.0
2017-11-17 07:27:24		R2-1713995	Rel-14		
2017-11-17 07:27:24			Rel-14		
2017-11-17 07:27:24			Rel-15		
2017-11-17 07:27:24			Rel-15		
2017-11-17 08:22:57			Rel-15		
2017-11-17 08:22:57			Rel-15	36.331	14.4.0
2017-11-17 08:11:22			Rel-15	36.306	14.4.0
			Rel-14	36.331	14.4.0
2017-11-17 08:35:40		R2-1714042	Rel-14	36.306	14.4.0
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:29:31			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03		R2-1714013	Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		

2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03		R2-1714286	Rel-15	36.331	14.4.0
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:03			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 07:55:04			Rel-15		
2017-11-17 07:55:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04	R2-1710611		Rel-15		
2017-12-02 06:07:57			Rel-15		
2017-12-02 06:07:57		R2-1714130	Rel-15		
2017-12-02 06:07:57		R2-1714138	Rel-15		
			Rel-15	36.331	14.4.0
2017-12-02 06:07:57			Rel-15		
2017-11-17 06:21:04	R2-1710627		Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04	R2-1710629		Rel-15		
2017-11-17 06:21:04	R2-1710630		Rel-15		
2017-11-17 06:21:04	R2-1710631		Rel-15		
2017-11-17 06:29:31			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 07:43:44			Rel-15		
2017-11-17 08:00:05			Rel-15		
			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-16 08:42:51		R2-1714253	Rel-15	38.321	1.1.0
2017-11-16 08:42:51			Rel-15		
2017-11-16 08:42:51	R2-1709012		Rel-15		
2017-11-16 08:42:51			Rel-15		
2017-11-16 08:42:51			Rel-15		
2017-11-16 08:42:51			Rel-15		
2017-11-16 08:42:51	R2-1709018		Rel-15		
2017-11-17 02:04:32			Rel-15	36.300	14.4.0
2017-11-17 02:04:32			Rel-15	36.306	14.4.0
2017-11-17 02:04:32			Rel-15	36.331	14.4.0
2017-11-17 02:04:32	R2-1710912		Rel-15		

2017-11-17 02:04:32	R2-1710913		Rel-15		
2017-11-17 02:05:00	R2-1710914		Rel-15		
2017-11-17 02:05:00			Rel-15	36.314	14.0.0
2017-11-17 02:05:00			Rel-15	36.314	14.0.0
2017-11-17 02:05:00			Rel-15		
2017-11-17 02:05:00			Rel-15	36.323	14.4.0
2017-11-17 02:05:20			Rel-15		
2017-11-17 02:05:20			Rel-15	36.323	14.4.0
2017-11-17 02:05:20			Rel-15	36.331	14.4.0
2017-11-17 02:05:20			Rel-15		
2017-11-17 02:05:20			Rel-15		
2017-11-17 02:05:39			Rel-15		
2017-11-17 02:05:39			Rel-15		
2017-11-17 02:05:39			Rel-15		
2017-11-17 02:05:39			Rel-15	36.323	14.4.0
2017-11-17 02:05:39			Rel-15		
2017-11-17 02:06:00	R2-1707940		Rel-15		
2017-11-17 02:06:00			Rel-15	36.300	14.4.0
2017-11-17 02:06:01			Rel-15	36.323	14.4.0
2017-11-17 02:06:01			Rel-15	36.306	14.4.0
2017-11-17 02:06:01			Rel-15	36.331	14.4.0
2017-11-17 06:12:42	R2-1710757		Rel-15		
2017-11-17 06:12:42	R2-1710758		Rel-15		
2017-11-17 06:12:42	R2-1710759		Rel-15		
2017-11-17 06:12:42	R2-1710760		Rel-15		
2017-11-17 06:12:42	R2-1710761		Rel-15		
2017-11-17 06:12:42	R2-1710762		Rel-15		
2017-11-17 06:12:42	R2-1710763		Rel-15		
2017-11-17 06:12:42	R2-1710764		Rel-15		
2017-11-17 06:12:42	R2-1710765		Rel-15		
2017-11-17 06:12:42	R2-1710766		Rel-15		
2017-11-17 03:18:07	R2-1710100	R2-1714039	Rel-14	36.331	14.4.0
2017-11-17 03:18:07	R2-1711859		Rel-14	36.300	14.4.0
2017-11-17 03:18:07	R2-1710099	R2-1714051	Rel-14	36.302	14.3.0
2017-11-17 04:04:29			Rel-15		
2017-11-17 04:04:29			Rel-15		
2017-11-17 04:04:30			Rel-15		
2017-11-17 04:04:30			Rel-15		
2017-11-17 04:04:30			Rel-15		
2017-11-17 04:04:30			Rel-15		
2017-11-17 04:04:30			Rel-15		

2017-11-17 04:04:30			Rel-15		
2017-11-17 04:04:30			Rel-15		
2017-11-17 04:04:30			Rel-15		
2017-11-17 06:45:08	R2-1710919		Rel-15		
2017-11-17 06:45:08	R2-1710920		Rel-15		
2017-11-17 06:45:08	R2-1710921		Rel-15		
2017-11-17 06:45:08	R2-1710925		Rel-15		
2017-11-17 06:45:08	R2-1711080		Rel-15		
2017-11-17 06:45:08	R2-1710926		Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08	R2-1710932		Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08	R2-1710934		Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08	R2-1710931		Rel-15		
2017-11-17 06:45:08	R2-1710939		Rel-15		
2017-11-17 06:45:08	R2-1710940		Rel-15		
2017-11-17 06:45:08	R2-1710941		Rel-15		
2017-11-17 06:45:08	R2-1710942		Rel-15		
2017-11-17 06:45:08	R2-1710944		Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08	R2-1710945		Rel-15		
2017-11-17 06:45:08	R2-1710946		Rel-15		
2017-11-17 06:45:08	R2-1710947		Rel-15		
2017-11-17 06:45:08	R2-1710948		Rel-15		
2017-11-17 06:45:08	R2-1710950		Rel-15		
2017-11-17 06:45:08	R2-1710951		Rel-15		
2017-11-17 06:45:08	R2-1710949		Rel-15		
2017-11-17 04:04:29			Rel-15		
2017-11-17 01:28:37			Rel-15		
2017-11-17 01:28:37			Rel-15		
			Rel-15		
2017-11-17 01:28:37	R2-1710657		Rel-15		
2017-11-17 01:51:46			Rel-15		
2017-11-17 01:51:46		R2-1714057	Rel-15		
2017-11-17 01:51:46			Rel-15		
2017-11-17 05:37:13			Rel-15		
2017-11-17 04:28:15	R2-1710672		Rel-15		
2017-11-17 04:24:35			Rel-15		
2017-11-17 04:24:54			Rel-15		
2017-11-17 04:25:16			Rel-15		
2017-11-17 04:25:37	R2-1710669		Rel-15		
2017-11-17 05:24:21			Rel-15		
2017-11-17 04:25:54			Rel-15		
2017-11-17 04:26:10	R2-1710671		Rel-15		
2017-11-17 05:30:49			Rel-15		
2017-11-17 04:26:29	R2-1710673		Rel-15		
2017-11-17 04:26:47	R2-1710674		Rel-15		

2017-11-17 04:27:05	R2-1710676		Rel-15		
2017-11-17 04:27:22			Rel-15		
2017-11-17 04:27:44			Rel-15		
2017-11-17 04:28:06	R2-1710679		Rel-15		
2017-11-17 05:19:34			Rel-15		
2017-11-17 01:37:36	R2-1710119		Rel-15		
2017-11-16 10:09:37	R2-1710905		Rel-15		
2017-11-17 04:42:52			Rel-15		
			Rel-15	36.323	14.4.0
			Rel-15	36.331	14.4.0
			Rel-15	36.323	14.4.0
			Rel-15		
			Rel-15		
			Rel-15		
			Rel-15		
			Rel-15		
			Rel-15		
			Rel-15		
			Rel-15		
	R2-1710354		Rel-15		
2017-11-17 07:38:48			Rel-15		
2017-11-17 07:44:46			Rel-15		
2017-11-17 07:44:46			Rel-15		
2017-11-17 07:38:48	R2-1710361		Rel-15		
2017-11-17 07:38:48	R2-1710355		Rel-15		
2017-11-17 06:35:59					
2017-11-17 06:35:59		R2-1714056			
2017-11-17 06:35:59	R2-1708492				
2017-11-17 06:35:59					
2017-11-17 06:35:59					
2017-11-17 06:36:50					
2017-11-17 06:35:59	R2-1710958				
2017-11-17 06:35:59					
2017-11-17 06:35:59					
2017-11-17 04:43:45					
2017-11-17 04:44:13					
2017-11-17 01:01:07			Rel-15		
2017-11-17 04:44:42					
2017-11-17 04:45:08					
2017-11-17 04:45:26					
2017-11-17 04:49:33					

2017-11-17 04:46:06					
2017-11-17 04:46:22					
2017-11-16 06:44:12	R2-1711733		Rel-15		
2017-11-17 05:38:19			Rel-15		
2017-11-17 05:38:19			Rel-15		
2017-11-17 05:38:19		R2-1714234	Rel-15		
2017-11-17 05:38:19			Rel-15		
2017-11-17 07:38:23			Rel-15		
2017-11-17 06:17:13					
2017-11-17 06:17:13					
2017-11-17 06:17:13					
2017-11-17 06:17:13					
2017-11-17 06:17:13					
2017-11-17 06:17:13					
2017-11-17 06:17:13					
2017-11-17 06:17:13	R2-1710304				
2017-11-17 06:17:13					
2017-11-17 06:17:13					
2017-11-17 06:17:13					
2017-11-17 05:10:49					
2017-11-17 05:10:49	R2-1710305				
2017-11-17 05:10:49	R2-1708244				
2017-11-16 09:13:45			Rel-15		
2017-11-16 09:13:45			Rel-15		
2017-11-17 07:36:36					
2017-11-17 07:46:33			Rel-15		
2017-11-17 06:17:06					
2017-11-17 06:17:06	R2-1710870				
2017-11-17 06:17:06	R2-1710871				
2017-11-16 17:13:02			Rel-15		
2017-11-17 06:17:06	R2-1710872				
2017-11-17 05:17:45			Rel-15		
2017-11-17 05:19:37			Rel-15	36.300	14.4.0
2017-11-17 05:19:37			Rel-15	36.306	14.4.0
2017-11-17 05:19:37			Rel-15		
2017-11-17 05:19:37			Rel-15		
2017-11-17 05:19:37			Rel-15		
2017-11-17 05:19:37			Rel-15		
2017-11-16 09:25:44			Rel-15		
2017-11-17 06:17:06					
2017-11-16 17:13:02			Rel-15		
2017-11-17 06:17:06	R2-1710869				
2017-11-16 09:25:44			Rel-15		
2017-11-17 06:17:06					
2017-11-16 09:25:44			Rel-15		
2017-11-17 06:17:06					

2017-11-17 05:09:43		R2-1714183	Rel-15		
2017-11-17 06:17:06		R2-1713942			
2017-11-17 06:17:06					
2017-11-17 03:48:07	R2-1710363		Rel-15		
2017-11-17 03:48:07	R2-1710366		Rel-15		
2017-11-17 03:48:07			Rel-15		
2017-11-17 03:48:07	R2-1710365		Rel-15		
2017-11-17 03:48:07			Rel-15	36.331	14.4.0
2017-11-17 03:48:07		R2-1714082	Rel-15	36.331	14.4.0
2017-11-17 03:48:07		R2-1714081	Rel-15	36.306	14.4.0
2017-11-17 20:47:55			Rel-15		
2017-11-17 03:47:19			Rel-15		
2017-11-17 06:08:12			Rel-15		
2017-11-17 06:08:12			Rel-15		
2017-11-17 06:08:12			Rel-15		
2017-11-17 06:08:12			Rel-15		
2017-11-17 06:08:12		R2-1713939	Rel-15		
2017-11-17 05:47:42			Rel-15		
2017-11-17 05:47:31			Rel-15		
2017-11-17 05:47:20			Rel-15		
2017-11-17 05:47:11			Rel-15		
2017-11-17 01:24:18			Rel-15		
2017-11-16 14:56:02			Rel-15		
2017-11-17 05:41:15	R2-1711561		Rel-15		
2017-11-16 14:56:16	R2-1711041		Rel-15		
2017-11-16 14:56:35			Rel-15		
2017-11-16 14:56:51			Rel-15		
2017-11-17 00:25:04			Rel-15		
2017-11-17 00:25:04			Rel-15		
2017-11-17 00:25:04			Rel-15		
2017-11-17 00:25:04			Rel-15		
2017-11-17 00:25:04			Rel-15		
2017-11-17 00:25:04			Rel-15		
2017-11-17 00:25:04			Rel-15		
2017-11-17 00:24:29			Rel-15		
2017-11-17 00:24:30			Rel-15		
2017-11-17 00:24:30			Rel-15		
2017-11-17 00:24:30			Rel-15		
2017-11-17 00:24:30			Rel-15		
2017-11-17 00:24:30			Rel-15		
2017-11-17 00:24:30			Rel-15		
2017-11-17 00:24:30			Rel-15		
2017-11-17 00:24:30			Rel-15		
2017-11-17 00:25:30			Rel-15		

2017-11-17 00:25:31		R2-1714068	Rel-15		
2017-11-17 00:25:31			Rel-15		
2017-11-17 00:53:23			Rel-15		
2017-11-16 10:16:01		R2-1713979	Rel-14	36.321	14.4.0
2017-11-16 10:16:01			Rel-14	36.331	14.4.0
2017-11-16 10:16:01			Rel-15		
2017-11-16 10:16:01			Rel-15		
2017-11-16 10:16:01			Rel-15		
2017-11-16 10:09:37	R2-1711088		Rel-15		
2017-11-17 03:47:19			Rel-15		
2017-11-17 03:47:19	R2-1711380		Rel-15		
2017-11-16 09:12:11					
2017-11-17 03:47:19			Rel-15		
2017-11-17 03:47:19			Rel-15		
2017-11-16 09:12:11	R2-1710897				
2017-11-17 02:03:33			Rel-15		
2017-11-16 21:23:44			Rel-15		
2017-11-16 21:23:44			Rel-14	36.306	14.4.0
2017-11-16 21:23:44			Rel-14	36.331	14.4.0
2017-11-16 21:23:44			Rel-14	36.323	14.4.0
2017-11-16 21:23:44			Rel-15		
2017-11-16 21:23:44			Rel-15	36.321	14.4.0
2017-11-16 23:36:15			Rel-15		
2017-11-16 09:12:11	R2-1710892				
2017-11-17 02:35:44	R2-1711370		Rel-15		
2017-11-17 20:47:55	R2-1711373		Rel-15		
2017-11-17 08:40:36					
2017-11-16 09:19:38					
2017-11-17 00:25:04			Rel-15		
2017-11-16 10:09:37	R2-1711123				
2017-11-16 09:30:13			Rel-15		
2017-11-17 01:54:52			Rel-15		
2017-11-17 01:54:52			Rel-15		
2017-11-17 01:54:52			Rel-15		
2017-11-17 01:54:52			Rel-15		
2017-11-17 01:54:52			Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:11:22			Rel-15		

2017-11-17 06:11:22			Rel-15		
2017-11-17 06:11:22		R2-1714052	Rel-15		
2017-11-17 06:11:22			Rel-15		
2017-11-16 15:20:19	R2-1710354		Rel-15		
2017-11-17 07:38:48	R2-1710357		Rel-15		
2017-11-17 20:47:55			Rel-15		
2017-11-16 18:04:33			Rel-15		
2017-11-17 06:47:28		R2-1714063	Rel-15	36.321	14.4.0
2017-11-17 06:47:28		R2-1714066	Rel-15	36.322	14.1.0
2017-11-17 07:03:13			Rel-15		
2017-11-17 07:03:25			Rel-13		
2017-11-16 17:23:45			Rel-15		
2017-11-16 19:23:37			Rel-15		
2017-11-16 19:23:37	R2-1711458		Rel-15		
2017-11-16 19:23:37	R2-1711020		Rel-15		
2017-11-16 19:23:37			Rel-15		
2017-11-16 19:23:37	R2-1711024		Rel-15		
2017-11-16 19:23:37			Rel-15		
2017-11-16 19:23:37	R2-1711026		Rel-15		
2017-11-16 19:23:37	R2-1711027		Rel-15		
2017-11-16 19:23:37			Rel-15		
2017-11-17 07:03:41			Rel-13	36.331	13.7.1
2017-11-17 06:45:08	R2-1710927		Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08			Rel-15		
2017-11-17 06:45:08		R2-1713955	Rel-15		
2017-11-17 06:45:08	R2-1710930		Rel-15		
2017-11-17 07:03:58		R2-1713996	Rel-14	36.331	14.4.0
2017-11-17 06:35:59					
2017-11-17 06:35:59	R2-1710969				
2017-11-17 06:35:59	R2-1710970				
2017-11-17 06:35:59	R2-1710968				
2017-11-17 06:35:59	R2-1710966				
2017-11-17 06:35:59					
2017-11-17 06:35:59					
2017-11-17 06:35:59					
2017-11-17 07:50:30			Rel-15		
2017-11-17 07:50:30			Rel-15		
2017-11-17 07:50:30			Rel-15		

2017-11-17 07:50:30		R2-1713987	Rel-14	36.304	14.4.0
2017-11-17 07:50:30		R2-1713988	Rel-14	36.306	14.4.0
2017-11-17 07:50:30		R2-1713989	Rel-14	36.331	14.4.0
2017-11-17 07:50:30			Rel-14	36.304	14.4.0
2017-11-17 07:50:30			Rel-14	36.306	14.4.0
2017-11-17 07:16:40			Rel-15	36.331	14.4.0
2017-11-17 07:16:55			Rel-15	36.306	14.4.0
2017-11-17 07:13:12					
2017-11-17 07:13:12			Rel-14	36.355	14.3.0
2017-11-17 07:17:08			Rel-15	36.331	14.4.0
2017-11-17 07:50:30			Rel-14	36.331	14.4.0
2017-11-17 07:50:30			Rel-15		
2017-11-17 07:50:30			Rel-15	36.306	14.4.0
2017-11-17 07:50:30			Rel-15	36.321	14.4.0
2017-11-17 07:50:30			Rel-15	36.331	14.4.0
2017-11-17 07:50:30		R2-1713994	Rel-14	36.331	14.4.0
2017-11-17 07:50:30			Rel-15		
2017-11-17 07:50:30			Rel-15		
2017-11-17 07:50:30			Rel-15		
2017-11-17 07:50:30			Rel-15		
2017-11-17 07:50:30			Rel-15		
2017-11-17 07:50:30			Rel-15	36.302	14.3.0
2017-11-17 07:50:30			Rel-15	36.304	14.4.0
2017-11-17 07:50:30			Rel-15	36.306	14.4.0
2017-11-17 07:50:30			Rel-15	36.331	14.4.0
2017-11-17 07:50:30			Rel-14	36.300	14.4.0
2017-11-17 07:50:30	R2-1710748		Rel-14	36.321	14.4.0
2017-11-17 07:50:30	R2-1711879		Rel-14	36.331	14.4.0
2017-11-17 07:50:30		R2-1713974	Rel-13	36.306	13.7.0
2017-11-17 07:50:30		R2-1713975	Rel-14	36.306	14.4.0
2017-11-17 07:50:30		R2-1713976	Rel-13	36.331	13.7.1

2017-11-17 07:50:30		R2-1713977	Rel-14	36.331	14.4.0
2017-11-17 07:17:22			Rel-15	36.321	14.4.0
2017-11-17 02:52:14	R2-1710515				
2017-11-17 02:52:14			Rel-15	36.304	14.4.0
2017-11-17 02:52:14			Rel-15	36.306	14.4.0
2017-11-17 02:52:14			Rel-15	36.331	14.4.0
2017-11-17 03:01:00					
2017-11-17 03:01:00					
2017-11-17 03:01:00			Rel-15	36.331	14.4.0
2017-11-17 03:01:01					
2017-11-17 04:08:09					
2017-11-17 04:08:09					
2017-11-17 04:08:09					
2017-11-17 04:08:09					
2017-11-17 04:08:09					
2017-11-17 03:07:38					
2017-11-17 03:07:38			Rel-15	36.306	14.4.0
2017-11-17 03:07:38			Rel-15	36.321	14.4.0
2017-11-17 03:07:38			Rel-15	36.331	14.4.0
2017-11-17 02:50:56	R2-1710527				
2017-11-17 03:15:49			Rel-15	36.306	14.4.0
2017-11-17 03:15:49			Rel-15	36.331	14.4.0
2017-11-17 03:15:49			Rel-15	36.306	14.4.0
2017-11-17 03:15:49			Rel-15	36.331	14.4.0
2017-11-17 03:21:40					
2017-11-17 03:21:40			Rel-15	36.331	14.4.0
2017-11-17 04:02:36					
2017-11-17 04:02:36					
2017-11-17 04:02:36					
2017-11-17 06:16:54					
2017-11-17 06:16:54					
2017-11-17 06:16:54					
2017-11-17 06:16:54					
2017-11-17 06:16:54					
2017-11-17 04:02:36	R2-1711014				
2017-11-17 04:02:36	R2-1711015				
2017-11-17 04:02:36	R2-1711016				
2017-11-16 11:41:46	R2-1710986		Rel-14	36.331	14.4.0

2017-11-17 07:28:32	R2-1711321		Rel-14	36.304	14.4.0
2017-11-17 07:28:32	R2-1711322		Rel-14	36.306	14.4.0
2017-11-17 07:28:32	R2-1711323		Rel-14	36.331	14.4.0
2017-11-17 07:28:32			Rel-15	36.304	14.4.0
2017-11-17 07:28:32			Rel-15	36.306	14.4.0
2017-11-17 07:28:32			Rel-15	36.331	14.4.0
2017-11-17 07:27:39	R2-1711881	R2-1713963	Rel-13	36.331	13.7.0
2017-11-17 07:27:39	R2-1711211	R2-1713964	Rel-14	36.331	14.4.0
2017-11-17 20:47:55	R2-1711213		Rel-13	36.300	13.9.0
2017-11-17 07:27:39	R2-1711213	R2-1713965	Rel-14	36.300	14.4.0
2017-11-17 20:47:55	R2-1711231		Rel-13	36.331	13.7.0
2017-11-17 20:47:55	R2-1711886		Rel-14	36.331	14.4.0
2017-11-17 07:27:39	R2-1711887		Rel-13	36.302	13.6.0
2017-11-17 07:27:39	R2-1711233		Rel-14	36.302	14.3.0
2017-11-17 07:27:39	R2-1711884	R2-1713991	Rel-14	36.302	14.3.0
2017-11-17 20:47:55	R2-1711225		Rel-14	36.302	14.3.0
2017-11-17 07:27:39	R2-1711227		Rel-14	36.300	14.4.0
2017-11-17 07:27:39	R2-1711229	R2-1713984	Rel-14	36.355	14.3.0
2017-11-17 07:27:39		R2-1713969	Rel-13	36.304	13.7.0
2017-11-17 07:27:39		R2-1713970	Rel-14	36.304	14.4.0
2017-11-17 07:27:39			Rel-13	36.331	13.7.0
2017-11-17 07:27:39		R2-1713992	Rel-14	36.331	14.4.0
2017-11-17 07:27:39		R2-1713980	Rel-14	36.331	14.4.0
2017-11-17 07:27:03			Rel-15		
2017-11-17 07:27:03	R2-1711215		Rel-15		
2017-11-17 07:27:03	R2-1711216	R2-1714014	Rel-15		
2017-11-17 07:27:03			Rel-15		
2017-11-17 07:27:03			Rel-15		
2017-11-17 07:27:03			Rel-15	36.331	14.4.0
2017-11-17 07:27:03			Rel-15	36.331	14.4.0
2017-11-17 07:27:03			Rel-15		
2017-11-17 07:27:03			Rel-15		
2017-11-17 07:27:03			Rel-15		

2017-11-17 07:27:03			Rel-15		
2017-11-17 07:27:03	R2-1711220		Rel-15		
2017-11-17 07:27:03	R2-1711221		Rel-15		
2017-11-17 07:27:03			Rel-15	36.331	14.4.0
2017-11-17 07:27:03			Rel-15	36.306	14.4.0
2017-11-17 07:27:03			Rel-15		
2017-11-17 07:27:03	R2-1711222		Rel-15		
2017-11-17 07:27:03	R2-1711223		Rel-15		
2017-11-17 07:27:03			Rel-15	36.331	14.4.0
2017-11-17 07:27:03			Rel-15	36.304	14.4.0
2017-11-17 07:27:03			Rel-15	36.306	14.4.0
2017-11-17 07:27:03			Rel-15		
2017-11-17 07:27:03			Rel-15		
2017-11-16 11:41:46			Rel-14	36.306	14.4.0
2017-11-16 13:34:38		R2-1713960	Rel-13	36.304	13.7.0
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16	R2-1711109		Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15	36.331	14.4.0
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15	38.331	
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16	R2-1711093		Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-17 05:19:16	R2-1711091		Rel-15		
2017-11-17 05:19:16			Rel-15		
2017-11-16 22:59:50			Rel-13		
2017-11-16 22:59:50			Rel-14	36.331	14.4.0
2017-11-16 22:59:50			Rel-10		
2017-11-16 22:59:50			Rel-13	36.331	13.7.1
2017-11-16 22:59:50			Rel-14	36.331	14.4.0

			Rel-14	36.331	14.4.0
2017-11-16 22:59:50			Rel-15		
2017-11-16 22:59:50			Rel-15		
2017-11-16 22:59:50			Rel-15		
2017-11-20 15:20:28			Rel-15		
2017-11-16 22:59:50			Rel-15		
2017-11-16 22:59:50			Rel-15		
2017-11-16 22:59:50			Rel-15		
			Rel-15		
			Rel-15		
2017-11-16 22:59:50			Rel-15		
2017-11-16 22:59:50			Rel-15		
			Rel-15		
2017-11-16 22:59:50			Rel-15		
2017-11-17 07:30:28			Rel-15		
2017-11-17 05:20:50			Rel-15		
2017-11-17 05:20:50			Rel-15		
2017-11-17 05:20:50		R2-1714058	Rel-15		
2017-11-17 05:20:50			Rel-15		
2017-11-17 05:20:50			Rel-15		
2017-11-17 05:20:50			Rel-15		
2017-11-17 05:20:50		R2-1713948	Rel-15		
2017-11-17 05:20:50		R2-1713924	Rel-15		
2017-11-16 13:34:38		R2-1713961	Rel-14	36.304	14.4.0
2017-11-16 19:22:45					
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52			Rel-15	36.331	14.4.0
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52		R2-1714006	Rel-15		
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52			Rel-15	36.331	14.4.0

2017-11-17 03:32:52			Rel-15	36.331	14.4.0
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52			Rel-15		
2017-11-17 03:32:52			Rel-15		
2017-11-16 13:34:38			Rel-15	36.304	14.4.0
2017-11-17 06:05:05			Rel-15		
2017-11-17 06:05:05			Rel-15		
2017-11-17 06:05:05			Rel-15		
2017-11-17 06:05:05	R2-1711055		Rel-15		
2017-11-17 06:05:05	R2-1711056		Rel-15		
2017-11-17 06:05:05	R2-1711058		Rel-15		
2017-11-17 06:05:05	R2-1711059		Rel-15		
2017-11-16 13:34:38	R2-1711486		Rel-15		
2017-11-16 13:34:38	R2-1711483		Rel-15		
2017-11-17 06:13:10			Rel-15		
2017-11-17 06:13:10			Rel-15		
2017-11-17 06:13:10			Rel-15		
2017-11-17 06:13:10			Rel-15		
2017-11-17 06:13:10			Rel-15		
2017-11-17 06:13:10			Rel-15		
2017-11-17 06:13:10			Rel-15		
2017-11-17 06:13:10			Rel-15		
			Rel-13	36.331	13.7.1
2017-11-17 03:32:52	R2-1711883	R2-1714001	Rel-14	36.321	14.4.0
2017-11-17 03:32:52		R2-1713962	Rel-14	36.331	14.4.0
2017-11-17 03:32:52		R2-1714254	Rel-14	36.306	14.4.0
2017-11-17 03:32:52		R2-1714255	Rel-14	36.321	14.4.0
2017-11-17 03:32:52		R2-1714256	Rel-14	36.331	14.4.0
			Rel-14	36.331	14.4.0
2017-11-17 07:27:39	R2-1711882		Rel-13	36.300	13.9.0
2017-11-17 07:27:39	R2-1711886	R2-1713971	Rel-13	36.331	13.7.0
2017-11-17 07:27:39	R2-1711231	R2-1713972	Rel-14	36.331	14.4.0
2017-11-17 07:27:39	R2-1711225		Rel-14	36.321	14.4.0
2017-11-17 05:10:02					
2017-11-17 04:42:22			Rel-15		
2017-11-17 03:56:18		R2-1713851	Rel-15		
2017-11-17 03:56:18			Rel-15		
2017-11-17 03:56:18			Rel-15		
2017-11-17 03:18:57	R2-1710394		Rel-15		
2017-11-17 03:18:57			Rel-15		

2017-11-17 05:25:53			Rel-15		
2017-11-17 03:18:57			Rel-15		
2017-11-17 03:18:57		R2-1714083	Rel-15	36.300	14.4.0
2017-11-17 03:18:57		R2-1714158	Rel-15	36.306	14.4.0
2017-11-17 03:18:57		R2-1714159	Rel-15	36.323	14.4.0
2017-11-17 03:18:57		R2-1714160	Rel-15	36.331	14.4.0
2017-11-17 03:18:57			Rel-14		
2017-11-17 03:18:57			Rel-14	36.331	14.4.0
2017-11-17 03:18:57			Rel-14		
2017-11-17 03:18:57		R2-1714040	Rel-14	36.306	14.4.0
2017-11-17 03:18:57		R2-1714041	Rel-14	36.331	14.4.0
2017-11-17 05:10:02					
2017-11-17 05:10:02					
2017-11-16 20:27:43			Rel-10	36.300	10.12.0
2017-11-17 05:10:02					
2017-11-17 05:10:02					
2017-11-16 20:27:43			Rel-11	36.300	11.14.0
2017-11-17 05:10:02					
2017-11-16 15:37:45		R2-1714122	Rel-15		
2017-11-16 20:27:43			Rel-12	36.300	12.10.0
2017-11-16 17:13:02			Rel-15		
2017-11-16 20:27:43			Rel-13	36.300	13.9.0
2017-11-17 03:18:57	R2-1709000		Rel-15		
2017-11-17 03:18:57			Rel-15	36.331	14.4.0
2017-11-17 03:18:57			Rel-15		
2017-11-17 03:18:57			Rel-15	36.306	14.4.0
2017-11-17 03:18:57			Rel-15	36.331	14.4.0
2017-11-16 17:13:02			Rel-15		
2017-11-16 20:27:43			Rel-14	36.300	14.4.0
2017-11-17 07:01:07	R2-1711459		Rel-15		
2017-11-17 07:01:07			Rel-15		
2017-11-17 07:01:08	R2-1711445		Rel-15		
2017-11-17 07:01:08			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		

2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-16 23:10:23			Rel-15		
2017-11-17 07:29:09			Rel-15		
2017-11-17 07:29:09	R2-1710455		Rel-15		
2017-11-17 07:29:09	R2-1710456		Rel-15		
2017-11-17 07:29:09			Rel-15		
2017-11-17 07:29:09	R2-1710460		Rel-15		
2017-11-17 07:29:09	R2-1710461		Rel-15		
2017-11-17 07:29:09	R2-1710462		Rel-15		
2017-11-17 07:29:09	R2-1710463		Rel-15		
2017-11-17 07:29:09	R2-1710465		Rel-15		
2017-11-17 07:29:09	R2-1710466		Rel-15		
2017-11-17 07:29:09	R2-1710467		Rel-15		
2017-11-17 07:29:09	R2-1710469		Rel-15		
2017-11-17 07:29:09	R2-1710468		Rel-15		
2017-11-17 07:29:09	R2-1710470		Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		

2017-11-17 01:34:11			Rel-15		
2017-11-17 01:34:11			Rel-15		
2017-11-16 21:04:19			Rel-15	36.306	14.4.0
2017-11-16 14:30:53			Rel-15		
2017-11-16 21:04:19			Rel-15	36.323	14.4.0
2017-11-16 21:05:16			Rel-15	36.331	14.4.0
2017-11-17 03:47:19			Rel-15		
2017-11-17 03:47:19			Rel-15		
2017-11-17 05:31:00			Rel-15		
2017-11-17 05:31:00			Rel-15		
2017-11-17 05:31:00			Rel-15		
2017-11-17 05:31:00			Rel-15		
2017-11-17 05:31:01			Rel-15		
2017-11-17 05:31:01	R2-1710401		Rel-15		
2017-11-17 05:31:01			Rel-15		
2017-11-17 05:31:01			Rel-15		
2017-11-17 05:31:01	R2-1710404		Rel-15	36.321	14.4.0
2017-11-17 05:21:28			Rel-15		
2017-11-17 05:21:28			Rel-15		
2017-11-17 05:21:28			Rel-15		
2017-11-17 05:21:28			Rel-15		
2017-11-17 05:31:01			Rel-15		
2017-11-24 06:33:35			Rel-15		
2017-11-24 06:33:35			Rel-15		
2017-11-17 05:21:28	R2-1710409		Rel-15		
2017-11-17 05:21:28			Rel-15		
2017-11-17 05:10:24			Rel-15		
2017-11-17 05:10:24			Rel-15		
2017-11-17 05:10:24	R2-1710411		Rel-15		
2017-11-17 05:10:24			Rel-15		
2017-11-17 05:05:07			Rel-15		
2017-11-17 05:05:07	R2-1711116		Rel-15		
2017-11-17 05:05:07			Rel-15		
2017-11-17 05:05:07			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-17 01:47:46			Rel-15		

2017-11-17 01:47:46			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-16 21:04:19			Rel-15		
2017-11-16 21:04:19			Rel-15		
2017-11-17 06:21:04			Rel-15		
2017-11-16 23:13:59	R2-1711830	R2-1713959	Rel-14	36.331	14.4.0
2017-11-17 06:13:10			Rel-15	38.331	0.1.0
2017-11-16 21:04:19			Rel-15		
2017-11-16 21:04:19			Rel-15		
2017-11-17 08:05:56			Rel-15		
2017-11-16 21:04:19			Rel-15		
2017-11-17 08:05:56	R2-1710855		Rel-15		
2017-11-16 16:27:34					
2017-11-16 16:27:34	R2-1707687		Rel-15		
2017-11-16 20:03:20	R2-1711442		Rel-15		
2017-11-16 20:03:20	R2-1711425		Rel-15		
2017-11-16 16:27:34			Rel-15		
2017-11-16 16:27:34					
2017-11-16 16:27:34			Rel-15		
2017-11-16 16:27:34					
2017-11-16 16:27:34	R2-1707689		Rel-15		
2017-11-16 16:27:34					
2017-11-16 16:27:34					
2017-11-16 16:27:34	R2-1707677		Rel-15		
2017-11-16 16:27:34					
2017-11-16 16:27:34	R2-1707676		Rel-15		
2017-11-16 16:27:34	R2-1707688		Rel-15		

2017-11-17 01:17:23			Rel-14	36.331	14.4.0
2017-11-17 06:05:58			Rel-15		
2017-11-17 06:05:58			Rel-15		
2017-11-17 06:05:58			Rel-15		
2017-11-17 06:05:58			Rel-15		
2017-11-17 06:05:58			Rel-15		
2017-11-17 06:05:58			Rel-15		
2017-11-17 01:17:23	R2-1710686	R2-1714035	Rel-14	36.331	14.4.0
2017-11-17 01:17:23	R2-1710688				
2017-11-17 01:17:23	R2-1710689		Rel-14	36.331	14.4.0
2017-11-17 01:17:23	R2-1710682		Rel-15		
2017-11-17 01:24:39			Rel-15		
2017-11-17 01:24:39			Rel-15		
2017-11-17 01:24:39			Rel-15		
2017-11-17 01:24:39			Rel-15		
2017-11-17 01:24:39			Rel-15		
2017-11-17 01:24:39			Rel-15		
2017-11-17 01:24:39			Rel-15		
2017-11-17 01:24:39			Rel-15		
2017-11-17 01:24:39			Rel-15		
2017-11-17 01:24:40			Rel-15		
2017-11-17 01:24:40			Rel-15		
2017-11-17 01:24:40			Rel-15		
2017-11-17 01:24:40			Rel-15		
2017-11-17 01:24:40			Rel-15		
2017-11-17 01:24:40			Rel-15		
2017-11-17 01:17:23			Rel-15		
2017-11-17 01:17:23			Rel-15		
2017-11-16 22:42:53		R2-1713954			
2017-11-17 01:17:48					
2017-11-16 17:22:40			Rel-15		
2017-11-17 07:13:23			Rel-15		
2017-11-16 17:22:40			Rel-15		
2017-11-17 10:18:57			Rel-15		
2017-11-17 07:29:52			Rel-15		

2017-11-16 17:04:14	R2-1711854		Rel-14	36.331	14.4.0
2017-11-17 07:29:52			Rel-15		
2017-11-17 07:29:52			Rel-15		
2017-11-17 05:15:00			Rel-15		
2017-11-17 05:15:00			Rel-15		
2017-11-17 05:15:00			Rel-15		
2017-11-17 05:15:00			Rel-15		
2017-11-17 05:15:00			Rel-15		
2017-11-17 05:15:00			Rel-15		
2017-11-17 05:15:00			Rel-15	36.331	14.4.0
2017-11-17 05:15:00			Rel-15	36.323	14.4.0
2017-11-17 05:15:00			Rel-15	36.306	14.4.0
2017-11-16 17:42:54			Rel-15	36.300	14.4.0
2017-11-17 01:24:40			Rel-15		
2017-11-17 07:55:32			Rel-15		
2017-11-16 17:47:29	R2-1711521		Rel-15		
2017-11-16 17:47:29	R2-1711522		Rel-15		
2017-11-17 00:37:01			Rel-15		
2017-11-17 01:04:44			Rel-15		
2017-12-02 06:07:57			Rel-15		
2017-11-16 17:54:46					
2017-11-17 00:46:33			Rel-15		
2017-11-17 00:46:33			Rel-15		
2017-11-17 00:46:33			Rel-15		
2017-11-17 00:46:33			Rel-15		
2017-11-17 00:46:33			Rel-15		
2017-11-17 00:46:33			Rel-15		
2017-11-17 00:46:33			Rel-15		
2017-11-17 00:46:33			Rel-15		
2017-11-17 00:46:33			Rel-15		
2017-11-17 00:46:33			Rel-15		
2017-11-16 17:54:46	R2-1711752				
2017-11-16 17:54:46	R2-1711771				
2017-11-16 17:54:46	R2-1711796		Rel-15		
2017-11-16 18:12:29			Rel-15		
2017-11-16 17:54:46	R2-1711818				
2017-11-17 07:13:23			Rel-15		
2017-11-17 08:58:36			Rel-15		
2017-11-22 20:06:04					
2017-11-17 01:42:41	R2-1711938		Rel-15		

2017-11-16 23:40:41	R2-1711512		Rel-14	36.331	14.4.0
2017-11-16 23:40:41					
2017-11-16 23:40:41	R2-1711505	R2-1713949	Rel-15	36.331	14.4.0
2017-11-23 21:56:36			Rel-15		
2017-11-16 23:40:41			Rel-15	36.331	14.4.0
2017-11-16 22:13:29			Rel-15	37.324	1.1.1
2017-11-16 22:13:27			Rel-15	37.324	
2017-11-16 21:04:19			Rel-15	36.314	14.0.0
2017-11-16 21:04:19			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18		R2-1714191	Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18		R2-1713941	Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18			Rel-15		
2017-11-17 06:13:40					
2017-11-16 22:59:50	R2-1711930	R2-1714213	Rel-14	36.331	14.4.0
2017-11-16 22:59:50	R2-1711004		Rel-15		
2017-11-16 22:59:50	R2-1710999		Rel-15		
2017-11-16 23:27:00			Rel-14	36.302	14.3.0
2017-11-16 23:42:46			Rel-15		

2017-11-17 00:09:12	R2-1710540		Rel-15		
2017-11-17 00:09:12	R2-1710541		Rel-15		
2017-11-17 00:09:12	R2-1711501		Rel-15		
2017-11-17 00:50:18		R2-1714154	Rel-15		
2017-11-17 08:05:26			Rel-15		
2017-11-17 07:54:38			Rel-15		
2017-11-20 14:04:15			Rel-15		
2017-11-21 13:25:07			Rel-15		
2017-11-17 02:55:04					
2017-11-17 02:55:04					
2017-11-16 23:20:49			Rel-15		
2017-11-17 00:25:04			Rel-15		
2017-11-16 23:20:49			Rel-15		
2017-11-17 05:30:11					
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:08:35		R2-1714053	Rel-14	36.300	14.4.0
2017-11-17 00:08:35			Rel-14		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		

2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15		
2017-11-17 00:08:35			Rel-15	36.306	14.4.0
2017-11-17 00:08:35			Rel-15	36.331	14.4.0
2017-11-17 00:08:35			Rel-15		
2017-11-17 06:48:58					
2017-11-17 00:50:18		R2-1714070	Rel-15		
2017-11-16 23:20:49					
2017-11-17 00:50:18			Rel-15		
2017-11-17 01:47:46			Rel-15		
2017-11-17 00:50:18					
2017-11-16 23:13:59					
2017-11-17 00:50:18			Rel-15		
2017-11-17 00:50:18		R2-1714192	Rel-15		
2017-11-16 23:22:08	R2-1711581		Rel-15		
2017-11-17 00:02:48			Rel-15		
2017-11-23 20:12:40			Rel-15		
2017-11-17 00:47:07			Rel-15		
2017-11-17 00:14:19			Rel-15		
2017-11-16 23:47:12			Rel-12	36.331	12.15.1
2017-11-17 20:47:55	R2-1711466		Rel-14	36.331	14.4.0
2017-11-16 23:47:12			Rel-13	36.331	13.7.1
2017-11-21 11:05:46		R2-1714276	Rel-15	36.777	0.4.0
2017-11-17 07:58:22			Rel-15		
2017-11-16 23:47:12			Rel-14	36.331	14.4.0
2017-11-21 10:55:50			Rel-15		
2017-11-17 00:09:12	R2-1705184		Rel-15		
2017-11-17 07:58:22			Rel-15		
2017-11-17 00:10:07			Rel-12	36.302	12.8.0
2017-11-17 00:10:07			Rel-13	36.302	13.6.0
2017-11-17 00:10:07		R2-1714038	Rel-14	36.302	14.3.0

2017-11-16 23:59:01			Rel-15		
2017-11-17 07:58:22			Rel-15		
2017-11-16 23:59:19			Rel-15		
2017-11-17 09:04:47			Rel-15		
2017-11-16 23:59:31			Rel-15		
2017-11-16 23:59:44			Rel-15		
2017-11-17 00:09:12	R2-1711487		Rel-15		
2017-11-17 01:14:35	R2-1711467	R2-1714054	Rel-13	36.331	13.7.1
2017-11-17 08:16:05			Rel-15		
2017-11-17 20:47:55	R2-1711466		Rel-14	36.331	14.4.0
2017-11-17 00:09:12	R2-1711498		Rel-15		
2017-11-17 01:27:34					
2017-11-17 01:14:35	R2-1711471	R2-1714055	Rel-14	36.331	14.4.0
2017-11-17 00:09:12	R2-1711500		Rel-15		
2017-11-17 01:14:35	R2-1711466		Rel-14	36.331	14.4.0
2017-11-17 05:55:09					
2017-11-17 05:55:09					
2017-11-17 05:10:04	R2-1711762				
2017-11-17 05:56:22	R2-1711767				
2017-11-17 05:56:22	R2-1711768				
2017-11-17 05:10:04					
2017-11-17 05:10:04	R2-1711769				
2017-11-17 00:50:18			Rel-15		
2017-11-17 04:22:50	R2-1711006		Rel-15		
	R2-1710246		Rel-14	36.331	14.4.0
2017-11-17 00:40:42	R2-1711089		Rel-15		

2017-11-17 01:14:35	R2-1710246		Rel-14	36.331	14.4.0
2017-11-17 00:40:57	R2-1707946		Rel-15		
2017-11-17 01:02:14			Rel-15		
2017-11-17 01:02:14			Rel-15		
2017-11-17 01:02:14	R2-1711543		Rel-15		
2017-11-17 01:02:14			Rel-15		
2017-11-17 01:02:14	R2-1711544		Rel-15		
2017-11-17 03:00:30			Rel-15		
2017-11-17 03:18:58	R2-1703023		Rel-15		
2017-11-17 01:14:35	R2-1710247		Rel-14	36.306	14.4.0
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05		R2-1714128	Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
			Rel-15		
2017-11-17 03:03:05			Rel-15		

2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:03:05			Rel-15		
2017-11-17 03:18:58	R2-1711558		Rel-15		
2017-11-17 04:39:55					
2017-11-17 04:39:55	R2-1711122		Rel-15		
2017-11-17 01:08:22			Rel-15		
2017-11-17 04:57:09	R2-1711588		Rel-15	38.304	0.0.6
2017-11-17 04:39:55					
2017-11-17 04:57:09	R2-1710785				
2017-11-17 04:39:55	R2-1711124		Rel-15		
2017-11-17 04:39:55	R2-1711125		Rel-15		
2017-11-17 04:39:55	R2-1711126		Rel-15		
2017-11-17 04:39:55	R2-1711143		Rel-15		
2017-11-17 02:08:19			Rel-15		
2017-11-17 02:08:19			Rel-15		
2017-11-17 02:08:19			Rel-15		
2017-11-17 02:08:19			Rel-15		
2017-11-17 02:07:05	R2-1711644		Rel-13	36.331	13.7.1
2017-11-17 02:07:05	R2-1711645		Rel-14	36.331	14.4.0
2017-11-17 02:08:19			Rel-13	36.331	13.7.1
2017-11-17 02:08:19			Rel-14	36.331	14.4.0
2017-11-23 22:03:36			Rel-15		
2017-11-21 21:15:33		R2-1714126	Rel-15	38.331	0.2.0
2017-11-23 22:03:36			Rel-15		
2017-11-17 04:39:55	R2-1711149		Rel-15		
2017-11-17 04:39:55	R2-1711127		Rel-15		
2017-11-17 01:20:14	R2-1711609				
2017-11-17 04:39:55	R2-1711145		Rel-15		
2017-11-17 06:03:45			Rel-15		
2017-11-17 06:03:45			Rel-15		
2017-11-17 06:03:45			Rel-15		
2017-11-17 06:03:45			Rel-15		
2017-11-17 06:03:45			Rel-15	36.331	14.4.0
2017-11-17 06:03:45			Rel-15		
2017-11-17 05:19:02			Rel-15		
2017-11-17 05:19:02			Rel-15		
2017-11-17 04:39:55	R2-1711150		Rel-15		
2017-11-17 05:07:49					
2017-11-17 01:20:14	R2-1711612				

2017-11-17 04:31:06					
2017-11-17 05:19:02	R2-1711668		Rel-15		
2017-11-17 05:19:02			Rel-15		
2017-11-17 05:07:49					
2017-11-17 01:20:14					
2017-11-17 04:39:55	R2-1711147		Rel-15		
2017-11-17 01:47:46					
2017-11-17 05:07:49	R2-1711572		Rel-15		
2017-11-17 05:07:49	R2-1711569		Rel-15		
2017-11-17 05:07:49	R2-1711570		Rel-15		
2017-11-17 05:07:49					
2017-11-17 06:17:13					
2017-11-17 01:32:12	R2-1709068				
2017-11-17 01:32:14		R2-1714273	Rel-15	38.323	1.0.1
2017-11-17 01:32:14			Rel-15		
2017-11-17 01:32:14			Rel-15		
2017-11-17 01:32:14			Rel-15		
2017-11-17 06:24:30			Rel-14	36.331	14.4.0
2017-11-17 01:27:34					
2017-11-17 01:32:12	R2-1711748				
2017-11-17 01:32:12	R2-1709074				
2017-11-17 01:32:12	R2-1709071				
2017-11-17 01:32:12	R2-1711755				
2017-11-17 04:53:03	R2-1711744				
2017-11-17 06:24:30			Rel-13	36.321	13.7.0
2017-11-17 06:24:30			Rel-14	36.321	14.4.0
2017-11-17 06:48:23					
2017-11-17 06:48:23					
2017-11-17 06:48:23					
2017-11-17 07:00:40					
2017-11-17 06:48:23					
2017-11-17 06:48:23					
2017-11-20 01:12:00					
2017-11-17 06:56:04					
2017-11-17 03:48:11			Rel-15	36.331	14.4.0
2017-11-17 06:21:04			Rel-15		
2017-11-17 03:48:11			Rel-15	36.306	14.4.0
2017-11-17 06:45:08			Rel-15		
2017-11-17 03:18:58			Rel-15		
2017-11-17 03:18:58			Rel-15	36.323	14.4.0
2017-11-17 05:50:18			Rel-15		
2017-11-17 02:39:36	R2-1711382		Rel-15		

2017-11-17 03:18:58			Rel-15	36.331	14.4.0
2017-11-17 07:50:30	R2-1710742		Rel-15	36.306	14.4.0
2017-11-17 07:50:30	R2-1710743	R2-1714005	Rel-15	36.322	14.1.0
2017-11-17 04:25:44	R2-1711383		Rel-15		
2017-11-17 04:25:44	R2-1711384		Rel-15		
2017-11-17 04:25:44	R2-1711385		Rel-15		
2017-11-17 04:25:44	R2-1711386		Rel-15		
2017-11-17 04:25:44	R2-1711387		Rel-15		
2017-11-17 04:25:44	R2-1711389		Rel-15		
2017-11-17 04:25:44	R2-1711390		Rel-15		
2017-11-17 04:25:44	R2-1711398		Rel-15		
2017-11-17 04:25:44	R2-1711395		Rel-15		
2017-11-17 04:25:44	R2-1711396		Rel-15		
2017-11-17 04:25:44	R2-1711394		Rel-15		
2017-11-17 04:25:44	R2-1711393		Rel-15		
2017-11-17 04:25:44	R2-1711391		Rel-15		
2017-11-17 04:25:44	R2-1711392		Rel-15		
2017-11-17 04:25:44			Rel-15		
2017-11-17 04:25:44			Rel-15		
2017-11-17 03:18:58			Rel-15	36.323	14.4.0
2017-11-23 10:37:22			Rel-15	36.321	14.4.0
2017-11-17 07:49:10			Rel-15	36.331	14.4.0
2017-11-23 10:37:22			Rel-15	36.331	14.4.0
2017-11-17 03:18:58		R2-1714214	Rel-15	36.323	14.4.0
2017-11-17 07:49:10			Rel-15		
2017-11-17 03:18:58			Rel-15		
2017-11-17 03:18:58			Rel-15		
2017-11-17 03:18:58			Rel-15		
2017-11-17 03:47:49			Rel-14		
2017-11-17 03:47:49			Rel-14	36.331	14.4.0
2017-11-17 06:45:04	R2-1710807		Rel-15		
2017-11-17 07:05:38			Rel-15		
2017-11-17 07:05:38	R2-1710810		Rel-15		
2017-11-17 07:05:38			Rel-15		
2017-11-17 07:05:38	R2-1710812		Rel-15		
2017-11-17 07:05:38			Rel-15		
2017-11-17 07:05:38	R2-1710813		Rel-15		
2017-11-17 07:05:38	R2-1710814		Rel-15		
2017-11-17 04:47:27	R2-1710906		Rel-15		
2017-11-17 07:49:42			Rel-15		
2017-11-17 07:38:36			Rel-15		
2017-11-17 07:38:36			Rel-15		
2017-11-17 03:16:25			Rel-15		

2017-11-17 04:57:09	R2-1710793				
2017-11-17 04:07:38			Rel-15		
2017-11-17 04:07:38			Rel-15		
2017-11-17 04:07:38			Rel-15		
2017-11-17 04:07:38			Rel-15		
2017-11-17 04:07:38			Rel-15		
2017-11-17 04:07:38			Rel-15		
2017-11-17 04:07:38			Rel-15		
2017-11-17 04:07:38			Rel-15		
2017-11-17 04:07:38			Rel-15		
2017-11-17 04:11:51			Rel-15		
2017-11-17 04:19:41					
2017-11-17 04:19:55					
2017-11-17 04:01:59					
2017-11-17 04:20:06					
2017-11-17 04:20:31					
	R2-1711754				
2017-11-17 06:01:39	R2-1711754				
2017-11-17 06:01:38					
2017-11-17 06:01:38					
2017-11-17 06:36:10	R2-1711155		Rel-15		
2017-11-17 06:36:10	R2-1711156		Rel-15		
2017-11-17 06:36:10	R2-1711158		Rel-15		
2017-11-17 06:36:10	R2-1711160		Rel-15		
2017-11-17 06:36:10	R2-1711638		Rel-15		
2017-11-17 06:36:10	R2-1711157		Rel-15		
2017-11-17 07:13:44			Rel-15		
2017-11-17 06:45:04					
2017-11-17 06:43:22	R2-1711646		Rel-15		
2017-11-17 06:43:22	R2-1711647		Rel-15		
2017-11-17 06:43:22	R2-1711648		Rel-15		
2017-11-17 06:43:22	R2-1711649		Rel-15		
2017-11-17 06:43:22			Rel-15		

2017-11-17 06:43:22			Rel-15		
2017-11-17 06:01:39					
2017-11-17 04:42:52			Rel-15	36.323	14.4.0
2017-11-17 04:42:52			Rel-15	36.331	14.4.0
2017-11-17 04:42:52			Rel-15	36.323	14.4.0
2017-11-17 04:47:46			Rel-15		
2017-11-17 04:48:11			Rel-15	36.323	14.4.0
2017-11-17 05:07:33	R2-1711803				
2017-11-17 07:36:36					
2017-11-17 05:07:33	R2-1711798				
2017-11-17 05:07:33	R2-1711800				
2017-11-17 05:07:33	R2-1711801				
2017-11-17 05:07:33	R2-1711806				
2017-11-17 05:07:33	R2-1711797				
2017-11-17 04:48:11			Rel-15	36.331	14.4.0
2017-11-17 04:48:11			Rel-15	36.306	14.4.0
2017-11-17 04:57:09	R2-1710798				
2017-11-17 05:57:14	R2-1711420		Rel-15		
2017-11-17 05:57:14	R2-1711419		Rel-15		
			Rel-15		
2017-11-17 05:57:14	R2-1711402		Rel-15		
			Rel-15		
2017-11-17 05:57:14	R2-1711403		Rel-15		
2017-11-17 05:57:14	R2-1711375		Rel-15		
2017-11-17 05:57:14	R2-1711378		Rel-15		
2017-11-17 05:57:14	R2-1711376		Rel-15		
2017-11-17 05:05:07			Rel-15		
2017-11-17 04:43:10	R2-1711713				
2017-11-17 04:43:10					
2017-11-17 04:43:10	R2-1711715				
2017-11-17 04:43:10	R2-1711716				
2017-11-17 04:43:10	R2-1711721				
2017-11-17 04:43:10					
2017-11-17 04:43:10	R2-1711722				
2017-11-17 04:57:09	R2-1710805				
2017-11-17 05:31:54	R2-1711695		Rel-15		

2017-11-17 05:31:54	R2-1711701		Rel-15		
2017-11-17 05:31:54	R2-1711702		Rel-15		
2017-11-17 05:31:54	R2-1711703		Rel-15		
2017-11-17 05:31:54	R2-1711706		Rel-15		
2017-11-17 05:31:54	R2-1711708		Rel-15		
2017-11-17 05:31:54			Rel-15		
2017-11-17 05:31:54			Rel-15		
2017-11-17 05:31:54			Rel-15		
2017-11-17 05:31:54			Rel-15		
2017-11-17 05:31:54			Rel-15		
2017-11-17 04:57:09	R2-1710806				
2017-11-17 06:43:22			Rel-15	36.304	14.4.0
2017-11-17 07:01:36					
2017-11-17 06:43:22			Rel-15	36.331	14.4.0
2017-11-17 07:01:36					
2017-11-17 06:43:22			Rel-15	36.331	14.4.0
2017-11-17 06:31:38	R2-1711852		Rel-14	36.321	14.4.0
2017-11-17 07:58:29			Rel-15		
2017-11-17 06:31:38	R2-1709128		Rel-15		
2017-11-17 06:31:38	R2-1707134		Rel-15		
2017-11-17 06:31:38	R2-1709131		Rel-15		
2017-11-17 06:31:39	R2-1709133		Rel-15		
2017-11-17 06:31:38			Rel-15		
2017-11-17 06:31:38	R2-1711686		Rel-15		
2017-11-17 06:31:38			Rel-14		
			Rel-14	36.331	
2017-11-17 07:58:29			Rel-15		
2017-11-17 06:33:29			Rel-15		
2017-11-17 05:48:11	R2-1711782		Rel-15		
2017-11-17 05:48:11	R2-1711783		Rel-15		
2017-11-17 05:48:11	R2-1711785		Rel-15		
2017-11-17 05:48:11	R2-1711786		Rel-15		
2017-11-17 05:48:11	R2-1711788		Rel-15		
2017-11-17 06:33:29			Rel-15		
2017-11-17 06:31:38			Rel-14	36.331	14.4.0
2017-11-21 08:33:40			Rel-15		
			Rel-15		
2017-11-17 07:58:29			Rel-15		
2017-11-17 06:36:19	R2-1711775				

2017-11-17 05:31:43			Rel-15		
2017-11-17 06:36:19	R2-1711812				
2017-11-17 06:10:39	R2-1711602				
2017-11-17 06:10:39	R2-1711600				
2017-11-17 06:10:39	R2-1711603				
2017-11-17 06:10:39	R2-1711607				
2017-11-17 06:10:39	R2-1711606				
2017-11-17 06:10:39					
2017-11-17 06:10:39	R2-1711599				
2017-11-17 06:10:39					
2017-11-17 06:48:57					
2017-11-17 05:24:06	R2-1713228		Rel-15		
2017-11-17 06:32:51			Rel-15		
	R2-1711412				
2017-11-17 06:48:57	R2-1711412				
	R2-1711413				
2017-11-17 06:48:57	R2-1711413				
2017-11-17 06:48:57	R2-1711416				
2017-11-17 06:48:57					
2017-11-17 06:48:57					
2017-11-17 06:33:29	R2-1711566		Rel-15		
2017-11-17 05:49:21			Rel-15		
2017-11-17 07:01:24			Rel-15		
2017-11-17 07:01:24			Rel-15		
2017-11-17 07:30:10			Rel-15		
2017-11-17 07:30:10			Rel-15		
2017-11-17 07:30:10			Rel-15		
2017-11-17 07:30:10			Rel-15		
2017-11-17 07:30:10			Rel-15		
2017-11-17 07:30:10			Rel-15		
2017-11-17 07:30:10			Rel-15		
2017-11-17 07:30:10			Rel-15		
2017-11-17 07:30:10			Rel-15		
2017-11-17 06:36:19					
2017-11-17 05:55:41		R2-1714177	Rel-14	36.321	14.4.0
2017-11-17 06:14:21	R2-1711774				
2017-11-17 06:18:44			Rel-15		

2017-11-17 06:14:21					
2017-11-17 06:04:35					
2017-11-17 06:04:35		R2-1714046			
2017-11-17 06:04:35					
2017-11-17 06:04:35					
2017-11-17 06:04:35					
2017-11-17 06:14:21	R2-1711776				
2017-11-17 07:45:55			Rel-15		
2017-11-17 06:14:22	R2-1711779				
2017-11-17 06:45:50	R2-1711347		Rel-15		
2017-11-17 06:45:50	R2-1711361		Rel-15		
2017-11-17 06:14:22	R2-1711791				
2017-11-17 06:45:50	R2-1711360		Rel-15		
2017-11-17 06:14:22					
2017-11-17 06:45:50	R2-1711348		Rel-15		
2017-11-17 06:14:22	R2-1711793				
2017-11-17 06:45:50	R2-1711363		Rel-15		
2017-11-17 06:14:22	R2-1711795				
2017-11-17 07:11:14			Rel-15		
2017-11-17 06:23:17			Rel-15		
2017-11-17 06:48:57					
2017-11-17 07:28:08			Rel-15		
2017-11-17 07:16:39		R2-1713937	Rel-15		
2017-11-17 07:03:46			Rel-15		
2017-11-17 07:03:15	R2-1711735				
2017-11-17 07:37:37	R2-1710800				
2017-11-17 07:19:08			Rel-15		
2017-11-17 07:55:27					
2017-11-17 07:24:02			Rel-15		
2017-11-17 07:26:45			Rel-15		
2017-11-17 07:55:27			Rel-15	36.314	14.0.0
2017-11-17 07:44:48					
2017-11-17 07:44:48					
2017-12-02 06:07:57					

2017-11-17 07:59:09					
2017-11-17 07:59:09					
2017-11-17 07:57:42					
2017-11-17 07:57:42					
2017-11-23 10:22:37					
2017-11-17 08:02:38					
2017-11-17 08:02:38					
2017-11-17 08:02:38					
2017-11-17 08:18:09					
2017-11-22 06:06:55					
2017-11-20 15:20:28			Rel-15		
2017-11-17 08:14:53					
2017-11-22 10:46:42	R2-1713179		Rel-15		
2017-11-17 16:18:45					
2017-11-17 16:18:45			Rel-15		
2017-11-17 20:15:41			Rel-15		
2017-11-17 20:15:41			Rel-15		
2017-11-17 20:15:41			Rel-15		
2017-11-17 20:15:41			Rel-15		
2017-11-17 20:16:40			Rel-15		
2017-11-17 21:54:11	R2-1711502		Rel-15		
2017-11-18 11:01:34			Rel-15		
2017-11-21 11:43:12	R2-1712177				
2017-11-22 09:24:58			Rel-15		
2017-11-20 20:55:53	R2-1711362		Rel-14	36.321	14.4.0
2017-11-21 19:23:57	R2-1713900		Rel-15		
2017-11-22 11:53:03			Rel-15		
2017-11-21 13:14:51	R2-1712906		Rel-15		
2017-11-21 13:22:38			Rel-15		
2017-11-21 15:34:26	R2-1713469		Rel-15		
2017-11-22 09:24:58	R2-1712891		Rel-15	38.331	0.2.0
2017-11-22 09:39:03			Rel-15	38.321	
2017-11-22 09:39:03			Rel-15	38.321	
2017-11-22 09:39:03			Rel-15		

2017-11-22 10:46:20	R2-1712247				
2017-11-22 10:46:20	R2-1712240				
2017-11-23 10:41:18	R2-1713178		Rel-15		
2017-11-23 22:04:25	R2-1713455	R2-1714142	Rel-15	36.331	14.4.0
2017-11-22 20:11:24			Rel-15		
2017-11-24 10:28:10	R2-1712287				
2017-11-23 10:51:19					
2017-11-23 20:12:40			Rel-15		
2017-11-24 10:56:16	R2-1713406				
2017-11-24 11:41:12	R2-1712999		Rel-15		
2017-11-24 14:43:41			Rel-15	36.331	14.4.0
2017-11-17 20:47:55	R2-1712404	R2-1714229	Rel-14	36.331	14.4.0
2017-11-17 20:47:55	R2-1712403	R2-1714111	Rel-12		
2017-11-17 20:47:55	R2-1713355	R2-1714000	Rel-14	36.331	14.4.0
2017-11-17 20:47:55	R2-1713129		Rel-13	36.304	13.7.0
2017-11-17 20:47:55	R2-1713180		Rel-14	36.304	14.4.0
2017-11-17 20:47:55	R2-1713217		Rel-14	36.331	14.4.0
2017-11-17 20:47:55	R2-1713088		Rel-13	36.331	13.7.1
2017-11-17 20:47:55	R2-1713089		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1713091		Rel-14	36.300	14.4.0
2017-11-30 20:47:55	R2-1712634		Rel-13	36.331	13.7.0
2017-11-30 20:47:55	R2-1712635		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1713100		Rel-13	36.304	13.7.0
2017-11-30 20:47:55	R2-1713101	R2-1714215	Rel-14	36.304	14.4.0
2017-11-30 20:47:55	R2-1713223	R2-1713997	Rel-13	36.331	13.7.0
2017-11-30 20:47:55	R2-1713224	R2-1713998	Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712294	R2-1713999	Rel-13		
2017-11-30 20:47:55	R2-1713041		Rel-13	36.306	13.7.0
2017-11-30 20:47:55	R2-1713042		Rel-14	36.306	14.4.0
2017-11-30 20:47:55	R2-1713043		Rel-13	36.331	13.7.1

2017-11-30 20:47:55	R2-1713044		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712290		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712938	R2-1714264	Rel-14	36.321	14.4.0
2017-11-30 20:47:55	R2-1713104		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712632		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712633		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712470	R2-1714216	Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1713099		Rel-14	36.355	14.3.0
2017-11-30 20:47:55	R2-1712292		Rel-13	36.331	13.7.1
2017-11-30 20:47:55	R2-1712293		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1713013	R2-1714002	Rel-14	36.304	14.4.0
2017-11-30 20:47:55	R2-1713014	R2-1714003	Rel-14	36.306	14.4.0
2017-11-30 20:47:55	R2-1713015	R2-1714004	Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1713096		Rel-14	36.302	14.3.0
2017-11-30 20:47:55	R2-1713103		Rel-14	36.331	14.4.0
2017-11-30 20:47:55		R2-1714258	Rel-15		
2017-11-30 20:47:55	R2-1713028		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712637		Rel-14		
2017-11-30 20:47:55	R2-1713001	R2-1714250	Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1713971		Rel-13	36.331	13.7.1
2017-11-30 20:47:55	R2-1713972		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1713973		Rel-13		
2017-11-30 20:47:55	R2-1713959		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1713216	R2-1714007	Rel-14	36.321	14.4.0
2017-11-30 20:47:55	R2-1713987		Rel-14	36.304	14.4.0
2017-11-30 20:47:55	R2-1713988		Rel-14	36.306	14.4.0
2017-11-30 20:47:55	R2-1713989	R2-1714210	Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1713691		Rel-15	36.322	14.1.0
2017-11-30 20:47:55	R2-1713187	R2-1714008	Rel-15		
2017-11-30 20:47:55	R2-1714001		Rel-14	36.321	14.4.0
2017-11-30 20:47:55	R2-1714006		Rel-15		

2017-11-30 20:47:55	R2-1712555		Rel-14	36.300	14.4.0
2017-11-30 20:47:55	R2-1712557		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712622		Rel-14		
2017-11-30 20:47:55		R2-1714245	Rel-15		
2017-11-30 20:47:55	R2-1712655		Rel-15		
2017-11-30 20:47:55	R2-1713107	R2-1714015	Rel-15		
2017-11-30 20:47:55	R2-1714014		Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1713384	R2-1714065	Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712311		Rel-13	36.331	13.7.0
2017-11-30 20:47:55	R2-1712313		Rel-13	36.306	13.7.0
2017-11-30 20:47:55	R2-1713551		Rel-14	36.302	14.3.0
2017-11-30 20:47:55	R2-1712740	R2-1714064	Rel-14	36.331	14.4.0

2017-11-30 20:47:55	R2-1713242		Rel-14	36.306	14.4.0
2017-11-30 20:47:55	R2-1713243		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712645		Rel-14	36.306	14.4.0
2017-11-30 20:47:55		R2-1714049	Rel-15		
2017-11-30 20:47:55	R2-1713880				
2017-11-30 20:47:55			Rel-15	38.321	1.1.0
2017-11-30 20:47:55		R2-1714050	Rel-15		
2017-11-30 20:47:55	R2-1714045		Rel-15		
2017-11-30 20:47:55	R2-1714048		Rel-15		
2017-11-30 20:47:55	R2-1712742		Rel-14	36.302	14.3.0
2017-11-30 20:47:55	R2-1712974		Rel-15		
2017-11-30 20:47:55	R2-1713509		Rel-14	36.300	14.4.0
2017-11-30 20:47:55	R2-1713559		Rel-13	36.331	13.7.1
2017-11-30 20:47:55	R2-1713564		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712828				
2017-11-30 20:47:55	R2-1712787		Rel-15		
2017-12-07 22:22:25	R2-1713174		Rel-15		
2017-11-30 20:47:55		R2-1714062	Rel-15		
2017-11-30 20:47:55		R2-1714061	Rel-15		
2017-11-30 20:47:55	R2-1714060		Rel-15		
2017-11-30 20:47:55	R2-1714059		Rel-15		
2017-11-30 20:47:55	R2-1712980	R2-1714072	Rel-15	36.321	14.4.0
2017-11-30 20:47:55	R2-1714039		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1714035		Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712981		Rel-15	36.322	14.1.0
2017-11-30 20:47:55		R2-1714074	Rel-15		
2017-11-30 20:47:55	R2-1712935	R2-1714073	Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1713527		Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1714063		Rel-15	36.321	14.4.0
2017-11-30 20:47:55	R2-1714068		Rel-15		
2017-11-30 20:47:55	R2-1714067		Rel-15		
2017-11-30 20:47:55		R2-1714136	Rel-15		
2017-11-30 20:47:55		R2-1714125	Rel-15		
2017-11-30 20:47:55		R2-1714124	Rel-15		
2017-11-30 20:47:55		R2-1714129	Rel-15		
2017-12-08 10:01:41	R2-1712355	R2-1714252	Rel-15	38.300	1.2.2

2017-12-11 11:24:37	R2-1712302	R2-1714251	Rel-15	37.340	1.2.2
2017-11-30 20:47:55	R2-1712899		Rel-15	36.306	14.4.0
2017-11-30 20:47:55	R2-1712898		Rel-15	36.331	14.4.0
2017-11-30 20:47:55	R2-1713235	R2-1714179	Rel-15	36.300	14.4.0
2017-11-30 20:47:55		R2-1714278	Rel-15	36.323	14.4.0
2017-11-30 20:47:55		R2-1714279	Rel-15	36.331	14.4.0
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55		R2-1714186	Rel-15		
2017-11-30 20:47:55			Rel-15	36.777	0.4.0
2017-11-30 20:47:55					
2017-11-30 20:47:55					
2017-11-30 20:47:55	R2-1713958	R2-1714121	Rel-12		
2017-11-30 20:47:55			Rel-15		

2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55					
2017-11-30 20:47:55					
2017-11-30 20:47:55					
2017-11-30 20:47:55					
2017-11-30 20:47:55					
2017-11-30 20:47:55			Rel-14		
2017-11-30 20:47:55	R2-1714111		Rel-14		
2017-11-30 20:47:55	R2-1713251	R2-1714146	Rel-15		
2017-11-30 20:47:55		R2-1714147	Rel-15		
2017-11-30 20:47:55	R2-1714077		Rel-15		
2017-11-30 20:47:55	R2-1714076		Rel-15		
2017-11-30 20:47:55	R2-1713629	R2-1714259	Rel-15	38.331	0.3.0
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1713589		Rel-15		
2017-11-30 20:47:55	R2-1714078		Rel-15		
2017-11-30 20:47:55	R2-1712678		Rel-15		
2017-11-30 20:47:55		R2-1714187	Rel-15		
2017-11-30 20:47:55	R2-1714075		Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1712679	R2-1714270	Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1712587	R2-1714271	Rel-15	38.306	0.0.5
2017-12-13 14:54:14	R2-1713949		Rel-15	36.331	14.4.0
2017-11-30 20:47:55		R2-1714227	Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
	R2-1714122	R2-1714176	Rel-15		
2017-11-30 20:47:55	R2-1714123	R2-1714169	Rel-15		

2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-16		
2017-11-30 20:47:55		R2-1714231	Rel-15	36.777	0.4.0
2017-11-30 20:47:55		R2-1714232	Rel-15	36.777	0.4.0
2017-11-30 20:47:55	R2-1713497		Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55		R2-1714203	Rel-15		
2017-11-30 20:47:55	R2-1713236	R2-1714281	Rel-15	36.306	14.4.0
2017-11-30 20:47:55	R2-1713237	R2-1714282	Rel-15	36.323	14.4.0
2017-11-30 20:47:55	R2-1713238	R2-1714283	Rel-15	36.331	14.4.0
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55		R2-1714244	Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15	38.300	1.2.1
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1714147		Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-13	36.331	13.7.1
2017-11-30 20:47:55	R2-1714146		Rel-15		
2017-11-30 20:47:55	R2-1713875		Rel-14	36.321	14.4.0
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1714083		Rel-15	36.300	14.4.0
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-12-05 21:17:56			Rel-15		

2017-11-30 20:47:55	R2-1712890		Rel-15		
2017-11-30 20:47:55		R2-1714205	Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1714087		Rel-15		
2017-11-30 20:47:55	R2-1714131		Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15	38.321	1.1.0
2017-11-30 20:47:55	R2-1713463		Rel-15		
2017-11-30 20:47:55	R2-1713534		Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-14		
2017-11-30 20:47:55	R2-1714157		Rel-15		
2017-11-30 20:47:55		R2-1714206	Rel-15		
2017-11-30 20:47:55	R2-1714184		Rel-15		
2017-11-30 20:47:55	R2-1714204		Rel-15		
2017-11-30 20:47:55		R2-1714228	Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55					
2017-11-30 20:47:55	R2-1714004		Rel-14	36.331	14.4.0
2017-12-14 02:01:04	R2-1712192		Rel-14	36.331	14.4.0
2017-12-14 02:01:04	R2-1712288		Rel-13	36.331	13.7.1
2017-12-14 02:01:03	R2-1713489		Rel-14	36.331	14.4.0
2017-12-14 02:01:03	R2-1713712		Rel-14	36.323	14.4.0
2017-12-14 02:01:04	R2-1713970		Rel-14	36.304	14.4.0

2017-12-14 02:01:04	R2-1713983		Rel-14	36.331	14.4.0
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1714143		Rel-15		
2017-11-30 20:47:55	R2-1714207		Rel-15		
2017-11-30 20:47:55	R2-1713957	R2-1714284	Rel-14	36.331	14.4.0
2017-11-30 20:47:55	R2-1712359		Rel-15		
2017-11-30 20:47:55	R2-1714152		Rel-15	36.777	0.4.0
2017-11-30 20:47:55	R2-1714153		Rel-15	36.777	0.4.0
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1712849	R2-1714238	Rel-15		
2017-11-30 20:47:55	R2-1712578	R2-1714277	Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-11-30 20:47:55	R2-1712168		Rel-15	37.340	1.1.1
2017-11-30 20:47:55	R2-1714234		Rel-15		
2017-12-08 20:47:35			Rel-15		
2017-12-06 06:17:50	R2-1712312		Rel-14	36.331	14.4.0
2017-12-06 06:17:50	R2-1712314		Rel-14	36.306	14.4.0
2017-11-30 20:47:55		R2-1714248	Rel-15		
2017-11-30 20:47:55		R2-1714246	Rel-15		
2017-11-30 20:47:55	R2-1714163		Rel-15		
2017-12-05 21:17:56	R2-1714012		Rel-15		
2017-11-30 20:47:55	R2-1714243		Rel-15		
2017-11-30 20:47:55			Rel-15		
2017-12-05 21:17:56	R2-1714242		Rel-15		
2017-12-11 22:07:44	R2-1711862		Rel-15	36.746	15.0.0
2017-12-11 21:39:43	R2-1713996		Rel-14	36.331	14.4.0

2017-12-11 15:15:22	R2-1714080		Rel-15	37.340	1.3.0
2017-12-08 13:27:45	R2-1714079		Rel-15	38.300	1.3.0
2017-12-11 11:01:13	R2-1712698		Rel-15	38.321	1.2.0
2017-12-11 21:59:54	R2-1713218		Rel-14	36.306	14.4.0
2017-12-11 21:59:54	R2-1713219		Rel-14	36.321	14.4.0
2017-12-11 21:59:54	R2-1713220		Rel-14	36.331	14.4.0
		R2-1714272	Rel-15	36.331	14.4.0
2017-12-12 09:33:50	R2-1713993		Rel-15		
2017-12-13 20:18:01	R2-1714126		Rel-15	38.331	0.4.0
2017-12-08 16:39:40		R2-1714263	Rel-15		
2017-12-08 18:33:53	R2-1712478		Rel-15	38.322	1.2.0
2017-12-08 17:35:10			Rel-15	36.321	14.4.0
2017-12-08 20:30:41	R2-1714260		Rel-15		
2017-12-08 20:37:01	R2-1713979		Rel-14	36.321	14.4.0
2017-12-13 09:55:12			Rel-15	36.331	14.4.0
2017-12-12 15:36:52			Rel-15	36.321	14.4.0
2017-12-12 15:36:52			Rel-15	36.306	14.4.0
2017-12-10 17:32:10			Rel-15	36.302	14.3.0
2017-12-10 17:32:10			Rel-15	36.300	14.4.0
2017-12-12 15:38:38	R2-1714138		Rel-15	38.331	0.2.0
2017-12-12 15:38:39	R2-1714141		Rel-15	38.306	0.1.0
2017-12-11 22:00:17	R2-1714257		Rel-15	36.331	14.4.0
2017-12-12 01:27:32	R2-1713660		Rel-15	38.323	1.1.0
2017-12-12 11:43:53			Rel-14	36.300	14.4.0
2017-12-12 11:43:53		R2-1714280	Rel-15	36.300	14.4.0
2017-12-13 10:49:43	R2-1713543		Rel-15	36.777	0.5.0
2017-12-13 10:34:09	R2-1714235		Rel-15		
2017-12-15 12:11:13	R2-1714084		Rel-15	36.323	14.4.0
2017-12-15 06:49:00	R2-1714085		Rel-15	36.331	14.4.0
2017-12-13 14:54:05	R2-1714275		Rel-15	36.300	14.4.0
2017-12-13 16:16:08	R2-1714158		Rel-15	36.306	14.4.0
2017-12-13 16:16:08	R2-1714159		Rel-15	36.323	14.4.0
2017-12-13 16:16:08	R2-1714160		Rel-15	36.331	14.4.0
2017-12-14 02:01:04	R2-1714229		Rel-14	36.331	14.4.0
2017-12-15 23:49:15	R2-1712069		Rel-15	36.300	14.4.0
2017-12-16 07:49:18	R2-1712662		Rel-15	36.331	14.4.0

Related WIs	CR	CR revision	CR category	TSG CR Pack	Reply to	To
						RAN2
5GS_Ph1-CT					R2-1709981	RAN2
LTE_eMTC4-Core, NB_IOTenh2-Core					R2-1711978	RAN2, SA2
5GS_Ph1-CT						SA1, RAN2
CIoT_Ext						RAN6, SA2
TEI15						SA2, RAN2
NR_newRAT-Core					R2-1709804	RAN2
5GS_Ph1						SA2, RAN2
TEI14						RAN2, RAN
LTE_MTCe2_L1						RAN2
LTE_feMTC-Core						RAN2
NR_newRAT-Core						RAN2
LTE_eMTC4, NB_IOTenh2						RAN2
LTE_eV2X-Core						RAN2
LTE_sTTIandPT					R2-1709972	RAN2
LTE_eV2X						RAN4
NR_newRAT-Core						RAN2
LTE_UL_CAP_enh-Core						RAN2
LTE_sTTIandPT						RAN2
LTE_eMTC4						RAN2
LTE_eMTC4, NB_IOTenh2						RAN2
FS_LTE_Aerial						RAN2
LTE_HRLLC						RAN2
5GS_Ph1, NR_newRAT						SA2, RAN4
NR_newRAT-Core					R2-1709800	RAN2
LTE_1024QAM_DL						RAN2, RAN4
NR_newRAT-Core						RAN2
NR_newRAT						RAN2

NR_newRAT-Core						RAN2
NR_newRAT-Core						SA2
NR_newRAT-Core					R2-1707502	RAN2
5GS_Ph1						RAN3
NR_newRAT						SA3
TEI15					R2-169124	CT1, RAN2, RAN3
NR_newRAT						RAN2
NR_newRAT						RAN2
LTE_sTTIandPT						RAN1
FS_NR_test_methods						RAN5
NR_newRAT						RAN1, RAN2
NR_newRAT-Core					R2-1709954	RAN2
NB_IOTenh2-Core						RAN1
NR_newRAT						RAN2
NR_newRAT-Core						RAN1, RAN2
NR_newRAT-Core						RAN1
CIoT						RAN5, RAN2, CT1
MBMS_Mcservices						SA6, RAN3
FS_REAR						RAN, RAN1, RAN2, RAN3, SA3, CT1, SA3-LI
5GS_Ph1						SA4, RAN2, SA6
5GS_Ph1					R2-1709803	RAN2
LTE_sTTIandPT, EDCE5, LTE_HRLLC, NR_newRAT-Core					R2-1709976	RAN2, RAN3, SA1
FS_LTE_Aerial					R2-1709973	RAN2
CIoT_Ext						RAN2, RAN3
LTE_eMTC4-Core, NB_IOTenh2-Core					R2-1711978	RAN2, CT1
LTE_eV2X, FS_eV2XARC						RAN, RAN2
EDCE5						CT1, SA3
NR_newRAT						RAN
SMARTER, 5GS_Ph1, 5GS_Ph1-CT						CT1, SA1, RAN2
LTE_QMC_Streaming, EQoE_MTSI, QOED						RAN2, RAN3, SA5
TEI14						SA2

FS_5GS_Ph1_CH, QOED					R2-1706153)	RAN2
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
FS_feD2D_IoT_relay_wearable						
FS_feD2D_IoT_relay_wearable						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_HRLLC-Core						
LTE_HRLLC-Core						
LTE_HRLLC-Core						
LTE_V2X-Core	3073	3	F			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
TEI15						
NB_IOTenh2-Core						
LTE_eMTC4-Core, NB_IOTenh2-Core	1158	2	F			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_HRLLC-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core			C			
LTE_eMTC4-Core						
LTE_feMTC-Core	3127		F	RP-172616		
LTE_feMTC-Core	1514		F	RP-172616		

LTE_UDC-Core						
LTE_euCA, LTE_euCA-Core						
LTE_euCA, LTE_euCA-Core						
LTE_euCA, LTE_euCA-Core						
LTE_euCA-Core						RAN1 , RAN4
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						CT1, SA3
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_SC_PTM-Core	3106	2	F			
LTE_SC_PTM-Core	3108	1	A	RP-172623		
LTE_feMTC-Core	3037	3	F			
NB_IOT-Core, TEI14	1070		F			
LTE_MTCe2_L1-Core	3128		F			
LTE_MTCe2_L1-Core	3129		F			
LTE_MTCe2_L1-Core					R2-1712111	RAN1
NB_IOTenh2-Core						
NB_IOTenh2-Core						
LTE_eMTC4-Core, NB_IOTenh2-Core						
5GS_Ph1-CT					R2-1712068	RAN2, SA2
TEI15						SA2
EDCE5						CT1, SA3
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
LTE_CA_TDD_FDD-Core	3080	2	F			
LTE_CA_TDD_FDD-Core	3081	1	A			
LTE_CA_TDD_FDD-Core	1510	2	F			
LTE_CA_TDD_FDD-Core	1511	1	A			
NB_IOTenh2						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_SRS_switch	3088	1	F	RP-172616		
NB_IOTenh2-Core						
NB_IOTenh2-Core						
NB_IOTenh2-Core						
NB_IOTenh2-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core, NB_IOTenh2-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
TEI10	3130		F			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT	3131		B			
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core					S2-176689	SA2
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core					R2-1710242	SA2
TEI14						
TEI14						
TEI14	1515		F			
TEI12						
TEI14					R2-1710006	CT1
TEI14	3132		F			
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_sTTIandPT						
LTE_sTTIandPT						
LTE_sTTIandPT						
LTE_sTTIandPT						
LTE_sTTIandPT			B			
LTE_sTTIandPT			B			
LTE_sTTIandPT			B			
LTE_sTTIandPT			B			
LTE_sTTIandPT			B			
LTE_sTTIandPT			B			
LTE_sTTIandPT						
LTE_sTTIandPT						
LTE_sTTIandPT			B			
LTE_HRLLC-Core						

LTE_HRLLC-Core						
LTE_HRLLC-Core						
LTE_HRLLC-Core						
LTE_QMC_Streaming						
LTE_QMC_Streaming	1071		C			
LTE_QMC_Streaming	3133		C			
LTE_QMC_Streaming						
LTE_QMC_Streaming	1072		B			
LTE_QMC_Streaming	1516		B			
LTE_QMC_Streaming	3134		B			
LTE_feMTC-Core	3135		F			
NR_newRAT						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						SA2
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						CT1
NR_newRAT-Core						CT1
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						SA3

FS_feD2D_IoT_relay_wearable	0001	1	F	RP-172621		
FS_feD2D_IoT_relay_wearable						
TEI14	1048	6	B			
TEI14	1490	5	B	RP-172615		
TEI14	2982	7	B			
LTE_V2X-Core	3085	2	F	RP-172617		
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						SA3
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN1
NR_newRAT-Core						
FS_LTE_Aerial						
NR_newRAT-Core						

NR_newRAT-Core					R2-1712105	CT1
TEI15						
LTE_ViLTE_enh2-Core						
LTE_ViLTE_enh2-Core	1191		B			
LTE_ViLTE_enh2-Core	1192		B			
LTE_ViLTE_enh2-Core	3136		B			
LTE_ViLTE_enh2-Core	1517		B			
LTE_V2X-Core						
LTE_unlic-Core						
LTE_unlic-Core						
LTE_eV2X-Core						

LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
FS_feD2D_IoT_relay_wearable						
LTE_feMTC-Core	3137		F			
LTE_feMTC-Core	3138		F			
LTE_MTCe2_L1-Core	3139		F			
LTE_MTCe2_L1-Core	3140		A			
LTE_eMTC4-Core	1193		B			
LTE_feMTC-Core						SA2
LTE_feMTC-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core						
feCOMP_LTE-Core						
feCOMP_LTE-Core			B			
feCOMP_LTE-Core			B			
TEI14	3141		B			
LTE_eCRSIM_eSUMIMO	1518		B			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN4
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core					S1-173552	SA1
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						

LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core	3142		B			
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core	3143		C			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_QMC_Streaming-Core	1073		B	RP-172620		
LTE_QMC_Streaming-Core	1519		B	RP-172620		
LTE_QMC_Streaming-Core	3144		B	RP-172620		
TEI15						

TEI15						
TEI15						
TEI15	0045		B			
TEI15	0046		B			
LTE_UDC-Core						
LTE_UDC-Core	0204		B			
LTE_UDC-Core						
LTE_UDC-Core	0205		B			
LTE_UDC-Core	3145		B			
LTE_UDC-Core						
LTE_UDC-Core						
LTE_UDC-Core						
LTE_UDC-Core						
LTE_UDC-Core	0206		B			
LTE_ViLTE_enh2-Core						
LTE_ViLTE_enh2-Core						
LTE_ViLTE_enh2-Core	1074		B			
LTE_ViLTE_enh2-Core	0207		B			
LTE_ViLTE_enh2-Core	1520		B			
LTE_ViLTE_enh2-Core	3146		B			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_V2X-Core	3072	1	F			
LTE_V2X-Core	1062	3	F	RP-172617		
LTE_V2X-Core	0114	1	F			
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						

LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_UDC-Core						
LTE_UDC-Core	0208		B			
LTE_UDC-Core	3147		B			
LTE_UDC-Core	0209		B			
LTE_eMTC4-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eMTC4-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
LTE_eV2X-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eV2X-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eV2X-Core						
NR_newRAT-Core						
TEI						
LTE_UDC-Core			B			
LTE_UDC-Core			B			
LTE_UDC-Core						
LTE_UDC-Core						
LTE_UDC-Core						
LTE_UDC-Core						
NR_newRAT-Core						
FS_feD2D_IoT_relay_wearable						
NR_newRAT-Core						
NR_newRAT-Core						

LTE_unlic-Core						
LTE_unlic-Core						
LTE_unlic-Core						
LTE_unlic-Core						
feCOMP_LTE-Core	3148		B			
LTE_1024QAM_DL-Core	3149		B			
LTE_1024QAM_DL-Core	1521		B			
NR_newRAT-Core						
FS_LTE_Aerial						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_feMTC-Core, NB_IOTenh-Core	1194		F			
LTE_feMTC-Core	3150		F			
LTE_eMTC4-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
FS_LTE_Aerial						
FS_LTE_Aerial						
LTE_eV2X-Core						
LTE_eV2X-Core						
NR_newRAT-Core						
TEI15						
TEI14	1522		C			
TEI14	3151		C			
LTE_WLAN_aggr-Core	0210		F	RP-172617		
TEI15						
TEI15	1195		C			
TEI15						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_sTTIandPT						

NR_newRAT						
NR_newRAT						
NR_newRAT						
LTE_eMTC4-Core						
NR_newRAT-Core						
LTE_unlic-Core						
NR_newRAT-Core	1196		B			
NR_newRAT-Core	0132		B			
LTE_eMTC4-Core, NB_IOTenh2-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
FS_LTE_Aerial						
FS_LTE_Aerial						
NB_IOTenh2-Core						
NB_IOTenh-Core	3152		F			
NR_newRAT-Core						
NR_newRAT-Core					R2-1710242	SA2
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOTenh-Core	3153		F			
NB_IOTenh-Core, LTE_eMTC4-Core						
LTE_eMTC4-Core						
NB_IOTenh-Core						

NB_IOTenh-Core	0392		B			
NB_IOTenh-Core	1523		B			
NB_IOTenh-Core	3154		B			
LTE_eMTC4-Core	0393		B			
LTE_eMTC4-Core	1524		B			
NB_IOTenh2-Core			B			
NB_IOTenh2-Core			B			
TEI14	0189		F			
NB_IOTenh2-Core			B			
LTE_eMTC4-Core	3155		B			
NB_IOTenh2-Core						
NB_IOTenh2-Core	1525		B			
NB_IOTenh2-Core	1197		B			
NB_IOTenh2-Core	3156		B			
NB_IOTenh-Core	3157		F			
NB_IOTenh2-Core						
NB_IOTenh2-Core						RAN3, SA2
NB_IOTenh2-Core						
NB_IOTenh2-Core						RAN4, RAN6
NB_IOTenh2-Core						
NB_IOTenh2-Core	0118		B			
NB_IOTenh2-Core	0394		B			
NB_IOTenh2-Core	1526		B			
NB_IOTenh2-Core	3158		B			
NB_IOTenh-Core	1075		F			
NB_IOTenh-Core	1186	1	F	RP-172617		
NB_IOTenh-Core	3090	2	F	RP-172617		
LTE_MTCe2_L1-Core	1527		F			
LTE_MTCe2_L1-Core	1528		A			
LTE_MTCe2_L1-Core	3159		F			

LTE_MTCe2_L1-Core	3160		A			
NB_IOTenh2-Core			B			
LTE_eMTC4-Core						
LTE_eMTC4-Core	0395		B			
LTE_eMTC4-Core	1529		B			
LTE_eMTC4-Core	3161		B			
LTE_eMTC4-Core, NB_IOTenh2-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core	3162		B			
LTE_eMTC4-Core						WG1
LTE_eMTC4-Core, NB_IOTenh2-Core						
LTE_eMTC4-Core, NB_IOTenh2-Core						
LTE_eMTC4-Core, NB_IOTenh2-Core						
LTE_eMTC4-Core, NB_IOTenh2-Core						
LTE_eMTC4-Core, NB_IOTenh2-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core	1530		B			
LTE_eMTC4-Core	1198		B			
LTE_eMTC4-Core	3163		B			
LTE_eMTC4-Core						
LTE_eMTC4-Core	1531		B			
LTE_eMTC4-Core	3164		B			
LTE_eMTC4-Core	1532		B			
LTE_eMTC4-Core	3165		B			
LTE_eMTC4-Core						
LTE_eMTC4-Core	3166		B			
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_MUST-Core	3091	1	F	RP-172616		

NB_IOTenh-Core, TEI14	0384	2	C			
NB_IOTenh-Core, TEI14	1492	2	C			
NB_IOTenh-Core, TEI14	2987	2	C			
LTE_eMTC4-Core			C			
LTE_eMTC4-Core			C			
LTE_eMTC4-Core			C			
LTE_MTCe2_L1-Core	3045	3	F			
LTE_MTCe2_L1-Core	3046	2	A			
LTE_MTCe2_L1-Core	1055	2	F			
LTE_MTCe2_L1-Core	1055	3	A			
LTE_MTCe2_L1-Core	3096	1	F			
LTE_MTCe2_L1-Core	3095	2	A			
LTE_MTCe2_L1-Core, NB_IOT-Core	0116	2	F	RP-172624		
LTE_MTCe2_L1-Core, NB_IOT-Core	0117	1	A	RP-172624		
LTE_feMTC-Core	0115	2	F			
LTE_feMTC-Core	1187	1	F			
LTE_feMTC-Core	1066	1	F	RP-172616		
LTE_feMTC-Core	0187	1	F			
LTE_MTCe2_L1-Core	0396		F			
LTE_MTCe2_L1-Core	0397		A			
LTE_MTCe2_L1-Core	3167		F			
LTE_MTCe2_L1-Core	3168		A			
LTE_feMTC-Core	3169		F			
LTE_eMTC4-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core					R1-1709474	RAN1, RAN4
LTE_eMTC4-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core			B			
LTE_eMTC4-Core			B			
LTE_eMTC4-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core						

LTE_eMTC4-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core						RAN1
LTE_eMTC4-Core			B			
LTE_eMTC4-Core			B			
LTE_eMTC4-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core					R4-1708835	RAN4
LTE_eMTC4-Core			B			
LTE_eMTC4-Core			B			
LTE_eMTC4-Core			B			
LTE_eMTC4-Core						
LTE_eMTC4-Core						
LTE_MUST-Core	1533		F	RP-172616		
NB_IOT-Core	0398		F			
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						CT1
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core			B			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
TEI13						
TEI13	3170		F			
LTE_WLAN_radio-Core	3171		F			
LTE_WLAN_radio-Core	3172		F			

TEI14	3173		F			
LTE_euCA-Core						
LTE_euCA-Core						
LTE_euCA-Core						
LTE_euCA-Core						
LTE_euCA-Core						
TEI14						SA3
LTE_euCA-Core						
LTE_euCA-Core						
LTE_HRLLC-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_euCA-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOT-Core	0399		A			
NB_IOTenh2-Core, LTE_eMTC4-Core						
NB_IOTenh2-Core			B			
NB_IOTenh2-Core, LTE_eMTC4-Core						
NB_IOTenh2-Core, LTE_eMTC4-Core						
NB_IOTenh2-Core, LTE_eMTC4-Core						
NB_IOTenh2-Core, LTE_eMTC4-Core					R1-1719207	RAN1
NB_IOTenh2-Core, LTE_eMTC4-Core						
NB_IOTenh2-Core, LTE_eMTC4-Core						
NB_IOTenh2-Core, LTE_eMTC4-Core						
NB_IOTenh2-Core, LTE_eMTC4-Core						
NB_IOTenh2-Core			B			

NB_IOTenh2-Core			B			
NB_IOTenh2-Core						
NB_IOTenh2-Core						
NB_IOTenh2-Core						
NB_IOTenh2-Core			B			
LTE_unlic-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
TEI15						
NB_IOT-Core	3174		F			
NB_IOTenh-Core	1188	2	F			
NB_IOTenh-Core	3175		F			
NB_IOTenh-Core	1534		F			
NB_IOTenh-Core	1199		F			
NB_IOTenh-Core	3176		F			
NB_IOT-Core	3177		F			
LTE_MTCe2_L1-Core	1054	3	F	RP-172624		
LTE_MTCe2_L1-Core	3095	3	F			
LTE_MTCe2_L1-Core	3096	2	A			
LTE_feMTC-Core	1187	1	F	RP-172616		
LTE_euCA-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

LTE_5GCN_connect-Core						
LTE_ViLTE_enh2-Core						
LTE_ViLTE_enh2-Core	1076		B			
LTE_ViLTE_enh2-Core	1535		B			
LTE_ViLTE_enh2-Core	0211		B			
LTE_ViLTE_enh2-Core	3178		B			
NB_IOTenh-Core						
NB_IOTenh-Core	3179		F			
NB_IOTenh-Core						
LTE_UL_CAP_enh-Core	1536		B			
LTE_UL_CAP_enh-Core	3180		B			
NR_newRAT-Core						
LTE_sTTIandPT-Core						
TEI10	1077		F			
LTE_sTTIandPT-Core						
LTE_HRLLC-Core						
TEI11	1078		F			
LTE_sTTIandPT-Core						
NR_newRAT-Core						
TEI12	1079		A			
NR_newRAT-Core						
TEI13	1080		F			
TEI15						
TEI15	3181		F			
TEI15						
TEI15	1537		B			
TEI15	3182		B			
NR_newRAT-Core						
TEI14	1081		A			
NR_newRAT-Core						
NR_newRAT-Core						
FS_LTE_Aerial						
FS_LTE_Aerial						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						SA3
LTE_5GCN_connect-Core						

LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN1
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core					S2-175192	SA2
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
LTE_UDC-Core	1538		B			
NR_newRAT-Core						
LTE_UDC-Core	0212		B			
LTE_UDC-Core	3183		B			
FS_LTE_Aerial						
FS_LTE_Aerial						
LTE_sTTIandPT-Core						
LTE_sTTIandPT-Core						
LTE_sTTIandPT-Core						
LTE_sTTIandPT-Core						
LTE_sTTIandPT-Core						
LTE_sTTIandPT-Core						
LTE_sTTIandPT-Core						
LTE_sTTIandPT-Core						
LTE_sTTIandPT-Core	1185	1	B			
FS_LTE_Aerial						
FS_LTE_Aerial						
FS_LTE_Aerial						
FS_LTE_Aerial						
LTE_sTTIandPT-Core						
FS_LTE_Aerial						
FS_LTE_Aerial						
FS_LTE_Aerial						
FS_LTE_Aerial						
LTE_euCA-Core						
LTE_euCA-Core						
LTE_euCA-Core						
LTE_euCA-Core						
LTE_HRLLC-Core						
LTE_HRLLC-Core						
LTE_HRLLC-Core						
LTE_HRLLC-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core, LTE_HRLLC, LTE_sTTIandPT, EDCE5						
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOTenh-Core	3113	2	F			
NR_newRAT-Core						
NR_newRAT						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

LTE_V2X-Core	3184		F	RP-172617		
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
NR_newRAT						
LTE_V2X-Core	3084	1	F			
LTE_V2X-Core						
LTE_V2X-Core	3086	1	F			
LTE_eV2X-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
FS_LTE_Aerial						
FS_LTE_Aerial						
FS_LTE_Aerial						
FS_feD2D_IoT_relay_wearable						
NR_newRAT-Core						

LTE_V2X-Core	3107	2	F	RP-172617		
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOTenh2-Core						
NB_IOTenh2-Core						
NB_IOTenh2-Core						RAN1
NB_IOTenh2-Core						
LTE_ViLTE_enh2-Core						
LTE_ViLTE_enh2-Core						
LTE_ViLTE_enh2-Core	3185		B			
LTE_ViLTE_enh2-Core	0213		B			
LTE_ViLTE_enh2-Core	1539		B			
TEI15, MBMS_Mcservices	1082		F			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						SA3
FS_LTE_Aerial						
FS_LTE_Aerial						
TEI15						
FS_LTE_Aerial						
FS_LTE_Aerial						

LTE_CA_enh_b5C-Core, TEI14	3117	1	F			
NR_newRAT-Core	3115	1	B			
NR_newRAT-Core						
NR_newRAT-Core	3186		B			
NR_newRAT-Core						
NR_newRAT-Core						
TEI15	0047		B			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN4
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
FS_LTE_Aerial						
TEI14	2968	4	F			
NR_newRAT-Core						
LTE_euCA-Core						
TEI14	1188		F			
LTE_unlic-Core						

NR_newRAT-Core						
NR_newRAT-Core					R1-1719094	RAN1
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_V2X-Core	1083		F			
LTE_V2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						SA2
LTE_eV2X-Core						

LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_unlic-Core						
LTE_unlic-Core						
LTE_unlic-Core						
LTE_unlic-Core						
LTE_unlic-Core						
LTE_unlic-Core						
TEI15	1540		B			
TEI15	3187		B			
TEI15						
NR_newRAT-Core						RAN1, SA4
NR_newRAT-Core						RAN1
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOTenh-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
FS_LTE_Aerial						
FS_LTE_Aerial						
FS_LTE_Aerial						
FS_LTE_Aerial						
LTE_TDD_eIMTA-Core	3188		F	RP-172622		
LTE_meas_gap_enh-Core	3110	1	B			
LTE_TDD_eIMTA-Core	3189		A	RP-172622		
FS_LTE_Aerial						
LTE_TDD_eIMTA-Core	3190		A	RP-172622		
FS_LTE_Aerial						
NR_newRAT-Core						
NR_newRAT-Core						
TEI12	1189		F			
TEI12	1190		A			
TEI12	1191		A			

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_EBF_FDMIMO-Core	3111	1	F			
NR_newRAT-Core						
LTE_meas_gap_enh-Core	3110	2	B			
NR_newRAT-Core						
NR_newRAT-Core						
LTE_EBF_FDMIMO-Core	3112	1	A			
NR_newRAT-Core						
LTE_meas_gap_enh-Core	3110	3	B	RP-172616		
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
TEI15						
TEI14	3071	2	B			
NR_newRAT-Core						

TEI14	3071	3	B			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
TEI14	1508	2	B			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_euCA-Core						
LTE_euCA-Core						
LTE_euCA-Core						
LTE_euCA-Core						
LTE_MTCe2_L1-Core	3119	1	F	RP-172624		
LTE_MTCe2_L1-Core	3120	1	F	RP-172624		
LTE_CA_enh_b5C-Core	3191		F			
LTE_CA_enh_b5C-Core	3192		A			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core	3193		B			
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eMTC4-Core						
NR_newRAT-Core						

LTE_unlic-Core						
LTE_eMTC4-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOTenh2-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_extDRX-Core	3194		F	RP-172623		
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_MTCe2_L1-Core	1200		F			
LTE_MTCe2_L1-Core	1201		A			
						RAN4
TEI15	3195		B			
NR_newRAT-Core						
TEI15	1541		B			
NR_newRAT-Core						
LTE_ViLTE_enh2-Core						
LTE_ViLTE_enh2-Core	0214		B			
NR_newRAT-Core						
NR_newRAT-Core						

LTE_ViLTE_enh2-Core	3196		B			
NB_IOTenh2-Core	1513	1	B			
NB_IOTenh2-Core	0131	1	B			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eV2X-Core						
LTE_HRLLC-Core	0215		B			
TEI15			B			
LTE_eMTC4-Core			B			
TEI15			B			
LTE_WLAN_aggr-Core	0216		F			
LTE_eMTC4-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_HRLLC-Core						
TEI14	3197		C			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_euCA-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN4
NR_newRAT-Core						
LTE_5GCN_connect-Core						
LTE_5GCN_connect-Core						

LTE_UDC-Core			B			
LTE_UDC-Core			B			
LTE_UDC-Core			B			
LTE_ViLTE_enh2-Core						
LTE_ViLTE_enh2-Core			B			
LTE_ViLTE_enh2-Core			B			
LTE_ViLTE_enh2-Core			B			
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOTenh2-Core						
NB_IOTenh2-Core						
LTE_eMTC4-Core						
LTE_eMTC4-Core						
FS_LTE_Aerial						
FS_LTE_Aerial						
FS_LTE_Aerial						
LTE_HRLLC-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOTenh2-Core	0400		B			
NB_IOTenh2-Core	3198		B			
LTE_eMTC4-Core	3199		C			
LTE_V2X-Core	1190	2	F	RP-172617		
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_eV2X-Core						
LTE_V2X-Core						
LTE_V2X-Core						
NR_newRAT-Core						
LTE_eV2X						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_eV2X						
LTE_V2X-Core	3200		F			
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_VoLTE_ViLTE_enh	1202		F			

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_sTTIandPT						
LTE_unlic-Core						
					R2-1710242	SA2
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
FS_LTE_Aerial						
NR_newRAT-Core						
NR_newRAT-Core						
LTE_UDC-Core						
NR_newRAT-Core						
LTE_UDC-Core						
TEI15	0048		B			

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
TEI15						RAN1
						SA2, RAN2, RAN3
LTE_sTTIandPT-Core					R2-1706159	RAN2
LTE_sTTIandPT-Core						RAN2
LTE_sTTIandPT						RAN2, RAN4
LTE_sTTIandPT						RAN2
NR_newRAT-Core						
5GS_Ph1						SA2, CT1
NR_newRAT-Core						
NR_newRAT-Core						
TEI14	1189	1	F			
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN2
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						

NR_newRAT-Core						
NR_newRAT-Core	3115	2	B			
NR_newRAT-Core						
NR_newRAT-Core						
						SA2, RAN2
FS_LTE_Aerial						
NR_newRAT-Core						
NB_IOTenh2-Core			B			
TEI14	3132	1	F			
TEI14					R2-1710006	CT1
NB_IOTenh-Core	3113	3	F			
NB_IOT-Core, LTE_extDRX-Core	0398	1	F	RP-172623		
NB_IOT-Core, LTE_extDRX-Core	0399	1	A	RP-172623		
NB_IOTenh-Core	3175	1	F	RP-172617		
LTE_MTCe2_L1-Core	3045	4	F	RP-172624		
LTE_MTCe2_L1-Core	3046	3	A	RP-172624		
LTE_MTCe2_L1-Core	1055	4	A	RP-172624		
LTE_MTCe2_L1-Core	3139	1	F	RP-172624		
LTE_MTCe2_L1-Core	3140	1	A	RP-172624		
LTE_MTCe2_L1-Core	0396	1	F	RP-172624		
LTE_MTCe2_L1-Core	0397	1	A			
LTE_MTCe2_L1-Core	3095	4	F			
LTE_MTCe2_L1-Core	3096	3	A			
LTE_MTCe2_L1-Core					R2-1712111	RAN1
LTE_MTCe2_L1-Core	1527	1	F	RP-172624		
LTE_MTCe2_L1-Core	1528	1	A	RP-172624		
LTE_MTCe2_L1-Core	3159	1	F	RP-172624		

LTE_MTCe2_L1-Core	3160	1	A	RP-172624		
LTE_feMTC-Core	3037	4	F	RP-172616		
LTE_feMTC-Core, NB_IOTenh-Core	1194	1	F			
LTE_feMTC-Core	3169	1	F	RP-172616		
LTE_feMTC-Core	3137	1	F	RP-172616		
LTE_feMTC-Core	3138	1	F	RP-172616		
LTE_feMTC-Core	3135	1	F			
LTE_feMTC-Core	0187	2	F	RP-172616		
LTE_MTCe2_L1-Core	3128	1	F	RP-172624		
LTE_MTCe2_L1-Core	3129	1	F	RP-172624		
NB_IOTenh-Core	0392	1	B			
NB_IOTenh-Core	1523	1	B			
NB_IOTenh-Core	3154	1	B			
LTE_feMTC-Core	0115	3	F	RP-172616		
LTE_MTCe2_L1-Core	3168	1	A			
NB_IOTenh2						RAN
NB_IOTenh-Core	3157	1	F	RP-172617		
LTE_feMTC-Core						SA2
NB_IOTenh-Core	3153	1	F			
LTE_MTCe2_L1-Core	3095	5	F	RP-172624		
LTE_MTCe2_L1-Core	3096	4	A	RP-172624		
LTE_MTCe2_L1-Core					R2-1712111	RAN1
NB_IOTenh-Core	3113	4	F	RP-172617		
NB_IOTenh-Core	1188	3	F			
NB_IOTenh-Core, TEI14	0392	2	C	RP-172617		
NB_IOTenh-Core, TEI14	1523	2	C	RP-172617		
NB_IOTenh-Core	3154	2	B			
NB_IOTenh2-Core	0131	2	B			
NB_IOTenh2-Core, LTE_eMTC4-Core					R1-1719207	RAN1
NB_IOTenh-Core	1188	4	F	RP-172617		
NB_IOTenh2-Core, LTE_eMTC4-Core					R1-1719207	RAN1

TEI14	1048	7	B	RP-172615		
TEI14	2982	8	B	RP-172615		
LTE_V2X-Core						
NR_newRAT-Core					R2-1712149	SA2
NR_newRAT-Core					S1-173552	SA1
LTE_eMTC4-Core					R1-1709474	RAN1, RAN4
LTE_eMTC4-Core					R1-1709474	RAN1, RAN4
NR_newRAT-Core						
LTE_V2X-Core	3084	2	F			
LTE_CA_TDD_FDD-Core	3080	3	F	RP-172622		
LTE_CA_TDD_FDD-Core	1510	3	F	RP-172622		
TEI14	1191	1	F	RP-172615		
LTE_V2X-Core	3072	2	F			

LTE_UL_CAP_enh-Core	1536	1	B	RP-172616		
LTE_UL_CAP_enh-Core	3180	1	B	RP-172616		
LTE_eCRSIM_eSUMIMO	1518	1	B	RP-172616		
NR_newRAT-Core						RAN1
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN1
NR_newRAT-Core						RAN1
NR_newRAT-Core						RAN1
LTE_V2X-Core	0114	2	F	RP-172617		
NR_newRAT						
LTE_V2X-Core	1083	1	F	RP-172617		
LTE_EBF_FDMIMO-Core	3111	2	F	RP-172623		
LTE_EBF_FDMIMO-Core	3112	2	A	RP-172623		
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN1
NR_newRAT-Core						RAN1
NR_newRAT-Core						RAN1
NR_newRAT-Core						RAN1
NR_newRAT-Core	1196	1	B			
LTE_V2X-Core	3072	3	F	RP-172617		
LTE_V2X-Core	3084	3	F	RP-172617		
NR_newRAT-Core	0132	1	B	RP-172614		
NR_newRAT-Core						RAN4
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN1
NR_newRAT-Core						
NR_newRAT-Core	1196	2	B	RP-172614		
NR_newRAT-Core						
NR_newRAT-Core						RAN4
NR_newRAT-Core					R2-1712151	SA2
NR_newRAT-Core						SA3
NR_newRAT-Core					S2-178182	SA2, CT1, SA3
NR_newRAT-Core						RAN3
NR_newRAT-Core						

NR_newRAT-Core						
LTE_1024QAM_DL-Core	1521	1	B			
LTE_1024QAM_DL-Core	3149	1	B			
LTE_ViLTE_enh2-Core	1076	1	B			
LTE_UDC-Core			B			
LTE_UDC-Core			B			
LTE_unlic-Core						
TEI15						RAN1
FS_LTE_Aerial						
TEI14					R2-1710006	CT1
5GS_Ph1-CT						SA2, RAN2, CT1

FS_LTE_Aerial						SA2, RAN2
NR_newRAT-Core, LTE_HRLLC, LTE_sTTIandPT, EDCE5						SA2, RAN, RAN1
MBMS_LTE_enh2-Core						RAN2
TEI14					R2-1710006	CT1
NR_newRAT-Core						
NR_newRAT-Core						RAN3
NR_newRAT-Core, EDCE5					S2-178182	SA2, CT1, SA3
NR_newRAT-Core						SA3
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN3
NR_newRAT-Core						
LTE_eV2X-Core						SA2
NR_newRAT-Core					R2-1712151	SA2
EDCE5						CT1, CT4, RAN2, RAN3
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN4
NR_newRAT-Core						
NR_newRAT-Core	3115	3	B	RP-172614		
NR_newRAT-Core						RAN4
LTE_sTTIandPT						RAN2
NR_newRAT-Core						RAN2
NR_newRAT-Core						
NR_newRAT-Core						RAN3

LTE_euCA-Core					R2-1712060	RAN2
LTE_euCA						RN2
NR_newRAT-Core						
NB_IOTenh2-Core						RAN2, RAN4
FS_LTE_Aerial						
FS_LTE_Aerial						
NR_newRAT-Core					R1-1719094	RAN1
NR_newRAT-Core						RAN1, RAN2, RAN4
NB_IOTenh2-Core, LTE_eMTC4-Core						RAN2
LTE_5GCN_connect-Core					R2-1712161	SA5
LTE_ViLTE_enh2-Core	1535	1	B			
LTE_ViLTE_enh2-Core	0211	1	B			
LTE_ViLTE_enh2-Core	3178	1	B			
NR_newRAT-Core					R2-1711871	RAN2
NR_newRAT-Core						RAN2
LTE_5GCN_connect-Core						SA3
NR_newRAT-Core						RAN2
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core					R2-1714125	RAN2
LTE_eMTC4						RAN2
NR_newRAT-Core						RAN3
NR_newRAT-Core						
NR_newRAT-Core						RAN3, CT4
NR_newRAT-Core						
NR_newRAT-Core						
LTE_5GCN_connect-Core						
NB_IOT-Core	3201		F	RP-172623		
NR_newRAT-Core						
LTE_VoLTE_ViLTE_enh	1202	1	F	RP-172616		
NR_newRAT-Core						
LTE_ViLTE_enh2-Core	1076	2	B	RP-172619		
TEI15					R2-1712066	RAN2, CT1, CT4, RAN, SA, CT
LTE_5GCN_connect-Core						
NR_newRAT-Core						

NR_newRAT-Core						RAN1
NR_newRAT-Core						
TEI15						RAN1
LTE_eV2X-Core						SA2
NR_newRAT-Core						
NR_newRAT-Core						RAN2
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN2, RAN1
NB_IOTenh-Core						RAN2
LTE_5GCN_connect-Core					R2-1712161	SA5
NR_newRAT-Core						
NR_newRAT-Core						RAN1
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
						RAN2
NB_IOTenh-Core, TEI14	3154	3	C	RP-172617		
LTE_V2X-Core	3073	4	F	RP-172617		
LTE_SC_PTM-Core	3106	3	F	RP-172623		
TEI14	2968	5	F	RP-172615		
LTE_WLAN_aggr-Core	0216	1	F	RP-172617		
LTE_MTCe2_L1-Core	0397	2	A	RP-172624		

LTE_feMTC-Core	3135	2	F	RP-172616		
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN4
NR_newRAT-Core						
TEI14	3132	2	F			
NR_newRAT						
FS_LTE_Aerial						
FS_LTE_Aerial						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						RAN2
NR_newRAT-Core						
NR_newRAT-Core						
LTE_euCA-Core						RAN1, RAN4
LTE_CA_TDD_FDD-Core	3081	2	A	RP-172622		
LTE_CA_TDD_FDD-Core	1511	2	A	RP-172622		
NR_newRAT-Core						SA2, SA1, RAN3
NR_newRAT-Core						RAN1
LTE_5GCN_connect-Core						SA3
NR_newRAT-Core					R2-1712149	SA2
NR_newRAT-Core						RAN1
FS_LTE_Aerial						RAN2
FS_LTE_Aerial						SA2, SA1, RAN3
FS_feD2D_IoT_relay_wearable	0002	3	F	RP-172621		
NB_IOTenh-Core	3153	2	F	RP-172617		

NR_newRAT-Core						
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOTenh-Core	1534	1	F	RP-172617		
NB_IOTenh-Core	1199	1	F	RP-172617		
NB_IOTenh-Core	3176	1	F	RP-172617		
NB_IOTenh-Core			F			
NB_IOTenh2						RAN
NR_newRAT-Core						
NR_newRAT-Core						RAN4
NR_newRAT-Core						
NB_IOTenh2-Core			B			
NR_newRAT-Core						RAN4
LTE_feMTC-Core, NB_IOTenh-Core	1194	2	F	RP-172616		
LTE_sTTIandPT-Core	3202		B	RP-172618		
LTE_sTTIandPT-Core	1203		B	RP-172618		
LTE_sTTIandPT-Core	1542		B	RP-172618		
LTE_sTTIandPT-Core	1192		B	RP-172618		
LTE_sTTIandPT-Core	1084		B	RP-172618		
NR_newRAT-Core						
NR_newRAT-Core						
NB_IOTenh-Core			F			
NR_newRAT-Core						
TEI14	1085		F	RP-172615		
NR_newRAT-Core	1086		B			
FS_LTE_Aerial						
NR_newRAT-Core						
LTE_UDC-Core			B			
LTE_UDC-Core			B			
NR_newRAT-Core	1086	1	B	RP-172614		
LTE_ViLTE_enh2-Core	1535	2	B	RP-172619		
LTE_ViLTE_enh2-Core	0211	2	B	RP-172619		
LTE_ViLTE_enh2-Core	3178	2	B	RP-172619		
TEI14	3132	3	C	RP-172615		
LTE_5GCN_connect-Core			B			
LTE_5GCN_connect-Core	3142	1	B			

Cc	Original LS	Reply in
	LS_EOs_5D_758_temp441	
SA2	C1-174593	
RAN3, SA3, CT4	C1-174595	
SA2	C1-174626	R2-1712593
RAN2	C1-174627	
CT4, RAN, CT, SA, SA1	C1-174658	
	S3-172515	
	S3-172517	
	R1-1719084	
	R1-1719091	R2-1712294, R2-1713973, R2-1713999
	R1-1719093	
	R1-1719094	
	R1-1719103	
	R1-1719151	
	R1-1719154	
RAN2	R1-1719159	
	R1-1719164	
	R1-1719204	
	R1-1719205	
	R1-1719206	
	R1-1719207	
	R1-1719052	
	R1-1719210	
RAN2	R1-1719211	
	R1-1719214	
	R1-1719217	
RAN1	R3-174199	
	R3-174219	

	R3-174229	
RAN2	R3-174231	
	R3-174233	
RAN2	S3-172565	
RAN1, RAN2	R4-1711318	
	S3c0011	
RAN1, RAN3	R4-1711610	
	R4-1711623	
RAN2	R4-1711726	
RAN1, RAN2	R4-1711823	
	R4-1711859	
RAN1	R4-1711888	
RAN2	R4-1711893	
RAN1	R4-1711940	
	R4-1711965	
RAN2, RAN3	R4-1711972	
	S2-176723	
RAN2	S2-177582	
	S2-177943	
CT1	S2-178049	R2-1714012, R2-1714245
	S2-178056	
RAN1, SA4, CT4	S2-178150	R2-1714075, R2-1714136
RAN3, SA3, SA1	S2-178175	
	S2-178179	
RAN3, SA3	S2-178180	
SA, SA1, SA3	S2-178181	
CT4, RAN2, RAN3	S2-178182	
SA, RAN2, RAN3	S2-178185	
	S2-178191	
	S4-170952	
RAN2, RAN3, RAN, SA	S5-175461	

SA1, SA2, CT1, RAN3	S5-175495	R2-1714157, R2-1714203

	C4-175291	
CT1, RAN2, RAN, CT, SA, SA1	C4-175345	
SA2, RAN2, RAN3	C4-175349	

RAN1, RAN4		
RAN1, RAN4		
SA3, RAN3		

CT1, RAN3	S2-175192	
SA1, SA2	C1-174626	
SA1, SA2		

SA1		

CT1, SA2, CT6		

RAN1, RAN4		

CT1		
CT1		

RAN1		

RAN3		

	DIG Doc 003 LS to 3GPP on SPID	
	R1-1719223	
	R1-1719231	
	R1-1719238	
	R1-1719248	
RAN2, SA6	S4-171363	
	R1-1719250	

SA, SA1, RAN, CT1, CT	LS reply to 3GPP SA2 onStatusIcon	
SA3, RAN3		

SA4, SA6, CT1		
CT1, SA2, CT6		

SA2		
CT4, RAN3		

RAN		
SA3, RAN3		
RAN3	S1-174294	

RAN3, SA3, GSMA IoT Drone Interest Group	S1-174512	
RAN2, RAN3, SA4, CT4	S1-174513	
	R1-1721431	R2-1712058
SA3, RAN3		
CT4, RAN3		
SA2		
CT1		
SA2	S3-173444	
RAN2	R1-1721560	
	R1-1721216	
	R1-1721557	

	R4-1713920	
	R4-1713921	
	R1-1721241	
	R3-174964	
	R1-1721255	R2-1711977
SA1, SA2, CT1, RAN3	R2-1712161	
	R1-1721574	
	R1-1721606	
CT1		
	R1-1721616	
SA2, RAN3	S3-173420	
	R1-1721282	
RAN2	S5-176477	
SA1	S2-179536	

RAN		
CT1		
	R1-1721680	
	R4-1714289	
	R1-1721302	
SA1, SA2, CT1, RAN3		
	R4-1714481	

	R1-1721663	
RAN		
CT1		
SA4, SA6, CT1		
	R1-1721310	

APPENDIX 23

www.3gpp.org / ftp / tsg_ran / WG2_RL2 / TSGR2_100 / Docs

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712100.zip	2017/11/17 14:48	181,6 KB
R2-1712101.zip	2017/12/02 6:07	958 KB
R2-1712102.zip	2017/11/11 12:41	3432,2 KB
R2-1712103.zip	2017/11/11 12:41	11,5 KB
R2-1712104.zip	2017/11/11 12:41	12,4 KB
R2-1712105.zip	2017/11/11 12:41	15,4 KB
R2-1712106.zip	2017/11/11 12:41	15,3 KB
R2-1712107.zip	2017/11/11 12:41	13 KB
R2-1712108.zip	2017/11/11 12:41	15,9 KB
R2-1712109.zip	2017/11/11 12:41	15 KB
R2-1712110.zip	2017/11/11 12:41	60 KB
R2-1712111.zip	2017/11/11 12:41	18,8 KB
R2-1712112.zip	2017/11/11 12:41	18,5 KB
R2-1712113.zip	2017/11/11 12:41	13,3 KB
R2-1712114.zip	2017/11/11 12:41	15,3 KB
R2-1712115.zip	2017/11/11 12:41	19,9 KB
R2-1712116.zip	2017/11/11 12:41	18,6 KB
R2-1712117.zip	2017/11/11 12:41	16,6 KB
R2-1712118.zip	2017/11/11 12:41	29,8 KB
R2-1712119.zip	2017/11/11 12:41	19,1 KB
R2-1712120.zip	2017/11/11 12:41	290,3 KB
R2-1712121.zip	2017/11/11 12:41	11,3 KB
R2-1712122.zip	2017/11/11 12:41	15,6 KB
R2-1712123.zip	2017/11/11 12:41	1952,2 KB
R2-1712124.zip	2017/11/11 12:41	10,2 KB
R2-1712125.zip	2017/11/11 12:41	15 KB
R2-1712126.zip	2017/11/11 12:41	10,2 KB
R2-1712127.zip	2017/11/11 12:41	31,4 KB
R2-1712128.zip	2017/11/11 12:41	11,3 KB
R2-1712129.zip	2017/11/11 12:41	153,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712130.zip	2017/11/11 12:41	9,2 KB
R2-1712131.zip	2017/11/11 12:41	9,6 KB
R2-1712132.zip	2017/11/11 12:41	299,2 KB
R2-1712133.zip	2017/11/11 12:41	66,2 KB
R2-1712134.zip	2017/11/11 12:41	21,2 KB
R2-1712135.zip	2017/11/11 12:41	137,2 KB
R2-1712136.zip	2017/11/11 12:41	48,6 KB
R2-1712137.zip	2017/11/11 12:41	12,6 KB
R2-1712138.zip	2017/11/11 12:41	13,1 KB
R2-1712139.zip	2017/11/11 12:41	9,6 KB
R2-1712140.zip	2017/11/11 12:41	15,2 KB
R2-1712141.zip	2017/11/11 12:41	11,9 KB
R2-1712142.zip	2017/11/11 12:41	17,6 KB
R2-1712143.zip	2017/11/11 12:41	16,7 KB
R2-1712144.zip	2017/11/11 12:41	13 KB
R2-1712145.zip	2017/11/11 12:41	56,9 KB
R2-1712146.zip	2017/11/11 12:41	676,4 KB
R2-1712147.zip	2017/11/11 12:41	263 KB
R2-1712148.zip	2017/11/11 12:41	27,8 KB
R2-1712149.zip	2017/11/11 12:41	13,7 KB
R2-1712150.zip	2017/11/11 12:41	18 KB
R2-1712151.zip	2017/11/11 12:41	33,6 KB
R2-1712152.zip	2017/11/11 12:41	11,6 KB
R2-1712153.zip	2017/11/11 12:41	60,8 KB
R2-1712154.zip	2017/11/11 12:41	13,1 KB
R2-1712155.zip	2017/11/11 12:41	11,6 KB
R2-1712156.zip	2017/11/11 12:41	12,4 KB
R2-1712157.zip	2017/11/11 12:41	14,4 KB
R2-1712158.zip	2017/11/11 12:41	9,8 KB
R2-1712159.zip	2017/11/11 12:41	64,4 KB
R2-1712160.zip	2017/11/11 12:41	440,3 KB
R2-1712161.zip	2017/11/11 12:41	11,4 KB
R2-1712162.zip	2017/11/17 6:31	32,7 KB
R2-1712163.zip	2017/11/17 6:32	49,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712164.zip	2017/11/17 6:32	24,4 KB
R2-1712165.zip	2017/11/17 6:32	26,5 KB
R2-1712166.zip	2017/11/17 6:32	49,4 KB
R2-1712167.zip	2017/11/17 6:32	93 KB
R2-1712168.zip	2017/11/18 2:13	25,9 KB
R2-1712169.zip	2017/11/18 5:05	62,2 KB
R2-1712170.zip	2017/11/18 2:25	25,8 KB
R2-1712171.zip	2017/11/18 6:29	77,3 KB
R2-1712172.zip	2017/11/18 6:29	29,3 KB
R2-1712173.zip	2017/11/17 2:35	64,2 KB
R2-1712174.zip	2017/11/17 2:36	34 KB
R2-1712175.zip	2017/11/17 2:36	77,1 KB
R2-1712176.zip	2017/11/17 2:36	32,8 KB
R2-1712177.zip	2017/11/17 2:36	35 KB
R2-1712178.zip	2017/11/17 1:00	20,8 KB
R2-1712179.zip	2017/11/17 1:00	19,9 KB
R2-1712180.zip	2017/11/17 1:00	46 KB
R2-1712181.zip	2017/11/17 1:00	21,7 KB
R2-1712182.zip	2017/11/17 1:00	29,8 KB
R2-1712183.zip	2017/11/17 1:00	20 KB
R2-1712184.zip	2017/11/17 1:00	21,4 KB
R2-1712185.zip	2017/11/17 1:00	19,7 KB
R2-1712186.zip	2017/11/17 1:00	17,5 KB
R2-1712187.zip	2017/11/17 1:00	17,9 KB
R2-1712188.zip	2017/11/17 1:00	19,2 KB
R2-1712189.zip	2017/11/17 1:00	18,3 KB
R2-1712190.zip	2017/11/17 1:00	19,3 KB
R2-1712191.zip	2017/11/17 1:00	19,1 KB
R2-1712192.zip	2017/11/17 1:00	58,5 KB
R2-1712193.zip	2017/11/18 7:46	86,5 KB
R2-1712194.zip	2017/11/18 5:06	54,2 KB
R2-1712195.zip	2017/11/18 5:06	27 KB
R2-1712196.zip	2017/11/18 3:42	86,6 KB
R2-1712197.zip	2017/11/18 3:42	24,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712198.zip	2017/11/18 1:52	36,8 KB
R2-1712199.zip	2017/11/17 4:30	115,2 KB
R2-1712200.zip	2017/11/17 4:57	107,3 KB
R2-1712201.zip	2017/11/17 6:24	45 KB
R2-1712202.zip	2017/11/17 4:57	25 KB
R2-1712203.zip	2017/11/17 4:57	26,6 KB
R2-1712204.zip	2017/11/17 4:57	27,1 KB
R2-1712205.zip	2017/11/17 4:30	18,2 KB
R2-1712206.zip	2017/11/16 1:36	126,8 KB
R2-1712207.zip	2017/11/16 1:36	101,6 KB
R2-1712208.zip	2017/11/16 1:36	31,5 KB
R2-1712209.zip	2017/11/16 1:36	110,3 KB
R2-1712210.zip	2017/11/16 1:36	140,7 KB
R2-1712211.zip	2017/11/16 1:36	238,5 KB
R2-1712212.zip	2017/11/16 1:36	44,3 KB
R2-1712213.zip	2017/11/16 1:36	33,3 KB
R2-1712214.zip	2017/11/16 1:36	32 KB
R2-1712215.zip	2017/11/16 1:36	38,5 KB
R2-1712216.zip	2017/11/17 1:00	19,7 KB
R2-1712217.zip	2017/11/17 4:11	40,3 KB
R2-1712218.zip	2017/11/16 10:45	131 KB
R2-1712219.zip	2017/11/17 4:06	39,6 KB
R2-1712220.zip	2017/11/16 10:39	37,7 KB
R2-1712221.zip	2017/11/16 10:39	40,1 KB
R2-1712222.zip	2017/11/17 4:11	38,3 KB
R2-1712223.zip	2017/11/16 10:45	76,2 KB
R2-1712224.zip	2017/11/16 10:39	38,3 KB
R2-1712225.zip	2017/11/17 4:06	38,6 KB
R2-1712226.zip	2017/11/17 4:06	24,6 KB
R2-1712227.zip	2017/11/16 10:33	32,8 KB
R2-1712228.zip	2017/11/16 10:33	22,4 KB
R2-1712229.zip	2017/11/16 10:33	20,2 KB
R2-1712230.zip	2017/11/16 10:33	23,7 KB
R2-1712231.zip	2017/11/17 4:30	19,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712232.zip	2017/11/17 4:30	20,5 KB
R2-1712233.zip	2017/11/17 4:30	82,9 KB
R2-1712234.zip	2017/11/14 10:09	1175,2 KB
R2-1712235.zip	2017/11/15 23:35	95,3 KB
R2-1712236.zip	2017/11/15 23:35	26,1 KB
R2-1712237.zip	2017/11/17 1:41	24 KB
R2-1712238.zip	2017/11/17 1:41	56,3 KB
R2-1712239.zip	2017/11/17 1:41	20,5 KB
R2-1712240.zip	2017/11/17 1:41	52 KB
R2-1712241.zip	2017/11/17 1:41	20,8 KB
R2-1712242.zip	2017/11/17 1:41	114,3 KB
R2-1712243.zip	2017/11/17 1:41	22 KB
R2-1712244.zip	2017/11/14 2:00	38,7 KB
R2-1712245.zip	2017/11/17 4:41	254,7 KB
R2-1712246.zip	2017/11/17 4:57	484,7 KB
R2-1712247.zip	2017/11/17 1:39	110 KB
R2-1712248.zip	2017/11/17 1:39	19,8 KB
R2-1712249.zip	2017/11/17 1:39	23,6 KB
R2-1712250.zip	2017/11/17 1:39	26,4 KB
R2-1712251.zip	2017/11/17 1:39	21,3 KB
R2-1712252.zip	2017/11/17 1:39	69,4 KB
R2-1712253.zip	2017/11/17 1:39	72,1 KB
R2-1712254.zip	2017/11/17 1:39	84,7 KB
R2-1712255.zip	2017/11/16 20:53	202,1 KB
R2-1712256.zip	2017/11/16 20:54	463,2 KB
R2-1712257.zip	2017/11/16 20:54	113,6 KB
R2-1712258.zip	2017/11/16 20:54	18,9 KB
R2-1712259.zip	2017/11/18 5:16	25,7 KB
R2-1712260.zip	2017/11/18 5:16	29,1 KB
R2-1712261.zip	2017/11/16 20:55	19 KB
R2-1712262.zip	2017/11/16 20:55	47,3 KB
R2-1712263.zip	2017/11/16 20:55	192,8 KB
R2-1712264.zip	2017/11/16 20:55	36,5 KB
R2-1712265.zip	2017/11/16 20:55	75,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712266.zip	2017/11/14 7:02	1921,9 KB
R2-1712267.zip	2017/11/16 14:06	29,5 KB
R2-1712268.zip	2017/11/16 14:06	29 KB
R2-1712269.zip	2017/11/16 14:06	31 KB
R2-1712270.zip	2017/11/16 14:06	27,6 KB
R2-1712273.zip	2017/11/16 14:06	28,4 KB
R2-1712274.zip	2017/11/16 14:06	124 KB
R2-1712275.zip	2017/11/16 14:06	28,6 KB
R2-1712276.zip	2017/11/16 14:06	138,5 KB
R2-1712277.zip	2017/11/17 2:35	46,2 KB
R2-1712278.zip	2017/11/17 2:35	31,6 KB
R2-1712279.zip	2017/11/17 2:35	24,9 KB
R2-1712280.zip	2017/11/17 2:35	106,5 KB
R2-1712281.zip	2017/11/17 2:35	164,6 KB
R2-1712282.zip	2017/11/17 2:35	24,7 KB
R2-1712283.zip	2017/11/14 10:23	1175,2 KB
R2-1712284.zip	2017/11/14 12:32	52,9 KB
R2-1712285.zip	2017/11/17 4:06	40,2 KB
R2-1712286.zip	2017/11/16 10:39	204 KB
R2-1712287.zip	2017/11/17 4:06	38,7 KB
R2-1712288.zip	2017/11/16 20:36	24,5 KB
R2-1712289.zip	2017/11/16 20:36	24,5 KB
R2-1712290.zip	2017/11/16 20:36	32,2 KB
R2-1712291.zip	2017/11/16 20:36	46,1 KB
R2-1712292.zip	2017/11/16 20:36	34,5 KB
R2-1712293.zip	2017/11/16 20:36	34,7 KB
R2-1712294.zip	2017/11/16 20:36	15 KB
R2-1712295.zip	2017/11/16 20:36	269,2 KB
R2-1712296.zip	2017/11/16 20:36	88,6 KB
R2-1712297.zip	2017/11/16 20:36	39,1 KB
R2-1712298.zip	2017/11/14 18:41	42,9 KB
R2-1712299.zip	2017/11/14 18:41	10,5 KB
R2-1712300.zip	2017/11/14 18:41	9,6 KB
R2-1712301.zip	2017/11/14 22:19	1580 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712302.zip	2017/11/17 5:09	2091,9 KB
R2-1712303.zip	2017/11/17 5:09	12,8 KB
R2-1712304.zip	2017/11/17 5:09	445,6 KB
R2-1712305.zip	2017/11/17 1:37	801,3 KB
R2-1712306.zip	2017/11/16 7:23	63,1 KB
R2-1712307.zip	2017/11/16 7:00	21,2 KB
R2-1712308.zip	2017/11/17 2:36	203,5 KB
R2-1712309.zip	2017/11/17 6:54	18,5 KB
R2-1712310.zip	2017/11/17 6:54	249,2 KB
R2-1712311.zip	2017/11/15 16:44	78,4 KB
R2-1712312.zip	2017/11/15 16:44	86,5 KB
R2-1712313.zip	2017/11/15 16:44	21,5 KB
R2-1712314.zip	2017/11/15 16:44	21,5 KB
R2-1712315.zip	2017/11/16 9:25	124,7 KB
R2-1712316.zip	2017/11/17 6:47	29,3 KB
R2-1712317.zip	2017/11/17 6:47	25,4 KB
R2-1712318.zip	2017/11/17 6:47	47,9 KB
R2-1712319.zip	2017/11/17 6:47	68,7 KB
R2-1712320.zip	2017/11/17 6:47	41,8 KB
R2-1712321.zip	2017/11/17 6:47	70,2 KB
R2-1712322.zip	2017/11/17 6:47	84,8 KB
R2-1712323.zip	2017/11/17 6:47	30,2 KB
R2-1712324.zip	2017/11/17 6:47	59,6 KB
R2-1712325.zip	2017/11/17 6:47	27 KB
R2-1712326.zip	2017/11/17 6:47	27,9 KB
R2-1712327.zip	2017/11/15 23:41	79,2 KB
R2-1712328.zip	2017/11/17 4:57	25 KB
R2-1712329.zip	2017/11/17 7:01	48,1 KB
R2-1712330.zip	2017/11/17 7:01	78,3 KB
R2-1712331.zip	2017/11/17 7:01	44,2 KB
R2-1712332.zip	2017/11/17 7:05	88,2 KB
R2-1712333.zip	2017/11/17 7:02	88,2 KB
R2-1712334.zip	2017/11/17 7:02	62,2 KB
R2-1712335.zip	2017/11/17 7:02	43,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712336.zip	2017/11/17 7:02	45,2 KB
R2-1712337.zip	2017/11/17 7:02	128,3 KB
R2-1712338.zip	2017/11/16 9:02	202,7 KB
R2-1712339.zip	2017/11/17 6:28	27,4 KB
R2-1712340.zip	2017/11/16 9:00	42,1 KB
R2-1712341.zip	2017/11/16 17:23	46,6 KB
R2-1712342.zip	2017/11/16 9:01	41,2 KB
R2-1712343.zip	2017/11/16 9:01	43,6 KB
R2-1712344.zip	2017/11/17 6:28	29,4 KB
R2-1712345.zip	2017/11/16 17:23	162,1 KB
R2-1712346.zip	2017/11/16 17:23	41,2 KB
R2-1712347.zip	2017/11/17 7:57	71,9 KB
R2-1712348.zip	2017/11/17 7:46	58,5 KB
R2-1712349.zip	2017/11/17 7:46	26,1 KB
R2-1712350.zip	2017/11/17 7:46	429,8 KB
R2-1712351.zip	2017/11/17 7:46	42,6 KB
R2-1712352.zip	2017/11/17 7:46	115,8 KB
R2-1712353.zip	2017/11/17 7:46	31,9 KB
R2-1712354.zip	2017/11/17 7:46	39,2 KB
R2-1712355.zip	2017/11/17 0:49	2004,3 KB
R2-1712356.zip	2017/11/17 1:00	18,9 KB
R2-1712357.zip	2017/11/17 1:00	19,3 KB
R2-1712358.zip	2017/11/17 1:00	18,8 KB
R2-1712359.zip	2017/11/17 1:00	51,6 KB
R2-1712360.zip	2017/11/17 4:12	83,1 KB
R2-1712361.zip	2017/11/17 1:00	52,8 KB
R2-1712363.zip	2017/11/17 1:00	43,7 KB
R2-1712364.zip	2017/11/17 1:00	23,9 KB
R2-1712365.zip	2017/11/15 12:32	65,4 KB
R2-1712366.zip	2017/11/17 5:40	94,2 KB
R2-1712367.zip	2017/11/17 5:40	28,7 KB
R2-1712368.zip	2017/11/17 5:40	41,3 KB
R2-1712369.zip	2017/11/17 5:40	328 KB
R2-1712370.zip	2017/11/17 5:40	23,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712371.zip	2017/11/17 6:58	563,7 KB
R2-1712372.zip	2017/11/17 6:58	36 KB
R2-1712373.zip	2017/11/16 9:06	18,5 KB
R2-1712374.zip	2017/11/16 9:07	20,2 KB
R2-1712375.zip	2017/11/16 9:07	19,1 KB
R2-1712376.zip	2017/11/16 9:07	18,6 KB
R2-1712377.zip	2017/11/16 9:07	38,5 KB
R2-1712378.zip	2017/11/16 9:07	22,7 KB
R2-1712379.zip	2017/11/16 9:07	64,1 KB
R2-1712380.zip	2017/11/16 9:07	18,2 KB
R2-1712381.zip	2017/11/16 9:09	25,1 KB
R2-1712382.zip	2017/11/16 21:03	42,4 KB
R2-1712383.zip	2017/11/17 6:28	26,6 KB
R2-1712384.zip	2017/11/17 6:28	28,6 KB
R2-1712385.zip	2017/11/16 15:04	58,9 KB
R2-1712386.zip	2017/11/17 3:31	43,1 KB
R2-1712387.zip	2017/11/17 3:31	73,6 KB
R2-1712388.zip	2017/11/17 3:31	80,2 KB
R2-1712389.zip	2017/11/17 3:31	40,7 KB
R2-1712390.zip	2017/11/17 3:31	79 KB
R2-1712391.zip	2017/11/17 3:31	40,6 KB
R2-1712392.zip	2017/11/17 3:31	84,1 KB
R2-1712393.zip	2017/11/17 3:31	124 KB
R2-1712394.zip	2017/11/17 3:31	35,6 KB
R2-1712395.zip	2017/11/17 3:31	105,2 KB
R2-1712396.zip	2017/11/17 3:31	103,6 KB
R2-1712397.zip	2017/11/17 3:31	108,7 KB
R2-1712398.zip	2017/11/16 15:04	31,8 KB
R2-1712399.zip	2017/11/17 2:06	25,9 KB
R2-1712400.zip	2017/11/17 2:06	43,7 KB
R2-1712401.zip	2017/11/17 2:06	21,8 KB
R2-1712402.zip	2017/11/17 2:06	37,6 KB
R2-1712403.zip	2017/11/17 2:06	15,2 KB
R2-1712404.zip	2017/11/17 2:06	33 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712405.zip	2017/11/16 15:04	13,8 KB
R2-1712406.zip	2017/11/16 21:03	47,1 KB
R2-1712407.zip	2017/11/16 16:23	61,3 KB
R2-1712408.zip	2017/11/16 16:23	137,3 KB
R2-1712409.zip	2017/11/16 16:23	55,1 KB
R2-1712410.zip	2017/11/17 5:09	54,7 KB
R2-1712411.zip	2017/11/17 5:09	105,4 KB
R2-1712412.zip	2017/11/17 5:09	55,5 KB
R2-1712413.zip	2017/11/17 5:09	57,8 KB
R2-1712414.zip	2017/11/17 5:09	50,4 KB
R2-1712415.zip	2017/11/17 5:09	53,8 KB
R2-1712416.zip	2017/11/17 6:32	264,4 KB
R2-1712417.zip	2017/11/17 5:09	42,9 KB
R2-1712418.zip	2017/11/17 5:09	89,7 KB
R2-1712419.zip	2017/11/17 5:09	46,8 KB
R2-1712420.zip	2017/11/17 5:09	54,4 KB
R2-1712421.zip	2017/11/17 5:09	186,6 KB
R2-1712422.zip	2017/11/17 5:09	116,9 KB
R2-1712423.zip	2017/11/17 5:09	156,2 KB
R2-1712424.zip	2017/11/17 5:09	64,1 KB
R2-1712425.zip	2017/11/17 5:09	55,4 KB
R2-1712426.zip	2017/11/17 5:09	16,2 KB
R2-1712427.zip	2017/11/17 5:09	42,1 KB
R2-1712428.zip	2017/11/17 5:09	47,8 KB
R2-1712429.zip	2017/11/17 5:09	49,7 KB
R2-1712430.zip	2017/11/16 15:04	14,4 KB
R2-1712431.zip	2017/11/16 15:37	42 KB
R2-1712432.zip	2017/11/17 3:30	69,7 KB
R2-1712433.zip	2017/11/16 15:37	45,9 KB
R2-1712434.zip	2017/11/16 15:37	67,2 KB
R2-1712435.zip	2017/11/16 15:37	45,7 KB
R2-1712436.zip	2017/11/16 15:37	45,5 KB
R2-1712437.zip	2017/11/16 15:37	32,2 KB
R2-1712438.zip	2017/11/16 15:37	36,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712439.zip	2017/11/16 15:37	34,6 KB
R2-1712440.zip	2017/11/16 15:37	44,2 KB
R2-1712441.zip	2017/11/16 15:37	47,1 KB
R2-1712442.zip	2017/11/16 15:37	46,9 KB
R2-1712443.zip	2017/11/17 1:20	50,5 KB
R2-1712444.zip	2017/11/16 20:22	35,6 KB
R2-1712445.zip	2017/11/16 20:22	53,7 KB
R2-1712446.zip	2017/11/16 20:22	40,7 KB
R2-1712447.zip	2017/11/16 20:22	43,1 KB
R2-1712449.zip	2017/11/16 20:23	262,5 KB
R2-1712450.zip	2017/11/16 20:23	34,8 KB
R2-1712451.zip	2017/11/16 20:23	36,8 KB
R2-1712452.zip	2017/11/16 20:23	73,9 KB
R2-1712453.zip	2017/11/16 20:23	179,1 KB
R2-1712454.zip	2017/11/16 20:23	49,9 KB
R2-1712455.zip	2017/11/16 20:23	29,8 KB
R2-1712456.zip	2017/11/16 20:23	192,8 KB
R2-1712457.zip	2017/11/16 19:59	32 KB
R2-1712458.zip	2017/11/16 19:59	55,1 KB
R2-1712459.zip	2017/11/16 19:59	140,4 KB
R2-1712460.zip	2017/11/16 19:59	39 KB
R2-1712461.zip	2017/11/16 19:57	27,2 KB
R2-1712462.zip	2017/11/16 19:57	32,2 KB
R2-1712463.zip	2017/11/16 19:57	39,4 KB
R2-1712464.zip	2017/11/16 19:57	25,6 KB
R2-1712465.zip	2017/11/16 19:57	32,5 KB
R2-1712466.zip	2017/11/16 19:57	33,8 KB
R2-1712467.zip	2017/11/16 19:57	57,7 KB
R2-1712468.zip	2017/11/17 6:03	18,9 KB
R2-1712469.zip	2017/11/16 16:32	393,4 KB
R2-1712470.zip	2017/11/17 7:12	30,2 KB
R2-1712471.zip	2017/11/17 7:12	16,9 KB
R2-1712472.zip	2017/11/17 2:20	59,6 KB
R2-1712473.zip	2017/11/17 7:12	18,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712474.zip	2017/11/17 7:12	50,3 KB
R2-1712475.zip	2017/11/17 7:12	16,3 KB
R2-1712476.zip	2017/11/17 7:12	14,4 KB
R2-1712477.zip	2017/11/17 7:12	88,3 KB
R2-1712478.zip	2017/11/17 2:20	1415 KB
R2-1712479.zip	2017/11/17 2:20	47,6 KB
R2-1712480.zip	2017/11/17 2:20	44,7 KB
R2-1712481.zip	2017/11/17 2:20	73,3 KB
R2-1712482.zip	2017/11/17 2:20	107,9 KB
R2-1712483.zip	2017/11/16 19:19	44,9 KB
R2-1712484.zip	2017/11/16 21:16	26,8 KB
R2-1712485.zip	2017/11/16 21:16	33 KB
R2-1712486.zip	2017/11/17 6:23	28,9 KB
R2-1712487.zip	2017/11/16 19:08	43,4 KB
R2-1712488.zip	2017/11/16 17:23	47,7 KB
R2-1712489.zip	2017/11/16 19:08	34,4 KB
R2-1712490.zip	2017/11/17 6:23	29,9 KB
R2-1712491.zip	2017/11/16 17:23	37,4 KB
R2-1712492.zip	2017/11/16 21:16	29,3 KB
R2-1712493.zip	2017/11/16 21:16	26,4 KB
R2-1712494.zip	2017/11/16 21:16	30,1 KB
R2-1712495.zip	2017/11/16 19:08	25,3 KB
R2-1712496.zip	2017/11/17 6:23	28 KB
R2-1712497.zip	2017/11/17 6:23	23,6 KB
R2-1712498.zip	2017/11/16 17:23	39,5 KB
R2-1712499.zip	2017/11/17 6:23	28,9 KB
R2-1712500.zip	2017/11/17 4:51	37,9 KB
R2-1712501.zip	2017/11/17 4:51	89,9 KB
R2-1712502.zip	2017/11/17 4:51	15,2 KB
R2-1712503.zip	2017/11/17 4:51	171,7 KB
R2-1712504.zip	2017/11/17 4:51	37,2 KB
R2-1712505.zip	2017/11/17 4:51	27,4 KB
R2-1712506.zip	2017/11/17 5:25	128,3 KB
R2-1712507.zip	2017/11/17 5:26	50,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712508.zip	2017/11/17 5:25	190,2 KB
R2-1712509.zip	2017/11/17 5:25	98,7 KB
R2-1712510.zip	2017/11/17 5:25	617,3 KB
R2-1712511.zip	2017/11/17 5:25	94,3 KB
R2-1712512.zip	2017/11/17 5:25	61,4 KB
R2-1712513.zip	2017/11/17 5:25	60,7 KB
R2-1712514.zip	2017/11/17 5:25	346,8 KB
R2-1712515.zip	2017/11/17 5:25	176,3 KB
R2-1712516.zip	2017/11/17 5:25	97,8 KB
R2-1712517.zip	2017/11/17 5:25	120,1 KB
R2-1712518.zip	2017/11/17 5:25	35,7 KB
R2-1712519.zip	2017/11/17 5:25	183,9 KB
R2-1712520.zip	2017/11/16 17:23	54,7 KB
R2-1712521.zip	2017/11/16 17:23	26,4 KB
R2-1712522.zip	2017/11/16 17:23	31,9 KB
R2-1712523.zip	2017/11/16 17:23	28 KB
R2-1712524.zip	2017/11/16 17:23	31,9 KB
R2-1712525.zip	2017/11/16 17:23	43,9 KB
R2-1712526.zip	2017/11/16 17:23	13,5 KB
R2-1712527.zip	2017/11/16 17:23	48,8 KB
R2-1712528.zip	2017/11/16 17:23	39 KB
R2-1712529.zip	2017/11/16 17:23	30,9 KB
R2-1712530.zip	2017/11/16 10:40	42,3 KB
R2-1712531.zip	2017/11/16 10:40	56,8 KB
R2-1712532.zip	2017/11/16 10:40	36,6 KB
R2-1712533.zip	2017/11/16 10:40	36 KB
R2-1712534.zip	2017/11/16 10:40	12 KB
R2-1712535.zip	2017/11/16 10:40	13 KB
R2-1712536.zip	2017/11/16 17:23	35,7 KB
R2-1712537.zip	2017/11/16 17:23	40,7 KB
R2-1712538.zip	2017/11/16 23:52	30,7 KB
R2-1712539.zip	2017/11/16 23:52	29 KB
R2-1712540.zip	2017/11/16 23:52	52,7 KB
R2-1712541.zip	2017/11/16 23:52	33,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712542.zip	2017/11/16 23:52	33 KB
R2-1712545.zip	2017/11/16 23:52	92,4 KB
R2-1712546.zip	2017/11/16 23:52	38,5 KB
R2-1712547.zip	2017/11/16 23:52	34,7 KB
R2-1712548.zip	2017/11/16 23:52	38,8 KB
R2-1712549.zip	2017/11/16 23:52	63,2 KB
R2-1712550.zip	2017/11/16 23:52	66,1 KB
R2-1712551.zip	2017/11/16 23:52	41 KB
R2-1712552.zip	2017/11/16 23:52	89,4 KB
R2-1712553.zip	2017/11/16 23:52	280 KB
R2-1712554.zip	2017/11/16 23:52	48,5 KB
R2-1712555.zip	2017/11/16 23:52	24,3 KB
R2-1712556.zip	2017/11/16 23:52	23,6 KB
R2-1712557.zip	2017/11/16 23:52	113 KB
R2-1712558.zip	2017/11/17 1:17	28,6 KB
R2-1712559.zip	2017/11/17 7:05	58,9 KB
R2-1712560.zip	2017/11/17 7:05	37,2 KB
R2-1712561.zip	2017/11/17 7:55	177,7 KB
R2-1712562.zip	2017/11/17 7:05	96,7 KB
R2-1712563.zip	2017/11/17 7:05	82,7 KB
R2-1712564.zip	2017/11/17 7:05	78,5 KB
R2-1712565.zip	2017/11/17 7:05	36,6 KB
R2-1712566.zip	2017/11/17 7:05	67,2 KB
R2-1712567.zip	2017/11/17 7:05	54,1 KB
R2-1712568.zip	2017/11/17 7:05	36 KB
R2-1712569.zip	2017/11/17 7:05	39,1 KB
R2-1712570.zip	2017/11/17 7:05	158,9 KB
R2-1712571.zip	2017/11/17 7:05	50,6 KB
R2-1712572.zip	2017/11/17 7:05	39,8 KB
R2-1712573.zip	2017/11/17 7:05	142,4 KB
R2-1712574.zip	2017/11/17 7:05	128,7 KB
R2-1712575.zip	2017/11/17 7:05	122,8 KB
R2-1712576.zip	2017/11/17 7:05	105,3 KB
R2-1712577.zip	2017/11/17 7:05	72,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712578.zip	2017/12/02 6:06	149 KB
R2-1712579.zip	2017/11/17 7:05	163 KB
R2-1712580.zip	2017/11/17 7:05	68,8 KB
R2-1712581.zip	2017/11/17 7:05	37,8 KB
R2-1712582.zip	2017/11/17 7:05	25,8 KB
R2-1712583.zip	2017/11/17 7:05	161,2 KB
R2-1712584.zip	2017/11/17 7:05	12,2 KB
R2-1712585.zip	2017/11/17 7:05	57,1 KB
R2-1712586.zip	2017/11/16 20:00	2206,1 KB
R2-1712587.zip	2017/12/02 6:07	106,1 KB
R2-1712588.zip	2017/11/16 22:41	171,5 KB
R2-1712589.zip	2017/11/16 22:41	117,1 KB
R2-1712590.zip	2017/11/16 22:41	32,4 KB
R2-1712591.zip	2017/11/16 22:41	94,9 KB
R2-1712592.zip	2017/11/16 22:41	112,3 KB
R2-1712593.zip	2017/11/16 22:41	9,3 KB
R2-1712594.zip	2017/11/16 22:41	125,7 KB
R2-1712595.zip	2017/11/16 22:41	403,5 KB
R2-1712596.zip	2017/11/16 22:41	93 KB
R2-1712597.zip	2017/11/16 22:41	143,2 KB
R2-1712598.zip	2017/11/17 0:39	33,4 KB
R2-1712599.zip	2017/11/16 22:41	35,7 KB
R2-1712600.zip	2017/11/16 22:41	115,8 KB
R2-1712601.zip	2017/11/16 22:41	45,4 KB
R2-1712602.zip	2017/11/16 22:41	47,6 KB
R2-1712603.zip	2017/11/16 22:41	151,1 KB
R2-1712604.zip	2017/11/16 22:41	794,5 KB
R2-1712605.zip	2017/11/16 22:41	242,3 KB
R2-1712606.zip	2017/11/16 22:41	112,5 KB
R2-1712607.zip	2017/11/16 22:41	35,4 KB
R2-1712608.zip	2017/11/16 22:41	32 KB
R2-1712609.zip	2017/11/16 22:41	27,5 KB
R2-1712610.zip	2017/11/16 22:41	90,9 KB
R2-1712611.zip	2017/11/16 22:41	37,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712612.zip	2017/11/16 22:41	216,5 KB
R2-1712613.zip	2017/11/16 22:41	33,7 KB
R2-1712615.zip	2017/11/16 22:41	200,6 KB
R2-1712616.zip	2017/11/17 7:26	148,4 KB
R2-1712617.zip	2017/11/17 7:26	54,6 KB
R2-1712618.zip	2017/11/17 7:26	24,1 KB
R2-1712619.zip	2017/11/17 7:26	96,6 KB
R2-1712620.zip	2017/11/17 7:26	90,2 KB
R2-1712621.zip	2017/11/17 7:26	18,5 KB
R2-1712622.zip	2017/11/17 7:26	35,9 KB
R2-1712623.zip	2017/11/17 7:26	59,8 KB
R2-1712624.zip	2017/11/17 7:26	43,4 KB
R2-1712625.zip	2017/11/17 7:26	30,8 KB
R2-1712626.zip	2017/11/17 7:26	94,8 KB
R2-1712627.zip	2017/11/17 7:26	31,4 KB
R2-1712628.zip	2017/11/17 7:26	28,9 KB
R2-1712629.zip	2017/11/17 7:26	31,9 KB
R2-1712630.zip	2017/11/17 7:26	71,2 KB
R2-1712631.zip	2017/11/17 7:26	29,8 KB
R2-1712632.zip	2017/11/17 7:26	25,3 KB
R2-1712633.zip	2017/11/17 7:26	28,5 KB
R2-1712634.zip	2017/11/17 7:26	21,6 KB
R2-1712635.zip	2017/11/17 7:26	21,8 KB
R2-1712636.zip	2017/11/17 7:26	34,1 KB
R2-1712637.zip	2017/11/17 7:26	11,4 KB
R2-1712638.zip	2017/11/17 7:26	21,3 KB
R2-1712639.zip	2017/11/17 7:26	28,1 KB
R2-1712640.zip	2017/11/17 7:26	19,7 KB
R2-1712641.zip	2017/11/17 8:22	51,7 KB
R2-1712642.zip	2017/11/17 8:22	98,7 KB
R2-1712643.zip	2017/11/17 8:11	26,7 KB
R2-1712645.zip	2017/11/17 8:35	54,3 KB
R2-1712646.zip	2017/11/17 6:18	55,5 KB
R2-1712647.zip	2017/11/17 6:18	49,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712648.zip	2017/11/17 6:18	51 KB
R2-1712649.zip	2017/11/17 6:17	16,1 KB
R2-1712650.zip	2017/11/17 6:29	722,6 KB
R2-1712651.zip	2017/11/17 6:17	49,8 KB
R2-1712652.zip	2017/11/17 6:17	80,9 KB
R2-1712653.zip	2017/11/17 6:17	33,3 KB
R2-1712654.zip	2017/11/17 6:17	104,8 KB
R2-1712655.zip	2017/11/17 6:17	17,7 KB
R2-1712656.zip	2017/11/17 6:17	34,2 KB
R2-1712657.zip	2017/11/17 6:17	29,7 KB
R2-1712658.zip	2017/11/17 6:17	121 KB
R2-1712659.zip	2017/11/17 6:17	24,9 KB
R2-1712660.zip	2017/11/17 6:17	24,3 KB
R2-1712661.zip	2017/11/17 6:17	39,4 KB
R2-1712662.zip	2017/11/17 6:17	49 KB
R2-1712663.zip	2017/11/17 6:17	61,2 KB
R2-1712664.zip	2017/11/17 6:17	54,2 KB
R2-1712665.zip	2017/11/17 6:17	38,7 KB
R2-1712666.zip	2017/11/17 6:17	48,1 KB
R2-1712667.zip	2017/11/17 6:17	45,7 KB
R2-1712668.zip	2017/11/17 6:18	137 KB
R2-1712669.zip	2017/11/17 6:18	67,1 KB
R2-1712670.zip	2017/11/17 6:18	30,6 KB
R2-1712671.zip	2017/11/17 6:18	32,6 KB
R2-1712672.zip	2017/11/17 6:18	28,3 KB
R2-1712673.zip	2017/11/17 7:55	206,5 KB
R2-1712674.zip	2017/11/17 7:54	30,8 KB
R2-1712675.zip	2017/11/17 6:18	70,3 KB
R2-1712676.zip	2017/11/17 6:18	65,2 KB
R2-1712677.zip	2017/12/02 6:07	152,9 KB
R2-1712678.zip	2017/12/02 6:07	59,4 KB
R2-1712679.zip	2017/12/02 6:07	48,8 KB
R2-1712681.zip	2017/12/02 6:07	21,1 KB
R2-1712682.zip	2017/11/17 6:18	21 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712683.zip	2017/11/17 6:18	24,5 KB
R2-1712684.zip	2017/11/17 6:18	22,7 KB
R2-1712685.zip	2017/11/17 6:18	22 KB
R2-1712686.zip	2017/11/17 6:18	49,5 KB
R2-1712687.zip	2017/11/17 6:29	886 KB
R2-1712688.zip	2017/11/17 6:18	42,7 KB
R2-1712689.zip	2017/11/17 6:18	46,9 KB
R2-1712690.zip	2017/11/17 6:18	136,7 KB
R2-1712691.zip	2017/11/17 6:18	111 KB
R2-1712692.zip	2017/11/17 7:43	143,3 KB
R2-1712693.zip	2017/11/17 8:00	103 KB
R2-1712695.zip	2017/11/17 6:18	114,8 KB
R2-1712696.zip	2017/11/17 6:18	71,3 KB
R2-1712697.zip	2017/11/17 6:18	44,1 KB
R2-1712698.zip	2017/11/16 8:42	1424,5 KB
R2-1712699.zip	2017/11/16 8:42	34,8 KB
R2-1712700.zip	2017/11/16 8:42	11,9 KB
R2-1712701.zip	2017/11/16 8:42	48 KB
R2-1712702.zip	2017/11/16 8:42	14 KB
R2-1712703.zip	2017/11/16 8:42	14,9 KB
R2-1712704.zip	2017/11/16 8:42	12,7 KB
R2-1712705.zip	2017/11/17 2:04	23,4 KB
R2-1712706.zip	2017/11/17 2:04	20,8 KB
R2-1712707.zip	2017/11/17 2:04	71,3 KB
R2-1712708.zip	2017/11/17 2:04	43,6 KB
R2-1712709.zip	2017/11/17 2:04	75,6 KB
R2-1712710.zip	2017/11/17 2:04	82,5 KB
R2-1712711.zip	2017/11/17 2:04	34,6 KB
R2-1712712.zip	2017/11/17 2:04	30,5 KB
R2-1712713.zip	2017/11/17 2:04	205,9 KB
R2-1712714.zip	2017/11/17 2:04	16,5 KB
R2-1712715.zip	2017/11/17 2:05	89,4 KB
R2-1712716.zip	2017/11/17 2:05	138,3 KB
R2-1712717.zip	2017/11/17 2:05	22,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712718.zip	2017/11/17 2:05	29,4 KB
R2-1712719.zip	2017/11/17 2:05	86,2 KB
R2-1712720.zip	2017/11/17 2:05	27 KB
R2-1712721.zip	2017/11/17 2:05	67,5 KB
R2-1712722.zip	2017/11/17 2:05	107 KB
R2-1712723.zip	2017/11/17 2:05	75 KB
R2-1712724.zip	2017/11/17 2:05	29 KB
R2-1712725.zip	2017/11/17 2:05	244,7 KB
R2-1712726.zip	2017/11/17 2:05	16,5 KB
R2-1712727.zip	2017/11/17 2:05	19,5 KB
R2-1712728.zip	2017/11/17 2:05	17 KB
R2-1712729.zip	2017/11/17 2:05	88,7 KB
R2-1712730.zip	2017/11/17 6:12	41 KB
R2-1712731.zip	2017/11/17 6:12	40,2 KB
R2-1712732.zip	2017/11/17 6:12	48,7 KB
R2-1712733.zip	2017/11/17 6:12	108,7 KB
R2-1712734.zip	2017/11/17 6:12	41,2 KB
R2-1712735.zip	2017/11/17 6:12	48,6 KB
R2-1712736.zip	2017/11/17 6:12	80 KB
R2-1712737.zip	2017/11/17 6:12	76,4 KB
R2-1712738.zip	2017/11/17 6:12	66,8 KB
R2-1712739.zip	2017/11/17 6:12	53,3 KB
R2-1712740.zip	2017/11/17 3:17	21,5 KB
R2-1712741.zip	2017/11/17 3:17	32,8 KB
R2-1712742.zip	2017/11/17 3:17	19,9 KB
R2-1712743.zip	2017/11/17 4:04	68,7 KB
R2-1712744.zip	2017/11/17 4:04	201,8 KB
R2-1712745.zip	2017/11/17 4:04	1164,4 KB
R2-1712746.zip	2017/11/17 4:04	71,6 KB
R2-1712747.zip	2017/11/17 4:04	69 KB
R2-1712748.zip	2017/11/17 4:04	108,3 KB
R2-1712749.zip	2017/11/17 4:04	72 KB
R2-1712750.zip	2017/11/17 4:04	118,2 KB
R2-1712751.zip	2017/11/17 4:04	665,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712752.zip	2017/11/17 4:04	70 KB
R2-1712753.zip	2017/11/17 6:43	39,3 KB
R2-1712754.zip	2017/11/17 6:43	34,1 KB
R2-1712755.zip	2017/11/17 6:43	33,4 KB
R2-1712756.zip	2017/11/17 6:43	31,8 KB
R2-1712757.zip	2017/11/17 6:43	37 KB
R2-1712758.zip	2017/11/17 6:43	30,1 KB
R2-1712759.zip	2017/11/17 6:43	39,5 KB
R2-1712760.zip	2017/11/17 6:43	147,5 KB
R2-1712761.zip	2017/11/17 6:43	126,5 KB
R2-1712762.zip	2017/11/17 6:43	42 KB
R2-1712763.zip	2017/11/17 6:43	30,9 KB
R2-1712764.zip	2017/11/17 6:43	43,9 KB
R2-1712765.zip	2017/11/17 6:43	136,7 KB
R2-1712766.zip	2017/11/17 6:43	38,2 KB
R2-1712767.zip	2017/11/17 6:43	32 KB
R2-1712768.zip	2017/11/17 6:43	64,7 KB
R2-1712769.zip	2017/11/17 6:43	75,1 KB
R2-1712770.zip	2017/11/17 6:43	58,7 KB
R2-1712771.zip	2017/11/17 6:43	78,6 KB
R2-1712772.zip	2017/11/17 6:43	53,7 KB
R2-1712773.zip	2017/11/17 6:43	93,8 KB
R2-1712774.zip	2017/11/17 6:43	67,3 KB
R2-1712775.zip	2017/11/17 6:43	32,1 KB
R2-1712776.zip	2017/11/17 6:43	33,3 KB
R2-1712777.zip	2017/11/17 6:43	31,3 KB
R2-1712778.zip	2017/11/17 6:43	32,6 KB
R2-1712779.zip	2017/11/17 6:43	72,5 KB
R2-1712780.zip	2017/11/17 6:43	32,7 KB
R2-1712781.zip	2017/11/17 4:04	130,7 KB
R2-1712782.zip	2017/11/17 1:28	31,3 KB
R2-1712783.zip	2017/11/17 1:28	31,5 KB
R2-1712785.zip	2017/11/17 1:28	32,3 KB
R2-1712786.zip	2017/11/17 1:51	139,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712787.zip	2017/11/17 1:51	25,8 KB
R2-1712788.zip	2017/11/17 1:51	29,9 KB
R2-1712789.zip	2017/11/17 5:37	150,8 KB
R2-1712790.zip	2017/11/17 4:28	26,2 KB
R2-1712791.zip	2017/11/17 4:24	34,4 KB
R2-1712792.zip	2017/11/17 4:24	34,8 KB
R2-1712793.zip	2017/11/17 4:25	41,1 KB
R2-1712794.zip	2017/11/17 4:25	29 KB
R2-1712795.zip	2017/11/17 5:24	32,1 KB
R2-1712796.zip	2017/11/17 4:25	36,4 KB
R2-1712797.zip	2017/11/17 4:26	31,3 KB
R2-1712798.zip	2017/11/17 5:30	31 KB
R2-1712799.zip	2017/11/17 4:26	29,9 KB
R2-1712800.zip	2017/11/17 4:26	29,4 KB
R2-1712801.zip	2017/11/17 4:27	32,3 KB
R2-1712802.zip	2017/11/17 4:27	32,4 KB
R2-1712803.zip	2017/11/17 4:27	68 KB
R2-1712804.zip	2017/11/17 4:27	32,6 KB
R2-1712805.zip	2017/11/17 5:19	31,4 KB
R2-1712806.zip	2017/11/17 1:37	27 KB
R2-1712807.zip	2017/11/16 10:09	33,1 KB
R2-1712808.zip	2017/11/17 4:41	76,5 KB
R2-1712822.zip	2017/11/17 7:38	124,6 KB
R2-1712823.zip	2017/11/17 7:44	227,9 KB
R2-1712824.zip	2017/11/17 7:44	62,1 KB
R2-1712825.zip	2017/11/17 7:38	55,5 KB
R2-1712826.zip	2017/11/17 7:38	33 KB
R2-1712827.zip	2017/11/17 6:35	237,7 KB
R2-1712828.zip	2017/11/17 6:35	64,4 KB
R2-1712829.zip	2017/11/17 6:35	29,8 KB
R2-1712830.zip	2017/11/17 6:35	49,8 KB
R2-1712831.zip	2017/11/17 6:35	37,4 KB
R2-1712832.zip	2017/11/17 6:36	95 KB
R2-1712833.zip	2017/11/17 6:35	81,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712834.zip	2017/11/17 6:35	141 KB
R2-1712835.zip	2017/11/17 6:35	61,8 KB
R2-1712836.zip	2017/11/17 4:43	75,9 KB
R2-1712837.zip	2017/11/17 4:44	38 KB
R2-1712838.zip	2017/11/17 1:00	89,7 KB
R2-1712839.zip	2017/11/17 4:44	31,4 KB
R2-1712841.zip	2017/11/17 4:45	31,5 KB
R2-1712842.zip	2017/11/17 4:45	66,2 KB
R2-1712843.zip	2017/11/17 4:49	31 KB
R2-1712844.zip	2017/11/17 4:46	31,6 KB
R2-1712845.zip	2017/11/17 4:46	30,4 KB
R2-1712846.zip	2017/11/16 6:44	55,6 KB
R2-1712847.zip	2017/11/17 5:38	207,2 KB
R2-1712848.zip	2017/11/17 5:38	52,5 KB
R2-1712849.zip	2017/11/17 5:38	35,7 KB
R2-1712850.zip	2017/11/17 5:38	40,8 KB
R2-1712851.zip	2017/11/17 7:38	68,7 KB
R2-1712852.zip	2017/11/17 6:17	24,6 KB
R2-1712853.zip	2017/11/17 6:17	21,1 KB
R2-1712854.zip	2017/11/17 6:17	42,8 KB
R2-1712855.zip	2017/11/17 6:16	42,8 KB
R2-1712856.zip	2017/11/17 6:16	37,5 KB
R2-1712857.zip	2017/11/17 6:16	35,5 KB
R2-1712858.zip	2017/11/17 6:16	38,3 KB
R2-1712859.zip	2017/11/17 6:16	229,2 KB
R2-1712860.zip	2017/11/17 6:16	53,6 KB
R2-1712861.zip	2017/11/17 6:16	37,7 KB
R2-1712862.zip	2017/11/17 6:16	28,3 KB
R2-1712863.zip	2017/11/17 5:09	39 KB
R2-1712864.zip	2017/11/17 5:09	93,6 KB
R2-1712865.zip	2017/11/17 5:09	60,8 KB
R2-1712866.zip	2017/11/16 9:12	39 KB
R2-1712867.zip	2017/11/16 9:13	50,7 KB
R2-1712868.zip	2017/11/17 7:36	246,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712869.zip	2017/11/17 7:46	49,1 KB
R2-1712870.zip	2017/11/17 6:16	87,4 KB
R2-1712871.zip	2017/11/17 6:16	30,5 KB
R2-1712872.zip	2017/11/17 6:16	462,6 KB
R2-1712873.zip	2017/11/16 17:13	32,4 KB
R2-1712874.zip	2017/11/17 6:16	129,1 KB
R2-1712875.zip	2017/11/17 5:17	28,7 KB
R2-1712876.zip	2017/11/17 5:18	55,7 KB
R2-1712877.zip	2017/11/17 5:18	19,1 KB
R2-1712878.zip	2017/11/17 5:18	57,3 KB
R2-1712879.zip	2017/11/17 5:19	36,7 KB
R2-1712880.zip	2017/11/17 5:19	43,1 KB
R2-1712881.zip	2017/11/17 5:19	38,4 KB
R2-1712882.zip	2017/11/16 9:25	44 KB
R2-1712883.zip	2017/11/17 6:16	14,9 KB
R2-1712884.zip	2017/11/16 17:12	40 KB
R2-1712885.zip	2017/11/17 6:16	100,6 KB
R2-1712886.zip	2017/11/16 9:25	102,9 KB
R2-1712887.zip	2017/11/17 6:16	71,7 KB
R2-1712888.zip	2017/11/16 9:25	49,6 KB
R2-1712889.zip	2017/11/17 6:16	22,9 KB
R2-1712890.zip	2017/11/17 5:09	1250,4 KB
R2-1712891.zip	2017/11/17 6:16	55,5 KB
R2-1712892.zip	2017/11/17 6:16	24,4 KB
R2-1712893.zip	2017/11/17 3:46	25,5 KB
R2-1712894.zip	2017/11/17 3:46	57,9 KB
R2-1712895.zip	2017/11/17 3:46	82,5 KB
R2-1712896.zip	2017/11/17 3:46	24,4 KB
R2-1712897.zip	2017/11/17 3:46	47,6 KB
R2-1712898.zip	2017/11/17 3:46	105,9 KB
R2-1712899.zip	2017/11/17 3:46	28 KB
R2-1712901.zip	2017/11/17 3:47	1023,5 KB
R2-1712902.zip	2017/11/17 6:07	470,2 KB
R2-1712903.zip	2017/11/17 6:07	57,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712904.zip	2017/11/17 6:08	312,8 KB
R2-1712905.zip	2017/11/17 6:08	87,1 KB
R2-1712906.zip	2017/11/17 6:08	33 KB
R2-1712907.zip	2017/11/17 5:47	50,4 KB
R2-1712908.zip	2017/11/17 5:47	47,2 KB
R2-1712909.zip	2017/11/17 5:47	70,5 KB
R2-1712910.zip	2017/11/17 5:47	74 KB
R2-1712911.zip	2017/11/17 1:24	28,8 KB
R2-1712912.zip	2017/11/16 14:55	21,4 KB
R2-1712913.zip	2017/11/17 5:40	25,4 KB
R2-1712914.zip	2017/11/16 14:56	18,5 KB
R2-1712915.zip	2017/11/16 14:56	154 KB
R2-1712916.zip	2017/11/16 14:56	74,3 KB
R2-1712917.zip	2017/11/17 0:24	128,4 KB
R2-1712918.zip	2017/11/17 0:24	61,8 KB
R2-1712919.zip	2017/11/17 0:24	370,1 KB
R2-1712920.zip	2017/11/17 0:24	89 KB
R2-1712921.zip	2017/11/17 0:24	161,7 KB
R2-1712922.zip	2017/11/17 0:24	35,9 KB
R2-1712923.zip	2017/11/17 0:24	60,3 KB
R2-1712924.zip	2017/11/17 0:24	42,3 KB
R2-1712925.zip	2017/11/17 0:24	33,1 KB
R2-1712926.zip	2017/11/17 0:24	42 KB
R2-1712927.zip	2017/11/17 0:24	37,9 KB
R2-1712928.zip	2017/11/17 0:24	38,3 KB
R2-1712929.zip	2017/11/17 0:24	38,1 KB
R2-1712930.zip	2017/11/17 0:24	46 KB
R2-1712931.zip	2017/11/17 0:24	274,8 KB
R2-1712932.zip	2017/11/17 0:24	195,8 KB
R2-1712933.zip	2017/11/17 0:24	37,6 KB
R2-1712934.zip	2017/11/17 0:25	100,9 KB
R2-1712935.zip	2017/11/17 0:25	1576,1 KB
R2-1712936.zip	2017/11/17 0:25	109,1 KB
R2-1712937.zip	2017/11/17 0:53	43,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712938.zip	2017/11/16 10:15	24,9 KB
R2-1712939.zip	2017/11/16 10:15	32,1 KB
R2-1712940.zip	2017/11/16 10:15	20,6 KB
R2-1712941.zip	2017/11/16 10:15	20,5 KB
R2-1712942.zip	2017/11/16 10:15	22 KB
R2-1712943.zip	2017/11/16 10:09	34,4 KB
R2-1712944.zip	2017/11/17 3:47	27,3 KB
R2-1712945.zip	2017/11/17 3:47	28,6 KB
R2-1712946.zip	2017/11/16 9:11	125,6 KB
R2-1712947.zip	2017/11/17 3:47	50,1 KB
R2-1712948.zip	2017/11/17 3:47	27,4 KB
R2-1712949.zip	2017/11/16 9:12	24,9 KB
R2-1712950.zip	2017/11/17 2:03	52,7 KB
R2-1712951.zip	2017/11/16 21:23	37,7 KB
R2-1712952.zip	2017/11/16 21:23	30,7 KB
R2-1712953.zip	2017/11/16 21:23	94,1 KB
R2-1712954.zip	2017/11/16 21:23	61,5 KB
R2-1712955.zip	2017/11/16 21:23	165,3 KB
R2-1712956.zip	2017/11/16 21:23	312,6 KB
R2-1712957.zip	2017/11/16 23:36	55 KB
R2-1712958.zip	2017/11/16 9:12	23 KB
R2-1712959.zip	2017/11/17 2:35	59,2 KB
R2-1712961.zip	2017/11/17 8:40	18,4 KB
R2-1712962.zip	2017/11/16 9:19	21,1 KB
R2-1712963.zip	2017/11/17 0:24	38,9 KB
R2-1712964.zip	2017/11/16 10:09	34,2 KB
R2-1712965.zip	2017/11/16 9:30	141,6 KB
R2-1712966.zip	2017/11/17 1:54	45,1 KB
R2-1712967.zip	2017/11/17 1:54	38,4 KB
R2-1712968.zip	2017/11/17 1:54	29,5 KB
R2-1712969.zip	2017/11/17 1:54	33,4 KB
R2-1712970.zip	2017/11/17 1:54	45,3 KB
R2-1712971.zip	2017/11/17 6:43	32,8 KB
R2-1712972.zip	2017/11/17 6:11	29,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1712973.zip	2017/11/17 6:11	141,8 KB
R2-1712974.zip	2017/11/17 6:11	30,8 KB
R2-1712975.zip	2017/11/17 6:11	24,2 KB
R2-1712976.zip	2017/11/16 15:20	57 KB
R2-1712977.zip	2017/11/17 7:38	103,7 KB
R2-1712979.zip	2017/11/16 18:04	342,5 KB
R2-1712980.zip	2017/11/17 6:47	20 KB
R2-1712981.zip	2017/11/17 6:47	17,9 KB
R2-1712982.zip	2017/11/17 7:03	194,7 KB
R2-1712983.zip	2017/11/17 7:03	45,8 KB
R2-1712984.zip	2017/11/16 17:23	37,3 KB
R2-1712985.zip	2017/11/16 19:23	27,6 KB
R2-1712986.zip	2017/11/16 19:23	26,4 KB
R2-1712987.zip	2017/11/16 19:23	27,6 KB
R2-1712988.zip	2017/11/16 19:23	45,2 KB
R2-1712989.zip	2017/11/16 19:23	275,8 KB
R2-1712990.zip	2017/11/16 19:23	182,1 KB
R2-1712991.zip	2017/11/16 19:23	4948,4 KB
R2-1712992.zip	2017/11/16 19:23	878,8 KB
R2-1712993.zip	2017/11/16 19:23	96,8 KB
R2-1712994.zip	2017/11/17 7:03	31,2 KB
R2-1712995.zip	2017/11/17 6:43	408,7 KB
R2-1712996.zip	2017/11/17 6:43	18,5 KB
R2-1712997.zip	2017/11/17 6:43	53,2 KB
R2-1712998.zip	2017/11/17 6:43	74,7 KB
R2-1712999.zip	2017/11/17 6:43	224,5 KB
R2-1713000.zip	2017/11/17 6:43	92,5 KB
R2-1713001.zip	2017/11/17 7:03	32 KB
R2-1713002.zip	2017/11/17 6:35	367,1 KB
R2-1713003.zip	2017/11/17 6:35	35,8 KB
R2-1713004.zip	2017/11/17 6:35	56,4 KB
R2-1713005.zip	2017/11/17 6:35	102,1 KB
R2-1713006.zip	2017/11/17 6:35	53,4 KB
R2-1713007.zip	2017/11/17 6:35	55,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713008.zip	2017/11/17 6:35	252,6 KB
R2-1713009.zip	2017/11/17 6:35	80,6 KB
R2-1713010.zip	2017/11/17 7:47	271 KB
R2-1713011.zip	2017/11/17 7:47	18,7 KB
R2-1713012.zip	2017/11/17 7:47	22,1 KB
R2-1713013.zip	2017/11/17 7:47	21,1 KB
R2-1713014.zip	2017/11/17 7:47	16,9 KB
R2-1713015.zip	2017/11/17 7:47	19,1 KB
R2-1713016.zip	2017/11/17 7:47	21,1 KB
R2-1713017.zip	2017/11/17 7:47	15,8 KB
R2-1713018.zip	2017/11/17 7:16	19,3 KB
R2-1713019.zip	2017/11/17 7:16	14,8 KB
R2-1713020.zip	2017/11/17 7:12	324,9 KB
R2-1713021.zip	2017/11/17 7:12	247,3 KB
R2-1713022.zip	2017/11/17 7:17	19,9 KB
R2-1713023.zip	2017/11/17 7:47	23,1 KB
R2-1713024.zip	2017/11/17 7:47	230,6 KB
R2-1713025.zip	2017/11/17 7:47	17,6 KB
R2-1713026.zip	2017/11/17 7:47	16,6 KB
R2-1713027.zip	2017/11/17 7:47	22,1 KB
R2-1713028.zip	2017/11/17 7:47	17,1 KB
R2-1713029.zip	2017/11/17 7:47	67,2 KB
R2-1713030.zip	2017/11/17 7:47	14,2 KB
R2-1713031.zip	2017/11/17 7:47	21 KB
R2-1713032.zip	2017/11/17 7:47	12,7 KB
R2-1713033.zip	2017/11/17 7:47	110,6 KB
R2-1713034.zip	2017/11/17 7:47	28,4 KB
R2-1713035.zip	2017/11/17 7:47	19,4 KB
R2-1713036.zip	2017/11/17 7:47	16,9 KB
R2-1713037.zip	2017/11/17 7:47	25,4 KB
R2-1713038.zip	2017/11/17 7:47	16,1 KB
R2-1713039.zip	2017/11/17 7:47	17,7 KB
R2-1713040.zip	2017/11/17 7:47	17,2 KB
R2-1713041.zip	2017/11/17 7:47	17,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713042.zip	2017/11/17 7:47	17,2 KB
R2-1713043.zip	2017/11/17 7:47	66 KB
R2-1713044.zip	2017/11/17 7:47	78,1 KB
R2-1713045.zip	2017/11/17 7:17	24,7 KB
R2-1713046.zip	2017/11/17 2:52	156,5 KB
R2-1713047.zip	2017/11/17 2:52	32,3 KB
R2-1713048.zip	2017/11/17 2:52	21 KB
R2-1713049.zip	2017/11/17 2:52	104 KB
R2-1713050.zip	2017/11/17 3:00	44,6 KB
R2-1713051.zip	2017/11/17 3:00	64,7 KB
R2-1713052.zip	2017/11/17 3:00	38 KB
R2-1713053.zip	2017/11/17 3:00	18 KB
R2-1713054.zip	2017/11/17 4:08	82,8 KB
R2-1713055.zip	2017/11/17 4:08	120,9 KB
R2-1713056.zip	2017/11/17 4:08	130 KB
R2-1713057.zip	2017/11/17 4:08	268,1 KB
R2-1713058.zip	2017/11/21 11:44	221,1 KB
R2-1713059.zip	2017/11/17 3:07	40,5 KB
R2-1713060.zip	2017/11/17 3:07	29,2 KB
R2-1713061.zip	2017/11/17 3:07	29,2 KB
R2-1713062.zip	2017/11/17 3:07	83,9 KB
R2-1713063.zip	2017/11/17 2:50	28,5 KB
R2-1713064.zip	2017/11/17 3:15	28,2 KB
R2-1713065.zip	2017/11/17 3:15	60,9 KB
R2-1713066.zip	2017/11/17 3:15	28 KB
R2-1713067.zip	2017/11/17 3:15	40,2 KB
R2-1713068.zip	2017/11/17 3:21	49,3 KB
R2-1713069.zip	2017/11/17 3:21	22,1 KB
R2-1713070.zip	2017/11/17 4:02	44,5 KB
R2-1713071.zip	2017/11/17 4:02	82 KB
R2-1713072.zip	2017/11/17 4:02	231 KB
R2-1713073.zip	2017/11/17 6:16	72,5 KB
R2-1713074.zip	2017/11/17 6:16	23,7 KB
R2-1713075.zip	2017/11/17 6:16	40,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713076.zip	2017/11/17 6:16	42,2 KB
R2-1713077.zip	2017/11/17 6:16	39,9 KB
R2-1713078.zip	2017/11/17 4:02	45,1 KB
R2-1713079.zip	2017/11/17 4:02	20,4 KB
R2-1713080.zip	2017/11/17 4:02	21,6 KB
R2-1713081.zip	2017/11/16 11:41	78,7 KB
R2-1713082.zip	2017/11/17 7:28	23,6 KB
R2-1713083.zip	2017/11/17 7:28	18,3 KB
R2-1713084.zip	2017/11/17 7:28	20 KB
R2-1713085.zip	2017/11/17 7:28	24 KB
R2-1713086.zip	2017/11/17 7:28	17 KB
R2-1713087.zip	2017/11/17 7:28	23,6 KB
R2-1713088.zip	2017/11/17 7:27	42,5 KB
R2-1713089.zip	2017/11/17 7:27	42 KB
R2-1713091.zip	2017/11/17 7:27	25,5 KB
R2-1713094.zip	2017/11/17 7:27	1151,8 KB
R2-1713095.zip	2017/11/17 7:27	1151,5 KB
R2-1713096.zip	2017/11/17 7:27	25,3 KB
R2-1713098.zip	2017/11/17 7:27	23,5 KB
R2-1713099.zip	2017/11/17 7:27	26 KB
R2-1713100.zip	2017/11/17 7:27	25,3 KB
R2-1713101.zip	2017/11/17 7:27	24,5 KB
R2-1713102.zip	2017/11/17 7:27	30,8 KB
R2-1713103.zip	2017/11/17 7:27	32,2 KB
R2-1713104.zip	2017/11/17 7:27	23,8 KB
R2-1713105.zip	2017/11/17 7:26	47,7 KB
R2-1713106.zip	2017/11/17 7:26	78,4 KB
R2-1713107.zip	2017/11/17 7:26	10,8 KB
R2-1713108.zip	2017/11/17 7:26	50,9 KB
R2-1713109.zip	2017/11/17 7:26	51,2 KB
R2-1713110.zip	2017/11/17 7:26	33,3 KB
R2-1713111.zip	2017/11/17 7:26	31,3 KB
R2-1713112.zip	2017/11/17 7:26	49,8 KB
R2-1713113.zip	2017/11/17 7:26	49 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713114.zip	2017/11/17 7:26	114 KB
R2-1713115.zip	2017/11/17 7:26	49,5 KB
R2-1713116.zip	2017/11/17 7:26	48,6 KB
R2-1713117.zip	2017/11/17 7:26	11 KB
R2-1713118.zip	2017/11/17 7:26	38,6 KB
R2-1713119.zip	2017/11/17 7:26	22,1 KB
R2-1713120.zip	2017/11/17 7:26	50,9 KB
R2-1713121.zip	2017/11/17 7:26	77,4 KB
R2-1713122.zip	2017/11/17 7:26	11,3 KB
R2-1713123.zip	2017/11/17 7:26	49,9 KB
R2-1713124.zip	2017/11/17 7:26	27,7 KB
R2-1713125.zip	2017/11/17 7:26	22,2 KB
R2-1713126.zip	2017/11/17 7:26	46,6 KB
R2-1713127.zip	2017/11/17 7:26	49,7 KB
R2-1713128.zip	2017/11/16 11:41	26,4 KB
R2-1713129.zip	2017/11/16 13:34	17,6 KB
R2-1713130.zip	2017/11/17 5:18	51,9 KB
R2-1713131.zip	2017/11/17 5:18	11,4 KB
R2-1713132.zip	2017/11/17 5:18	32,6 KB
R2-1713133.zip	2017/11/17 5:18	31,9 KB
R2-1713134.zip	2017/11/17 5:18	145,1 KB
R2-1713135.zip	2017/11/17 5:18	34,1 KB
R2-1713136.zip	2017/11/17 5:18	76,5 KB
R2-1713137.zip	2017/11/17 5:18	77 KB
R2-1713138.zip	2017/11/17 5:18	42,7 KB
R2-1713139.zip	2017/11/17 5:18	39,1 KB
R2-1713140.zip	2017/11/17 5:18	46,1 KB
R2-1713141.zip	2017/11/17 5:18	267,6 KB
R2-1713142.zip	2017/11/17 5:18	42,4 KB
R2-1713143.zip	2017/11/17 5:18	43,6 KB
R2-1713144.zip	2017/11/17 5:18	41,1 KB
R2-1713145.zip	2017/11/17 5:18	44,2 KB
R2-1713146.zip	2017/11/17 5:18	46,1 KB
R2-1713147.zip	2017/11/17 5:18	64,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713148.zip	2017/11/17 5:18	32,7 KB
R2-1713149.zip	2017/11/17 5:18	40 KB
R2-1713150.zip	2017/11/17 5:18	41,7 KB
R2-1713151.zip	2017/11/17 5:18	40,2 KB
R2-1713152.zip	2017/11/16 22:59	119,6 KB
R2-1713153.zip	2017/11/16 22:59	32,4 KB
R2-1713154.zip	2017/11/16 22:59	44,4 KB
R2-1713155.zip	2017/11/16 22:59	25,4 KB
R2-1713156.zip	2017/11/16 22:59	25,6 KB
R2-1713158.zip	2017/11/16 22:59	26,3 KB
R2-1713159.zip	2017/11/16 22:59	29,4 KB
R2-1713160.zip	2017/11/16 22:59	65,1 KB
R2-1713161.zip	2017/11/20 15:19	147,6 KB
R2-1713162.zip	2017/11/16 22:59	299,7 KB
R2-1713163.zip	2017/11/16 22:59	16,1 KB
R2-1713164.zip	2017/11/16 22:59	154,5 KB
R2-1713167.zip	2017/11/16 22:59	75,8 KB
R2-1713168.zip	2017/11/16 22:59	51,8 KB
R2-1713170.zip	2017/11/16 22:59	36,6 KB
R2-1713171.zip	2017/11/17 7:30	29,9 KB
R2-1713172.zip	2017/11/17 5:20	86,2 KB
R2-1713173.zip	2017/11/17 5:20	340,3 KB
R2-1713174.zip	2017/11/17 5:20	63 KB
R2-1713175.zip	2017/11/17 5:20	60,6 KB
R2-1713176.zip	2017/11/17 5:20	118,9 KB
R2-1713177.zip	2017/11/17 5:20	185,9 KB
R2-1713178.zip	2017/11/17 5:20	212,5 KB
R2-1713179.zip	2017/11/17 5:20	172,4 KB
R2-1713180.zip	2017/11/16 13:34	17,7 KB
R2-1713181.zip	2017/11/16 19:22	33,5 KB
R2-1713182.zip	2017/11/17 3:32	308 KB
R2-1713183.zip	2017/11/17 3:32	112,7 KB
R2-1713184.zip	2017/11/17 3:32	34,3 KB
R2-1713185.zip	2017/11/17 3:32	34 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713186.zip	2017/11/17 3:32	52,2 KB
R2-1713187.zip	2017/11/17 3:32	11,3 KB
R2-1713188.zip	2017/11/17 3:32	74,1 KB
R2-1713189.zip	2017/11/17 3:32	29,3 KB
R2-1713190.zip	2017/11/17 3:32	231,6 KB
R2-1713191.zip	2017/11/17 3:32	95,7 KB
R2-1713192.zip	2017/11/17 3:32	27,2 KB
R2-1713193.zip	2017/11/17 3:32	18,7 KB
R2-1713194.zip	2017/11/17 3:32	50,8 KB
R2-1713195.zip	2017/11/17 3:32	41,1 KB
R2-1713196.zip	2017/11/17 3:32	32,9 KB
R2-1713197.zip	2017/11/16 13:34	17 KB
R2-1713198.zip	2017/11/17 6:04	28,3 KB
R2-1713199.zip	2017/11/17 6:04	100,2 KB
R2-1713200.zip	2017/11/17 6:04	33,1 KB
R2-1713201.zip	2017/11/17 6:04	16,9 KB
R2-1713202.zip	2017/11/17 6:04	28,4 KB
R2-1713203.zip	2017/11/17 6:04	118,8 KB
R2-1713204.zip	2017/11/17 6:04	38,9 KB
R2-1713205.zip	2017/11/16 13:34	35,1 KB
R2-1713206.zip	2017/11/16 13:34	25,6 KB
R2-1713207.zip	2017/11/17 6:12	43,3 KB
R2-1713208.zip	2017/11/17 6:12	68,3 KB
R2-1713209.zip	2017/11/17 6:12	48,2 KB
R2-1713210.zip	2017/11/17 6:12	112,1 KB
R2-1713211.zip	2017/11/17 6:12	79,7 KB
R2-1713212.zip	2017/11/17 6:12	41,2 KB
R2-1713213.zip	2017/11/17 6:12	30,3 KB
R2-1713214.zip	2017/11/17 6:12	186,9 KB
R2-1713216.zip	2017/11/17 3:32	26,9 KB
R2-1713217.zip	2017/11/17 3:32	27,4 KB
R2-1713218.zip	2017/11/17 3:32	18,8 KB
R2-1713219.zip	2017/11/17 3:32	26,9 KB
R2-1713220.zip	2017/11/17 3:32	22,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713222.zip	2017/11/17 7:27	25,7 KB
R2-1713223.zip	2017/11/17 7:27	28,9 KB
R2-1713224.zip	2017/11/17 7:27	28,8 KB
R2-1713225.zip	2017/11/17 7:27	26,2 KB
R2-1713226.zip	2017/11/17 5:09	61,5 KB
R2-1713227.zip	2017/11/17 4:42	24,1 KB
R2-1713228.zip	2017/11/17 3:56	50,4 KB
R2-1713229.zip	2017/11/17 3:56	52,9 KB
R2-1713230.zip	2017/11/17 3:56	49,7 KB
R2-1713231.zip	2017/11/17 3:17	24,6 KB
R2-1713232.zip	2017/11/17 3:17	20,6 KB
R2-1713233.zip	2017/11/17 5:25	27,3 KB
R2-1713234.zip	2017/11/17 3:17	48,2 KB
R2-1713235.zip	2017/11/17 3:17	25,1 KB
R2-1713236.zip	2017/11/17 3:17	24,3 KB
R2-1713237.zip	2017/11/17 3:17	49,5 KB
R2-1713238.zip	2017/11/17 3:17	47,5 KB
R2-1713239.zip	2017/11/17 3:17	67,9 KB
R2-1713240.zip	2017/11/17 3:17	29,1 KB
R2-1713241.zip	2017/11/17 3:17	20,7 KB
R2-1713242.zip	2017/11/17 3:17	23,4 KB
R2-1713243.zip	2017/11/17 3:17	97,6 KB
R2-1713244.zip	2017/11/17 5:09	33 KB
R2-1713245.zip	2017/11/17 5:09	34,4 KB
R2-1713246.zip	2017/11/16 20:27	120,7 KB
R2-1713247.zip	2017/11/17 5:09	18 KB
R2-1713248.zip	2017/11/17 5:09	62 KB
R2-1713249.zip	2017/11/16 20:27	153,8 KB
R2-1713250.zip	2017/11/17 5:09	35,2 KB
R2-1713251.zip	2017/11/16 15:37	136,4 KB
R2-1713252.zip	2017/11/16 20:27	181,7 KB
R2-1713253.zip	2017/11/16 17:12	33,8 KB
R2-1713254.zip	2017/11/16 20:27	214,5 KB
R2-1713255.zip	2017/11/17 3:18	141,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713256.zip	2017/11/17 3:18	28 KB
R2-1713257.zip	2017/11/17 3:18	790,9 KB
R2-1713258.zip	2017/11/17 3:18	23,7 KB
R2-1713259.zip	2017/11/17 3:18	126,7 KB
R2-1713260.zip	2017/11/16 17:12	44,9 KB
R2-1713261.zip	2017/11/16 20:27	214,9 KB
R2-1713262.zip	2017/11/17 7:00	39,7 KB
R2-1713263.zip	2017/11/17 7:00	209,1 KB
R2-1713264.zip	2017/11/17 7:00	31,5 KB
R2-1713265.zip	2017/11/17 7:00	50,8 KB
R2-1713266.zip	2017/11/16 23:09	118,9 KB
R2-1713267.zip	2017/11/16 23:09	15,9 KB
R2-1713268.zip	2017/11/16 23:09	49,6 KB
R2-1713269.zip	2017/11/16 23:09	44,9 KB
R2-1713270.zip	2017/11/16 23:09	39,8 KB
R2-1713271.zip	2017/11/16 23:09	176,1 KB
R2-1713272.zip	2017/11/16 23:09	49,7 KB
R2-1713273.zip	2017/11/16 23:09	93,2 KB
R2-1713274.zip	2017/11/16 23:09	34,9 KB
R2-1713275.zip	2017/11/16 23:09	46 KB
R2-1713276.zip	2017/11/16 23:09	70,3 KB
R2-1713277.zip	2017/11/16 23:09	41,8 KB
R2-1713278.zip	2017/11/16 23:09	43,9 KB
R2-1713279.zip	2017/11/16 23:09	74 KB
R2-1713280.zip	2017/11/16 23:09	19 KB
R2-1713281.zip	2017/11/17 7:28	36,2 KB
R2-1713282.zip	2017/11/17 7:28	37,7 KB
R2-1713283.zip	2017/11/17 7:28	35,9 KB
R2-1713284.zip	2017/11/17 7:28	33,6 KB
R2-1713285.zip	2017/11/17 7:28	60 KB
R2-1713286.zip	2017/11/17 7:28	84,8 KB
R2-1713287.zip	2017/11/17 7:28	46,4 KB
R2-1713288.zip	2017/11/17 7:28	147 KB
R2-1713289.zip	2017/11/17 7:28	35,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713290.zip	2017/11/17 7:28	47,2 KB
R2-1713291.zip	2017/11/17 7:28	37,1 KB
R2-1713292.zip	2017/11/17 7:28	30,5 KB
R2-1713293.zip	2017/11/17 7:28	35,7 KB
R2-1713294.zip	2017/11/17 7:28	40,4 KB
R2-1713295.zip	2017/11/17 1:33	84,8 KB
R2-1713296.zip	2017/11/17 1:33	86,8 KB
R2-1713297.zip	2017/11/17 1:33	132,3 KB
R2-1713298.zip	2017/11/17 1:33	41 KB
R2-1713299.zip	2017/11/17 1:33	81,5 KB
R2-1713300.zip	2017/11/17 1:33	45,2 KB
R2-1713301.zip	2017/11/17 1:33	336,6 KB
R2-1713302.zip	2017/11/17 1:33	41,2 KB
R2-1713303.zip	2017/11/17 1:33	198,1 KB
R2-1713304.zip	2017/11/17 1:33	105,2 KB
R2-1713305.zip	2017/11/17 1:33	94 KB
R2-1713306.zip	2017/11/17 1:33	46,4 KB
R2-1713307.zip	2017/11/17 1:33	154,2 KB
R2-1713308.zip	2017/11/17 1:33	157,1 KB
R2-1713309.zip	2017/11/16 21:03	21,4 KB
R2-1713310.zip	2017/11/16 14:30	19,8 KB
R2-1713311.zip	2017/11/16 21:03	84,8 KB
R2-1713312.zip	2017/11/16 21:05	82,1 KB
R2-1713313.zip	2017/11/17 3:47	228,6 KB
R2-1713314.zip	2017/11/17 3:47	29,8 KB
R2-1713315.zip	2017/11/17 5:30	89,3 KB
R2-1713316.zip	2017/11/17 5:30	67,5 KB
R2-1713317.zip	2017/11/17 5:30	54 KB
R2-1713318.zip	2017/11/17 5:30	118,6 KB
R2-1713319.zip	2017/11/17 5:30	72,9 KB
R2-1713320.zip	2017/11/17 5:30	55,8 KB
R2-1713321.zip	2017/11/17 5:30	69,9 KB
R2-1713322.zip	2017/11/17 5:30	70,9 KB
R2-1713323.zip	2017/11/17 5:30	25,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713324.zip	2017/11/17 5:21	52 KB
R2-1713325.zip	2017/11/17 5:21	175,8 KB
R2-1713326.zip	2017/11/17 5:21	143,2 KB
R2-1713327.zip	2017/11/17 5:21	39,8 KB
R2-1713328.zip	2017/11/17 5:30	78,4 KB
R2-1713329.zip	2017/11/24 6:33	235,9 KB
R2-1713330.zip	2017/11/24 6:33	235,8 KB
R2-1713331.zip	2017/11/17 5:21	1141 KB
R2-1713332.zip	2017/11/17 5:21	105 KB
R2-1713333.zip	2017/11/17 5:10	157,1 KB
R2-1713334.zip	2017/11/17 5:10	208,1 KB
R2-1713335.zip	2017/11/17 5:10	247,6 KB
R2-1713336.zip	2017/11/17 5:10	105,4 KB
R2-1713337.zip	2017/11/17 5:04	34,9 KB
R2-1713338.zip	2017/11/17 5:04	32,9 KB
R2-1713339.zip	2017/11/17 5:04	420,8 KB
R2-1713340.zip	2017/11/17 5:04	1404,3 KB
R2-1713341.zip	2017/11/17 1:47	92 KB
R2-1713342.zip	2017/11/17 1:47	95,3 KB
R2-1713343.zip	2017/11/17 1:47	36,8 KB
R2-1713344.zip	2017/11/17 1:47	40,9 KB
R2-1713345.zip	2017/11/17 1:47	40,9 KB
R2-1713346.zip	2017/11/17 1:47	40,2 KB
R2-1713347.zip	2017/11/17 1:47	69,2 KB
R2-1713348.zip	2017/11/17 1:47	37,4 KB
R2-1713349.zip	2017/11/17 1:47	44,8 KB
R2-1713350.zip	2017/11/17 1:47	56,5 KB
R2-1713351.zip	2017/11/17 1:47	80,9 KB
R2-1713352.zip	2017/11/16 21:03	37,1 KB
R2-1713353.zip	2017/11/16 21:03	44,3 KB
R2-1713354.zip	2017/11/17 6:18	84,2 KB
R2-1713355.zip	2017/11/16 23:13	77,2 KB
R2-1713356.zip	2017/11/17 6:12	47,4 KB
R2-1713357.zip	2017/11/16 21:03	285,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713358.zip	2017/11/16 21:03	145,9 KB
R2-1713359.zip	2017/11/17 8:05	264,5 KB
R2-1713360.zip	2017/11/16 21:03	39,4 KB
R2-1713361.zip	2017/11/17 8:05	77,4 KB
R2-1713362.zip	2017/11/16 16:27	30,5 KB
R2-1713363.zip	2017/11/16 16:27	26,9 KB
R2-1713364.zip	2017/11/16 20:02	92,6 KB
R2-1713365.zip	2017/11/16 20:02	74,2 KB
R2-1713366.zip	2017/11/16 16:27	29 KB
R2-1713367.zip	2017/11/16 16:27	28,8 KB
R2-1713368.zip	2017/11/16 16:27	85,3 KB
R2-1713369.zip	2017/11/16 16:27	198,2 KB
R2-1713370.zip	2017/11/16 16:27	427,4 KB
R2-1713371.zip	2017/11/16 16:27	34 KB
R2-1713372.zip	2017/11/16 16:27	129,8 KB
R2-1713373.zip	2017/11/16 16:27	1459,5 KB
R2-1713374.zip	2017/11/16 16:27	30,4 KB
R2-1713375.zip	2017/11/16 16:27	44,7 KB
R2-1713376.zip	2017/11/16 16:27	963,5 KB
R2-1713377.zip	2017/11/17 1:17	32,9 KB
R2-1713378.zip	2017/11/17 6:05	24,7 KB
R2-1713379.zip	2017/11/17 6:05	24,5 KB
R2-1713380.zip	2017/11/17 6:05	32,4 KB
R2-1713381.zip	2017/11/17 6:05	27,8 KB
R2-1713382.zip	2017/11/17 6:05	27 KB
R2-1713383.zip	2017/11/17 6:05	24,5 KB
R2-1713384.zip	2017/11/17 1:17	29,9 KB
R2-1713385.zip	2017/11/17 1:17	72,1 KB
R2-1713386.zip	2017/11/17 1:17	29,2 KB
R2-1713387.zip	2017/11/17 1:17	48,8 KB
R2-1713388.zip	2017/11/17 1:23	58,4 KB
R2-1713389.zip	2017/11/17 1:23	88,4 KB
R2-1713390.zip	2017/11/17 1:23	56,2 KB
R2-1713391.zip	2017/11/17 1:23	69,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713392.zip	2017/11/17 1:23	50,8 KB
R2-1713393.zip	2017/11/17 1:23	139,7 KB
R2-1713394.zip	2017/11/17 1:23	46,4 KB
R2-1713395.zip	2017/11/17 1:23	52,4 KB
R2-1713396.zip	2017/11/17 1:23	39,1 KB
R2-1713397.zip	2017/11/17 1:23	89,6 KB
R2-1713398.zip	2017/11/17 1:23	910,6 KB
R2-1713399.zip	2017/11/17 1:23	56,2 KB
R2-1713400.zip	2017/11/17 1:23	88,3 KB
R2-1713401.zip	2017/11/17 1:23	61,4 KB
R2-1713402.zip	2017/11/17 1:23	201,3 KB
R2-1713403.zip	2017/11/17 1:23	142,9 KB
R2-1713404.zip	2017/11/17 1:17	51,2 KB
R2-1713405.zip	2017/11/17 1:17	99,8 KB
R2-1713406.zip	2017/11/16 22:41	42,2 KB
R2-1713407.zip	2017/11/17 1:17	45 KB
R2-1713408.zip	2017/11/16 17:22	621,2 KB
R2-1713409.zip	2017/11/17 7:13	28,5 KB
R2-1713410.zip	2017/11/16 17:22	23,1 KB
R2-1713411.zip	2017/11/17 10:18	109,7 KB
R2-1713412.zip	2017/11/17 7:29	30,6 KB
R2-1713413.zip	2017/11/16 17:04	75,8 KB
R2-1713414.zip	2017/11/17 7:29	49,4 KB
R2-1713415.zip	2017/11/17 7:29	73 KB
R2-1713416.zip	2017/11/17 5:14	27,7 KB
R2-1713417.zip	2017/11/17 5:14	63,1 KB
R2-1713418.zip	2017/11/17 5:14	18,3 KB
R2-1713419.zip	2017/11/17 5:14	41,1 KB
R2-1713420.zip	2017/11/17 5:14	23,2 KB
R2-1713421.zip	2017/11/17 5:14	304,1 KB
R2-1713422.zip	2017/11/17 5:14	84,8 KB
R2-1713423.zip	2017/11/17 5:14	21,6 KB
R2-1713424.zip	2017/11/17 5:14	23 KB
R2-1713425.zip	2017/11/16 17:42	24,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713426.zip	2017/11/17 1:23	42,4 KB
R2-1713427.zip	2017/11/17 7:55	39,7 KB
R2-1713428.zip	2017/11/16 17:46	35,9 KB
R2-1713429.zip	2017/11/16 17:46	43,1 KB
R2-1713430.zip	2017/11/17 0:36	51,7 KB
R2-1713431.zip	2017/11/17 1:04	38,1 KB
R2-1713432.zip	2017/12/02 6:07	46,3 KB
R2-1713433.zip	2017/11/16 17:54	17,8 KB
R2-1713434.zip	2017/11/17 0:46	640,3 KB
R2-1713435.zip	2017/11/17 0:46	39,1 KB
R2-1713436.zip	2017/11/17 0:46	125,6 KB
R2-1713437.zip	2017/11/17 0:46	56 KB
R2-1713438.zip	2017/11/17 0:46	41,5 KB
R2-1713439.zip	2017/11/17 0:46	46 KB
R2-1713440.zip	2017/11/17 0:46	58,1 KB
R2-1713441.zip	2017/11/17 0:46	53,2 KB
R2-1713442.zip	2017/11/17 0:46	41,1 KB
R2-1713443.zip	2017/11/17 0:46	74,3 KB
R2-1713444.zip	2017/11/16 17:54	35,7 KB
R2-1713445.zip	2017/11/16 17:54	96,7 KB
R2-1713446.zip	2017/11/16 17:54	59,8 KB
R2-1713447.zip	2017/11/16 18:12	47,3 KB
R2-1713448.zip	2017/11/16 17:54	28,9 KB
R2-1713449.zip	2017/11/17 7:13	646,9 KB
R2-1713450.zip	2017/11/17 8:58	42,7 KB
R2-1713451.zip	2017/11/22 20:06	159,4 KB
R2-1713452.zip	2017/11/17 1:42	36,7 KB
R2-1713453.zip	2017/11/16 23:40	31,8 KB
R2-1713454.zip	2017/11/16 23:40	55,6 KB
R2-1713455.zip	2017/11/16 23:40	1168,5 KB
R2-1713456.zip	2017/11/23 21:56	32 KB
R2-1713457.zip	2017/11/16 23:40	67,7 KB
R2-1713458.zip	2017/11/16 22:13	952,8 KB
R2-1713459.zip	2017/11/16 22:13	43,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713460.zip	2017/11/16 21:04	43,4 KB
R2-1713461.zip	2017/11/16 21:04	75,5 KB
R2-1713462.zip	2017/11/17 0:47	139,8 KB
R2-1713463.zip	2017/11/17 0:47	120,4 KB
R2-1713464.zip	2017/11/17 0:47	40,4 KB
R2-1713465.zip	2017/11/17 0:47	25,3 KB
R2-1713466.zip	2017/11/17 0:47	102,8 KB
R2-1713467.zip	2017/11/17 0:47	69,6 KB
R2-1713468.zip	2017/11/17 0:47	53,6 KB
R2-1713469.zip	2017/11/17 0:47	48,3 KB
R2-1713470.zip	2017/11/17 0:47	71,5 KB
R2-1713471.zip	2017/11/17 0:47	71,8 KB
R2-1713472.zip	2017/11/17 0:47	41,8 KB
R2-1713473.zip	2017/11/17 0:47	111,1 KB
R2-1713474.zip	2017/11/17 0:47	106,4 KB
R2-1713475.zip	2017/11/17 0:47	44,6 KB
R2-1713476.zip	2017/11/17 0:47	37 KB
R2-1713477.zip	2017/11/17 0:47	35,9 KB
R2-1713478.zip	2017/11/17 0:47	38,8 KB
R2-1713479.zip	2017/11/17 0:47	98,9 KB
R2-1713480.zip	2017/11/17 0:47	87,1 KB
R2-1713481.zip	2017/11/17 0:47	42,8 KB
R2-1713482.zip	2017/11/17 0:47	44,3 KB
R2-1713483.zip	2017/11/17 0:47	51,9 KB
R2-1713484.zip	2017/11/17 0:47	51,8 KB
R2-1713485.zip	2017/11/17 0:47	39,7 KB
R2-1713486.zip	2017/11/17 0:47	40,4 KB
R2-1713487.zip	2017/11/17 0:47	52 KB
R2-1713488.zip	2017/11/17 6:13	38,1 KB
R2-1713489.zip	2017/11/16 22:59	54 KB
R2-1713490.zip	2017/11/16 22:59	265,6 KB
R2-1713491.zip	2017/11/16 22:59	35,1 KB
R2-1713492.zip	2017/11/16 23:26	25,4 KB
R2-1713493.zip	2017/11/16 23:42	32,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713494.zip	2017/11/17 0:08	119,8 KB
R2-1713495.zip	2017/11/17 0:08	332,5 KB
R2-1713496.zip	2017/11/17 0:08	87,1 KB
R2-1713497.zip	2017/11/17 0:47	22,5 KB
R2-1713498.zip	2017/11/17 8:05	34,4 KB
R2-1713499.zip	2017/11/17 7:54	39 KB
R2-1713500.zip	2017/11/20 14:04	35,4 KB
R2-1713501.zip	2017/11/21 13:25	35,8 KB
R2-1713502.zip	2017/11/17 2:54	55,6 KB
R2-1713503.zip	2017/11/17 2:54	301,1 KB
R2-1713504.zip	2017/11/16 23:20	57,1 KB
R2-1713505.zip	2017/11/17 0:24	91,8 KB
R2-1713506.zip	2017/11/16 23:20	33,2 KB
R2-1713507.zip	2017/11/17 5:29	23,8 KB
R2-1713508.zip	2017/11/17 0:47	64,3 KB
R2-1713509.zip	2017/11/17 0:07	29,8 KB
R2-1713510.zip	2017/11/17 0:07	35,4 KB
R2-1713511.zip	2017/11/17 0:07	36,5 KB
R2-1713512.zip	2017/11/17 0:07	15,4 KB
R2-1713513.zip	2017/11/17 0:07	38,4 KB
R2-1713514.zip	2017/11/17 0:07	35,5 KB
R2-1713515.zip	2017/11/17 0:07	39,1 KB
R2-1713516.zip	2017/11/17 0:07	38,7 KB
R2-1713517.zip	2017/11/17 0:07	35,7 KB
R2-1713518.zip	2017/11/17 0:07	33 KB
R2-1713519.zip	2017/11/17 0:07	147,1 KB
R2-1713520.zip	2017/11/17 0:07	151,1 KB
R2-1713521.zip	2017/11/17 0:07	33,4 KB
R2-1713522.zip	2017/11/17 0:07	34,9 KB
R2-1713523.zip	2017/11/17 0:07	20,5 KB
R2-1713524.zip	2017/11/17 0:07	48,7 KB
R2-1713525.zip	2017/11/17 0:07	51,9 KB
R2-1713526.zip	2017/11/17 6:48	179,2 KB
R2-1713527.zip	2017/11/17 0:47	23,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713528.zip	2017/11/16 23:20	23,5 KB
R2-1713529.zip	2017/11/17 0:47	23,3 KB
R2-1713530.zip	2017/11/17 1:47	98,9 KB
R2-1713531.zip	2017/11/17 0:47	59,5 KB
R2-1713532.zip	2017/11/16 23:13	55,3 KB
R2-1713533.zip	2017/11/17 0:47	46,9 KB
R2-1713534.zip	2017/11/17 0:47	81,2 KB
R2-1713535.zip	2017/11/16 23:21	56,9 KB
R2-1713536.zip	2017/11/17 0:02	42,9 KB
R2-1713537.zip	2017/11/23 20:12	48,8 KB
R2-1713538.zip	2017/11/17 0:46	4352,1 KB
R2-1713539.zip	2017/11/17 0:13	40,7 KB
R2-1713540.zip	2017/11/16 23:47	22,7 KB
R2-1713542.zip	2017/11/16 23:47	22,7 KB
R2-1713543.zip	2017/11/21 11:05	5278,9 KB
R2-1713544.zip	2017/11/17 7:58	30,5 KB
R2-1713545.zip	2017/11/16 23:47	22 KB
R2-1713546.zip	2017/11/21 10:55	29,2 KB
R2-1713547.zip	2017/11/17 0:08	36 KB
R2-1713548.zip	2017/11/17 7:58	65 KB
R2-1713549.zip	2017/11/17 0:09	25,2 KB
R2-1713550.zip	2017/11/17 0:09	26,3 KB
R2-1713551.zip	2017/11/17 0:09	25,5 KB
R2-1713552.zip	2017/11/16 23:58	25,3 KB
R2-1713553.zip	2017/11/17 7:58	60 KB
R2-1713554.zip	2017/11/16 23:59	39 KB
R2-1713555.zip	2017/11/17 9:04	34,1 KB
R2-1713556.zip	2017/11/16 23:59	28 KB
R2-1713557.zip	2017/11/16 23:59	29,6 KB
R2-1713558.zip	2017/11/17 0:08	90,8 KB
R2-1713559.zip	2017/11/17 1:14	28,3 KB
R2-1713560.zip	2017/11/17 8:16	179 KB
R2-1713562.zip	2017/11/17 0:08	44,3 KB
R2-1713563.zip	2017/11/17 1:27	75,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713564.zip	2017/11/17 1:14	28,7 KB
R2-1713565.zip	2017/11/17 0:08	38 KB
R2-1713566.zip	2017/11/17 1:14	25,4 KB
R2-1713567.zip	2017/11/17 5:53	158,9 KB
R2-1713568.zip	2017/11/17 5:53	159,1 KB
R2-1713569.zip	2017/11/17 5:10	20,1 KB
R2-1713570.zip	2017/11/17 5:56	170,1 KB
R2-1713571.zip	2017/11/17 5:56	157,5 KB
R2-1713572.zip	2017/11/17 5:10	21,7 KB
R2-1713573.zip	2017/11/17 5:10	24,1 KB
R2-1713574.zip	2017/11/17 0:47	96,1 KB
R2-1713575.zip	2017/11/17 4:22	33,7 KB
R2-1713577.zip	2017/11/17 0:40	34,2 KB
R2-1713578.zip	2017/11/17 1:14	78,6 KB
R2-1713579.zip	2017/11/17 0:40	49,2 KB
R2-1713580.zip	2017/11/17 1:01	17,9 KB
R2-1713581.zip	2017/11/17 1:01	17,1 KB
R2-1713582.zip	2017/11/17 1:01	16,2 KB
R2-1713583.zip	2017/11/17 1:01	18,1 KB
R2-1713584.zip	2017/11/17 1:02	16,3 KB
R2-1713585.zip	2017/11/17 3:00	19 KB
R2-1713586.zip	2017/11/17 3:18	72,5 KB
R2-1713587.zip	2017/11/17 1:14	39,7 KB
R2-1713588.zip	2017/11/17 3:02	44,2 KB
R2-1713589.zip	2017/11/17 3:02	294,9 KB
R2-1713590.zip	2017/11/17 3:02	163,4 KB
R2-1713591.zip	2017/11/17 3:02	38,3 KB
R2-1713592.zip	2017/11/17 3:02	40,3 KB
R2-1713593.zip	2017/11/17 3:02	48,5 KB
R2-1713594.zip	2017/11/17 3:02	58,1 KB
R2-1713595.zip	2017/11/17 3:02	54,3 KB
R2-1713596.zip	2017/11/17 3:02	88,5 KB
R2-1713597.zip	2017/11/17 3:02	153,5 KB
R2-1713598.zip	2017/11/17 3:02	76,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713599.zip	2017/11/17 3:02	93,1 KB
R2-1713600.zip	2017/11/17 3:02	35,9 KB
R2-1713601.zip	2017/11/17 3:02	132,7 KB
R2-1713602.zip	2017/11/17 3:02	42,2 KB
R2-1713603.zip	2017/11/17 3:02	40,8 KB
R2-1713605.zip	2017/11/17 3:02	37 KB
R2-1713606.zip	2017/11/17 3:02	63 KB
R2-1713607.zip	2017/11/17 3:02	188,8 KB
R2-1713608.zip	2017/11/17 3:02	40,8 KB
R2-1713609.zip	2017/11/17 3:18	200,5 KB
R2-1713610.zip	2017/11/17 4:39	118,1 KB
R2-1713611.zip	2017/11/17 4:39	42,1 KB
R2-1713612.zip	2017/11/17 1:08	77 KB
R2-1713613.zip	2017/11/17 4:55	81,7 KB
R2-1713614.zip	2017/11/17 4:39	42,5 KB
R2-1713615.zip	2017/11/17 4:55	29,8 KB
R2-1713616.zip	2017/11/17 4:39	34,7 KB
R2-1713617.zip	2017/11/17 4:39	35,7 KB
R2-1713618.zip	2017/11/17 4:39	36,4 KB
R2-1713619.zip	2017/11/17 4:39	34,9 KB
R2-1713620.zip	2017/11/17 2:08	39,3 KB
R2-1713621.zip	2017/11/17 2:08	39,9 KB
R2-1713622.zip	2017/11/17 2:08	37,3 KB
R2-1713623.zip	2017/11/17 2:08	35,9 KB
R2-1713624.zip	2017/11/17 2:06	30,4 KB
R2-1713625.zip	2017/11/17 2:06	30,4 KB
R2-1713626.zip	2017/11/17 2:08	72,3 KB
R2-1713627.zip	2017/11/17 2:08	83,9 KB
R2-1713628.zip	2017/11/23 22:03	37,9 KB
R2-1713629.zip	2017/11/21 21:15	798,8 KB
R2-1713630.zip	2017/11/23 22:03	36,9 KB
R2-1713631.zip	2017/11/17 4:39	185,1 KB
R2-1713632.zip	2017/11/17 4:39	36,2 KB
R2-1713633.zip	2017/11/17 1:16	112,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713634.zip	2017/11/17 4:39	37,3 KB
R2-1713635.zip	2017/11/17 6:03	18,6 KB
R2-1713636.zip	2017/11/17 6:03	17,4 KB
R2-1713637.zip	2017/11/17 6:03	21,3 KB
R2-1713638.zip	2017/11/17 6:03	72,5 KB
R2-1713639.zip	2017/11/17 6:03	37,2 KB
R2-1713640.zip	2017/11/17 6:03	16,5 KB
R2-1713641.zip	2017/11/17 5:18	24,4 KB
R2-1713642.zip	2017/11/17 5:18	78,3 KB
R2-1713643.zip	2017/11/17 4:39	37 KB
R2-1713644.zip	2017/11/17 5:07	54,3 KB
R2-1713645.zip	2017/11/17 1:16	125,3 KB
R2-1713646.zip	2017/11/17 4:30	14,9 KB
R2-1713647.zip	2017/11/17 5:18	26,7 KB
R2-1713648.zip	2017/11/17 5:18	31 KB
R2-1713649.zip	2017/11/17 5:07	38,8 KB
R2-1713650.zip	2017/11/17 1:16	84,8 KB
R2-1713651.zip	2017/11/17 4:39	39,2 KB
R2-1713652.zip	2017/11/17 1:47	59 KB
R2-1713653.zip	2017/11/17 5:07	41,6 KB
R2-1713654.zip	2017/11/17 5:07	36,1 KB
R2-1713655.zip	2017/11/17 5:07	41,8 KB
R2-1713657.zip	2017/11/17 5:07	39,2 KB
R2-1713658.zip	2017/11/17 6:16	42 KB
R2-1713659.zip	2017/11/17 1:32	160,8 KB
R2-1713660.zip	2017/11/17 1:32	666,9 KB
R2-1713661.zip	2017/11/17 1:32	47,7 KB
R2-1713662.zip	2017/11/17 1:32	22,6 KB
R2-1713663.zip	2017/11/17 1:32	26 KB
R2-1713664.zip	2017/11/17 6:24	34,4 KB
R2-1713665.zip	2017/11/17 1:27	41,9 KB
R2-1713666.zip	2017/11/17 1:32	36,5 KB
R2-1713667.zip	2017/11/17 1:32	37,8 KB
R2-1713668.zip	2017/11/17 1:32	45,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713669.zip	2017/11/17 1:32	37,6 KB
R2-1713670.zip	2017/11/17 4:52	70,7 KB
R2-1713671.zip	2017/11/17 6:24	40,5 KB
R2-1713672.zip	2017/11/17 6:24	40,4 KB
R2-1713673.zip	2017/11/17 6:48	88,1 KB
R2-1713674.zip	2017/11/17 6:48	90,4 KB
R2-1713675.zip	2017/11/17 6:48	165 KB
R2-1713676.zip	2017/11/17 7:00	45,1 KB
R2-1713677.zip	2017/11/17 6:48	42,8 KB
R2-1713678.zip	2017/11/17 6:48	53,5 KB
R2-1713679.zip	2017/11/20 1:11	212 KB
R2-1713680.zip	2017/11/17 6:55	47,2 KB
R2-1713681.zip	2017/11/17 3:46	102,4 KB
R2-1713682.zip	2017/11/17 6:18	219,5 KB
R2-1713683.zip	2017/11/17 3:46	32 KB
R2-1713684.zip	2017/11/17 6:43	344,4 KB
R2-1713685.zip	2017/11/17 3:18	84,7 KB
R2-1713686.zip	2017/11/17 3:18	40,5 KB
R2-1713687.zip	2017/11/17 5:49	56,4 KB
R2-1713688.zip	2017/11/17 2:39	42,6 KB
R2-1713689.zip	2017/11/17 3:18	89,9 KB
R2-1713690.zip	2017/11/17 7:47	19,5 KB
R2-1713691.zip	2017/11/17 7:47	100,5 KB
R2-1713692.zip	2017/11/17 4:25	71,6 KB
R2-1713693.zip	2017/11/17 4:25	72,4 KB
R2-1713694.zip	2017/11/17 4:25	74,6 KB
R2-1713695.zip	2017/11/17 4:25	96,6 KB
R2-1713696.zip	2017/11/17 4:25	137,3 KB
R2-1713697.zip	2017/11/17 4:25	77,8 KB
R2-1713698.zip	2017/11/17 4:25	73,1 KB
R2-1713699.zip	2017/11/17 4:25	75,6 KB
R2-1713700.zip	2017/11/17 4:25	96,8 KB
R2-1713701.zip	2017/11/17 4:25	103,5 KB
R2-1713702.zip	2017/11/17 4:25	73,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713703.zip	2017/11/17 4:25	72,7 KB
R2-1713704.zip	2017/11/17 4:25	74,6 KB
R2-1713705.zip	2017/11/17 4:25	122,7 KB
R2-1713706.zip	2017/11/17 4:25	74,3 KB
R2-1713707.zip	2017/11/17 4:25	74,4 KB
R2-1713708.zip	2017/11/17 3:18	76,6 KB
R2-1713709.zip	2017/11/23 10:37	17,6 KB
R2-1713710.zip	2017/11/17 7:49	66,6 KB
R2-1713711.zip	2017/11/23 10:37	38,2 KB
R2-1713712.zip	2017/11/17 3:18	21,4 KB
R2-1713713.zip	2017/11/17 7:49	57,3 KB
R2-1713714.zip	2017/11/17 3:18	33,9 KB
R2-1713715.zip	2017/11/17 3:18	33,9 KB
R2-1713716.zip	2017/11/17 3:18	36,3 KB
R2-1713717.zip	2017/11/17 3:47	54,5 KB
R2-1713718.zip	2017/11/17 3:47	36,4 KB
R2-1713719.zip	2017/11/17 6:44	38,6 KB
R2-1713720.zip	2017/11/17 7:05	136,9 KB
R2-1713721.zip	2017/11/17 7:05	38,2 KB
R2-1713722.zip	2017/11/17 7:05	40,2 KB
R2-1713723.zip	2017/11/17 7:05	97,6 KB
R2-1713724.zip	2017/11/17 7:05	40,5 KB
R2-1713725.zip	2017/11/17 7:05	38,1 KB
R2-1713726.zip	2017/11/17 7:05	37,9 KB
R2-1713727.zip	2017/11/17 4:47	16,7 KB
R2-1713728.zip	2017/11/17 7:47	13,6 KB
R2-1713729.zip	2017/11/17 7:38	55,9 KB
R2-1713730.zip	2017/11/17 7:38	24,7 KB
R2-1713731.zip	2017/11/17 3:16	19,5 KB
R2-1713732.zip	2017/11/17 4:55	178,1 KB
R2-1713733.zip	2017/11/17 4:07	41,3 KB
R2-1713734.zip	2017/11/17 4:07	48,6 KB
R2-1713735.zip	2017/11/17 4:07	71,7 KB
R2-1713736.zip	2017/11/17 4:07	232,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713737.zip	2017/11/17 4:07	40,9 KB
R2-1713738.zip	2017/11/17 4:07	187,3 KB
R2-1713739.zip	2017/11/17 4:07	37,9 KB
R2-1713740.zip	2017/11/17 4:07	21,3 KB
R2-1713741.zip	2017/11/17 4:07	58,6 KB
R2-1713742.zip	2017/11/17 4:11	191 KB
R2-1713743.zip	2017/11/17 4:19	104 KB
R2-1713744.zip	2017/11/17 4:19	451 KB
R2-1713745.zip	2017/11/17 4:01	105 KB
R2-1713746.zip	2017/11/17 4:20	212,8 KB
R2-1713747.zip	2017/11/17 4:20	199,5 KB
R2-1713749.zip	2017/11/17 6:01	61 KB
R2-1713750.zip	2017/11/17 6:00	59,7 KB
R2-1713751.zip	2017/11/17 6:01	352 KB
R2-1713752.zip	2017/11/17 6:35	36,7 KB
R2-1713753.zip	2017/11/17 6:35	32,9 KB
R2-1713754.zip	2017/11/17 6:35	33,3 KB
R2-1713755.zip	2017/11/17 6:35	30,3 KB
R2-1713756.zip	2017/11/17 6:35	29,4 KB
R2-1713757.zip	2017/11/17 6:35	38,8 KB
R2-1713758.zip	2017/11/17 7:13	33,4 KB
R2-1713759.zip	2017/11/17 6:44	103,2 KB
R2-1713760.zip	2017/11/17 6:42	89,7 KB
R2-1713761.zip	2017/11/17 6:42	78 KB
R2-1713762.zip	2017/11/17 6:42	88,2 KB
R2-1713763.zip	2017/11/17 6:42	93,8 KB
R2-1713764.zip	2017/11/17 6:42	126,9 KB
R2-1713765.zip	2017/11/17 6:42	328,2 KB
R2-1713766.zip	2017/11/17 6:01	56 KB
R2-1713767.zip	2017/11/17 4:42	124,8 KB
R2-1713768.zip	2017/11/17 4:42	96,8 KB
R2-1713769.zip	2017/11/17 4:42	114,7 KB
R2-1713770.zip	2017/11/17 4:47	34,9 KB
R2-1713771.zip	2017/11/17 4:48	55,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713772.zip	2017/11/17 5:06	67,5 KB
R2-1713773.zip	2017/11/17 7:36	398 KB
R2-1713774.zip	2017/11/17 5:07	404,5 KB
R2-1713775.zip	2017/11/17 5:07	40,6 KB
R2-1713776.zip	2017/11/17 5:07	699 KB
R2-1713777.zip	2017/11/17 5:07	40,3 KB
R2-1713778.zip	2017/11/17 5:07	141 KB
R2-1713779.zip	2017/11/17 4:48	43,1 KB
R2-1713780.zip	2017/11/17 4:47	15,5 KB
R2-1713781.zip	2017/11/17 4:56	74,1 KB
R2-1713782.zip	2017/11/17 5:56	262,2 KB
R2-1713783.zip	2017/11/17 5:56	213,6 KB
R2-1713785.zip	2017/11/17 5:56	74,6 KB
R2-1713787.zip	2017/11/17 5:56	74,5 KB
R2-1713788.zip	2017/11/17 5:56	218,8 KB
R2-1713789.zip	2017/11/17 5:57	674,7 KB
R2-1713790.zip	2017/11/17 5:57	206,3 KB
R2-1713791.zip	2017/11/17 5:04	93 KB
R2-1713792.zip	2017/11/17 4:40	43,8 KB
R2-1713793.zip	2017/11/17 4:40	85,7 KB
R2-1713794.zip	2017/11/17 4:40	80,1 KB
R2-1713795.zip	2017/11/17 4:39	38 KB
R2-1713796.zip	2017/11/17 4:39	176,8 KB
R2-1713797.zip	2017/11/17 4:40	64 KB
R2-1713798.zip	2017/11/17 4:40	35 KB
R2-1713799.zip	2017/11/17 4:56	28,2 KB
R2-1713800.zip	2017/11/17 5:31	35,5 KB
R2-1713801.zip	2017/11/17 5:31	76,9 KB
R2-1713802.zip	2017/11/17 5:31	192,4 KB
R2-1713803.zip	2017/11/17 5:31	22,4 KB
R2-1713804.zip	2017/11/17 5:31	17,4 KB
R2-1713805.zip	2017/11/17 5:31	18,3 KB
R2-1713806.zip	2017/11/17 5:31	21,8 KB
R2-1713807.zip	2017/11/17 5:31	71,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713808.zip	2017/11/17 5:31	20,6 KB
R2-1713809.zip	2017/11/17 5:31	38,3 KB
R2-1713810.zip	2017/11/17 5:31	69 KB
R2-1713811.zip	2017/11/17 4:57	27,3 KB
R2-1713812.zip	2017/11/17 6:42	22,4 KB
R2-1713813.zip	2017/11/17 7:01	30,7 KB
R2-1713814.zip	2017/11/17 6:42	20,1 KB
R2-1713815.zip	2017/11/17 7:01	20,6 KB
R2-1713816.zip	2017/11/17 6:42	17,2 KB
R2-1713817.zip	2017/11/17 6:31	43 KB
R2-1713818.zip	2017/11/17 7:58	53,2 KB
R2-1713819.zip	2017/11/17 6:31	26 KB
R2-1713820.zip	2017/11/17 6:31	53,9 KB
R2-1713821.zip	2017/11/17 6:31	30,5 KB
R2-1713822.zip	2017/11/17 6:31	26,4 KB
R2-1713823.zip	2017/11/17 6:31	27,1 KB
R2-1713824.zip	2017/11/17 6:31	27 KB
R2-1713825.zip	2017/11/17 6:31	42,7 KB
R2-1713827.zip	2017/11/17 7:58	51,6 KB
R2-1713828.zip	2017/11/17 6:33	23,1 KB
R2-1713829.zip	2017/11/17 5:46	100,2 KB
R2-1713830.zip	2017/11/17 5:46	36,9 KB
R2-1713831.zip	2017/11/17 5:46	34 KB
R2-1713832.zip	2017/11/17 5:46	113,5 KB
R2-1713833.zip	2017/11/17 5:46	85,9 KB
R2-1713834.zip	2017/11/17 6:33	182 KB
R2-1713835.zip	2017/11/17 6:31	27,5 KB
R2-1713836.zip	2017/11/21 8:33	28,6 KB
R2-1713838.zip	2017/11/17 7:58	47,1 KB
R2-1713839.zip	2017/11/17 6:35	41,1 KB
R2-1713840.zip	2017/11/17 5:31	52,7 KB
R2-1713841.zip	2017/11/17 6:35	88,8 KB
R2-1713842.zip	2017/11/17 6:09	56 KB
R2-1713843.zip	2017/11/17 6:09	87,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713844.zip	2017/11/17 6:09	277,1 KB
R2-1713845.zip	2017/11/17 6:10	176,1 KB
R2-1713846.zip	2017/11/17 6:10	47,4 KB
R2-1713847.zip	2017/11/17 6:10	55,8 KB
R2-1713848.zip	2017/11/17 6:10	42,7 KB
R2-1713849.zip	2017/11/17 6:10	229,6 KB
R2-1713850.zip	2017/11/17 6:48	31,9 KB
R2-1713851.zip	2017/11/17 5:24	52,2 KB
R2-1713852.zip	2017/11/17 6:32	68,2 KB
R2-1713854.zip	2017/11/17 6:48	82,6 KB
R2-1713856.zip	2017/11/17 6:48	77,2 KB
R2-1713857.zip	2017/11/17 6:48	98 KB
R2-1713858.zip	2017/11/17 6:48	43,3 KB
R2-1713860.zip	2017/11/17 6:48	30,7 KB
R2-1713861.zip	2017/11/17 6:33	160,1 KB
R2-1713862.zip	2017/11/17 5:49	42,2 KB
R2-1713863.zip	2017/11/17 7:01	365,2 KB
R2-1713864.zip	2017/11/17 7:01	132,9 KB
R2-1713865.zip	2017/11/17 7:29	98,5 KB
R2-1713866.zip	2017/11/17 7:29	52,7 KB
R2-1713867.zip	2017/11/17 7:29	51,4 KB
R2-1713868.zip	2017/11/17 7:29	102,1 KB
R2-1713869.zip	2017/11/17 7:29	151 KB
R2-1713870.zip	2017/11/17 7:29	89,1 KB
R2-1713871.zip	2017/11/17 7:29	105,2 KB
R2-1713872.zip	2017/11/17 7:29	77,8 KB
R2-1713873.zip	2017/11/17 7:29	103 KB
R2-1713874.zip	2017/11/17 6:35	39,7 KB
R2-1713875.zip	2017/11/17 5:55	23,4 KB
R2-1713876.zip	2017/11/17 6:13	143,4 KB
R2-1713877.zip	2017/11/17 6:18	39,7 KB
R2-1713878.zip	2017/11/17 6:13	62,4 KB
R2-1713879.zip	2017/11/17 6:04	100,6 KB
R2-1713880.zip	2017/11/17 6:04	20,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713881.zip	2017/11/17 6:04	45 KB
R2-1713882.zip	2017/11/17 6:04	32,4 KB
R2-1713883.zip	2017/11/17 6:04	50 KB
R2-1713884.zip	2017/11/17 6:13	19,9 KB
R2-1713885.zip	2017/11/17 7:45	110,9 KB
R2-1713886.zip	2017/11/17 6:14	35,1 KB
R2-1713887.zip	2017/11/17 6:45	144,6 KB
R2-1713888.zip	2017/11/17 6:45	165,1 KB
R2-1713889.zip	2017/11/17 6:14	35 KB
R2-1713890.zip	2017/11/17 6:45	200 KB
R2-1713891.zip	2017/11/17 6:14	45,4 KB
R2-1713892.zip	2017/11/17 6:45	32,5 KB
R2-1713893.zip	2017/11/17 6:14	80,2 KB
R2-1713894.zip	2017/11/17 6:45	178,7 KB
R2-1713895.zip	2017/11/17 6:14	67,8 KB
R2-1713896.zip	2017/11/17 7:11	22,4 KB
R2-1713897.zip	2017/11/17 6:23	930,6 KB
R2-1713898.zip	2017/11/17 6:48	34,9 KB
R2-1713899.zip	2017/11/17 7:27	19,3 KB
R2-1713900.zip	2017/11/17 7:16	60,5 KB
R2-1713901.zip	2017/11/17 7:03	640,4 KB
R2-1713902.zip	2017/11/17 7:03	33,2 KB
R2-1713903.zip	2017/11/17 7:37	28,8 KB
R2-1713904.zip	2017/11/17 7:19	76,5 KB
R2-1713905.zip	2017/11/17 7:55	41,8 KB
R2-1713906.zip	2017/11/17 7:23	639,3 KB
R2-1713907.zip	2017/11/17 7:26	254,8 KB
R2-1713908.zip	2017/11/17 7:55	32,1 KB
R2-1713909.zip	2017/11/17 7:44	21,8 KB
R2-1713910.zip	2017/11/17 7:44	22,7 KB
R2-1713911.zip	2017/12/02 6:07	54,2 KB
R2-1713912.zip	2017/11/17 7:59	41,7 KB
R2-1713913.zip	2017/11/17 7:59	38 KB
R2-1713914.zip	2017/11/17 7:57	28,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713915.zip	2017/11/17 7:57	28,3 KB
R2-1713916.zip	2017/11/23 10:22	51,5 KB
R2-1713917.zip	2017/11/17 8:02	29,5 KB
R2-1713918.zip	2017/11/17 8:02	67,1 KB
R2-1713919.zip	2017/11/17 8:02	27,3 KB
R2-1713920.zip	2017/11/17 8:17	27,5 KB
R2-1713921.zip	2017/11/22 6:06	27,3 KB
R2-1713922.zip	2017/11/20 15:20	42,2 KB
R2-1713923.zip	2017/11/17 8:14	26,8 KB
R2-1713924.zip	2017/11/22 10:46	172,9 KB
R2-1713925.zip	2017/11/17 16:18	71,5 KB
R2-1713926.zip	2017/11/17 16:18	14,1 KB
R2-1713927.zip	2017/11/17 20:15	32,4 KB
R2-1713928.zip	2017/11/17 20:15	15,6 KB
R2-1713929.zip	2017/11/17 20:15	30,6 KB
R2-1713930.zip	2017/11/17 20:15	31 KB
R2-1713931.zip	2017/11/17 20:16	20,1 KB
R2-1713932.zip	2017/11/17 21:54	69,9 KB
R2-1713933.zip	2017/11/18 11:01	13,2 KB
R2-1713934.zip	2017/11/21 11:43	35,1 KB
R2-1713935.zip	2017/11/22 9:24	27,6 KB
R2-1713936.zip	2017/11/20 20:55	31,3 KB
R2-1713937.zip	2017/11/21 19:23	61,5 KB
R2-1713938.zip	2017/11/22 11:52	93,8 KB
R2-1713939.zip	2017/11/21 13:14	32,5 KB
R2-1713940.zip	2017/11/21 13:22	101,1 KB
R2-1713941.zip	2017/11/21 15:34	44,9 KB
R2-1713942.zip	2017/11/22 9:24	55,7 KB
R2-1713943.zip	2017/11/22 9:39	20,6 KB
R2-1713944.zip	2017/11/22 9:39	14,2 KB
R2-1713945.zip	2017/11/22 9:39	15,7 KB
R2-1713946.zip	2017/11/22 10:46	110,1 KB
R2-1713947.zip	2017/11/22 10:46	52,2 KB
R2-1713948.zip	2017/11/23 10:41	301,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713949.zip	2017/11/23 22:04	1171,1 KB
R2-1713950.zip	2017/11/22 20:11	30,3 KB
R2-1713951.zip	2017/11/24 10:28	40,1 KB
R2-1713952.zip	2017/11/23 10:51	35,1 KB
R2-1713953.zip	2017/11/23 20:12	24,3 KB
R2-1713954.zip	2017/11/24 10:56	55,8 KB
R2-1713955.zip	2017/11/24 11:41	220,5 KB
R2-1713956.zip	2017/11/24 14:43	32,6 KB
R2-1713957.zip	2017/12/02 6:04	29 KB
R2-1713958.zip	2017/12/02 6:07	15,4 KB
R2-1713959.zip	2017/12/02 6:05	82,8 KB
R2-1713960.zip	2017/12/02 6:05	17,9 KB
R2-1713961.zip	2017/12/02 6:05	17,9 KB
R2-1713962.zip	2017/12/02 6:06	35,3 KB
R2-1713963.zip	2017/12/02 6:06	43,4 KB
R2-1713964.zip	2017/12/02 6:06	42,8 KB
R2-1713965.zip	2017/12/02 6:06	26,1 KB
R2-1713967.zip	2017/12/02 6:02	21,7 KB
R2-1713968.zip	2017/12/02 6:03	21,8 KB
R2-1713969.zip	2017/12/02 6:05	25,4 KB
R2-1713970.zip	2017/12/02 6:05	24,5 KB
R2-1713971.zip	2017/12/02 6:05	47 KB
R2-1713972.zip	2017/12/02 6:05	46,1 KB
R2-1713973.zip	2017/12/02 6:06	15 KB
R2-1713974.zip	2017/12/02 6:05	17,6 KB
R2-1713975.zip	2017/12/02 6:05	17,2 KB
R2-1713976.zip	2017/12/02 6:06	66,1 KB
R2-1713977.zip	2017/12/02 6:06	78,3 KB
R2-1713978.zip	2017/12/02 6:06	32,3 KB
R2-1713979.zip	2017/12/02 6:04	26 KB
R2-1713980.zip	2017/12/02 6:06	24,2 KB
R2-1713981.zip	2017/12/02 6:03	25,3 KB
R2-1713982.zip	2017/12/02 6:03	28,4 KB
R2-1713983.zip	2017/12/02 6:06	30,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1713984.zip	2017/12/02 6:06	26,5 KB
R2-1713985.zip	2017/12/02 6:06	34,7 KB
R2-1713986.zip	2017/12/02 6:06	34,7 KB
R2-1713987.zip	2017/12/02 6:05	20,8 KB
R2-1713988.zip	2017/12/02 6:05	17,1 KB
R2-1713989.zip	2017/12/02 6:05	19,2 KB
R2-1713991.zip	2017/12/02 6:05	25,9 KB
R2-1713992.zip	2017/12/02 6:05	24,8 KB
R2-1713993.zip	2017/12/02 6:05	15,9 KB
R2-1713994.zip	2017/12/02 6:05	17,1 KB
R2-1713995.zip	2017/12/02 6:05	12 KB
R2-1713996.zip	2017/12/02 6:04	36 KB
R2-1713997.zip	2017/12/02 6:04	47,1 KB
R2-1713998.zip	2017/12/02 6:04	46,4 KB
R2-1713999.zip	2017/12/02 6:04	84,7 KB
R2-1714000.zip	2017/12/02 6:03	83,3 KB
R2-1714001.zip	2017/12/02 6:04	30,6 KB
R2-1714002.zip	2017/12/02 6:04	20,8 KB
R2-1714003.zip	2017/12/02 6:04	17,2 KB
R2-1714004.zip	2017/12/02 6:04	19,2 KB
R2-1714005.zip	2017/12/02 6:03	100,5 KB
R2-1714006.zip	2017/12/02 6:04	11,2 KB
R2-1714007.zip	2017/12/02 6:04	31 KB
R2-1714008.zip	2017/12/02 6:04	11,2 KB
R2-1714009.zip	2017/12/02 6:05	25,3 KB
R2-1714010.zip	2017/12/02 6:05	114,2 KB
R2-1714011.zip	2017/12/02 6:07	37,1 KB
R2-1714012.zip	2017/12/02 6:03	17,5 KB
R2-1714013.zip	2017/12/02 6:07	17,3 KB
R2-1714014.zip	2017/12/02 6:05	11,3 KB
R2-1714015.zip	2017/12/02 6:04	11,2 KB
R2-1714034.zip	2017/12/02 6:07	215,5 KB
R2-1714035.zip	2017/12/02 6:06	30,1 KB
R2-1714036.zip	2017/12/02 6:06	80,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1714037.zip	2017/12/02 6:06	21,9 KB
R2-1714038.zip	2017/12/02 6:05	26 KB
R2-1714039.zip	2017/12/02 6:06	21,5 KB
R2-1714040.zip	2017/12/02 6:04	24,5 KB
R2-1714041.zip	2017/12/02 6:04	99,2 KB
R2-1714042.zip	2017/12/02 6:04	54,7 KB
R2-1714045.zip	2017/12/02 6:06	15 KB
R2-1714046.zip	2017/12/02 6:04	25,8 KB
R2-1714047.zip	2017/12/02 6:04	40,2 KB
R2-1714048.zip	2017/12/02 6:06	17,2 KB
R2-1714049.zip	2017/12/02 6:06	14,9 KB
R2-1714050.zip	2017/12/02 6:06	17,3 KB
R2-1714051.zip	2017/12/02 6:06	25,1 KB
R2-1714052.zip	2017/12/02 6:05	40,4 KB
R2-1714053.zip	2017/12/02 6:06	28,1 KB
R2-1714054.zip	2017/12/02 6:05	28,3 KB
R2-1714055.zip	2017/12/02 6:05	28,6 KB
R2-1714056.zip	2017/12/02 6:04	64,8 KB
R2-1714057.zip	2017/12/02 6:04	28,5 KB
R2-1714058.zip	2017/12/07 22:22	91,3 KB
R2-1714059.zip	2017/12/02 6:06	12,2 KB
R2-1714060.zip	2017/12/02 6:06	10,3 KB
R2-1714061.zip	2017/12/02 6:06	10,1 KB
R2-1714062.zip	2017/12/02 6:06	12,3 KB
R2-1714063.zip	2017/12/02 6:05	21,9 KB
R2-1714064.zip	2017/12/02 6:03	21,5 KB
R2-1714065.zip	2017/12/02 6:04	30,1 KB
R2-1714066.zip	2017/12/02 6:03	16,7 KB
R2-1714067.zip	2017/12/02 6:04	28,6 KB
R2-1714068.zip	2017/12/02 6:05	1399,3 KB
R2-1714069.zip	2017/12/02 6:05	51,4 KB
R2-1714070.zip	2017/12/02 6:05	23,1 KB
R2-1714071.zip	2017/12/02 6:05	29,3 KB
R2-1714072.zip	2017/12/02 6:03	21,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1714073.zip	2017/12/02 6:05	1399,1 KB
R2-1714074.zip	2017/12/02 6:04	28,6 KB
R2-1714075.zip	2017/12/02 6:06	26,2 KB
R2-1714076.zip	2017/12/02 6:07	14,1 KB
R2-1714077.zip	2017/12/02 6:07	17,7 KB
R2-1714078.zip	2017/12/02 6:06	28,3 KB
R2-1714079.zip	2017/12/08 10:01	2601,5 KB
R2-1714080.zip	2017/12/11 11:24	2970,2 KB
R2-1714081.zip	2017/12/02 6:07	103,4 KB
R2-1714082.zip	2017/12/02 6:07	28 KB
R2-1714083.zip	2017/12/02 6:05	12,1 KB
R2-1714084.zip	2017/12/02 6:06	202,3 KB
R2-1714085.zip	2017/12/02 6:06	142,4 KB
R2-1714086.zip	2017/12/02 6:06	30,4 KB
R2-1714087.zip	2017/12/02 6:05	14,7 KB
R2-1714088.zip	2017/12/02 6:03	578,4 KB
R2-1714090.zip	2017/12/02 6:04	72,1 KB
R2-1714091.zip	2017/12/02 6:04	121 KB
R2-1714111.zip	2017/12/02 6:07	15,6 KB
R2-1714112.zip	2017/12/02 6:07	10,5 KB
R2-1714113.zip	2017/12/02 6:07	10,5 KB
R2-1714114.zip	2017/12/02 6:07	12,4 KB
R2-1714115.zip	2017/12/02 6:03	209,1 KB
R2-1714116.zip	2017/12/02 6:05	280 KB
R2-1714117.zip	2017/12/02 6:04	258,1 KB
R2-1714118.zip	2017/12/02 6:03	39,2 KB
R2-1714119.zip	2017/12/02 6:05	262,3 KB
R2-1714120.zip	2017/12/02 6:07	268,2 KB
R2-1714121.zip	2017/12/02 6:06	15,5 KB
R2-1714122.zip	2017/12/02 6:06	314,5 KB
R2-1714123.zip	2017/12/02 6:06	11,2 KB
R2-1714124.zip	2017/12/02 6:06	17,4 KB
R2-1714125.zip	2017/12/02 6:07	14,5 KB
R2-1714126.zip	2017/12/02 6:06	493,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1714127.zip	2017/12/02 6:06	193,8 KB
R2-1714128.zip	2017/12/02 6:06	291,2 KB
R2-1714129.zip	2017/12/02 6:06	28,3 KB
R2-1714130.zip	2017/12/02 6:06	60,8 KB
R2-1714131.zip	2017/12/02 6:04	15,8 KB
R2-1714136.zip	2017/12/02 6:06	26,1 KB
R2-1714137.zip	2017/12/02 6:06	44,5 KB
R2-1714138.zip	2017/12/02 6:02	50,7 KB
R2-1714139.zip	2017/12/02 6:06	48,5 KB
R2-1714140.zip	2017/12/02 6:06	21,7 KB
R2-1714141.zip	2017/12/02 6:03	105,3 KB
R2-1714142.zip	2017/12/13 14:54	1209,6 KB
R2-1714143.zip	2017/12/02 6:04	16 KB
R2-1714144.zip	2017/12/02 6:06	14,9 KB
R2-1714145.zip	2017/12/02 6:06	9,2 KB
R2-1714147.zip	2017/12/02 6:05	12,2 KB
R2-1714148.zip	2017/12/02 6:06	16,5 KB
R2-1714149.zip	2017/12/02 6:06	14,3 KB
R2-1714150.zip	2017/12/02 6:06	47,7 KB
R2-1714151.zip	2017/12/02 6:06	13,2 KB
R2-1714152.zip	2017/12/02 6:05	52,8 KB
R2-1714153.zip	2017/12/02 6:06	48,9 KB
R2-1714154.zip	2017/12/02 6:06	22,3 KB
R2-1714155.zip	2017/12/02 6:06	10,4 KB
R2-1714156.zip	2017/12/02 6:06	13,5 KB
R2-1714157.zip	2017/12/02 6:04	9,4 KB
R2-1714158.zip	2017/12/02 6:05	24,4 KB
R2-1714159.zip	2017/12/02 6:05	50,6 KB
R2-1714160.zip	2017/12/02 6:05	47,7 KB
R2-1714161.zip	2017/12/02 6:06	15,4 KB
R2-1714162.zip	2017/12/02 6:06	15,4 KB
R2-1714163.zip	2017/12/02 6:03	17,1 KB
R2-1714164.zip	2017/12/02 6:06	136 KB
R2-1714165.zip	2017/12/02 6:04	29,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1714166.zip	2017/12/02 6:05	18,5 KB
R2-1714167.zip	2017/12/02 6:05	10,8 KB
R2-1714168.zip	2017/12/02 6:05	10 KB
R2-1714169.zip	2017/12/02 6:05	328,9 KB
R2-1714170.zip	2017/12/02 6:05	16 KB
R2-1714171.zip	2017/12/02 6:05	9,2 KB
R2-1714172.zip	2017/12/02 6:05	301,9 KB
R2-1714173.zip	2017/12/02 6:05	59,9 KB
R2-1714174.zip	2017/12/02 6:04	88,6 KB
R2-1714175.zip	2017/12/02 6:05	67,9 KB
R2-1714176.zip	2017/12/02 6:05	316,6 KB
R2-1714177.zip	2017/12/02 6:05	24,6 KB
R2-1714178.zip	2017/12/02 6:05	41 KB
R2-1714179.zip	2017/12/02 6:04	12,4 KB
R2-1714180.zip	2017/12/02 6:05	9,9 KB
R2-1714181.zip	2017/12/02 6:04	40,5 KB
R2-1714182.zip	2017/12/04 3:31	61,9 KB
R2-1714183.zip	2017/12/02 6:04	1385,6 KB
R2-1714184.zip	2017/12/02 6:04	25,1 KB
R2-1714185.zip	2017/12/02 6:04	23 KB
R2-1714186.zip	2017/12/02 6:03	14,6 KB
R2-1714187.zip	2017/12/02 6:03	15,8 KB
R2-1714188.zip	2017/12/02 6:04	38,3 KB
R2-1714189.zip	2017/12/02 6:04	14 KB
R2-1714190.zip	2017/12/02 6:04	72 KB
R2-1714191.zip	2017/12/02 6:04	120,7 KB
R2-1714192.zip	2017/12/02 6:04	81,7 KB
R2-1714200.zip	2017/12/02 6:02	68,1 KB
R2-1714201.zip	2017/12/02 6:04	12,1 KB
R2-1714202.zip	2017/12/02 6:04	14,8 KB
R2-1714203.zip	2017/12/02 6:04	9,4 KB
R2-1714204.zip	2017/12/02 6:04	36,7 KB
R2-1714205.zip	2017/12/02 6:04	25 KB
R2-1714206.zip	2017/12/02 6:04	35,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1714207.zip	2017/12/02 6:04	36,8 KB
R2-1714208.zip	2017/12/02 6:03	70,8 KB
R2-1714209.zip	2017/12/02 6:04	10,1 KB
R2-1714210.zip	2017/12/02 6:03	19,3 KB
R2-1714211.zip	2017/12/14 2:00	29 KB
R2-1714212.zip	2017/12/14 2:00	23,7 KB
R2-1714213.zip	2017/12/14 2:00	55,3 KB
R2-1714214.zip	2017/12/14 2:00	14,9 KB
R2-1714215.zip	2017/12/14 2:00	24,1 KB
R2-1714216.zip	2017/12/14 2:00	29,2 KB
R2-1714225.zip	2017/12/02 6:04	16,1 KB
R2-1714226.zip	2017/12/02 6:04	37,2 KB
R2-1714227.zip	2017/12/02 6:03	16 KB
R2-1714228.zip	2017/12/02 6:03	36,8 KB
R2-1714229.zip	2017/12/02 6:03	29,3 KB
R2-1714230.zip	2017/12/02 6:03	52,2 KB
R2-1714231.zip	2017/12/02 6:03	51,3 KB
R2-1714232.zip	2017/12/02 6:03	47,8 KB
R2-1714233.zip	2017/12/02 6:03	46,3 KB
R2-1714234.zip	2017/12/02 6:04	33,7 KB
R2-1714235.zip	2017/12/02 6:03	85,2 KB
R2-1714236.zip	2017/12/02 6:04	23,4 KB
R2-1714237.zip	2017/12/02 6:03	7,5 KB
R2-1714238.zip	2017/12/02 6:03	34 KB
R2-1714239.zip	2017/12/08 20:47	20,3 KB
R2-1714240.zip	2017/12/06 6:17	87 KB
R2-1714241.zip	2017/12/06 6:17	21,8 KB
R2-1714242.zip	2017/12/02 6:03	18,4 KB
R2-1714243.zip	2017/12/02 6:02	27,1 KB
R2-1714244.zip	2017/12/02 6:02	17 KB
R2-1714245.zip	2017/12/04 3:31	17,7 KB
R2-1714246.zip	2017/12/02 6:02	25,6 KB
R2-1714247.zip	2017/12/02 6:03	9463,9 KB
R2-1714248.zip	2017/12/02 6:02	65,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1714249.zip	2017/12/11 22:07	387,8 KB
R2-1714250.zip	2017/12/11 21:39	34,6 KB
R2-1714251.zip	2017/12/11 15:40	1974 KB
R2-1714252.zip	2017/12/08 13:27	2174,3 KB
R2-1714253.zip	2017/12/11 11:01	1494,2 KB
R2-1714254.zip	2017/12/11 21:59	27,6 KB
R2-1714255.zip	2017/12/11 21:59	32,2 KB
R2-1714256.zip	2017/12/11 21:59	34,6 KB
R2-1714258.zip	2017/12/12 9:33	347,9 KB
R2-1714259.zip	2017/12/13 20:17	969,4 KB
R2-1714260.zip	2017/12/08 16:39	16,6 KB
R2-1714261.zip	2017/12/08 18:33	1381,4 KB
R2-1714262.zip	2017/12/08 17:35	34,6 KB
R2-1714263.zip	2017/12/08 20:30	17 KB
R2-1714264.zip	2017/12/08 20:36	26,6 KB
R2-1714265.zip	2017/12/13 9:55	212,7 KB
R2-1714266.zip	2017/12/12 15:36	273,5 KB
R2-1714267.zip	2017/12/12 15:36	38,1 KB
R2-1714268.zip	2017/12/10 17:32	34,9 KB
R2-1714269.zip	2017/12/10 17:32	223,2 KB
R2-1714270.zip	2017/12/12 15:38	47,2 KB
R2-1714271.zip	2017/12/12 15:38	121,4 KB
R2-1714272.zip	2017/12/11 22:00	125 KB
R2-1714273.zip	2017/12/12 1:27	664,3 KB
R2-1714274.zip	2017/12/12 11:43	15,7 KB
R2-1714275.zip	2017/12/12 11:43	327,2 KB
R2-1714276.zip	2017/12/13 10:49	9880,2 KB
R2-1714277.zip	2017/12/13 10:34	81,2 KB
R2-1714278.zip	2017/12/15 12:11	295,3 KB
R2-1714279.zip	2017/12/15 6:48	146,8 KB
R2-1714280.zip	2017/12/13 14:54	310,2 KB
R2-1714281.zip	2017/12/13 16:16	24,8 KB
R2-1714282.zip	2017/12/13 16:16	50,5 KB
R2-1714283.zip	2017/12/13 16:16	61 KB

sort by name/desc	sort by date/desc	sort by size/desc
R2-1714284.zip	2017/12/14 2:00	28,5 KB
R2-1714285.zip	2017/12/15 23:49	109,8 KB
R2-1714286.zip	2017/12/16 7:49	58,3 KB
R2-1714287.zip	2018/01/03 11:28	164,8 KB
R2-1714288.zip	2018/01/03 11:28	83 KB
R2-1714289.zip	2018/01/03 11:28	34,6 KB
TDoc_List_Meeting_RAN2#100.xlsx	2018/02/14 10:57	626,5 KB
TDoc_List_Meeting_RAN2#100.zip	2018/01/10 16:45	580,9 KB

2078 items.

APPENDIX 24

3GPP TSG RAN meeting #80 **RP-181300**
La Jolla, USA, June 11 – 14, 2018

Agenda Item: 3

Source: ETSI MCC

Title: Report of 3GPP TSG RAN meeting #79,

Chennai, India, March 19 – 22, 2018

Document for: Approval

Report of 3GPP TSG RAN meeting #79

held in Chennai, India
March 19 – 22, 2018

The present document has been developed within the 3rd Generation Partnership Project (3GPP ™) and it has not been subject to any approval process by the 3GPP Organizational Partners.

Keywords
RAN, GERAN, UTRA, LTE, NR, 5G

3GPP

Postal address

3GPP support office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet
http://www.3gpp.org

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© 2018, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
All rights reserved.

UMTS™ is a Trade Mark of ETSI registered for the benefit of its members
3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners
LTE™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners
GSM® and the GSM logo are registered and owned by the GSM Association

Contents

Meeting Organisation 8

Executive Summary 8

1 Opening of the meeting 13
2 Reminders for usage of IT resources, IPR declaration and antitrust compliance 13
3 Approval of the agenda 14
4 Approval of the meeting report of TSG-RAN #78 16
5 RAN WG reports 16
5.1 TSG RAN WG1 16
5.2 TSG RAN WG2 18
5.3 TSG RAN WG3 19
5.4 TSG RAN WG4 19
5.5 TSG RAN WG5 20
5.6 TSG RAN WG6 21
6 Other Reports 21
6.1 Report on TSG SA activities 21
6.2 Report from PCG 21
6.3 Report from MCC 21
6.4 Reports from other groups/activities 22
7 Liaison activity of TSG RAN 22
8 ITU-R ad hoc 23
8.1 Status report 23
8.2 Documents related to IMT-2020 23
8.3 Other documents from/to ITU-R WP5D 24
8.4 Other documents from/to ITU-R WP5A 26
8.5 Documents from/to other ITU-R groups 26
9 New Radio 27
9.1 New WI/SI proposals for New Radio 27
9.1.1 Summary for proposals with moderated email discussions endorsed in RP-172795 29
9.1.2 Other proposals led by RAN1 42
9.1.3 Other proposals led by RAN2 47
9.1.4 Other proposals led by RAN3 49
9.1.5 Other proposals led by RAN4 (not spectrum related) 50
9.1.6 Proposals led by RAN4 (spectrum related) 51
9.2 Open REL-15 New Radio WIs 52
9.2.1 New Radio Access Technology [RAN1 WI: NR_newRAT] 52
9.2.1.1 NR related CRpacks/CRs 68
9.2.1.2 NR related specifications 72
9.2.2 Core part: Separation of CP and UP for Split Option 2 of NR [New WI: RAN3 WI: NR_CPUP_Split-Core] 73
9.3 Open REL-15 New Radio SIs 74
9.3.1 Study on NR to support non-terrestrial networks [RAN SI: FS_NR_nonterr_nw] 74
9.3.2 Study on self-evaluation towards IMT-2020 submission [RAN SI: FS_5G_eval] 78
9.3.3 Study on NR-based access to unlicensed spectrum [RAN1 SI: FS_NR_unlic] 79
9.3.4 Study on Non-Orthogonal Multiple Access (NOMA) for NR [RAN1 SI: FS_NR_NOMA] 80
9.3.5 Study on integrated access and backhaul for NR [RAN2 SI: FS_NR_IAB] 80
9.3.6 Study on CU-DU lower layer split for New Radio [RAN3 SI: FS_NR_CU_DU_LLS] 81
9.3.7 Study of test methods for New Radio [RAN4 SI: FS_NR_test_methods] 81
9.4 Open REL-15 New Radio & LTE related SIs 82
9.4.1 Study on eNB(s) Architecture Evolution for E-UTRAN and NG-RAN [RAN3 SI: FS_LTE_arch_evo] 82
9.4.2 Study on evaluation methodology of new V2X use cases for LTE and NR [RAN1 SI: FS_LTE_NR_V2X_eval] 83
9.4.3 Feasibility Study on 6 GHz for LTE and NR [New SI: RAN SI: FS_6GHz_LTE_NR] 84
9.5 NR UE capabilities/IoT bits/UE categories 86
10 LTE 94
10.1 New WI/SI proposals for LTE or LTE & UMTS 94

10.1.1 led by RAN1 94
10.1.2 led by RAN2 96
10.1.3 led by RAN3 96
10.1.4 led by RAN4 (not spectrum related) 97
10.1.5 led by RAN4 (spectrum related) 98
10.2 Open REL-15 LTE WIs (not spectrum related) 100
10.2.1 Shortened TTI and processing time for LTE [LTE_sTTIandPT] 100
10.2.2 Signalling reduction to enable light connection for LTE [LTE_LIGHT_CON] 100
10.2.3 Further enh. to Coordinated Multi-Point (CoMP) Operation for LTE [feCOMP_LTE] 101
10.2.4 Ultra Reliable Low Latency Communication for LTE [LTE_HRLLC] 102
10.2.5 V2X phase 2 based on LTE [LTE_eV2X] 103
10.2.6 UE Positioning Accuracy Enhancements for LTE [LCS_LTE_acc_enh] 104
10.2.7 Enh. for high capacity stationary wireless link and introduction of 1024 QAM for LTE DL [LTE_1024QAM_DL] 104
10.2.8 Enh. to LTE operation in unlicensed spectrum [LTE_unlic] 104
10.2.9 Core part: Further video enhancements for LTE [LTE_ViLTE_enh2-Core] 105
10.2.10 Core part: QoE Measurement Collection for streaming services in E-UTRAN [LTE_QMC_Streaming-Core] 105
10.2.11 Enhancing LTE CA Utilization [LTE_euCA] 105
10.2.12 LTE connectivity to 5G-CN [LTE_5GCN_connect] 106
10.2.13 Even further enhanced MTC for LTE [LTE_eMTC4] 107
10.2.14 Further NB-IoT enhancements [NB_IOTenh2] 107
10.2.15 UE requirements for network-based CRS interf. mitigation for LTE [LTE_NW_CRS_IM] 107
10.2.16 Perf. part: LTE CRS-Interf. Mitigation perf. requirements for single RX chain UEs [LTE_1RX_CRS_IM-Perf] 107
10.2.17 Core part: UL data compression in LTE [LTE_UDC-Core] 108
10.2.18 Core part: Bluetooth/WLAN measurement collection in LTE MDT [New WI: LTE_MDT_BT_WLAN-Core] 108
10.2.19 Core part: Enhanced LTE Support for Aerial Vehicles [New WI:LTE_Aerial-Core] 108
10.2.20 Core part: Increased number of E-UTRAN data bearers [New WI: INOBEARRAN-Core] 109
10.2.21 UE requirements for LTE DL 8Rx antenna ports [New WI: LTE_8Rx_AP_DL] 109
10.3 Open REL-15 LTE WIs (spectrum related) 110
10.3.1 LTE Adv. intra-band CA Rel-15 for xDL/yUL including contiguous and non-contiguous spectrum [LTE_CA_R15_intra] 110
10.3.2 LTE Adv. inter-band CA Rel-15 for 2DL/1UL [LTE_CA_R15_2DL1UL] 110
10.3.3 LTE Adv. inter-band CA Rel-15 for 3DL/1UL [LTE_CA_R15_3DL1UL] 111
10.3.4 LTE Adv. inter-band CA Rel-15 for 4DL/1UL [LTE_CA_R15_4DL1UL] 112
10.3.5 LTE Adv. inter-band CA Rel-15 for 5DL/1UL [LTE_CA_R15_5DL1UL] 113
10.3.6 LTE Adv. inter-band CA Rel-15 for 2DL/2UL [LTE_CA_R15_2DL2UL] 113
10.3.7 LTE Adv. inter-band CA Rel-15 for xDL/2UL with x=3,4,5 [LTE_CA_R15_xDL2UL] 113
10.3.8 LTE Adv. inter-band CA Rel-15 for xDL/1UL with x>5 [New WI: LTE_CA_R15_xDL1UL] 114
10.3.9 LTE Adv. inter-band CA (4DL/4UL) of Band 41C and Band 42C [LTE_CA_4DL4UL_B41_B41_B42_B42] 114
10.3.10 Core part: V2X new band combinations for LTE [LTE_V2X_CA_bands-Core] 115
10.3.11 Introduction of new band support for 4Rx antenna ports for LTE for REL-15 [LTE_4Rx_AP_DL_bands_R15] 116
10.3.12 Core part: LTE Advanced high power TDD UE (power class 2) for Rel-15 [LTE_TDD_HPUE_R15-Core] 116
10.3.13 New LTE band for 3.3-3.4 GHz for Africa [LTE_TDD_3300_Africa] 117
10.3.14 Additional LTE bands for UE cat. M1 and/or NB1 in Rel-15 [LTE_bands_R15_M1_NB1] 117
10.3.15 Core part: Additional LTE bands for UE cat. M2 and/or NB2 in Rel-15 [LTE_bands_R15_M2_NB2-Core] 118
10.3.16 Extended-Band 12 new E-UTRA Band [Ext_B12_LTE] 118
10.4 Open REL-15 LTE & UMTS WIs (not spectrum related) 119
10.4.1 Perf. part: Enh. of BS RF and EMC requirements for AAS [AASenh_BS_LTE_UTRA-Perf] 119
10.5 Open REL-15 LTE SIs 119
10.6 Small Technical Enh. and Improvements for REL-15 [TEI15] 119
10.7 Closed REL-15 LTE WIs (not spectrum related) 120
10.7.1 Perf. part: Perf. requirements of interf. cancellation receiver for LTE BS [LTE_IC_BS-Perf] 120
10.8 Closed REL-15 LTE & UMTS WIs (not spectrum related) 120
10.8.1 Core part: Enh. of BS RF and EMC requirements for AAS [AASenh_BS_LTE_UTRA-Core] 120
10.9 Closed REL-15 LTE WIs (spectrum related) 120

10.9.1 Core part: E-UTRA 700MHz in Europe for Broadband-PPDR-Core [LTE700_Europe_PPDR-Core] 120
10.9.2 FDD operating band in the L-band for LTE [LTE_FDD_L_Band] 121
10.9.3 TDD operating band in the L-band for LTE [LTE_TDD_L_Band] 121
10.9.4 LTE Extended 1.5 GHz SDL band (1427 - 1518 MHz) and LTE CA (2DL/1UL) with Band 20 [LTE_SDL_1500ext] 121
10.9.5 Core part: Addition of Power Class 1 UE to bands B3/B20/B28 for LTE [LTE_HPUE_B3_B20_B28-Core] 121
10.9.6 US 600 MHz Band for LTE [LTE600_US] 121
10.9.7 Core part: Addition of band 28 and 40 to LTE MTC cat.0 [LC_MTC_LTE_cat0_B28_B40-Core] 121
10.9.8 Core part: Add UE Power Class 2 to band 41 intra-band contiguous LTE CA [LTE_CA_C_B41_PC2-Core] 121
10.9.9 450MHz E-UTRA FDD Band for LTE PPDR and PMR/PAMR in Europe [LTE450_Europe_PPDR] 121
10.9.10 Core part: ProSe Support for Band 72 in LTE [New WI: LTE450_B72_Europe_ProSe-Core] 122
10.9.11 LAA/eLAA for the CBRS 3.5GHz band in the United States [LTE_3550_CBRS_US_LAA] 122
10.9.12 450 MHz Band for LTE in Region 3 [LTE450_Reg3] 122
10.10 Closed REL-15 LTE and LTE & UMTS related SIs 122
10.11 LTE UE capabilities/FGIs/IoT bits/UE categories 122
11 UMTS 122
11.1 New WI/SI proposals for UMTS 122
11.2 Open REL-15 UMTS WIs 122
11.3 Small Technical Enhancements and Improvements for REL-15 [TEI15] 122
11.4 Closed REL-15 UMTS WIs 123
11.4.1 Core part: Simplified HS-SCCH for UMTS [UTRA_simple_HSSCCH-Core] 123
11.5 Closed REL-15 UMTS SIs 123
11.6 UMTS UE capabilities/IoT bits/UE categories 123
12 GERAN 123
12.1 New WI/SI proposals for GERAN (normally led by RAN6) 123
12.2 Small Technical Enhancements and Improvements for REL-15 [TEI15] 124
13 New and open RAN5 UE Conformance testing WIs and SIs 124
13.1 New WI/SI proposals for UE conformance testing (led by RAN5) 124
13.2 Open Rel-12 WIs 126
13.2.1 UE Conf. Test Aspects - Further Enh. to LTE TDD for DL-UL Interf. Management and Traffic Adaptation [LTE_TDD_eIMTA-UEConTest] 126
13.2.2 UE Conf. Test Aspects - Increasing the min. number of carriers for UE monitoring in UTRA and E-UTRA [LTE_UTRA_IncMon-UEConTest] 126
13.3 Open Rel-13 WIs 126
13.3.1 UE Conf. Test Aspects - Rel-13 LTE CA configurations [LTE_CA_Rel13-UEConTest] 126
13.3.2 UE Conf. Test Aspects - WLAN/3GPP Radio Level Integration and Interworking Enhancements [LTE_WLAN_radio-UEConTest] 127
13.3.3 UE Conf. Test Aspects - LTE CA Enh. Beyond 5 Carriers: PUCCH on Scell [LTE_CA_enh_b5C_PUCCH-UEConTest] 127
13.3.4 UE Conf. Test Aspects - Support for Mission Critical Push To Talk over LTE (MCPTT) [MCPTT-ConTest] 128
13.3.5 UE Conf. Test Aspects - Interf. Mitigation for Downlink Control Channels of LTE [LTE_IM_DLCCH-UEConTest] 129
13.3.6 UE Conf. Test Aspects - Elevation Beamforming/Full-Dimension MIMO for LTE [LTE_EBF_FDMIMO-UEConTest] 130
13.4 Open Rel-14 WIs 130
13.4.1 UE Conf. Test Aspects - Radiated Perf. of Multiple-antenna Receivers in the LTE UE [LTE_MIMO_OTA-UEConTest] 130
13.4.2 UE Conf. Test Aspects - Rel-14 CA configurations [LTE_CA_R14-UEConTest] 131
13.4.3 UE Conf. Test Aspects - Support for V2V services based on LTE sidelink [LTE_SL_V2V-UEConTest] 131
13.4.4 UE Conf. Test Aspects - Support for LTE-based V2X Services [LTE_V2X-UEConTest] 131
13.4.5 UE Conf. Test Aspects - Enh. LAA for LTE [LTE_eLAA-UEConTest] 132
13.4.6 UE Conf. Test Aspects - SRS switching between LTE component carriers [LTE_SRS_switch-UEConTest] 132
13.4.7 UE Conf. Test Aspects - QoE Measurement Collection for streaming services in UTRAN [UMTS_QMC_Streaming-UEConTest] 132

13.4.8 UE Conf. Test Aspects - Perf. enh. for high speed scenario in LTE [LTE_high_speed-UEConTest] 133
13.4.9 UE Conf. Test Aspects - 4 Rx antenna ports with CA for LTE DL [LTE_4Rx_AP_DL_CA-UEConTest] 134
13.4.10 UE Conf. Test Aspects - Evolution to and Interworking with eCall in IMS (EIEI) [EIEI-UEConTest] 134
13.4.11 UE Conf. Test Aspects - Requirements for a new UE cat.1bis with single receiver based on cat.1 for LTE [LTE_UE_cat_1RX-UEConTest] 134
13.4.12 UE Conf. Test Aspects - Voice and Video Enhancement for LTE [LTE_VoLTE_ViLTE_enh-UEConTest] 135
13.4.13 UE Conf. Test Aspects - Enhancements of NB-IoT [NB_IOTenh-UEConTest] 135
13.4.14 UE Conf. Test Aspects - Further enhanced MTC for LTE [LTE_feMTC-UEConTest] 136
13.4.15 UE Conf. Test Aspects - Uplink capacity enhancements for LTE [New WI: LTE_UL_CAP_enh-UEConTest] 136
13.4.16 UE Conf. Test Aspects - L2 latency reduction techniques for LTE [New WI: LTE_LATRED_L2-UEConTest] 137
13.5 Open Rel-15 WIs 137
13.5.1 UE Conf. Test Aspects - 5G system with NR and LTE [5GS_NR_LTE-UEConTest] 137
13.5.2 UE Conf. Test Aspects - Rel-15 CA configurations [LTE_CA_R15-UEConTest] 138
13.5.3 UE Conf. Test Aspects - 450MHz E-UTRA FDD Band for LTE PPDR and PMR/PAMR in Europe (Band 72) [LTE450_Europe_PPDR-UEConTest] 138
13.5.4 UE Conf. Test Aspects - E-UTRA 700MHz in Europe for Broadband-PPDR [LTE700_Europe_PPDR-UEConTest] 139
13.5.5 UE Conf. Test Aspects - FDD operating band in the L-band for LTE [New WI: LTE_FDD_L_band-UEConTest] 139
13.5.6 UE Conf. Test Aspects - Add UE Power Class 2 to band 41 intra-band contiguous LTE CA [New WI: LTE_CA_C_B41_PC2-UEConTest] 140
13.5.7 UE Conf. Test aspects - LTE bands with UE category M1 and/or NB1 in Rel-15 [New WI: LTE_bands_R15_M1_NB1-UEConTest] 140
13.5.8 UE Conf. Test aspects - LTE bands with UE category M2 and/or NB2 in Rel-15 [New WI: LTE_bands_R15_M2_NB2-UEConTest] 140
13.5.9 Test - (Small) Technical Enhancements and Improvements for Rel-15 [TEI15_Test] 141
13.6 Open Rel-15 SIs 141
13.6.1 Study on UE Application Layer Data Throughput Perf. Expansion for CA [New SI: FS_UE_App_Data_Perf_CA] 141
14 Maintenance for closed WIs/SIs for REL-14 and earlier 141
14.1 TSG RAN WG1 142
14.1.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases 142
14.1.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9) 142
14.1.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10) 142
14.1.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11) 142
14.1.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12) 142
14.1.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13) 142
14.1.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14) 142
14.1.8 Approval of linked CR packages led by RAN WG1 143
14.2 TSG RAN WG2 143
14.2.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases 143
14.2.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9) 143
14.2.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10) 143
14.2.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11) 143
14.2.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12) 143
14.2.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13) 143
14.2.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14) 144
14.2.8 Approval of linked CR packages led by RAN WG2 145
14.3 TSG RAN WG3 145
14.3.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases 145
14.3.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9) 145
14.3.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10) 145
14.3.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11) 145
14.3.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12) 145
14.3.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13) 145
14.3.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14) 145

14.3.8 Approval of linked CR packages led by RAN WG3 146
14.4 TSG RAN WG4 146
14.4.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases 146
14.4.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9) 146
14.4.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10) 146
14.4.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11) 146
14.4.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12) 146
14.4.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13) 146
14.4.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14) 147
14.4.8 Approval of linked CR packages led by RAN WG4 147
14.5 TSG RAN WG5 147
14.5.1 Approval of CRs to closed REL-10 WIs (incl. TEI10_Test) and WIs of previous releases 147
14.5.2 Approval of CRs to closed REL-11 WIs (incl. TEI11_Test) 148
14.5.3 Approval of CRs to closed REL-12 WIs (incl. TEI12_Test) 148
14.5.4 Approval of CRs to closed REL-13 WIs (incl. TEI13_Test) 148
14.5.5 Approval of CRs to closed REL-14 WIs (incl. TEI14_Test) 148
14.5.6 Approval of linked CR packages led by RAN WG5 150
14.6 TSG RAN WG6 150
14.6.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases 150
14.6.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9) 150
14.6.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10) 150
14.6.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11) 150
14.6.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12) 150
14.6.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13) 150
14.6.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14) 150
14.6.8 Approval of linked CR packages led by RAN WG6 150
14.7 Closed SIs for REL-14 and earlier 150
15 Inter WG/TSG-related discussions & decisions 150
16 Terms of Reference (ToR) 151
17 Project management 151
18 Future meeting schedule 151
19 Any other business 152
20 Closing of the meeting 153

Annex A: List of participants 154

Annex B: List of Tdocs 155

Annex C: Incoming liaison statements (LSin) 156

Annex D: Outgoing liaison statements (LSout) 160

Annex E: List of Change Requests (CRs) 161

Annex F: Summary of RAN work items (WI) and study items (SI) 165

Annex G: RAN email discussions between RAN #79 and RAN #80: 170

Annex H: Actions decided by RAN #79 172

Annex I: History 173

Meeting Organisation

Meeting:	3GPP TSG RAN #79		
Meeting location:	Chennai, India		
	ITC Grand Chola hotel, room Rajendra Banquet Hall 7+8		
Scheduled:	Monday 19.03.2018 (9am) - Thursday 22.03.2018 (6pm)		
Host:	Indian Friends of 3GPP (IF3) and the Cellular Operators Association of India (COAI)		
TSG RAN Chairman:	Balázs Bertényi (Nokia Corporation, ETSI)	email:	balazs.bertenyi@nokia.com
TSG RAN Vice chairman:	Vince Spatafora (AT&T, ATIS)	email:	vince.spatafora@att.com
TSG RAN Vice chairman:	Xiaodong Xu (China Mobile Com. Corporation, CCSA)	email:	xuxiaodong@chinamobile.com
TSG RAN Vice chairman:	Satoshi Nagata (NTT DOCOMO INC., ARIB)	email:	nagatas@nttdocomo.com
TSG RAN MCC Support:	Joern Krause (ETSI MCC)	email:	Joern.Krause@etsi.org
Email reflector:	3GPP_TSG_RAN@LIST.ETSI.ORG		
Technical documents:	ftp://ftp.3gpp.org/tsg_ran/TSGR_79/Docs		

next meetings:	TSG RAN #80	11.06. - 14.06.2018	La Jolla (CA), USA	host: NAF3
	TSG RAN #81	10.09. - 13.09.2018	Gold Coast, Australia	host: Telstra

Executive Summary

3GPP TSG RAN meeting #79 was held in Chennai, India, March 19-22, 2018, hosted by the Indian Friends of 3GPP (IF3) and the Cellular Operators Association of India (COAI). The meeting had 268 participants (see Annex A) and 598 Technical Documents (see Annex B).

Main topics/decisions:

- **block approval**: RAN #79 continued to use "block approval process" for agreed CR packages from WGs and WI/SI status reports, i.e. these contributions were only discussed on request (flag) otherwise the CRs were considered approved and the % complete and target date of the status reports were considered approved.
- **time budget analysis**: RAN #79 assessed the modified time budget requests in WI/SI status reports for already approved WIs/SIs relative to the time budget status endorsed by RAN #78 in RP-172830; the RAN WG chairmen provided their estimates of remaining time budgets in their WGs (see e.g. WG status reports); new WIs/SIs provided their time budget requests in the WI/SI descriptions; the resulting endorsed time budget allocations for all approved WIs/SIs after RAN #79 was endorsed by email in **RP-180566** (1 time unit (TU) ~ 2h). RAN5 WIs/SIs are excluded from this time budget handling.
- **REL-14** (was frozen in March 17, ASN.1 was frozen in June 17): No open REL-14 Core and Perf. part WIs, only some testing WIs are ongoing.
- REL-15 WI on Ultra Reliable Low Latency Communication (**URLLC) for LTE**: some prioritization/scope reduction for Q2/2018 was endorsed for RAN1/RAN2/RAN4 in RP-180586
- **Release 15 NR**:
  - Q2/2018 time budget management of (most of) the existing **NR SIs in Q2**/2018 was endorsed in RP-180592 (note: Only RAN #80 will adapt the SI target dates as shown in RP-180592).

- **Band combinations**: A quality improvement activity of 36.101/38.101 in RAN4 regarding band combinations was endorsed in RP-180506 changing from defining combinations via their number of component carriers (CC) to defining them via the number of bands. Corresponding basket WIs for REL-16 will be proposed at RAN #80 and not completed REL-15 combinations at RAN #80 will be shifted into these new REL-16 basket WIs (using the REL-independent approach). Note: This applies also to LTE only combinations.

- REL-15 early NR drop: **Non-standalone NR (NSA NR) ASN.1 is frozen** covering architecture option 3 (i.e. no non-backward compatble changes* are allowed anymore for NSA NR to TS 36.331 & TS 38.331 from RAN2 and to TS 36.413, TS 36.423 and TS 38.473 from RAN3; *: deviations from this would be possible only in exceptional cases and require RAN consensus)

- A plan for finalizing all remaining **NR architecture options** was endorsed in RP-180554:

  - REL-15 freeze remains at June 18 with ASN.1 freeze in Sep.18 and will cover architecture options 2 and 5 (note: Main focus until RAN #80: essential corrections (where needed) for architecture option 3 and architecture option 2).

  - REL-15 late NR drop: until Dec.18; will cover architecture options 4 & 7 and option 5 may be part of the late drop as well if not completed by Sep.18; .NR-NR DC to be considered to be added to the late drop at RAN#80; after RAN#79, no further functionality will be considered to be included in the late drop; late Rel-15 ASN.1 drop in March 19 is to be strictly backwards compatible.

- **mandatory/optional NR UE features:** RAN1 provided a first list in LSin RP-180042; RAN #79 updated this list in the endorsed RP-180595 and with LSout RP-180596 RAN #79 tasked RAN1/RAN4 to discuss remaining parts and RAN2 to prepare the signalling. Intention is to complete the list by RAN #80.
  Note: The RAN4 decision to have Pi/2 BPSK optional for FR1 was not changed by RAN #79, Pi/2 BPSK for FR2 is to be further discussed in RAN4.

- LSout RP-180598 on **optimisation of UE capability signalling** (a UE ID that identifies the full set of UE capabilities for standalone mode) was sent to SA (cc: SA2, CT1) asking to initiate related SA2 work within REL-15 (see also RP-180438).

- With LSout RP-180590 RAN #79 tasked RAN3 to develop a solution to support a **secured signalling-only connection** in Rel-15 for RAN #80 and SA2 &SA3 were asked to provide use cases for this to RAN3.

- A way forward on a RAN4 work plan and priorities for **CSI-RS requirements** was endorsed in RP-180591.

- A way forward on **beam management** (beam failure events, beamFailureRecoveryTimer) for NR was endorsed in RP-180597 providing guidance to RAN1 and RAN2.

- **Uplink Sharing from the UE perspective (ULSUP) with supplemental uplink (SUL) band** is in scope for Rel-15 NR WI, targeting June 2018 completion (but with lower priority than SA NR and NSA NR corrections; see endorsed way forward RP-180560 with guidance for RAN4.

- **Peak data rate values for REL-15 NR UE categories**: An email discussion will continue on the RAN_DRAFTS reflector (compare status before RAN #79: RP-180343 and Annex G).

- **Release 16** preparations (LTE & NR): Schedule unchanged (REL-16 freeze: Dec.19, REL-16 ASN.1 freeze: March 20). On top of the REL-16 WI/SI email discussions on the RAN_DRAFTS reflector that were endorsed in RP-172795 at RAN #78, RAN #79 extended this list in the endorsed RP-180594. Also a structure of the NR MIMO email discussion was endorsed in RP-180578.
  Intention is to approve a main package of REL-16 WIs/SIs at RAN #80 based on 6 WG meetings per year.

- **IoT for REL-16**: An interim conclusion was endorsed in RP-180581 (No NR based solution will be studied or specified for the LPWA (low-power wide-area) use cases; LPWA use cases will continue to be addressed by evolving LTE-M(eMTC) and NB-IoT).

- **ITU-R** (see AI 8)**:**
  - LSin RP-180028 from ITU-R WP5D was confirming the reception of submitted initial description templates for IMT-2020 and LSin RP-180027 from ITU-R WP5D was inviting Independent Evaluation Groups (IEGs) to paticipate in the evaluation phase. No replies sent from 3GPP.
  - LSin RP-180034 from ITU-T Joint Coordination Activity for IMT2020 (JCA IMT2020) requested to update the information in their IMT2020 roadmap document. As 3GPP replied from SA in SP-170780 (SA #77 Tdoc sent in Dec.17) no LS answer was sent from RAN #79.
  - ITU-R M.2012 update: LS RP-180029 was received from ITU-R WP5D. In LSout RP-180518 REL-14 description material was provided for review in SA and then PCG to be finally sent to ITU-R WP5D as an intermediate preview. 3GPP ITU-R AH will prepare an input for RAN #81 based on REL-14 material. This input will be used for the final submission to ITU-R WP5D.
  - RAN #79 agreed LSout RP-180555 (to be sent via SA & PCG) in reply to LSin RP-180030 from ITU-R WP5D on IMT-2020 in support of Public Protection and Disaster Relief (PPDR) confirming that 3GPP technology provides support to PPDR within the IMT-2020 framework.
  - With RP-180556 a Letter to ITU-R WP5D and Independent Evaluation Groups (IEGs) on 3GPP IMT-2020 Self-evaluation was agreed which was sent to SA & PCG for review and which included RP-180524 (the approved summary of calibration results for IMT-2020 self-evaluation).
  - LSin RP-180037 from ITU-T SG15 on IMT-2020/5G in the Transport Network was answered by LSout RP-180557 clarifying that a distribution of the reference timing signal would not be required between sites.

- No **joint RAN-SA session** was held during RAN #79.

- Incoming Liaison Statements/Letters to ITU: 27, see Annex C

- Outgoing Liaison Statements/Letters to ITU: 7, see Annex D

- **WI summary**: At RAN #79, WI summaries (a descriptive summary of the features actually included in the specs) were presented for the following 2 WIs:
  - Rel-15 WI feCOMP_LTE-Core RP-180318 *
  - Rel-15 WI LTE_UDC-Core RP-180231 *

  *: WI is not yet completed, approval of RAN2 CRs was postponed to RAN #80

  Note: The rapporteur has to provide a WI summary to the RAN meeting at which a Core part WI is declared to be 100% complete; this WI summary has to be reviewed by the leading WG of the WI beforehand to check the technical correctness. Spectrum related Core part WI are excluded from this activity.

- 15 closed work items (WI) (4 Core, 4 Perf., 7 Testing):

  - 1 RAN2 REL-15 Core part WI that was stopped (no work on this in SA):
    - Core part: Signalling reduction to enable light connection for LTE (710173, LTE_LIGHT_CON-Core)

  - 1 RAN4 REL-15 Perf. part WI that was stopped (no work on this in SA):
    - Perf. part: Signalling reduction to enable light connection for LTE (761204, LTE_LIGHT_CON-Perf)

  - 3 RAN4 REL-15 features that were completed with Core & Perf. part WI:
    - LTE Advanced Inter-band Carrier Aggregation (4DL/4UL) of Band 41C and Band 42C (770X68, LTE_CA_4DL4UL_B41_B41_B42_B42)
    - New LTE band for 3.3-3.4 GHz for Africa (761X00, LTE_TDD_3300_Africa)
    - Extended-Band12 new E-UTRA Band (770X71, Ext_B12_LTE)

  - 7 RAN5 WIs that were completed: UE Conformance Test Aspects for:
    - REL-12, Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation (690072, LTE_TDD_eIMTA-UEConTest)
    - REL-14, Radiated Performance of Multiple-antenna Receivers in the LTE UE (730071, LTE_MIMO_OTA-UEConTest)
    - REL-14, Quality of Experience (QoE) Measurement Collection for streaming services in UTRAN (750055, UMTS_QMC_Streaming-UEConTest)
    - REL-14, Evolution to and Interworking with eCall in IMS (EIEI) (760084, EIEI-UEConTest)
    - REL-14, L2 latency reduction techniques for LTE (780064, LTE_LATRED_L2-UEConTest)
    - REL-15, 450MHz E-UTRA FDD Band for LTE PPDR and PMR/PAMR in Europe (Band 72) (770065, LTE450_Europe_PPDR-UEConTest)
    - REL-15, E-UTRA 700MHz in Europe for Broadband-PPDR (770066, LTE700_Europe_PPDR-UEConTest)

- 1 closed REL-15 study item (SI):
  - RAN3, REL-15 Study on eNB(s) Architecture Evolution for E-UTRAN and NG-RAN (750050, FS_LTE_arch_evo)
- 10 new approved work items (WI) (5 Core, 2 Perf., 3 Testing):
  - 1 RAN3 REL-15 Core part WI (without Perf. part WI):
    - eNB(s) Architecture Evolution for E-UTRAN and NG-RAN (790154, LTE_NR_arch_evo-Core)
  - 2 RAN4 Core part WIs (without Perf. part WI):
    - REL-15: LTE Advanced inter-band CA Rel-15 for xDL/3UL with x=3,4,5 (790156, LTE_CA_R15_xDL3UL-Core)
    - REL-16: Addition of Power Class 1 UE to bands B31/B72 for LTE (790155, LTE_PC1_B31_B72-Core)
  - 1 RAN4 REL-16 feature with Core & Performance part WIs:
    - E-UTRA 2.4 GHz TDD Band for US (790X57, LTE_TDD_2400_US)
  - 3 RAN5 UE Conformance Test Aspects WIs for:
    - REL-14, Mission Critical Improvements (790052, MCImp-UEConTest)
    - REL-15, 450 MHz Band for LTE in Region 3 (790058, LTE450_Reg3-UEConTest)
    - REL-15, Quality of Experience (QoE) Measurement Collection for streaming services in E-UTRAN (790051, LTE_QMC_Streaming-UEConTest)
  - 1 RAN6 REL-15 feature with Core & Performance part WI:
    - Further enhancements for Extended Coverage GSM for support of Cellular Internet of Things (790X53, CIoT_EC_GSM_fenh)
- 0 new approved study item (SI)
- 3 new approved Technical Specifications (TS), i.e. now under CR control

- RAN5 Rel-13 TS 36.579-1	MCPTT-ConTest	RP-180126
- RAN5 Rel-13 TS 36.579-2	MCPTT-ConTest	RP-180127
- RAN5 Rel-13 TS 36.579-4	MCPTT-ConTest	RP-180129

- 6 new approved Technical Reports (TR), i.e. now under CR control:

- RAN3 Rel-15 TR 37.876	FS_LTE_arch_evo	RP-180339
- RAN4 Rel-15 TR 36.715-04-04	LTE_CA_4DL4UL_B41_B41_B42_B42-Core	RP-180160
- RAN4 Rel-15 TR 36.758	LTE_TDD_3300_Africa-Core	RP-180248
- RAN4 Rel-15 TR 36.760	LTE_TDD_HPUE_R15-Core	RP-180240
- RAN4 Rel-15 TR 36.761	Ext_B12_LTE-Core	RP-180157
- RAN4 Rel-15 TR 38.813	NR_newRAT-Core	RP-180156

- 4 agreed Technical Reports (TR):

- RAN Rel-15 TR 37.890 v0.0.0	FS_6GHz_LTE_NR	RP-180119
- RAN Rel-15 TR 37.890 v0.2.0	FS_6GHz_LTE_NR	RP-180565
- RAN Rel-15 TR 37.910 v0.1.0	FS_5G_eval	RP-180523
- RAN Rel-15 TR 38.811 v0.4.0	FS_NR_nonterr_nw	RP-180545

- 4 new Technical Specifications (TS) provided for information:

- RAN2 Rel-15 TS 38.304	NR_newRAT-Core	RP-180451
- RAN2 Rel-15 TS 38.305	NR_newRAT-Core	RP-180171
- RAN5 Rel-13 TS 36.579-3	MCPTT-ConTest	RP-180128
- RAN5 Rel-13 TS 36.579-5	MCPTT-ConTest	RP-180130

- 4 new Technical Reports (TR) provided for information:

- RAN4 Rel-15 TR 37.863-01-01	NR_newRAT-Core	RP-180150
- RAN4 Rel-15 TR 38.810	FS_NR_test_methods	RP-180181
- RAN4 Rel-15 TR 38.814	NR_newRAT-Core	RP-180334
- RAN4 Rel-15 TR 38.817-01	NR_newRAT-Core	RP-180332

- Change request statistics (see also Annex E): 1114 CRs handled with 1107 approved CRs.

Phase	Cat	all CRs	Approved CRs	approved RAN1	approved RAN2	approved RAN3	approved RAN4	approved RAN5	approved RAN6	approved RAN
Rel-10	B	1	1	0	0	0	1	0	0	0
Rel-10	F	1	1	0	0	0	1	0	0	0
Rel-11	A	1	1	0	0	0	1	0	0	0
Rel-11	B	2	2	0	0	0	2	0	0	0
Rel-11	F	2	2	0	0	0	1	0	1	0
Rel-12	A	2	2	0	0	0	1	0	1	0
Rel-12	B	2	2	0	0	0	2	0	0	0
Rel-12	F	2	2	0	0	0	2	0	0	0
Rel-13	A	4	4	0	0	0	3	0	1	0
Rel-13	B	3	3	0	1	0	2	0	0	0
Rel-13	C	1	1	0	1	0	0	0	0	0
Rel-13	D	1	1	0	0	0	1	0	0	0
Rel-13	F	60	59	11	7	0	29	10	2	0
Rel-14	A	52	52	11	8	0	31	0	2	0
Rel-14	B	29	29	0	2	0	1	26	0	0
Rel-14	C	3	3	0	3	0	0	0	0	0
Rel-14	F	235	234	8	26	6	48	141	5	0
Rel-15	A	124	123	20	29	4	70	0	0	0
Rel-15	B	82	81	9	3	11	57	0	1	0
Rel-15	C	2	2	0	0	0	0	0	2	0
Rel-15	D	1	1	0	0	1	0	0	0	0
Rel-15	F	504	501	6	15	32	36	411	1	0
sum		1114	1107	65	95	54	289	588*	16	0

*: 108 of the RAN5 CRs are from TF160 (R5s)

1 Opening of the meeting

TSG RAN chairman Mr. Balazs Bertenyi (Nokia) opened the meeting 3GPP TSG RAN #79 on Monday March 19th, 2018 at 9am.

On behalf of the host, the Indian Friends of 3GPP (IF3) and the Cellular Operators Association of India (COAI), Mr. Vikram Tiwathia (COAI) welcomed the delegates to Chennai, India and explained organisational issues of the meeting.

NOTE: The TSG meetings #79 will be carried out in the 1 week TSG set up (see RP-131328, RAN/CT at the beginning and SA at the end of the week).

2 Reminders for usage of IT resources, IPR declaration and antitrust compliance

The TSG RAN chairman made the following three announcements to remind the delegates of this meeting:

RAN chair's reminder regarding **responsible behaviour regarding IT resources of the meeting**:

Delegates are reminded that they share the meeting IT resources with their fellow delegates. You should not abuse the service by using bandwidth-hogging applications such as movie downloads, streaming video, web-based gaming, etc during the meeting. Use the internet service in your hotel rooms for this!

Delegates must respect the law of the hosting country, and should not visit prohibited internet sites.

In cases of persistent abuse of the internet bandwidth, MCC may restrict individual's use of the service.

In particular, the PCG has laid down the following network usage conditions:

1. Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws.

2. Users shall not engage in non-work related activities that are consume excessive bandwidth or cause significant degradation of the performance of the network.

Since the network is a shared resource, users should exercise some basic etiquette when using the 3GPP network at a meeting. It is understood that high bandwidth applications such as downloading large files or video streaming might be required for business purposes, but delegates should be strongly discouraged in performing these activities for personal use. Downloading a movie or doing something in an interactive environment for personal use essentially wastes bandwidth that others need to make the meeting effective. The meeting chairman should remind end users that the network is a shared resource; the more one user grabs, the less there is for another. Email and its attachments already take up significant bandwidth (certain email programs are not very bandwidth efficient). In case of need the chair can ask the delegates to restrict IT usage to things that are essential for the meeting itself.

1. DON'T place your WiFi device in ad-hoc mode
2. DON'T set up a personal hotspot in the meeting room
3. DO try 802.11a if your WiFi device supports it
4. DON'T manually allocate an IP address
5. DON'T be a bandwidth hog by streaming video, playing online games, or downloading huge files
6. DON'T use packet probing software which clogs the local network (e.g., packet sniffers or port scanners)

Based on the report of the PCG ad hoc group on IT improvements:

http://www.3gpp.org/ftp/PCG/PCG_27/DOCS/PCG27_13r1.zip

see also http://www.3gpp.org/Delegates-Corner#outil_sommaire_14

RAN chair's reminder regarding **IPRs**:

The attention of the delegates to the meeting of this Technical Specification Group was drawn to the fact that 3GPP Individual Members have the obligation under the IPR Policies of their respective Organizational Partners to inform their respective Organizational Partners of Essential IPRs they become aware of.

The delegates were asked to take note that they were thereby invited:

- to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.

- to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Information Statement and the Licensing declaration forms

Based on http://www.3gpp.org/3gpp-calendar/89-call-for-ipr-meetings

RAN chair's reminder regarding **antitrust and competition law**:

The attention of the delegates to the meeting was drawn to the fact that 3GPP activities were subject to all applicable antitrust and competition laws and that compliance with said laws was therefore required by any participant of the meeting, including the Chairman and Vice-Chairmen and were invited to seek any clarification needed with their legal counsel. The leadership would conduct the present meeting with impartiality and in the interests of 3GPP. Delegates were reminded that timely submission of work items in advance of TSG/WG meetings was important to allow for full and fair consideration of such matters.

Based on http://www.3gpp.org/about-3gpp/legal-matters/21-3gpp-calendar/1616-statement-of-antitrust-compliance

3 Approval of the agenda

NOTE: Agreed CR packages of RAN WGs (if not flagged for discussion) will be approved without presentation. % complete and target dates of WI/SI status reports (if not flagged for discussion) will be approved without presentation.

RP-180001 **Agenda for RAN #79 held in Chennai, India, 19.03.-22.03.2018**
Source: RAN chairman (Nokia)

Discussion:

RAN chairman: early items for considerations on Monday are indicated in the draft timeplan sent out via the RAN reflector:

Arch. options: 219, 497

NR priorities: 427

NR UE features: 134, 488, 217,315, 377, 438, 449

NR UE categories: 343, 162, 252, 355

UL sharing: 399, 400

EN-DC UE operation: 211, 401

Secure SRBs: 495, 493

RAN chairman: ITU-R session on Tue will now start at 8:30am

ITU-R AH convener (Telecom Italia): we will also treat ITU-T related aspects in this session

Decision: The document was **approved**.

A tentative initial meeting schedule was distributed by the RAN chairman on 18.03.2018 via the RAN reflector:

	Monday	Tuesday	Wednesday	Thursday
09.00 **10.30**	**09.00** **Opening, RAN Report (1,2,3,4)** **Early Items** *Arch. options:* 219, 497 *NR priorities:* 427 *NR UE features:* 134, 488, 217,315, 377, 438, 449 *NR UE categories:* 343, 162, 252, 355 *UL sharing:* 399, 400 *EN-DC UE operation:* 211, 401 *Secure SRBs:* 495, 493	Offline drafting **07:30** **ITU-R ad-hoc (including IMT2020 docs, AI 8 and 9.3.2)** **09.30** **New proposals – moderated topics (AI 9.1, 9.1.1)**	Offline drafting **09:00** **1st sweep of all other topics**	Offline drafting **Management issues (6.3, 15-19)** **Revisions**
10.30 **11.00**	Offline drafting	Offline drafting	Offline drafting	Offline drafting
11.00 **12.30**	**Early items contd'**	**New Proposals – other topics (AI 9.1.x, 10.1.x)**	**1st sweep of all other topics**	**Revisions**
12.30 **14.00**	Offline drafting	Offline drafting	Offline drafting	Offline drafting
14.00 **16.00**	**Early Items contd'**	**New Proposals – other topics (AI 9.1.x, 10.1.x)**	**Revisions (9-14)**	**Revisions** **18.00 Close of the meeting**
16.00 **16.30**	Offline drafting	Offline drafting	Offline drafting	
16.30 **18.30**	**WG reports (5.x, 6.1)** **New proposals – moderated topics (AI 9.1, 9.1.1)**	**1st sweep of all other topics**	**Revisions (9-14)**	
19.00 **20.00**	Offline drafting	Offline drafting	Offline drafting	

NOTE: Times shown are only estimates and the schedule may change during the meeting.

"Offline drafting" slots will be filled during the week.

4 Approval of the meeting report of TSG-RAN #78

RP-180002 **Draft report of RAN #78 held in Lisbon, Portugal, 18.12.-21.12.2017**
Source: ETSI MCC

Decision: The document was **revised to RP-180480**.

RP-180480 **Draft report of RAN #78 held in Lisbon, Portugal, 18.12.-21.12.2017**
Source: ETSI MCC

(Replaces RP-180002)

Discussion:

conclusion: content of RP-180480 was accepted, revised to provide final version (removing draft);

some late changes:

Decision: The document was **revised to RP-180516**.

RP-180516 **Report of RAN #78 held in Lisbon, Portugal, 18.12.-21.12.2017**
Source: ETSI MCC

(Replaces RP-180480)

Decision: The document was **approved**.

5 RAN WG reports

5.1 TSG RAN WG1

RP-180003 **Status Report RAN WG1**
Source: RAN1 chairman (Qualcomm)

Discussion:

- RAN1 specs for LTE up to and including Rel-14 are stable

- LTE Rel-15 CRs: sizable RAN1 time in RAN1#92 and in April & May (& after June)

- NR Rel-15 CRs: good progress, significant time necessary in April & May (& after June)

- All other Rel-15 SI/WIs made good progress in general

- From RAN1 perspective, LTE WI on feCOMP, sTTI & sPT, unlicensed spectrum & and on high capacity/1024 QAM are completed

- Risk of completing LTE HRLLC by June – consider down-scoping/prioritization

- No room in RAN1 for additional new WIs/SIs for NR/LTE before 06/18

Telecom Italia: still a lot of TUs allocated for SIs (not only a RAN1 issue), we should reuse these TUs for the important work to be finished by June

RAN1 chairman: took this already into account, for SIs we need to distinguish also between SIs that can complete by June and those that cannot

Nokia: huge amount of offline work/sessions is going on in RAN1 which is not visible in TUs

Ericsson: still expects a lot of discussions about UE features

RAN1 chair: it is clear that current workload cannot continue and would like to ask RAN to make sure that RAN1 does not spend another 50 hours on UE features (should be limited to 10 hours max.)

Broadcom: fine to prioritize WIs and architecture options but treating SIs separate is not useful

RAN chair: we will treat the SIs issue separately

Huawei: page 14: even after summary there was a way forward of 14 companies that would have been nice to treat; slide 21: Scell new state work should not be under TEI15 (topic was approved with no RAN1 impact);

RAN1 chair: no TUs allocated for Scell new state work

Mediatek: slide 18: more than 100% over budget for NR

LG: wants to increase TUs from 0.5 TU to 1 TU for SI ????

Mediatek: we need to avoid another fish market

RAN chairman: CR highest prio, URLLC medium prio, SIs lowest prio

Decision: The document was **noted**.

RP-180004 **List of CRs from RAN WG1**
Source: ETSI MCC

Decision: The document was **noted**.

RP-180405 **Discussion on how to proceed NR Study Items**
Source: ZTE

Discussion:

moved from AI 9.3 to AI 5.1

Decision: The document was **not treated**.

RP-180511 **TUs for existing WIs/SIs in Q2 and beyond**
Source: RAN1/2/3/4 chairmen

Discussion:

RAN2 chair: RAN2 included in this activity?

RAN chair: yes

RAN4 chair: wants to be involved in this as well

RAN chair: so let's consider RP-180511 as joint effort of RAN1/2/3/4 chairmen

RAN2 chair: TUs from RAN2 are in a different format: delta [=total]

RAN3 chair: used only delta format

Telecom Italia: strong concern to add time to SIs that will not affect REL-15 so this will delay REL-15

RAN chair: the problem if we say 0 TUs, this will happen in offline discussions and hits delegates as well

Huawei:last but one topic on slide 3 should be removed, there was no discussion about it

Huawei: self evaluation WI will be moved from REL-15 to REL-16 in June 18

RAN1 chair: will remove target date for self evaluation from the slides

Decision: The document was **revised to RP-180563**.

RP-180563 **TUs for existing WIs/SIs in Q2 and beyond**
Source: RAN1/2/3/4 chairmen

(Replaces RP-180511)

Decision: The document was **revised to RP-180589**.

RP-180589 **TUs for existing WIs/SIs in Q2 and beyond**
Source: RAN1/2/3/4 chairmen

(Replaces RP-180563)

Decision: The document was **revised to RP-180592**.

RP-180592 **2018 Q2 NR TU management & existing NR SI management**
Source: RAN1/2/3/4 chairmen

(Replaces RP-180589)

Discussion:

Telecom Italia: Perf. part reduced from 11 TUs to 2 TUs

RAN4 chair: will focus on Core parrt and continue Perf. later

Telecom Italia: concerned that a lot of time dedicated to SIs although we should focus on WIs

Ericsson: how much time is planned for UE feature list?

RAN chair: we still have to address it here in RAN

RAN1 chair: plans less than 10 hours

RAN3 chair: IAB TUs stay as they are

RAN2 chair: red is a change of TUs (black text should not be there)

conclusion: target dates shown in this slide set will be updated in June (dates approved with status reports remain valid after RAN #79)

Decision: The document was **endorsed**.

5.2 TSG RAN WG2

RP-180005 **Status Report RAN WG2**
Source: RAN2 chairman (Intel)

Discussion:

- Extremely busy Q1 2018 and not expected to change for final quarter of release 15.

- ASN.1 for EN-DC early drop is ready to freeze.

- Zero scope for new Rel-15 LTE WIs to be agreed at RAN#79.

RAN2 chairman: had the pleasure to give the lifetime achievement award to Don Zelmer (ATT) in Athens

Applause from TSG RAN group

RAN chair: 3 topics to be discussed: ASN.1 freeze, voice over NR and how to handle external requirements

Ericsson: not convinced that RAN2 will have much time for the 2 voice over NR enhancements

T-Mobile, ATT: support that RAN2 looks at CRs when proponents bring CRs

RAN chair: would be handled under NR WI with a bit lower prio than other NR topics to be finished by June

RAN chair: regarding requirements from ext. bodies: they should come to RAN and not to WGs

RAN2 chair: broadcast indicator request came from SA2 originally and RAN2 did it and then GSMA added additional aspects on top

Telecom Italia: was actually not really coming from GSMA

RAN2 chair: we saw the LS in Dec.18

RAN chair: so it seems GSMA sent out the LS ignoring some GSMA members

Samsung: has a Tdoc in RP-180140 on the indicator

conclusion: Recommendation of slide 7 is confirmed

Decision: The document was **noted**.

RP-180006 **List of CRs from RAN WG2**
Source: ETSI MCC

Decision: The document was **noted**.

5.3 TSG RAN WG3

RP-180007 **Status Report RAN WG3**
Source: RAN3 chairman (Ericsson)

Discussion:

Extremely limited capacity available in next quarter

Expectation of a more “normal” workload after Q2 2018

Decision: The document was **noted**.

RP-180008 **List of CRs from RAN WG3**
Source: ETSI MCC

Decision: The document was **noted**.

5.4 TSG RAN WG4

RP-180009 **Status Report RAN WG4**
Source: RAN4 chairman (Samsung)

Discussion:

Ericsson: LTE perf. scope to be decided in Q2 should be decided early

Huawei: slide 10: not clear how to handle UE features

BT: slide 11: there was an LS R4-1802691 from RAN4 that did not go to RAN on UE features

RAN4 chair: that should have gone to RAN as well

MCC: R4-1802691 is provided to RAN #79 in RP-180033

Decision: The document was **noted**.

RP-180010 **List of CRs from RAN WG4**
Source: ETSI MCC

Decision: The document was **noted**.

RP-180341 **Status of RAN4 improvement activity of increasing band combinations**
Source: NTT DOCOMO, INC.

Decision: The document was **revised to RP-180506**.

RP-180506 **Status of quality improvement activity of 36.101/38.101 in RAN4 regarding band combinations**
Source: NTT DOCOMO, INC.

(Replaces RP-180341)

Discussion:

MCC: so instead of baskets by CCs we will rather go for baskets per number of bands

RAN4 vice-chairman (NTT DOCOMO): correct, we have already proposals for 8CCs and RF parameters depend more on the number of bands than on the number of CCs so we would reduce the number of WIs, also the duplication of data in pCRs will be reduced with the new approach

MCC: it would be good to have already some information about which sort of baskets we will need for REL-16 but we can discuss this offline

RAN4 chair: a lot of REL-15 combinations had no input at all so moving them to REL-16 should have a check whether the combination is still needed

RAN chair: ok, makes sense to check this in RAN4 when RAN4 works on filling the basket WIs

Qualcomm: any template needed for the pCRs?

MCC: this is up to RAN4, in theory a pCR needs to clarify the spec and the version that it affects otherwise no specific information is needed; as there was no agreement about automization, there is no need for a specific template for this purpose

Decision: The document was **endorsed**.

5.5 TSG RAN WG5

RP-180011 **Status Report RAN WG5**
Source: RAN5 chairman (Motorola Mobility)

Discussion:

RAN5 chair: RRM and demodulation performance plans in RAN4?

Decision: The document was **noted**.

RP-180012 **List of CRs from RAN WG5**
Source: ETSI MCC

Decision: The document was **noted**.

RP-180013 **Status Report MCC TF160 (for approval)**
Source: ETSI MCC TF160 Leader

Decision: The document was **approved**.

5.6 TSG RAN WG6

RP-180014 **Status Report RAN WG6**
Source: RAN6 chairman (Nokia) + standing in chairman (Sierra Wireless)

Discussion:

Note: Remi Lascoux (Sierra Wireless) was standing in chairman at RAN6 #7 in Feb. 2018 as the chairman Juergen Hofmann (Nokia) could not attend the meeting due to an accident. RAN6 has no vice-chairmen.

RP-180014 was presented by Matthew Baker (Nokia) as RAN6 chairman could not attend RAN #79.

Huawei: page 17: is this TEI15 work?

RAN chair: there is a new WI input

Huawei: relation to slide 18 unclear

Nokia: thinks bullet on slide 17 was the trigger for the new WI

Huawei: there is no operator supporting this new WI?

Nokia: there are operators which are not 3GPP members, we had this case in the past

Decision: The document was **noted**.

RP-180015 **List of CRs from RAN WG6**
Source: ETSI MCC

Decision: The document was **noted**.

6 Other Reports

6.1 Report on TSG SA activities

RP-180016 **TSG SA Report to TSG RAN - Questions for Advice and Requests**
Source: SA chairman (Samsung)

Decision: The document was **noted**.

6.2 Report from PCG

6.3 Report from MCC

RP-180017 **3GPP Support Team Report**
Source: ETSI MCC

Decision: The document was **not treated**.

6.4 Reports from other groups/activities

7 Liaison activity of TSG RAN

NOTE: This agenda item will only handle LSs not handled elsewhere.

RP-180023 **Reply LS to S2-179646 = RP-172173 on URLLC (SP-171079; to: SA1, SA2; cc: RAN, RAN1, RAN2; contact: Vodafone)**
Source: SA

Abstract:

no RAN action requested

Discussion:

RAN chairman: is just for information for RAN

conclusion: no LS answer

Decision: The document was **noted**.

RP-180021 **Reply LS to SP-171079 = RP-180023 on URLLC (S1-180628; to: SA, SA2; cc: RAN, RAN1, RAN2; contact: Vodafone)**
Source: SA1

Abstract:

no RAN action requested

Discussion:

RAN chairman: is just for information for RAN

conclusion: no LS answer

Decision: The document was **noted**.

RP-180026 **LS on Architectural Proposal for the Handling of Network Operations Data with Specific Focus on Virtualized Networks (NGMN_LS_171222; to: CT, RAN, SA, ETSI, TM Forum; cc: - ; contact: Deutsche Telekom)**
Source: NGMN

Abstract:

no explicit RAN action requested

Discussion:

RAN chairman: is just for information for RAN

conclusion: no LS answer

Decision: The document was **noted**.

RP-180567 **LS on on the 5G trials framework (NGMN_LS180320; to: RAN; cc: -; contact: Vodafone)**
Source: NGMN

Abstract:

no explicit RAN action requested

Decision: The document was **not treated**.

8 ITU-R ad hoc

This agenda item was chaired by ITU-R AH convener Mr. Giovanni Romano (Telecom Italia)

8.1 Status report

RP-180018 **Status Report ITU-R Ad hoc**
Source: 3GPP ITU-R Ad hoc Contact (Telecom Italia)

Discussion:

Qualcomm: in June it should not be 5D #29 but 5D #30

Decision: The document was **noted**.

8.2 Documents related to IMT-2020

RP-180027 **LS on Availability of initial description template information related to proposals for the terrestrial components of the radio interface(s) for IMT-2020 (ITU-R WP5D/TEMP/465(Rev.1); to: RAN, SA, ATIS WTSC, 5G Infrastructure Association, ChEG Chinese Evaluation Group, Canadian Evaluation Group, Wireless World Research Forum, TCOE India, 5GMF, TTA SPG33, Trans-Pacific Evaluation Group, ETSI Evaluation Group, Egyptian Evaluation Group, Korea, China; cc: -; contact: Counsellor ITU-R SG 5)**
Source: ITU-R WP5D

Abstract:

no RAN action requested

Discussion:

ITU-R AH convener: Korea, China and 3GPP submitted

Ericsson: how different are the other contributions from 3GPP?

Qualcomm: China input is close to 3GPP, Korea input is a subset of 3GPP

conclusion: no LS answer from RAN

Decision: The document was **noted**.

RP-180028 **LS on Confirmation of receipt of initial description templates related to proposals for the terrestrial components of the radio interface(s) for IMT-2020 (ITU-R WP5D/TEMP/464(Rev.1); to:RAN, SA, Korea, China, 3GPP2, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, TIA, TSDSI, TTA, TTC, WiMAX Forum, EBU, WWRF, 5G Americas, CDG, GSMA, Wi-Fi Alliance, Wireless Innovation Forum, XGP Forum, EU METIS Project, NGMN, 5G Innovation Centre, 5GMF, IMT 2020 Promotion Group, APT Wireless Group, NYU Wireless, ATIS WTSC, 5G Infrastructure Association, ChEG Chinese Evaluation Group, Canadian Evaluation Group, Wireless World Research Forum, TCOE India, TTA SPG33, Trans-Pacific Evaluation Group, ETSI Evaluation Group, Egyptian Evaluation Group; cc: -; contact: Counsellor ITU-R SG 5)**
Source: ITU-R WP5D

Abstract:

no explicit RAN action requested

Discussion:

ITU-R AH convener: full set needs to be submitted in the future, but this is planned already in 3GPP

conclusion: no LS answer from RAN

Decision: The document was **noted**.

RP-180034 **LS on Invitation to update the information in the IMT2020 roadmap (ITU_T_JCA-IMT2020-O-003; to: RAN, ITU-R/ITU-T/ITU-D study groups, BBF (Architecture and Migration, Routing and Transport, Wireline Convergence), ETSI (ISG MEC, ISG NFV, Millimetre Wave Transmission), GSMA (Network 2020), IEEE (Next Generation Fronthaul Interface (1914) Working Group, Time-Sensitive Networking for Fronthaul - 802.1cm, 5G), IETF (DETNET, DMM, SFC), MEF (Technical & Operations Committee), NGNM (5G Work Programme), OASIS (TOSCA), oneM2M, ONF (Architecture, Mobile Networks), ONAP, OSSDN, SCF, TM Forum, TTA (Telecommunications Convergence); cc: -; contact: Ericsson)**

Source: ITU-T JCA IMT2020

Abstract:

no explicit RAN action requested

Discussion:

moved from AI 7 to AI 8.2 as also IMT-2020 related (but ITU-T and not ITU-R)

ITU-R AH convener: RAN chairman extends the ITU-R agenda item in the future also to ITU-T aspects

SA chairman: this request is RAN specific, suggests to handle ITU-T LSs on a case by case basis, would suggest to treat RP-180034 in RAN; for ITU-T we do not need to go via LTI handling (RAN=>SA=>PCG);

ITU-R convener: we replied to this already in the past

SA chairman: sorry confused this with another Tdoc and agrees that we replied in Dec. so also SA would have nothing to add

Ericsson: we can send an LS when there is new information

conclusion: no LS answer from RAN

Decision: The document was **noted**.

8.3 Other documents from/to ITU-R WP5D

RP-180029 **LS on the Revised schedule for updating Recommendation ITU-R M.2012 to Revision 4 (ITU-R WP5D/TEMP/450(Rev.1); to: RAN, SA, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, WiMAX Forum, TSDSI, TTA, TTC; cc: -; contact: Counsellor ITU-R SG 5)**

Source: ITU-R WP5D

Abstract:

no explicit RAN action requested; final contribution to Rev 4 of M.2012 must be completed in Sep.18

Discussion:

ITU-R AH convener: Oct and July was proposed in the past and now they request the input in Oct. so RAN #81 has to submit an input and we will use REL-14 material

conclusion: no LS answer from RAN now, ITU-R ad hoc will prepare the material for RAN #81 in Sep.18

Decision: The document was **noted**.

RP-180040 **DRAFT Reply Letter to RP-172144 = ITU-R WP5D/TEMP/388r1 on Update submission for LTE-Advanced toward Rev. 4 of Rec. ITU-R M.2012 (RT-180009; to: RAN; cc: -; contact: Telecom Italia)**

Source: 3GPP RAN ITU-R Ad Hoc

Abstract:

RAN action request; output from RAN will have to be reviewed by SA and PCG

Discussion:

ITU-R AH convener: 3 steps: we provide an update, preview what we will submit, final submission (in Sep.18), with this input we are in step 2; this input will go to SA and then to PCG

conclusion: no LS answer to ITU-R AH but will be used as basis for an LTIout to SA in RP-180518

Decision: The document was **noted**.

RP-180518 **DRAFT Reply Letter to ITU-R WP5D/TEMP/388r1 = RP-172144 on Update submission for LTE-Advanced toward Rev. 4 of Rec. ITU-R M.2012 (to: SA; cc: -; contact: Telecom Italia)**
Source: RAN

Discussion:

conclusion: This LS will be sent to SA, reviewed in SA and then sent from SA to PCG for approval (afterwards it will be provided via ATIS to ITU-R WP5D)

Decision: The document was **approved**.

RP-180030 **LS on IMT-2020 in support of PPDR (ITU-R WP5D/TEMP/445Rev.1; to: RAN, SA; cc: -; contact: Counsellor ITU-R SG 5)**
Source: ITU-R WP5D

Abstract:

PPDR = Public Protection and Disaster Relief; RAN action requested

Discussion:

ITU-R AH convener: plans to draft an LTIout which will be sent to SA for review

SA chair: we replied in REL-14 timeframe on PPDR with a small table and they sent us back a huge table (with SA and RAN parts) which we filled in; so we can refer to this; we will indicate that PPDR is part of 5G

2 messages to be sent: IMT-2020 includes the system that we had already so PPDR is included, and IMT-2020 will evolve

conclusion: ITU-R AH convener will draft an answer in RP-180519 which will go to SA for review

Qualcomm: request to provide calibration results of self-evaluation activity to WP5D and evaluation groups

ITU-R AH convener: ok we can do this, in RP-180520

Qualcomm: 5G workshop in Brussels in Oct.18 is confirmed

ITU-R AH convener: yes

Decision: The document was **replied to**.

RP-180519 **Draft Reply LS to ITU-R WP5D/TEMP/445Rev.1 = RP-180030 on IMT-2020 in support of PPDR (to: SA; cc: -; contact: Telecom Italia)**
Source: ITU-R AH convener (Telecom Italia), Samsung (SA chairman)

Discussion:

Ericsson: "that that" to be corrected

RAN chair: can be corrected in final version

conclusion: revised in RP-180555

Decision: The document was **revised to RP-180555**.

RP-180555 **Draft Reply Letter to ITU-R WP5D/TEMP/445Rev.1 = RP-180030 on IMT-2020 in support of PPDR (to: SA; cc: -; contact: Telecom Italia)**
Source: RAN

(Replaces RP-180519)

Discussion:

conclusion: This LS will be sent to SA, reviewed in SA and then sent from SA to PCG for approval (afterwards it will be provided via ATIS to ITU-R WP5D)

Decision: The document was **agreed**.

RP-180520 **Draft LS on 3GPP IMT-2020 Self-evaluation (to: SA; cc: -; contact: Qualcomm)**
Source: Qualcomm

Discussion:

will attach RP-180524 to this LS; will go via SA/PCG to ITU-R WP5D and indep. evaluation groups

Decision: The document was **revised to RP-180556**.

RP-180556 **Draft Letter to ITU on 3GPP IMT-2020 Self-evaluation (to:SA; cc: -; contact: Qualcomm)**
Source: RAN

(Replaces RP-180520)

Discussion:

conclusion: will go to SA and then from SA to PCG and via ATIS to ITU-R WP5D and evaluation groups

Decision: The document was **agreed**.

8.4 Other documents from/to ITU-R WP5A

8.5 Documents from/to other ITU-R groups

RP-180037 **Reply LS to RP-172097 on Initiation of work to support IMT-2020/5G in the Transport Network (ITU_T_SG15_LS115; to: RAN, SA; cc: MEF, BBF, NGMN, ITU-T SG13; contact: Ciena)**
Source: ITU-T SG15

Abstract:

no RAN action requested

Discussion:

moved from AI 7 to AI 8.5

ITU-R AH convener: any volunteer to answer this LS? Deadline is in May 2018 so there is still time for it; is rather an implementation discussion

Ericsson: not limited to collocated antennas so we could reply this

conclusion: Ericsson will draft a reply LS in RP-180521

Decision: The document was **replied to**.

RP-180521 **Draft Reply LS ITU_T_SG15_LS115 = RP-180037 on work to support IMT-2020/5G in the Transport Network (to: ITU-T SG15; cc: -; contact: Ericsson)**
Source: Ericsson

Decision: The document was **revised to RP-180557**.

RP-180557 **Reply LS ITU_T_SG15_LS115 = RP-180037 on work to support IMT-2020/5G in the Transport Network (to: ITU-T SG15; cc: -; contact: Ericsson)**
Source: RAN

(Replaces RP-180521)

Discussion:

conclusion: will be sent to ITU-T directly

Decision: The document was **approved**.

9 New Radio

NOTE: This agenda item covers REL-15 NR WIs/SIs. But NR UE conformance aspects are covered under AI 13 and maintenance of closed REL-14 SIs is covered under AI 14.

9.1 New WI/SI proposals for New Radio

NOTE: New WIs/SIs (if not spectrum/testing related) have to follow the principles of the endorsed RP-172795.

RP-180120 **Summary of Rel-16 email discussions**
Source: NEC

Abstract:

Attempt to summarise all future work-related email discussions on the RAN_DRAFTS reflector since last plenary, taking into account the moderators' outputs, and including identification, both of points where there seems to be largely agreement, and points where there still seems to be contention. In addition to the moderators' summaries, we hope that this document will help structure the discussion on how to continue.

Discussion:

moved from 9.1.1 to 9.1

Decision: The document was **noted**.

RP-180348 **3GPP RAN Rel-16 scope and objectives**
Source: Ericsson GmbH, Eurolab

Discussion:

Proposal 1: The RAN workload should be reduced by limiting the number of Work- / Study Items in Rel-16.

Proposal 2: Rel-16 should be a ‘small’ release with no (or very limited) new functional features, instead time will be needed for correction and consolidation

Proposal 3: NR in Rel-16 should focus on core 3GPP functionality; niche use cases can be addressed in future releases

Proposal 4: LTE should evolve in Rel-16 in a strictly backwards-compatible manner and implementation/standardization complexity needs to be carefully considered

ZTE: supports proposal 4, WG chairs should allocate TUs for LTE, currently too much is allocated

BT: generally agree with the Tdoc, what is missing is that we need to fulfill ITU requirements with REL-16

Ericsson: we are trying to meet ITU requirements already with REL-15

Mediatek: agrees in general, but not clear how to implement them (e.g. how define a niche topic), evolution of LTE should be very selective and ought to focus on clear market needs

Huawei: has the same comment as Mediatek, in RAN1 we will reduce TUs for LTE and NR already, we have email discussions which will hopefully lead to well scoped topics; so interpretation and implementation of the proposals need to be discussed further

Ericsson: TUs are not really a tool to limit the workload, we had the case of giving 1 TU and they used 40 hours so the key is to reduce the number of WIs; not all email discussion can lead into a WI/SI

Huawei: we may also cause overload with a small number but too big WIs

Thales: forward compatibility to future use cases (at least those that are predictable) need to be considered

Ericsson: we never said that we want to limit to IMT-2020 requirements

ATT: whatever we do needs to meet the needs of the industry

IITH: 5G should also address rural areas, drones etc. so please do limit use cases

CATT: TU allocation in RAN1 overshot by 100% for NR so whether TUs help to control workload is questionable

RAN1 chair: TUs is still a good a measure for the workload, even if it is not ideal

LG: agrees with proposal 1 and in RAN1 some clear improvements are already visible; broadcast should be included in REL-16

Ericsson: without adding new functionality to REL-16 we have already a lot of work in REL-16; rural area is not a niche, it is a core function to bring 5G to the people

Decision: The document was **noted**.

RP-180378 **Proposal on General Directions for Rel-16**
Source: Huawei, HiSilicon

Discussion:

Nokia: starting an email discussion on every proposal from every company will be difficult, so far we set up email discussions for topics where there is major support

RAN chair: by Thu we will identify which additional topics need email discussions, Huawei's support here would be appreciated

CMCC: topics in email discussions seem to have some priorities, relation to topics that have no email discussion is not clear

RAN chair: topics of email discussions had in put papers and wide support; we may only approve ~25 % of what we discuss by email; anyone can start an email discussion

conclusion: Huawei will collect topics for additional email discussions in RP-180533

Decision: The document was **noted**.

RP-180533 **List of add email discussions on REL-16 proposals**
Source: Huawei

Discussion:

Ericsson: too many email discussions, some topics have only the proponent as support

Huawei: it is clear that not all email discussions will lead to REL-16 WIs/SIs in June; none of the proposed email discussion have just one supporter

Vodafone: Ericsson seems to assume that we discuss only topics that will be approved, this is not intended

Decision: The document was **revised to RP-180588**.

RP-180588 **List of add email discussions on REL-16 proposals**
Source: Huawei

(Replaces RP-180533)

Discussion:

RAN chair: email discussions were more if there are multiple proposals in a similar direction in order to converge; isolated proposals can still be brought up

RAN chair: select a proper starting point for the email discussion (so not too close to next RAN meeting)

Mediatek: we had a number of RAN2 topics (one had a clear scope, the other topics do not have a clear scope so they would also benefit from email discussions)

ZTE: tends to agree with Mediatek but is fine with the approach, just wants to make sure that other topics can still be brought up and they have still a chance to be accepted as REL-16 WI/SI in June

RAN chair: email discussions are not intended as prioritization mechanism

Ericsson: happy with the proposal as number of topics is reduced, still concerned about the coverage topic as link budgets will be needed first

China Telecom: coverage topic is urgent, additional work on top of IMT-2020 is planned here

Huawei: moderator for Evaluations of NR coverage is China Telecom and moderator for tudy on 6 – 24 GHz frequency range is Dish

OPPO: wondering what "LTE enhancements (other than IoT, MIMO, broadcast)" means, wonders whether interesting companies should be a criteria

RAN chair: does not want to take this as the main criteria

Vodafone: LTE URLLC can be coupled with NR URLLC?

Nokia: not needed, we can see the situation in June about this

CATT: intention is to approve 20% of the email discussions per WG or in total

RAN chair: there is no 20% limit and also not per WG but it is to avoid to high expectations

Decision: The document was **revised to RP-180594**.

RP-180594 **List of add email discussions on REL-16 proposals**
Source: Huawei

(Replaces RP-180588)

Decision: The document was **endorsed**.

9.1.1 Summary for proposals with moderated email discussions endorsed in RP-172795

RP-180141 **Summary of email discussion on NR/LTE MIMO enhancements**
Source: Samsung

Discussion:

Proposal 1: On NR MIMO enhancements, it is proposed to continue discussion on the following technology areas.

- N1: MU-MIMO
- N2: Multi-TRP / Multi-panel (introduce support of NC-JT)
- N4: UL MIMO/coverage
- N6: Beam management

Proposal 2: The moderator proposes to start separate email threads for NR MIMO enhancements and LTE MIMO enhancements after RAN#79.

KDDI: would like to discuss more how to split LTE and NR enhancements

Nokia: for LTE only 2 companies were interested, so we may be able to drop this as we had LTE MIMO enhancements for several releases and some features never made it to the market

ZTE: agrees with Nokia, at least LTE and NR should be split

Samsung: classification in some topics is useful

Huawei: companies were more looking at NR but we still see a need to enhance LTE MIMO so fine with a separate email discussion for LTE

LG: supports NR MIMO enhancements

Huawei: we should break out non-linear precoding from N1 which would require a study first, this would also change the support

RAN chair: splitting NR and LTE MIMO enhancements seems to have support; proposal 1 needs to be refined, we can come back on this

conclusion: proposal 2 is agreed; further offline discussion regarding NR MIMO for which the results will be captured in RP-180525

Decision: The document was **noted**.

RP-180525 **Structure of NR MIMO email discussions**
Source: Samsung

Discussion:

CMCC: each scheme was supported by several companies so instead of discussing just 4 umbrella items, we should see which of the items under the umbrella we do

Huawei: after all offline discussion this is with what we ended up; future discussion should focus on the value of the topics under the umbrella and not just on the number of supporting companies

Qualcomm: similar view as Huawei, would not like to continue with this subcategorizations; values of the techniques and not supporting companies should be the criteria

RAN chair: would hope that number of supporting companies correlates somehow also with the value of the proposal

LG: supports to keep categories and not to do enhancements just for adding really small things and really small benefit

CATT: even with removing (introduce support of NC-JT) the scope will be big; downscoping may be needed depending on number of TUs that will be dedicated to this topic

Huawei: last bullet: we would add also that we may end up with no WI/SI, also add a bullet that subscategorization may change

RAN chair: what about LTE MIMO?

Samsung: LTE MIMO will happen under a separate email discussion, this was already decided

conclusion: remove (introduce support of NC-JT), add to last bullet that also no WI/SI may be possible and an extra bullet that the subscategorization may change

Decision: The document was **revised to RP-180578**.

RP-180578 **Structure of NR MIMO email discussions**
Source: Samsung

(Replaces RP-180525)

Decision: The document was **endorsed**.

RP-180224 **Views on the Scope of LTE/NR MIMO**
Source: CATT

Abstract:

Discussion of CATT's views on the scope of LTE/NR MIMO

Decision: The document was **not treated**.

RP-180352 **Views on Rel-16 MIMO Enhancements**
Source: MediaTek (Wuhan) Inc.

Decision: The document was **not treated**.

RP-180387 **Motivation for NR MIMO enhancements**
Source: Huawei, HiSilicon

Discussion:

moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **not treated**.

RP-180386 **New WI proposal: NR MIMO enhancements**
Source: Huawei, HiSilicon

Discussion:

moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **not treated**.

RP-180379 **Summary of email discussion on Rel-16 voice**
Source: Huawei

Discussion:

Deutsche Telekom: would prefer to remove SRVCC from REL-16 (no WI in SA1/SA2 so far, we should focus on NR and not on interworking aspects)

RAN chair: understands that SRVCC in not part of the 2nd part of the email discussion

LG: supports to exclude SRVCC from REL-16 work

RAN chair: SRVCC debates will take place in SA, so let's focus on the topics that will take place until June

Decision: The document was **noted**.

RP-180398 **Motivation for new WI proposal: NR voice enhancements**
Source: Huawei, HiSilicon

Discussion:

moved from AI 9.1.3 to AI 9.1.1

Decision: The document was **not treated**.

RP-180397 **New WI proposal: NR voice enhancements**
Source: Huawei, HiSilicon

Discussion:

moved from AI 9.1.3 to AI 9.1.1

Decision: The document was **not treated**.

RP-180020 **LS on support of Voice Service Continuity from 5G System to UTRAN CS (S1-180595; to: SA3, SA2; cc: RAN, SA; contact: T-Mobile Austria)**
Source: SA1

Abstract:

no RAN action requested

Discussion:

moved from AI 7 to AI 9.1.1

RAN chairman: is just for information for RAN

conclusion: no LS answer

Decision: The document was **noted**.

RP-180022 **Response LS to S1-174610 on voice service continuity from 5G to 2/3G (SP-171078; to: SA1, SA2, SA3; cc: RAN, SA3-LI; contact: China Unicom)**
Source: SA

Abstract:

note: S1-174610 was only sent to SA; no RAN action requested

Discussion:

moved from AI 7 to AI 9.1.1

RAN chairman: is just for information for RAN

conclusion: no LS answer

Decision: The document was **noted**.

RP-180163 **Summary of Rel-16 email discussion [IoT_eMTC]**
Source: Ericsson

Discussion:

proposal 1 for NR mMTC:

No NR based solution will be specified for the LPWA use cases in Release 16

Dish: NR Core aspects included in proposal 1?

Nokia: not excluded, will be covered

RAN chair: so proposal 1 is strictly applying to the radio so NR waveform

LG: forward compatibility needs to be considered, too early to say LPWA in REL-16 will be excluded

Deutsche Telekom, Vodafone, Telecom Italia: a number of operators indicated that there are other priorities in REL-16 so we should go for proposal 1, market would get confused if we send mixed messages

ZTE: supports proposal 1

RAN chair: can we endorse proposal 1?

Orange: we should clarify that coexistence (eMTC in NR band) is still in the scope

Huawei: we are supporting proposal 1 and would also not like to see a SI on this

Ericsson: excluding SIs would be fine as well

RAN chair: we could exclude SIs and make clear that coexistence will be considered

Vodafone: coexistence was considered in REL-15 already

Huawei: would like to clarify that further enhancements in LTE for LPWA are not excluded

Telecom Italia: we should also clarify connection NB-IOT to 5GCore

Mediatek: ongoing study in SA2 so some inter-TSG coordination needed

CMCC: boundary of LWPA is to be clarified

conclusion: offline discussion to fix the wording of the conclusions on IOT, this will be summarized in RP-180526

Decision: The document was **noted**.

RP-180526 Interim conclusions for IOT in REL-16

Source: Ericsson

Discussion:

RAN chair: interim conclusion, email discussion will continue

Vodafone: remove "inclusion" from last bullet

RAN chair: yes, this is clear

Huawei: we do not have LTE-M (is from GSMA) we call it eMTC or "MTC (corresponds to LTE-M)"

Ericsson: eMTC was the nick-name for REL-13

Deutsche Telekom: has no problem for with LTE-M, means cat.M1/M2

Dish: what is S2 timeline so that we are not too late

Sierra Wireless: "can be studies"?

ZTE: wondering about first bullet: no impact on other SIs (like NOMA) we hope

Nokia: means then NOMA should not address LPWA

Orange: NOMA SI could be extended to LTE and NB-IOT

Huawei: potential enhancements for coexistence makes no sense, coexistence it there or not

Vodafone: we should clarify that we coexist already now, "inclusion" should be removed from last bullet

RAN chair: anything that is missing in this way forward?

Orange: at least it will be this but we should be open to add further aspects (related to NOMA, LTE) in June

Decision: The document was **revised to RP-180581**.

RP-180581 **Interim conclusions for IOT in REL-16**
Source: Ericsson

(Replaces RP-180526)

Decision: The document was **endorsed**.

RP-180467 **Scope for NR-IoT in Rel-16**
Source: Ericsson

Decision: The document was **not treated**.

RP-180465 **Scope for NB-IoT in Rel-16**
Source: Ericsson

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180466 **Scope for LTE-M in Rel-16**
Source: Ericsson

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180225 **Views on the Scope of the study of NR MTC and IoT**
Source: CATT

Abstract:

Discussion of CATT's views on the scope of NR MTC and IoT and the evoluation of LTE eMTC and NB-IoT.

Decision: The document was **not treated**.

RP-180430 **Considerations for NR-IoT work in Release 16**
Source: Nokia, Nokia Shanghai Bell

Abstract:

This documents describes the direction for NR Release 16 IoT development

Decision: The document was **not treated**.

RP-180327 **A roadmap for NB-IOT enhancements**
Source: Reliance Jio

Abstract:

When considering the IOT enhancements for RAN1, the following scenarios and use-cases will have to be considered. Some operators and utility companies could deploy NB-IOT only and not eMTC. For such operators a multi PRB NB-IOT option is necessary to future proof different class of applications. The use-case scenarios are listed in this discussion paper.

Discussion:

moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **withdrawn**.

RP-180390 **On NR mMTC Rel-16 use cases**
Source: Huawei, HiSilicon

Discussion:

moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **not treated**.

RP-180345 **On IoT Evolution in Rel-16**
Source: Samsung

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180358 **Discussion on NB-IoT enhancement for R16**
Source: ZTE Corporation, Sanechips

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180372 **Motivation for new WI on NB-IoT evolution and even further enhancements**
Source: Huawei, HiSilicon

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180371 **New WI proposal: NB-IoT evolution and even further enhancements**
Source: Huawei, HiSilicon

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180464 **On IoT-related enhancements in LTE Rel-16**
Source: Nokia, Nokia Shanghai Bell

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180406 **NB-IoT coexistence with NR and connectivity to 5G CN**
Source: China Telecomunication Corp.

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180357 **Discussion on eMTC enhancement for R16**
Source: ZTE Corporation, Sanechips

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180460 **Motivation for new WI on eMTC Enhancements in Rel-16**
Source: Nokia

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180463 **New WI proposal on eMTC Enhancements in Rel-16**
Source: Nokia

Abstract:

new WI for LTE; leading WG: RAN1

Discussion:

moved from AI 10.1.1 to AI 9.1.1

Decision: The document was **not treated**.

RP-180474 **Interim report from email discussion on 5G Broadcast evolution**
Source: Qualcomm

Abstract:

MCC: late Tdoc request

Decision: The document was **revised to RP-180499**.

RP-180499 **Interim report from email discussion on 5G Broadcast evolution**
Source: Qualcomm

(Replaces RP-180474)

Discussion:

Thales: would like to consider satellite aspects in the SI as well

Qualcomm: can create a third column/WI or SI: Terrestrial Broadcast, Mixed mode multicasting and now Satellite Broadcast

Ericsson: thinks that for satellite you do not need any interworking between cells in the satellite approach

EBU: supports both tracks, frame structure of LTE may not be able to support this, would like to see under the mixed case also the possibility of 100% broadcast

RAN chair: was this discussed by email?

Qualcomm: yes, but there was no agreement, comments from Huawei, Ericsson

Orange: assumes that we never have a DL only case

Ericsson: Broadcast only ended up in Terrestrial Broadcast part; multicast only to know/active mode UEs?

Qualcomm: also idle mode reception is included in Mixed Mode Multicasting

Huawei: we are still evaluating the Broadcast topic, for V2X there may be some interest; unclear which LTE enhancement is needed for Terrestrial Broadcast (we had a lot of enhancement in REL-14)

Qualcomm: we said "enhancements (if any)"

Mediatek: how much companies are supporting which proposal?

Qualcomm: no exact figures, e.g. EBU, Qualcomm had some proposals, Ericsson, Samsung etc. expressed some views

ATT: Mixed mode multicasting: from physical layer side this is all broadcast, the question is whether the user has a key (like pay TV) this would be multicast

Qualcomm: for unicast cellular system the starting point was: for nation wide broadcast CP and frame structure would have to be changed, for LTE this happened already, for NR this is not considered

CMCC: which enhancement and which band is used needs to be clarified, for legacy band there is no urgency, so a clear justification is needed

EBU: 38.913 cell radius and mobility requirements are not covered by REL-14 so further enhancements are needed

Orange: it seems it is not so clear whether UEs have to be known or not so SA should be involved regarding authentication etc.

Ericsson: we need to have the possibility to transmit to everyone, this is very clear to us

Decision: The document was **noted**.

RP-180426 **Summary of email discussion on NR V2X study item**
Source: Vodafone Group Plc

Discussion:

Qualcomm: we have Tdoc RP-180500 and there seems to be some misunderstanding regarding coexistence, RP-180500 describes regulatory framework that is ongoing; coexistence is between ITS and other systems and not between 2 ITS systems

VW: confirms that ITS is surrounded by other systems, and interworking with SRC should be considered as well; interworking is on top of the coexistence

RAN chair: understood Qualcomm's comment in a different way

Vodafone: VW seems to look at interworking of different ITS technologies while coexistence is to avoid that different systems are interfering each other

Mediatek: does not agree with principle 2

conclusion: email discussion will continue to refine a SI scope (coexistence will be part of it)

Samsung: what about WI?

RAN chair: usually we have a SI before (e.g. 9 months) and a WI afterwards (e.g. 6 months) and the WI scope is usually a subset of the SI

CMCC: would like to not promise already normative work

RAN chair: yes, we did not promise anything

Decision: The document was **noted**.

RP-180226 **Views on the Scope of NR V2X Study**
Source: CATT

Abstract:

Discussion of CATT's view on new SI proposal of V2X phase 3 based on NR

Decision: The document was **not treated**.

RP-180384 **Motivation for new SI proposal on 5G V2X**
Source: Huawei, HiSilicon

Discussion:

no related WI, moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **not treated**.

RP-180500 **Motivation for Co-existence study for NR-V2X**
Source: Qualcomm

Abstract:

related to RP-180426

Decision: The document was **not treated**.

RP-180319 **Email discussion summary for Rel-16 SI proposal on NR Positioning**
Source: Intel Corporation

Discussion:

Vodafone: we need to align with IOT work and use cases should not be part of this topic

Nokia: narrow bandwidth means 5MHz or more here and this should be clarified

Huawei: this topic is for NR only, note number 1 is not needed; how much is needed per objectives should be discussed in the next step of the email discussion

VW: we should avoid multiple overlapping SIs

ATT: PC5 excluded? why separate SIs?

RAN chair: we could discuss the scopes first and see later under which umbrella we do the work

Nokia: discussing positioning on NR sidelink before we have NR sidelink is strange and we should avoid it

Ericsson: same view as Nokia

VW: we have requirements also for sidelink

Deutsche Telekom: we should base our work on requirements from SA1

CATT: latency of positioning should also be discussed, Note 1 not needed

LG: we should still discuss sidelink positioning and not move it out of the REL

conclusion: email discussion will continue until RAN #80

Decision: The document was **noted**.

RP-180227 **Views on the Scope of NR UE Positioning Study**
Source: CATT

Abstract:

Discussion on the scope of SI proposal of NR UE positioning

Decision: The document was **not treated**.

RP-180353 **Scope of NR positioning**
Source: Ericsson GmbH, Eurolab

Decision: The document was **not treated**.

RP-180323 **Summary on moderated e-mail discussion regarding flexible/full duplex SIDs**
Source: LG Electronics

Discussion:

Qualcomm: slide 6: "It is assumed that downlink and uplink resources in a band can be multiplexed in TDM manner" is unclear; "can be" should be replaced

Qualcomm: suggest two coexistence studies

ZTE: multiple companies expressed the view that full duplex is premature to be considered in REL-16

LG: made no conclusion on this because there are supporting companies for this as well

Nokia: supports to drop full duplex, dynamic TDD was already partly addressed in REL-15 but has still more interest in REL-16 so it would be good to consider it separately

Huawei: "dynamic TDD of REL-15 can be supported" is not true, there are still some aspects to be done that could be considered in REL-16; status for paired and unpaired spectrum is the same for us

Ericsson: categorization what we talk about is missing here in the summary; full duplex was discussed and we had a regulatory study so it is too premature

Orange: only flexible duplex for unpaired spectrum could maybe considered; full duplex could be deprioritized completely

Deutsche Telekom: supports Orange view

Intel: there are also different use cases for unpaired spectrum that we should separate

Telecom Italia: we should be realistic, we have a lot of work for REL-16 and we should focus on high priority aspects that are feasible

Qualcomm: also implementationwise unpaired spectrum is much easier than paired spectrum

Huawei: if RAN1 can develop a scheme that can work for paired and unpaired spectrum, we should not restrict this artificially

Nokia: is not artificial, there seem to be no operator interest

RAN chair: so RAN1 design should not be restricted to just TDD

Huawei: in some regions synchronisation is required for TDD and standardization is sometimes a bit ahead of regulators

conclusion: email discussion will continue

Decision: The document was **noted**.

RP-180229 **Summary of NR UE Power Consumption Email Discussion**
Source: CATT

Abstract:

Summary of the email discussion on UE power saving feature as the coordinator leading to RAN#79

Discussion:

Panasonic: to limit target traffic is more important than the discussion of the support of idle/active

Intel: wake-up signal is more useful in idle mode

LG: it is not intended to have one item for all objectives, only basic function for RRC_inactive at the moment and this should be the focus but we should have other aspects as well

CATT: inactive state is defined as no data transmission

LG: we should not stop enhancements because of this

Huawei: check for which objectives companies have concerns and which are not clear, so further iteration of the objective discussion is needed

CATT: we should focus on eMBB use case

Qualcomm: agrees that scope of the topic extended quite a bit and to focus eMBB would be useful

ZTE: same view; should focus on idle mode

Nokia: copying features of one state into another state may not be the right way forward

Ericsson: all states should be considered, some timer enhancements could be considered in REL-16

Mediatek: we need to be better in REL-16 than in REL-15 and most important to consider is eMBB in connected mode

conclusion: email discussion will continue

Decision: The document was **noted**.

RP-180228 **Views on the Scope of the Study of UE Power Saving and Wakeup Mechanism**
Source: CATT

Abstract:

Discussoin on the scope of study on UE power saving and wake up mechanism in NR

Decision: The document was **not treated**.

RP-180350 **Motivation for NR Power Saving in CONNECTED Mode**
Source: MediaTek (Wuhan) Inc.

Decision: The document was **not treated**.

RP-180459 **NR UE Power Saving**
Source: Apple

Discussion:

moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **not treated**.

RP-180532 **Structure for NR URLLC email discussion for REL-16**
Source: Nokia

Discussion:

Note: No email discussion took place so far. It will start after RAN #79 and this is a Tdoc to clarify what is planned for the structure of this email discussion.

Decision: The document was **noted**.

RP-180432 **Scope of NR Release 16 URLLC Study/Work Item**
Source: Nokia, Nokia Shanghai Bell

Abstract:

This document decribes the expected Release 16 URLLC NR work scope

Discussion:

moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **not treated**.

RP-180383 **Motivation for new WI proposal on NR URLLC phase 2**
Source: Huawei, HiSilicon

Discussion:

moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **not treated**.

RP-180382 **New WI proposal: NR URLLC phase 2**
Source: Huawei, HiSilicon

Discussion:

moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **not treated**.

RP-180303 **Summary of email discussion; Other miscellaneous NR enhancements/leftovers**
Source: NTT DOCOMO, INC.

Discussion:

NTT DOCOMO: we would like to avoid overlap with other email discussion topics otherwise there is no intention to limit the proposals;

RAN chair: having one umbrella has the benefit to compare the different misc improvements

NTT DOCOMO (RAN vice-chairman): we also need to look at the reasons why a REL-15 feature was not considered in REL-15 when we look at REL-16 topics

ATT: we need to be careful to not kick out something that is a key topic

conclusion: email discussion will continue

Decision: The document was **noted**.

RP-180142 **Proposal for a new moderated email discussion for RRC_INACTIVE enhancements**
Source: Samsung

Discussion:

moved from AI 9.1.3 to AI 9.1.1

Decision: The document was **not treated**.

RP-180393 **Discussion on NR mobility enhancements in Rel-16**
Source: Huawei, HiSilicon

Discussion:

moved from AI 9.1.3 to AI 9.1.1

Decision: The document was **not treated**.

RP-180356 **Discussion on NR-IoT scope**
Source: ZTE Corporation,Sanechips

Discussion:

moved from AI 9.1.2 to AI 9.1.1

Decision: The document was **not treated**.

9.1.2 Other proposals led by RAN1

RP-180182 **New Study Item: Study on solutions evaluation for NR to support Non Terrestrial Network**
Source: THALES

Abstract:

new SI for NR; leading WG: RAN1; follow up SID to FS_NR_nonterr_nw

Discussion:

no motivation paper, compare ongoing REL-15 SI FS_NR_nonterr_nw

Thales: this Tdoc is planned for approval in June 18

Decision: The document was **postponed**.

RP-180218 **Motivation for new SI on NR coverage**
Source: China Telecomunication Corp.

Discussion:

Huawei: evaluate all channels on UL and DL?

China Telecom: could follow methodology of 36.84x(?); work is limited

Decision: The document was **noted**.

RP-180220 **New SI: Study on NR coverage**
Source: China Telecomunication Corp.

Abstract:

new SI for approval; leading WG: RAN1;

Decision: The document was **not treated**.

RP-180308 **Discussion on the necessity of applying 60KHz SCS with ECP for High speed train network**
Source: CMCC

Discussion:

moved from AI 9.1 to AI 9.1.2 as this is RAN1 scope

Deutsche Telekom: starting technical studies on RAN level is not appropriate, 60kHz SCS may be useful also in other cases

CMCC: we are not touching mandatory/optional discussions, no follow-up WI planned

Intel: once we approve such a SI, will RAN4 have to wait for the outcome of this SI?

CMCC: RAN4 mandatory/optional discussion does not need to wait for the outcome of this SI, we can documment this somewhere

Samsung: this topic can be done outside of 3GPP

Ericsson: is related to deployment and implementation, we ususally do this on a bilateral way; we would like to avoid a trend for the future where other operators come to 3GPP with such a simulation request; simulations will be done by RAN1 experts even if this will be a RAN SI

CMCC: in SI we stated that no WI is planned

Decision: The document was **noted**.

RP-180309 **New Study Item: Study on High Speed Train Performance Validation with Rel-15 NR Numerologies**
Source: CMCC

Abstract:

new SI for NR; leading: RAN

Discussion:

moved from AI 9.1 to AI 9.1.2 as this is RAN1 scope

Decision: The document was **not treated**.

RP-180310 **Motivation for SID proposal for Remote Interference Management in NR**
Source: CMCC

Decision: The document was **not treated**.

RP-180311 **New Study Item proposal: Study on NR-based Remote Interference Management**
Source: CMCC

Abstract:

new SI for NR; leading WG: RAN1

Decision: The document was **not treated**.

RP-180385 **Motivation for cross-link interference management for NR in Rel-16**
Source: Huawei, HiSilicon

Discussion:

no related WID provided

Decision: The document was **not treated**.

RP-180321 **Motivation for NR design above 52.6GHz**
Source: Intel Corporation

Discussion:

Samsung: current waveform for this range or not?

Intel: up to 100Gbps intended, we can analyze first whether current waveform can be used

Qualcomm: current waveform is usually the basis

ATT, Deutsche Telekom: support Intel's proposal

Qualcomm: SI went up to 100GHz, NR WI went up to 52,6GHz so there is a big gap at the moment

Qualcomm: starting SI in June for 2 quarters was our plan

Nokia: we support to look at it in REL-16, whether it needs to start in June 18 is a different question

RAN chair: this is a further potential topic for an email discussion

Decision: The document was **noted**.

RP-180320 **New SID: Study on NR design above 52.6GHz**
Source: Intel Corporation

Abstract:

new SI for NR; leading WG: RAN1; compare RP-180453

Decision: The document was **postponed**.

RP-180452 **Motivation paper for SI on NR waveform beyond 52.6GHz**
Source: Qualcomm Europe Inc.(France)

(Replaces RP-172635)

Decision: The document was **not treated**.

RP-180453 **New SID: Study on NR waveform beyond 52.6GHz**
Source: Qualcomm Europe Inc.(France)

(Replaces RP-172633)

Abstract:

new SI for NR; leading WG: RAN1; compare RP-180320

Decision: The document was **not treated**.

RP-180381 **Motivation for new WI proposal on NR spectrum utilization efficiency enhancements**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180380 **New WI proposal: NR spectrum utilization efficiency enhancements**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180389 **Motivation for Multi-TRP enhancements for NR**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180388 **New WI proposal: Multi-TRP enhancements for NR**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180407 **Motivation for Operator Controlled Local Service Supporting in NR**
Source: OPPO

Decision: The document was **not treated**.

RP-180423 **New SID for Study on Network Controlled Local Service Supporting in NR**
Source: OPPO

Abstract:

see RP-180425 instead

Decision: The document was **withdrawn**.

RP-180424 **New SID for Study on Network Controlled Local Service Supporting in NR**
Source: OPPO

Abstract:

see RP-180425 instead

Decision: The document was **withdrawn**.

RP-180425 **New SID for Study on Network Controlled Local Service Supporting in NR**
Source: OPPO

Abstract:

new SI for NR; leading WG: RAN1

Decision: The document was **not treated**.

RP-180433 **NR Dual Connectivity Enhancements Release 16 WI scope**
Source: Nokia, Nokia Shanghai Bell

Abstract:

This document discussed expected NR Release 16 work item scope

Decision: The document was **not treated**.

RP-180450 **LTE-NR further coexistence improvements for Rel-16**
Source: Vodafone España SA

Decision: The document was **withdrawn**.

RP-180553 **Way forward on agreeing SID proposal for evaluating the necessity of 60KHz SCS for High speed Network**
Source: CMCC

Discussion:

MCC: multiple versions of RP-180553 were distributed

Decision: The document was **revised to RP-180564**.

RP-180564 **Way forward on agreeing SID proposal for evaluating the necessity of 60KHz SCS for High speed Network**
Source: CMCC, Airtel, Apple, Broadcom, CATT, CATR, China Telcom, China Unicom, CEWiT, ESA, Huawei, Hisilicon, IITH, IITM, ITRI, Nokia, Nokia Shanghai Bell, MediaTek, OPPO, Orange, Qualcomm, Xiaomi, Reliance Jio, Tejas Networks, Thale, vivo, ZTE

(Replaces RP-180553)

Discussion:

Proposal:

One R15 study item is to be developed to evaluate the performance of different numerology options currently supported by Rel-15 NR for high speed, as well as SFN high speed train deployments, with speed of 500km/h at carrier frequency of 3.5GHz.

- 3-Month RAN1 SID with minimal online resources

- Start an email discussion on the simulation assumptions after RAN#79

- This study item is not intended to have a follow-up WI Proposal

Deutsche Telekom: if something does not work, wiill we change UE capabilities in REL-16

Samsung: simulation work can be done outside of 3GPP

Huawei: no follow-up WID intended and no intention to change mandatory/optional settings

Ericsson: underlying disagreement (that 30kHz SCS would not work well) that will not be able to solve via this SI

RAN chair: if people are doing simulations offline and if something goes wrong, proponents can bring this up in 3GPP

Deutsche Telekom: there is also a self-evaluation WI which can make the simulation

Qualcomm: we are confident that 30kHz is ok to address the scenario

Samsung: once we start such a SI, we will see a number of further simulation requests

Ericsson: a platform to provide simulations may be needed in RAN1

RAN chair: no online time in RAN1 on this

Deutsche Telekom: has serious concerns about the proposal in the Tdoc

conclusion: further offline discussion

Decision: The document was **noted**.

RP-180593 **Way forward on High Speed Train evaluation**
Source: Samsung, CMCC, Ericsson, Qualcomm, Intel, Nokia, Nokia Shanghai Bell, ZTE, MediaTek

Abstract:

related to RP-180564

Discussion:

proposal:

- CMCC to provide simulation assumptions until April 6th via RAN1 reflector

  - Based on the HST-SFN simulation assumptions in TS36.101 v15.5.0 B.3A

- Companies can submit their contributions for evaluation of HST scenarios in RAN1 meetings in Q2/2018

  - Only one contribution per company per RAN1 meeting

  - No online time spent in RAN1 meetings

- 60 kHz subcarrier spacing for FR1 and extended CP are confirmed to remain as optional

No further discussion in related WGs in Rel-15

Huawei: 60kHz is not just for high speed use case so we should remove 60kHz from last high level bullet and we can support the way forward; it is a RAN decision whether a feature has to be mandatory or optional, that's why we are not happy

Samsung: without the last 2 bullets we can not accept the way forward

Vodafone: we can say that decision of mandatory/optional for 60kHz SCS will not depend on this activity

Ericsson: there will be an impact from one use case to the other, this cannot be avoided

conclusion: no consensus

Decision: The document was **noted**.

9.1.3 Other proposals led by RAN2

RP-180346 **Motivation for new Study Item on NR enhancements for TCP**
Source: MediaTek (Wuhan) Inc.

Decision: The document was **not treated**.

RP-180347 **New SID on Study on NR Enhancements for TCP**
Source: MediaTek (Wuhan) Inc.

Abstract:

new SI for NR; leading WG: RAN2

Decision: The document was **not treated**.

RP-180361 **Motivation paper for New WID on NR Support for Aerial Vehicles**
Source: ZTE Corporation, Sanechips

Decision: The document was **not treated**.

RP-180359 **New WID on NR Support for Aerial Vehicles**
Source: ZTE Corporation, Sanechips

Abstract:

new WI for NR; leading WG: RAN2; note: There is an ongoing REL-15 WI LTE_Aerial-Core

Decision: The document was **not treated**.

RP-180392 **Motivation for new WI proposal on Service oriented RAN support of network slicing**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180391 **New WI proposal: Service oriented RAN support of network slicing**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180434 **Motivation for SI: Fast Cell Access for NR**
Source: Nokia, Nokia Shanghai Bell

(Replaces RP-172567)

Abstract:

Motivation document for new SID on Fast Cell Access for NR.

Decision: The document was **not treated**.

RP-180435 **New SI: Study on Fast Cell Access for NR**
Source: Nokia, Nokia Shanghai Bell

Abstract:

new SI for NR; leading WG: RAN2;

Decision: The document was **revised to RP-180508**.

RP-180508 **New SI: Study on Fast Cell Access for NR**
Source: Nokia, Nokia Shanghai Bell

(Replaces RP-180435)

Decision: The document was **not treated**.

RP-180457 **Motivation for new WID proposal on EN-DC enhancements in NR**
Source: Ericsson

Decision: The document was **not treated**.

RP-180456 **New WID proposal on EN-DC enhancements in NR**
Source: Ericsson

Abstract:

new WI for NR; leading WG: RAN2

Decision: The document was **not treated**.

RP-180394 **Discussion on MR-DC enhancements in Rel-16**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

9.1.4 Other proposals led by RAN3

RP-180147 **Motivation for SI on Enhancement for High Layer CU-DU Split**
Source: China Telecommunications

Decision: The document was **not treated**.

RP-180148 **New SID: Study on enhancement for high layer CU-DU split in NR**
Source: China Telecommunications

Abstract:

see RP-180149 instead

Decision: The document was **withdrawn**.

RP-180149 **New SID: Study on enhancement for high layer CU-DU split in NR**
Source: China Telecommunications

Abstract:

new SI for NR; leading WG: RAN3; note: There is an ongoing REL-15 SI FS_NR_CU_DU_LLS

Discussion:

MCC: SI title wrong, TR title and targets wrong, 3 supporting companies

Decision: The document was **revised to RP-180484**.

RP-180484 **New SID: Study on enhancement for high layer CU-DU split in NR**
Source: China Telecommunications

(Replaces RP-180149)

Abstract:

new SI for NR; leading WG: RAN3; note: There is an ongoing REL-15 SI FS_NR_CU_DU_LLS

Discussion:

MCC: late Tdoc request

Decision: The document was **not treated**.

RP-180312 **Motivation for SID proposal for RAN-centric BigData Collection and Utilization**
Source: CMCC

Decision: The document was **not treated**.

RP-180313 **New Study Item proposal: Study on RAN-centric BigData Collection and Utilization for NR**
Source: CMCC

Abstract:

new SI for NR; leading WG: RAN3

Decision: The document was **not treated**.

RP-180462 **New WI: Introduction of SON / MDT for NR**
Source: Ericsson

Abstract:

new WI for NR; leading WG: RAN3

Discussion:

no motivation paper

Decision: The document was **not treated**.

RP-180396 **Motivation for new SI on Network Assistance for Network Synchronization in NG-RAN**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180395 **New SI proposal: Study on Network Assistance for Network Synchronization in NG-RAN**
Source: Huawei, HiSilicon

Abstract:

new SI for NR & LTE; leading WG: RAN3

Decision: The document was **not treated**.

RP-180461 **New WI: RAN aspects of local / private / neutral-host networks**
Source: Ericsson

Abstract:

new WI for NR; leading WG: RAN3; not treated at RAN #78 in RP-172560

Discussion:

no motivation paper

Decision: The document was **not treated**.

9.1.5 Other proposals led by RAN4 (not spectrum related)

RP-180208 **Motivation of Study on vehicle UE for NR**
Source: LG Electronics

Abstract:

MCC: wrong Tdoc type in Tdoc request; motivation paper for New WID on Study on vehicle UE for NR

Decision: The document was **not treated**.

RP-180207 **New WID on vehicle UE for NR**
Source: LG Electronics

Abstract:

new WI for NR; leading WG: RAN4; related to NR RF

Decision: The document was **not treated**.

RP-180254 **Motivation for SI: Study on radiated test methodology for the verification of multi-antenna reception performance of NR UEs**
Source: CATR

Decision: The document was **not treated**.

RP-180255 **New SID on Study on radiated test methodology for the verification of multi-antenna reception performance of NR UEs**
Source: CATR

Abstract:

new SI for NR; leading WG: RAN4; note: REL-14 WI LTE_MIMO_OTA-Core was completed in Sep.17;

Decision: The document was **not treated**.

9.1.6 Proposals led by RAN4 (spectrum related)

RP-180205 **New WI: 8 NR Carrier CA**
Source: T-Mobile USA Inc.

Abstract:

new WI for NR; leading WG: RAN4; note: in REL-15 all CA combinations are covered so far under WI NR_newRAT; proposal to create a basket WID for DC + 8 NR Carrier Aggregation

Discussion:

T-Mobile: after offline discussion it is intended to integrate these combinations into the NR WID

NTT DOCOMO (RAN4 vice-chairman): of 4.1 only first and last bullet will be included in NR WID

Verizon: has also combinations to be added, will discuss offline

MCC: remember that June 18 will be the cut date for REL-15 CA combinations, so if the combination is not integrated at RAN #79 it will be for REL-16 in the future

conclusion: first and last config. will be integrated in existing NR WID

Decision: The document was **rejected**.

RP-180577 **New EN-DC NR combinations with NR n### and n260**
Source: Verizon

Abstract:

related to RP-180205

Discussion:

NTT DOCOMO (RAN4 vice-chairman): we introduced this bandwidth class in last RAN4 meeting so we have to accept this exceptional handling here, but asks for Aoril to focus on intra-band in April

Nokia: we should do some prioritization of the combinations

Verizon: is fine to do this

conclusion: combinations will be integrated into NR REL-15 WID RP-180536

Decision: The document was **noted**.

RP-180455 **Discussion on a Study Item for 6 - 24 GHz frequency range in Release 16**
Source: Dish Network

Abstract:

This document raises discussion about a study needed for the 6-24 GHz frequency range.

Discussion:

Huawei: there is no SID for it?

RAN chair: correct

Dish: RAN4 SI intended, to be discussed further and plans to bring it to RAN #80 for REL-16

Huawei: other WGs affected?

Dish:so far RAN4 only

Huawei: should be part of email discussions for REL-16 WIs/SIs

Orange: supports to add it to the email discussions

Nokia: good topic for email discussions, we have the waveforms and parameters to support this so agrees that this would be RAN1 only, RAN4 may still be busy between June and Sep. but after Sep. it could be a REL-16 SI

Ericsson: input from operators on some tactical bands would be helpful, up to 6GHz it is conducted, above to be seen; if we take the whole range it would be a lot of work

Dish: if not approved in June, it will not be approved? also for RAN4 spectrum work?

RAN chair: RAN4 spectrum work is different, add it to the email discussion and check whether the whole range needs to be considered

Decision: The document was **noted**.

9.2 Open REL-15 New Radio WIs

9.2.1 New Radio Access Technology [RAN1 WI: NR_newRAT]

RP-180032 **LS to RAN on IMT-2020 requirement for 0ms handover interruption time in Rel-15 (R2-1804091; to: RAN; cc: -; contact: ZTE)**
Source: RAN2

Abstract:

no explicit RAN action requested; related to RP-172807 of RAN #78

Discussion:

RAN chair: so no action for RAN

ATT: impact on NR-NR DC?

ZTE: for IMT-2020 requirements we are safe

Huawei: there was a request from some companies that NR should be more performant

Telecom Italia: thanks to RAN2 for addressing this, also

CP latency <20ms addressed?

RAN2 chair: this will take a bit more time but RAN2 is working on it

conclusion: no LS answer from RAN to RAN2

Decision: The document was **noted**.

RP-180033 **Reply LS to RP-172823 on NR interworking with GSM and UMTS (R4-1802691; to: RAN; cc: SA1, SA2, RAN2, RAN3, RAN4, RAN5, RAN6, SA, CT; contact: Huawei)**
Source: RAN4

Abstract:

no explicit RAN action requested

Discussion:

RAN4 chair: RAN4 will define the corresponding requirements in REL-15

RAN chair: so no action needed from RAN

conclusion: no LS answer from RAN to RAN4

Decision: The document was **noted**.

RP-180043 **LS on NGMN Paper on 5G End-to-End Architecture Framework (NGMN_LS_180212; to: SA3, ETSI SAGE, ETSI TC CYBER, ISO/IEC JTC1/SC 27, FIDO Alliance; cc: SA, RAN, SA1, SA2, SA3-LI, SA5, ETSI ISG NFV, ETSI ISG MEC, ETSI TC LI, Broadband Forum, Wireless Broadband Alliance, IEEE LAN/MAN, MEF, TM Forum; contact: Vodafone)**
Source: NGMN

Abstract:

no RAN action requested

Discussion:

Telecom Italia: is mainly for SA, is an update of the whitepaper

conclusion: no LS answer

Decision: The document was **noted**.

RP-180219 **Reaffirming the Need for Architecture Option 4 and Option 7 to Complete as Part of Release 15**
Source: AT&T GNS Belgium SPRL

Abstract:

This contribution discusses the need for both the architecture Option 4 and Option 7 Families to be completed in Release 15.

Discussion:

Proposal:

- ALL of the agreed architecture Options must complete in Release 15.
- Option 2 and Option 3 as well as Option 5 must be finalized in due time in Release 15 – as agreed
- Both Option 4 and Option 7 families must remain and be completed within the scope of Release 15

- It is not acceptable to not complete either of these in Rel 15, and

- Specifically deferring or significantly delaying either Option 4 or Option 7 is also not acceptable.

• RAN #79 needs to address and ensure resources are available for completing Option 4 and Option 7 families in due time under Rel 15

• 3GPP shall commit to finishing Option 4 and Option 7 families in Release 15 by June 2018.

-A check will be done in June and based on the status, an extension of the work on these options could be agreed, within the Release 15 ASN.1 interval and as such complete no later than September 2018 under that extension – and remaining in Release 15.

China Telekom: considering work for these 2 options which is very limited, we support to finish the 2 options in REL-15 time frame

Nokia: options 4 and 7: restricted set of features, 7 is based on 5 Xn work is not trivial; we need to know which parts of options 4 and 7 need to be completed in REL-15

Telecom Italia: thinks not enough time was devoted to the WI instead some SIs were considered, asks Nokia for providing an input to describe what would be difficult to complete; supports AT&T Tdoc

Ericsson: fine to include the options but it's wrong to say that it is little work and it is not realistic to complete these options by June 18

RAN2 chairman: it is not realistic to complete these options by June 18, Dec.18 would be more realistic; as Sep.18 is the ASN.1 freeze it would be difficult to complete the options in parallel

ZTE: additional work for options 4 and 7 is not the same and key thing is status of options 5 in June; we have a Tdoc in RP-180503 explaining this

Samsung: shares concern about workload in RAN2, strong view that completion date June for REL-15 should be kept, we could consider the options as late addition to REL-15

LG: we have not discussed anything about options 4 and 7 so far and so Dec.18 sound more realistic

Huawei: thinks completing the options in REL-15 should be possible, we need to discuss the corresponding possibilities a bit more

RAN3 chair: option 2 is a basis for option 7 and option 5 is a basis of option 4

Telecom Italia: heard for the first time that RAN1 needs to be involved in options 4 and 7; suggests to work on the options and to see the status in June 18; we need to understand the workload impacts

Orange: copy and paste aspect to be distinguished from the additional work to be done on top of options 2 and 5

ATT: options 2 and 3 need to be stabilized first before we continue with options 4 and 7 but we still want to see options 2 and 3 in June and to keep options 4 and 7 in REL-15;

Deutsche Telekom: we would not like to stretch REL-15, we had an early drop and we would not like to see a late drop now on top, so complete REL-15 in June and ASN.1 in Sep.

BT: we support the Tdoc and we need a strong focus on REL-15 in the next quarter

Decision: The document was **noted**.

RP-180492 **LS on NGMN View on Importance of Completion of Architecture Options in Release 15 (NGMN_LS_180318; to: RAN; cc: -; contact: Telecom Italia)**

Source: NGMN

Abstract:

RAN action requested

Discussion:

NGMN requests:

- ALL of the agreed architecture Options must complete in Release 15.
- Option 2 and Option 3 as well as Option 5 must be finalized in due time in Release 15 – as agreed
- Both Option 4 and Option 7 must remain and be completed within the scope of Release 15, and should be completed as part of Release 15 in June 2018.

RAN chair: seems to be in line with ATT Tdoc in RP-180219

Nokia: not much discussion on option 4 and 7 took place so far; a clear input in June would be needed what is still needed to complete for options 4 and 7;

Telecom Italia: can accept this and we need to clearly prioritize our work

Ericsson: RAN could task RAN2 to analyze what is needed on top of existing options for options 4 and 7

RAN chair: there is some analysis about what needs to be done in RP-180503

ATT: what is important is that RAN confirms that we will complete options 4 and 7 in REL-15

conclusion: no LS answer to NGMN

Decision: The document was **noted**.

RP-180503 Do 3 and 5 make 7?

Source: ZTE Corporation

Abstract:

late contribution on the architectural options discussion

Discussion:

observations from this Tdoc:

- 5 and 3 (almost) make 7: Assuming Options 5 and 3 are both finalized, the additional effort to specify NGEN-DC (Option 7 family) would be:

•Minimal or even negligible in RAN2

•Probably acceptable in RAN3? (if Stage 3 details for Xn procedures for NGEN-DC aspects mimic as much as possible what is specified for X2 for EN-DC)

- 2 and 3 don’t really make 4 (and NR-NR DC): Assuming Standalone NR (Option 2) and EN-DC (Option 3) are both finalized, to specify NE-DC (Option 4 family) and NR-NR DC:

•Some non-negligible work would still be needed also in RAN2

Telecom Italia: thanks ZTE for this overview, what can be done in parallel to option 2 on on options 4 and 7 needs to be checked

Nokia: option 5 needs to follow what we are doing on option 2

Qualcomm: agrees with Nokia that there is a step before option 5

RAN3 chair: agrees with ZTE view that option 7 seems to be doable

ATT: we also want to emphasize that also option 4 is important

Vodafone: "under the assumption that 2/3/5 are finalized" is an important statement in the ZTE Tdoc so we need to focus on them first

RAN chair: suggests that WG chairmen look at this and see what is possible in the next quarter and whether some parallel work on top of the work on options 2/3/5 is possible

Telecom Italia: we could also see which parts of options 4 and 7 could be taken out but still have both options in REL-15

ATT: RAN2 and RAN3 chair should come back this week or in June? Should RAN1 chair be involved to see whether RAN1 needs to do some work?

RAN chair: standing guidance is still that we work on options 3 and 2

Mediatek: agrees that completion dates for option 2 and option 3 must not be challenged

RAN4 chair: impacts on DC combinations?

BT: option 2 can not be used to deploy 5GC so more is needed

Deutsche Telekom: 2 versions of arch option 7, one in REL-15 and one in REL-16 could be tricky

conclusion: RAN1/2/3/4 chairman are asked to look into this topic and to see what is possible on options 4 and 7 in the next quarter and REL-15 in general

Decision: The document was **noted**.

RP-180504 Plan for finalizing all NR architecture options

Source: RAN chairman, RAN1/ 2/3/4 chairmen

Discussion:

ATT: options 4 and 7 should be completed by end of 2018, we can combbine both ASN.1 freezes

BT: is interested very much in option 7, slide 5: why not REL-indep. band combinations?

RAN chair: no different handling of band combinations compared to the past

Vodafone: option 5 by June or Dec.? this is unclear

RAN chair: all beyond 3 and 2 will be checked in June to see which options go in the late drop

RAN2 chair: option 5 time budget comes from LTE so there is a good chance to get it finished by June

Telecom Italia: slide 3: some RAN3 work on option 4 and 7 can start already?

RAN3 chair: RAN3 has no spare time (60% does not have 40% spare time)

OPPO: sees impacts on UE capabilities

Mediatek: delaying REL-15 for option 2 is not acceptable; proposal from the chairmen seems to be a reasonable compromise

Qualcomm: hardware changes for the UE have to be avoided

Samsung: NSA by Dec.17 and SA by June 18 with ASN.1 freeze in Sep.18 is important for us

CMCC: having only 1 ASN.1 freeze would be good

ZTE: with later drop we can add full NR-NR DC solution

Vodafone: does not like late drop as people will increase the scope and the later drop may then be even later

Telecom Italia: RAN3 has only one session, maybe this can be reviewed again, NR-NR DC was not requested from operators

ATT: moving NR-NR DC to REL-16 may allow to complete the late REL-15 drop with options 4 and 7 by Dec.18

Deutsche Telekom: for us and T-Mobile NR-NR DC could be shifted to REL-16

RAN chair: we can take NR-NR DC out which solves the problem for RAN1 however the problem will still be in RAN2

Huawei: we need to deliver and fix options 2, anything shorter than 6 months between the 2 drops will screw up the whole plan

RAN chair: can we take out NR-NR DC out of the late drop for REL-15 (so it would be done in REL-16)

Ericsson: time synchronized and same frame structure? in same band?

Huawei: sees some synergies of option 4 and NR-NR DC

RAN2 chair: NR-NR DC can be separated from multiple RAT options so sees them independent; option 4 and NR-NR DC can both start after option 2 but they can progress independently

RAN chair: it seems NR-NR DC still needs to be discussed further

Vodafone: ok, to shift NR-NR DC to REL-16 but we need to revise the wording of the Tdoc to make sure which option is expected when

Samsung: will check with Korean operators over night whether they have a problem to shift NR-NR DC to REL-16

RAN2 chair: NR-NR DC: CP architecture and UE cap. coordination will have heavy impact on RAN2

RAN chair: will come back on this on Wed afternoon

Decision: The document was **revised to RP-180534**.

RP-180534 Plan for finalizing all NR architecture options

Source: RAN chairman, RAN1/ 2/3/4 chairmen

(Replaces RP-180504)

Discussion:

Key points:

Introduce a late drop for Release-15 with a schedule that follows normal Rel-15 completion by 6 months

The late drop is to exclusively contain NR architecture options that were not completed by June

- Options 4, 7 and NR-NR DC are part of the late drop

- For NR-NR DC, only synchronous mode with NR stand-alone is in scope for the late drop

- No other feature is to be included in this drop.

- No other EN-DC and NR CA band combinations, on top of those completed by June 2018, shall be part of the late drop

Band combinations which are not completed by June 2018 will be moved to Rel-16 basket WI according to basket WI approach

The late Rel-15 ASN.1 drop is to be strictly backwards compatible

Deutsche Telekom: slide 6 is too vague with "No other feature is to be included in this drop", also left-overs/enhancements should be part of the late drop

ATT: NR-NR DC if both synchronizeed it will be less effort, otherwise it would be bigger effort

Telecom Italia: if NR-NR DC is not completed, we would not like to jeopardize options 4/7

Deutsche Telekom: why is NR FR1-NR FR1 DC excluded?

ZTE: why not same approach for 1 RAT DC as for 2 RAT DC?

Ericsson: we need to define what "NR-NR DC synchronized" means?

RAN1 chair: is more on cell level

BT: why 2 bullet points about band combinations?

Huawei: slide 11: no LTE-NR coexistence is needed but power control; what if we detect something later that needs to be done

RAN chair: if it essential (i.e. feature will not work without it), we will see how to cover it

Qualcomm: late drop ASN.1 freeze will not just affect NR but also LTE specs

RAN chair: yes, this needs to be understood

ZTE: slide 6: assumption is that option 4 will make it by June and option 7 and NR-NR DC will go in late drop? needs clarification on UE capabilities

Nokia: NR-NR DC sync with different TTIs will be tricky

RAN1 chair: NR-NR DC will start after Aug.

RAN chair: some details still to be fixed but general direction seems to be acceptable

Decision: The document was **revised to RP-180552**.

RP-180552 **Plan for finalizing all NR architecture options**
Source: RAN chairman, RAN1/ 2/3/4 chairmen

(Replaces RP-180534)

Discussion:

Samsung: we should add that "RAN4 will look at NR-NR DC combinations in Q2" because no further combination are considered after June 18

Decision: The document was **revised to RP-180554**.

RP-180554 **Plan for finalizing all NR architecture options**
Source: RAN chairman, RAN1/ 2/3/4 chairmen

(Replaces RP-180552)

Discussion:

Telecom Italia: if any part of the late drop is not completed by the deadline, this does not mean that all other parts of the late drop will be shifted to REL-16

CMCC: objects to slide 6 FR1-FR2 subbullet

Later, CMCC withdrew objection.

Decision: The document was **endorsed**.

RP-180344 **UE Support for Rel-15 Architecture Options**
Source: MediaTek (Wuhan) Inc.

Discussion:

moved from AI 9.5 to AI 9.2.1

Decision: The document was **revised to RP-180497**.

RP-180497 **UE Support for Rel-15 Architecture Options**
Source: MediaTek (Wuhan) Inc.

(Replaces RP-180344)

Discussion:

moved from AI 9.5 to AI 9.2.1

Telecom Italia: too early to decide

Deutsche Telekom: agrees with Telecom Itlaia, shouild come back to this in June 18

conlcusion: will come back to this in June 18

Decision: The document was **noted**.

RP-180399 **Discussion on LTE-NR uplink sharing from UE perspective**
Source: Huawei, HiSilicon

Decision: The document was **revised to RP-180501**.

RP-180501 **Discussion on LTE-NR uplink sharing from UE perspective**
Source: Huawei, HiSilicon

(Replaces RP-180399)

Discussion:

Proposal: R15 only supports TDM for LTE/NR transmission on shared carrier for UL sharing from UE perspective.

ATT: impacts on 2TX uplink when band comination was ok (no intermod) not clear

Huawei: we do not want to change any agreement on this part

T-Mobile: proposal seems to block some topics on which some work was already done

Huawei: no need to change agreements related to band 71

ZTE: for NR case 1 does not prevent simultaneous transmission, limitation is only on LTE

Huawei: if we follow ZTE's comment, we will have intermod issues

Qualcomm: not sure why Huawei wants to get rid of one scheme, up to RAN4 to decide what is simpler to implement, would not like to decide this here

Vodafone: whole discussion about UL sharing from UE perspective was focusssing so far on TDM so wondering why companies seem to want to spend more time now to also consider also FDM

Apple: RAN4 agreement was single PA, has a Tdoc on this

Nokia: we did not make any decision about TDM vs. FDM in the past; it would imply also some synchronisation, so not so easy

Qualcomm: similar to intra-band EN-DC cases, should be a RAN4 decision, no impact on RAN1 expected, not sure why we should focus on single PAs

Mediatek: only TDM is the option that we are working on so we should focus on this

RAN4 chair: UL sharing from UE perspective had two directions via EN-DC & NR CA and via SUL which should be distinguished

Orange: companies opposing the Huawei proposal should clarify what/when they plan to contribute to FDM

Huawei: we have still the "strive for" guidance from Sep.18

RAN chair: would like to task the RAN4 chair to discuss this offline and to come up with a way forward in RP-180507

Decision: The document was **noted**.

RP-180507 **Way forward on LTE-NR uplink sharing from UE perspective and CSI-RS requirements**
Source: RAN4 chairman (Samsung)

Discussion:

RAN4 chair: after first offline discussion suggests to discuss further on RAN_DRAFTS reflector and have another offline session (e.g. on Tue); other features should be discussed in WG

RAN chair: discuss offline in Tue afternoon coffee break

Huawei: CSI-RS requirements: measurement is optional was accepted

Qualcomm: we should set a real time limit for the discussion as this will be controversial

Uplink sharing from UE perspective (ULSUP):

ZTE: guidance from RAN #77 changed?

RAN chair: no

Huawei: companies had different understanding what "strive" for means, but now we have only 1 quarter left; we need a decision that supersedes the former guidance

Nokia: we had inputs, then people said this is not on the agenda, and topic popped up under a different agenda item

Decision: The document was **noted**.

RP-180558 **Way forward on CSI-RS requirements**
Source: Samsung (RAN4 chairman)

Discussion:

proposal:

- In addition to SSB based RLM/RRM requirements, RAN4 will define the following CSI-RS requirements in Rel-15
  - CSI-RS based beam management requirements
  - CSI-RS based RLM requirements
- Progress and completion of the work on requirements (considering both SSB based and CSI-RS based measurements) will be prioritized in the following manner:
  - Priority 1: SSB based RLM/RRM
  - Priority 2: CSI-RS based RLM, CSI-RS based beam management requirements
  - Priority 3: CSI-RS based RSRP, RSRQ, and RS-SINR measurement (RAN4 will first target completion of priority 1 and 2 before June 2008.)
- If RAN4 does not introduce CSI-RS based RSRP, RSRQ and RS-SINR measurement core requirements by June 2018 then, once the work is completed, RAN4 will consider whether to introduce these requirements in release independent manner (i.e. whether to backdate to allow support by Rel-15 devices)

Ericsson: prio 3 has taken a lot of time in RAN4, request to RAN4 leaders: please take this only if there is time left

Vodafone: June 2008 should say June 2018

Decision: The document was **revised to RP-180591**.

RP-180591 **Way forward on CSI-RS requirements**
Source: Samsung (RAN4 chairman)

(Replaces RP-180558)

Decision: The document was **endorsed**.

RP-180560 **Way forward on LTE-NR uplink sharing from UE perspective**
Source: Samsung (RAN4 chairmman)

Discussion:

proposal:

- ULSUP with SUL band is in scope of Rel-15 NR WI targeting June 2018 completion
  - NR Standalone and leftover from NR December drop have higher priority than ULSUP with SUL band
- In Q2 2018, RAN4 will setup the agenda item for ULSUP with SUL band with following sub agenda items.
  - TDM based ULSUP with SUL bands
  - FDM based ULSUP with SUL bands
- ULSUP with SUL band relative contributions will be only discussed under these above agenda items

Huawei: all items in the agenda item = RF and RRM ?

RAN4 chair: yes

Decision: The document was **endorsed**.

RP-180400 **Way forward on LTE-NR uplink sharing from UE perspective**
Source: Huawei, HiSilicon

Decision: The document was **revised to RP-180502**.

RP-180502 **Way forward on LTE-NR uplink sharing from UE perspective**
Source: Huawei, HiSilicon, Telefonica, Orange, MediaTek

(Replaces RP-180400)

Discussion:

proposal: UL sharing from UE perspective for SUL DC band combinations is supported in Rel-15 (complete at least one band combination by the end of R15) based on TDM between LTE UL and NR SUL

Huawei: also Intel supports this way forward

Ericsson: now focussing on SUL only before also CA was considered, NR CA seems to be excluded in this revision of the Tdoc (which is in contrast to RP-180501)

Huawei: we did not propose anything for NR CA

Ericsson: your RP-180501 was more generic (which includes NR CA) and RP-18502 is now focussing on NR SUL, so wants to clarify what is proposed

RAN4 chairman: agrees with Ericsson

RAN chairman: this can be discussed in the offline discussion which will bring us to RP-180507

Decision: The document was **noted**.

RP-180427 **5G NR Release 15 Finalization**
Source: Nokia Corporation

Abstract:

The document discusses Rel-15 5G NR specification finalization including NSA and SA by June 2018

Discussion:

proposals:

- RAN#79 decides that the same prioritization as confirmed in RAN#78 in RP-172844 shall be continued for the Q2 of 2018

- all the NR items which were not prioritized for the December drop in RP-172108 or explicitly added to the work plan in RP-172844, should not be treated during the Q2 of 2018

Huawei: RP-172844 was more RAN1/RAN2 related and does not cover RAN4 aspects, we do not agree with the proposal

Nokia: would be strange to say that prioritization does not affect RAN4

Qualcomm: agrees with Nokia

Orange: we are interested to finish the work by June so supports the Tdoc

Intel: two topics should be excluded from this handling: UL sharing from UE perspective, CSRS radio link monitoring; a lot of work was already spent on them

ZTE: there is still a lot of discussion about UL sharing from UE perspective

ATT: in generally agrees with Nokia Tdoc, but last sentence unclear, would this impact options 4 and 7?

Nokia: referenced paper did not consider architecture work so the proposal is not aiming at architecture aspect

RAN chair: "strive to complete" we said; we could ask RAN4 leaders to take care that prioritized topics should get their priorities

RAN4 chair: from RAN4 point of view it is not yet clear whether we can complete all prioritized features by June 18; it would be better to clarify from RAN side which features we need to consider in Q2 in RAN4, prioritization alone will not help much; e.g. UL sharing from UE perspective, CSRS radio link monitoring should be considered or not? (on the latter one RAN4 made already some progress)

Vodafone: RAN4 is spending more time to discuss whether they should handle a topic than really treating the topics

Qualcomm: if we have not finished topics that we should have finished one quarter ago, then it is time to focus

Ericsson: we have very substantial work in the remaining 2 RAN4 meetings so we need clear guidance from RAN on which topics we should spend time

Qualcomm: RAN4 is also working on RRM part of SA

CMCC: "strive for" is for companies or the WG needs clarification

RAN chair: let's look at the 2 Tdocs on UL sharing (RP-180399 and RP-180400)

Decision: The document was **noted**.

RP-180475 Identified inconsistencies between RAN1 and RAN2 decisions on beam management

Source: Qualcomm

Abstract:

MCC: late Tdoc request

Discussion:

Proposal 1: RAN plenary down selects either RAN1 or RAN2 procedure for the UE to detect beam failure event.

Proposal 2: RAN plenary confirms RAN1 agreement on the need of defining a beam-failure-recovery-Timer.

Qualcomm: we are discussing it offline and we can maybe can up for a way forward on Thu, will request a Tdoc if needed

Decision: The document was **noted**.

RP-180579 **Way forward on beam management**
Source: Interdigital (RAN2 NR UP session chair)

Abstract:

related to RP-180475

Discussion:

RAN chair: seems there is no consensus on "after RAN offline RAN2 understands ..." but recommendations are agreeable

Decision: The document was **revised to RP-180597**.

RP-180597 **Way forward on beam management**
Source: Interdigital (RAN2 NR UP session chair)

(Replaces RP-180579)

Decision: The document was **endorsed**.

RP-180140 **5G status indicator for NR**
Source: Samsung

Abstract:

moved from AI 9 to AI 9.2.1

Discussion:

Proposal: We ask RAN TSG to clarify/confirm whether we need to support six different states (1..6) and four basic configuration options (#A..#C) controlling when the 5G status indicator is shown.

Vodafone: table is an information from GSMA, and we accepted the guidance of the RAN2 chairman's report

Telecom Italia: same view as Vodafone

Mediatek: this is about setting an indicator in the UE which is not 3GPP business, we had just one indicator and this was solved

Verizon: is actually supporting GSMA table

BT: the table does not cover everything we have already, so no need to debate the table

Deutsche Telekom: this was a painful discussion in GSMA and RAN2 so no need to repeat this here

Verizon: would like to consider the table

Telecom Italia: would create a lot of work for RAN2 and endanger REL-15 completion dates

Vodafone: even measurement would not provide enough information about the coverage

RAN chair: and RAN2 chair no explicit restriction to contribute but if there is not much support, we would not discuss this again

Decision: The document was **noted**.

RP-180155 **Consideration on NR-LTE co-existence**
Source: KDDI Corporation

Discussion:

Proposal 1: RAN discuss and decide how NR band n1/n3/n28 should support 30KHz SS block SCS in Rel.15

- Option1: Allow existing n1/n3/n28 to support 30KHz SS block SCS optionally
- Option2: Develop corresponding NR bands which support 30KHz SS block SCS

Proposal 2: RAN discuss and decide how NR band n41 should support channel raster 100kHz and UL 7.5kHz raster shift in Rel.15

- Option1: Allow existing n41 to support channel raster 100kHz and UL 7.5kHz raster shift optionally
- Option2: Develop corresponding NR band which supports channel raster 100kHz and UL 7.5kHz raster shift

Proposal 3: New refarming NR bands proposed in Rel.16 should mandatory support the following coexistence functionalities as mandated based on operators' request.

- 100KHz channel raster
- 30KHz SS block SCS
- UL 7.5kHz raster shift

An option2 of Proposal 1 and 2, means that other elements (e.g. bandwidth, Rx/Tx requirement) should be copied from the original bands.

RAN chair: was this discussed in RAN4, what was the conclusion there?

KDDI: RAN4 looked at a part of it without concluding

Huawei: supports the paper and would like to continue the discussion in RAN4

Orange: same view as Huawei

RAN4 chair: RAN4 had an agreement: 30kHz only for certain bands (band 41); so RAN4 would reopen the discussion also for other bands if we address proposal 1; proposal 2 can be discussed in RAN2; proposal 3 would be business as usual in RAN4

Qualcomm: for proposal 2 we need to make sure that the band will be deployed before we do this work

Orange: blocking proposal 1 would be critical for us

ZTE: proposal 3 was already discussed in the past in RAN4

RAN4 chair: this Tdoc was not seen in RAN4 so far, suggests to bring it to RAN4

conclusion: KDDI is invited to bring RP-180155 to RAN4

Decision: The document was **noted**.

RP-180211 **Single UL transmission support for Intra-band LTE NR EN-DC deployment**
Source: Apple

Discussion:

moved from AI 9.2.1.2 to AI 9.2.1

Proposal 1: For intra-band LTE-NR EN-DC in FDD bands (e.g. band 71), allow UE to operate in single UL transmission mode in order to avoid DL desense problem without impacting UL coverage

Proposal 2: For intra-band LTE-NR EN-DC (e.g. band 41), allow UE to operate in single UL transmission mode in order to meet emission requirement without requiring UE to additionally backoff its transmit power, i.e. A-MPR

Qualcomm: table 1: where do the 9dB come from? why not 23-9?

Apple: is our calculation, power has to be shared between LTE and NR

Qualcomm: we think it should say 23

Ericsson: difficult for UE to implement 2TX but we also need to look at system performance (desense at UE is bad but system performance is boosted so we need to see the overall picture); thinks that this RAN4 discussion happened already at length and it should stay in RAN4

Samsung: supports it should stay in RAN4

Nokia: you cannot just take the worst case value for the power reduction

RAN chair: to RAN4 chair: has it been discussed in RAN4

RAN4 chair: mandatory for certain band combinations will still be discussed in RAN4

RAN chair: suggests to still discuss this issue in RAN4 (as discussion is ongoing) and if there is not solution, RAN can pick it up

Sprint: fears single and dual PA tables for A-MPR

conclusion: will discuss this topic in RAN4 and if it is not solved by June 18, RAN #80 will conclude the topic

Decision: The document was **noted**.

RP-180401 **Interference avoidance for in-device coexistence**
Source: vivo

Discussion:

moved from AI 9.2.1.2 to AI 9.2.1

NTT DOCOMO: RAN4 sent LS to RAN2 in the past; once RAN4 solves the issue, then RAN2 can look at this

Qualcomm: RAN2 will work on it under the condition that RAN4 solves it

Broadcom: see problem with Bluetooth so IDC needs to be improved

RAN4 chair: agrees with RAN chairman that we should not promote such a way of handling (one WG is tasking another WG bypassing RAN)

conclusion: WG discussion ongoing

Decision: The document was **noted**.

RP-180245 **Discussion on TDD UL/DL configurations for NR HPUE**
Source: OPPO

Discussion:

Proposal: NR has to specify a solution to guarantee NR HPUE in principle can satisfy SAR requirement

RAN chair: this is about a topic discussed in RAN4 for some time

OPPO: was discussed in Jan/Feb without progress so far and we have only 2 meetings left

OPPO: not only a RAN4 issue as RAN1 may consider some scheduling restrictions

conclusion: RAN1 and RAN4 are requested to look at this

Decision: The document was **noted**.

RP-180439 **On Measurement Uncertainty and Test Tolerance**
Source: Orange

Abstract:

Discussion paper on Measurement Uncertainty and Test Tolerance

Discussion:

Proposals:

- It is proposed not apply the shared risk principle

- It is proposed to adopt a minimal Test Tolerance for the UE OTA performance testing in 5G

RAN chair: has RAN5 discussed this

RAN5 chair: no, not yet

Telecom Italia: RAN4 and RAN5 should look at this

RAN5 chair: we will work closely with RAN4 and follow the principles we established in the past

Qualcomm: if "shared risk principle" is not applied, what else?

Orange: something in between 0dB and 50:50

Telecom Italia: shared risk is what we have from RAN4, if we add test tolerance then we do not have shared risk anymore; so what we currently have is not "shared risk"

Intel: RAN4 spent a lot time on this and the principle is based on test equipment manufacturers and operators; RAN4 gave this responsibility now to RAN5 so an input to RAN5 would be better

conclusion: Orange is invited to bring this Tdoc up in RAN5

Decision: The document was **noted**.

RP-180232 **Consideration on Supporting UDC in NR**
Source: CATT, MediaTek

Discussion:

compare ongoing REL-15 WI LTE_UDC-Core; moved from AI 9.1.2 to AI 9.2.1

Proposal 1: supporting DEFLATE based UDC in NR, i.e. reuse LTE UDC algorithm and all specifications with adjustment for NR.

Proposal 2: RAN2 can analyze how to support UDC in NR in Rel-15. If possible, corresponding CRs should be submitted in June.

Deutsche Telekom: additional load intended for RAN2?

CATT: change is rather simple and we can bring a CR

LG: does not agree that this is simple, new formats introduced etc.; UDC useful for voice but not really needed for REL-15

CMCC: supports CATT

Deutsche Telekom: input can be provided to REL-16

Ericsson: main gain is coming from compression of header and we have this in NR already, gain from compressing content goes down if content is encrypted so considers this as an optimization

Qualcomm: too late for REL-15, would also take a lot of processing power

RAN chair: it seems NR voice works without it in REL-15, so it seems to be an optimization and can be brought up for REL-16

Decision: The document was **noted**.

RP-180349 **UDC Support in NR and NG-RAN**
Source: MediaTek (Wuhan) Inc.

Decision: The document was **not treated**.

RP-180301 **Status Report of WI on New Radio Access Technology; rapporteur: NTT DOCOMO**
Source: RAN1

Discussion:

MCC: late submission, Perf. part completion level missing

Decision: The document was **revised to RP-180483**.

RP-180483 **Status Report of WI on New Radio Access Technology; rapporteur: NTT DOCOMO**
Source: RAN1

(Replaces RP-180301)

Discussion:

MCC: late submission

RAN4 chair: TUs for Perf. part is not indicating enough

Decision: The document was **revised to RP-180538**.

RP-180538 **Status Report of WI on New Radio Access Technology; rapporteur: NTT DOCOMO**
Source: RAN1

(Replaces RP-180483)

Discussion:

conclusion: approved: Core: 85%, June 18; Perf.: 0%, Dec.18

Decision: The document was **noted**.

RP-180458 **On L2 measurements in NR**
Source: Ericsson

Decision: The document was **withdrawn**.

RP-180302 **Revision of WI: New Radio Access Technology**
Source: NTT DOCOMO, INC.

Abstract:

last approved WID: RP-172834

Decision: The document was **revised to RP-180481**.

RP-180481 **Revision of WI: New Radio Access Technology**
Source: NTT DOCOMO, INC.

(Replaces RP-180302)

Decision: The document was **revised to RP-180536**.

RP-180536 **Revision of WI: New Radio Access Technology**
Source: NTT DOCOMO, INC.

(Replaces RP-180481)

Decision: The document was **approved**.

9.2.1.1 NR related CRpacks/CRs

RP-180200 **CRs to 38.2xx NR specs capturing the Jan18 ad-hoc & RAN1#92 agreements**
Source: RAN1

Decision: The document was **approved**.

RP-180201 **CRs to 36.213/36.214 related to LTE NR coexistence**
Source: RAN1

Decision: The document was **approved**.

RP-180440 **NR related CRs**
Source: RAN2

Decision: The document was **approved**.

RP-180468 **RAN3 NR related CRs**
Source: RAN3

Discussion:

MCC: related company CR in RP-180493 to replace R3-181580 of RP-180468;

conclusion: Finally RP-180468 was approved

Decision: The document was **approved**.

RP-180429 **Discussion on securing SRBs with no DRBs**
Source: Nokia, Nokia Shanghai Bell

Abstract:

related to company CR RP-180431

Decision: The document was **revised to RP-180495**.

RP-180495 **Discussion on securing SRBs with no DRBs**
Source: Nokia, Nokia Shanghai Bell, Softbank, Samsung

(Replaces RP-180429)

Discussion:

Deutsche Telekom: supports the Nokia proposal, we must correct it esp. if we cannot correct it in the future

Ericsson: there are ways to correct this

Nokia: yes, for SRB1 but for SRB2 there is no other choice

Samsung: supports Nokia change to avoid non-backward compatible changes in the future

Ericsson: reference to SRB2 is not a strong case

Samsung: without the Nokia CR, it would lead to restrictions of SRB2 usage

CATT: benefit of using SRB2 instead of SRB1 for security?

Nokia: this is one scenario where it is important (there may be other scenarios)

Mediatek: supports the CR from Nokia

Huawei: in general we are fine with the Nokia CR but there is one aspect (context) we want to check a bit further during this week

Decision: The document was **noted**.

RP-180431 **Correction on DRB to be optional**
38.473 CR-0013 Cat: F (Rel-15) v15.0.0
Source: Nokia, Nokia Shanghai Bell

Abstract:

company contribution; this CR was not submitted to RAN3, motivation of the CR is explained in RP-180429

Discussion:

conclusion: withdrawn, see RP-180493 instead

Decision: The document was **withdrawn**.

RP-180493 **Introduction of EN-DC for NSA NR (baseline CR) plus making DRB optional**
38.473 CR-0001 rev 3 Cat: B (Rel-15) v15.0.0
Source: Nokia, Nokia Shanghai Bell, Softbank, Samsung

Abstract:

company CR to RAN3 TS 38.473; this CR is revising R3-181580 agreed by RAN3 (see RP-180468) making DRB optional (which was discussed in RAN3 in pCR R3-181516);

Discussion:

related to RP-180468

Ericsson: on the need to change something now; we are hoping that no backwards incompatible changes are coming up but we will probably see some next time so the urgency for doing the change now is not clear;

Telecom Italia: prefers to solve this at RAN #79

Ericsson: will put arguments together in RP-180509

Deutsche Telekom: please address there also the security aspects mentioned by Nokia

conclusion: finally after offline discussion and conclusion of RP-180535 the CR was not approved but LS RP-180590 was sent

Decision: The document was **rejected**.

RP-180509 **Clarification on securing SRBs**
Source: Ericsson

Abstract:

views regarding RP-180493

Decision: The document was **not treated**.

RP-180535 Way forward on secured signalling only connection

Source: Nokia, Nokia Shanghai Bell

Discussion:

Proposal: It is proposed to agree on the following way forward. Plenary should either

approve the CR proposal RP-180493

OR

RAN Plenary should confirm:

- The requirement to support secured signaling only connection in Rel-15
- Task RAN3 to decide on the solution by June plenary
- Explicitly allow non-backwards compatible change for this issue (i.e. backwards compatibility shall not be a criterion when selecting the best solution)

Huawei: LS from RAN would be needed if RAN3 has to solve it (there is no clear use case defined)

Vodafone: "SRB bearer can be opened in a secure way" is the question? We had problems with securing messages in the past

Deutsche Telekom: supports Vodafone; supports company CR from Nokia

Mediatek: there is work in SA2 ongoing on NB-IOT using S1, seems to be a small thing we are discussing, for compatibility reasons should we not better do it

ZTE: supports to make it optional now to avoid backward compatibilty problems in the future

NTT DOCOMO: same view as Ericsson and Huawei, Nokia change not needed as use case unclear (there is no security problem)

RAN chair: security for signalling only connection is needed, use case to be clarified with SA2/SA3 and we can task RAN3

Huawei: both solutions are working but we need to send an LS from RAN to avoid endless RAN3 discussions

Deutsche Telekom: redirection or SRB2 are the options and for SRB2 we have a problem

Vodafone: no non-backwards compatible change for option 2 intended

Huawei: F1 interface needs to be frozen at RAN #79

Deutsche Telekom: to avoid non-backward compatible change we should do the change at RAN #79

Telecom Italia: suggests a working agreement at RAN #79 and go for Nokia's CR

conclusion: will send LS to SA2/SA3, RAN3 is tasked to solve this issue by June, non-backwards compatible change in June possible

Decision: The document was **noted**.

RP-180539 Draft LS on secured SRB-only connection (to: RAN3, SA2; cc: SA3, RAN2, SA; contact: Nokia)

Source: Nokia

Abstract:

related to RP-180535

Discussion:

Ericsson: there was no endorsement of the way forward

Nokia: asked whether to take over the way forward in the LS and this was accepted

RAN chair: there is a requirement and we want to have clarifications on the use case

Huawei: simply remove "agreement"

Decision: The document was **revised to RP-180587**.

RP-180587 **Draft LS on secured SRB-only connection (to: RAN3, SA2, SA3; cc: RAN2, SA; contact: Nokia)**
Source: Nokia

(Replaces RP-180539)

Decision: The document was **revised to RP-180590**.

RP-180590 **LS on secured signalling only connection (to: SA2, SA3, RAN3; cc: RAN2, SA; contact: Nokia)**
Source: RAN

(Replaces RP-180587)

Decision: The document was **approved**.

RP-180469 **CR on Removing data forwarding from the corresponding node for EN-DC**
Source: RAN3

Discussion:

MCC: related company CR in RP-180314 to replace R3-181246 of RP-180469;

conclusion: RP-170469 is rejected

Decision: The document was **rejected**.

RP-180314 **Removing data forwarding from the corresponding node for EN-DC**
36.423 CR-1087 rev 1 Cat: B (Rel-15) v15.0.0
Source: Ericsson, NEC

(Replaces R3-181246)

Abstract:

company contribution to correct a RAN3 agreed CR in R3-181246 (in RP-180469) that was lacking some changes;

Discussion:

moved from AI 9.2.1 to AI 9.2.1.1

Nokia: ok for us, was forgotten in RAN3 discussion

Decision: The document was **approved**.

RP-180264 **RAN4 CRs to New Radio Access Technology**
Source: RAN4

Decision: The document was **approved**.

RP-180479 **Corrections for EN-DC**
38.331 CR-0008 rev 1 Cat: F (Rel-15) v15.0.0
Source: Ericsson

Abstract:

company CR; revision of R2-1803828 (late RAN2 email discussion [101#07]

Discussion:

Ericsson: was reviewed on RAN2 reflector, CR needed for ASN.1 freeze

Decision: The document was **approved**.

RP-180491 **Miscellaneous corrections from review in preparation for ASN.1 freeze**
36.331 CR-3208 rev 3 Cat: F (Rel-15) v15.0.1
Source: Samsung (rapporteur)

Abstract:

company CR for RAN2 TS based on R2-1803829 which was endorsed too late in RAN2 to be submitted with RAN2 CRpacks

Discussion:

RAN2 chair: was reviewed on RAN2 reflector, CR is needed for the ASN.1 freeze

RAN chair: so NSA NR ASN.1 is frozen (i.e. no non-backward compatble changes* are allowed anymore for NSA NR to TS 36.331 & TS 38.331 from RAN2 and to TS 36.413, TS 36.423 and TS 38.473 from RAN3)

*: deviations from this would be possible only in exceptional cases and require RAN consensus

Decision: The document was **approved**.

9.2.1.2 NR related specifications

RP-180451 **TS 38.304 v1.0.0; NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state**
38.304 v1.0.0
Source: Qualcomm Incorporated

Abstract:

RAN2 TS 38.304 is provided for infromation

Decision: The document was **noted**.

RP-180171 **TS 38.305 v1.0.0; Stage 2 functional specification of User Equipment (UE) positioning in NG-RAN; for information**
38.305 v1.0.0
Source: Qualcomm Incorporated

Abstract:

RAN2 TS 38.305 is provided for information

Decision: The document was **noted**.

RP-180150 **TR 37.863-01-01 V1.0.0 Rel-15 DC band combination of LTE 1DL/1UL + one NR band; for information**
37.863-01-01 v1.0.0
Source: NTT DOCOMO, INC.

Abstract:

RAN4 TR 37.863-01-01 is provided for information

Decision: The document was **noted**.

RP-180156 **TR 38.813 V1.0.0 on NR; New frequency range 3.3GHz - 4.2GHz; for approval**
38.813 v1.0.0
Source: CMCC

Abstract:

RAN4 TR 38.813 is provided for 1-step approval

Decision: The document was **approved**.

RP-180334 **TR 38.814 (V1.0.0) New frequency range for NR (4.4-4.99 GHz); for information**
38.814 v1.0.0
Source: NTT DOCOMO, INC.

Abstract:

RAN4 TR 38.814 is provided for information

Decision: The document was **noted**.

RP-180332 **TR 38.817-01 (V1.0.0) General aspects for UE RF for NR; for information**
38.817-01 v1.0.0
Source: NTT DOCOMO, INC.

Abstract:

RAN4 TR 38.817-01 is provided for information

Decision: The document was **noted**.

RP-180338 **TR 38.818 v1.0.0 on General aspects for RRM and demodulation for NR; for information**
38.818 v1.0.0
Source: NTT DOCOMO, INC.

Abstract:

RAN4 TR 38.818 is provided for information

Discussion:

RAN4 chair: RAN4 still discussing whether TR is needed

RAN4 vice-chairman (NTT DOCOMO): at the moment the TR is a skeleton TR, RAN4 will discuss in April whether the TR should be withdrawn and we work directly on the TS

Decision: The document was **withdrawn**.

9.2.2 Core part: Separation of CP and UP for Split Option 2 of NR [New WI: RAN3 WI: NR_CPUP_Split-Core]

RP-180325 **Status report of WI Core part: Separation of CP and UP for split option 2 of NR; rapporteur: Ericsson**
Source: RAN3

Discussion:

Huawei: TUs need still some discussion

RAN3 chair: will discuss this in the context of the overall TU budget discussions of all RAN WIs/SIs

conclusion: approved: Core: 30%, June 18

Decision: The document was **noted**.

RP-180326 **Revised WID on Separation of CP and UP for Split Option 2 of NR**
Source: Ericsson

Abstract:

last approved WID: RP-172831; editorial update to add UID and allocated Spec #s, clarification of split option 2;

Decision: The document was **approved**.

9.3 Open REL-15 New Radio SIs

9.3.1 Study on NR to support non-terrestrial networks [RAN SI: FS_NR_nonterr_nw]

RP-180036 **LS on 3GPP TR38.811 Chapter 6 skeleton (R1-1803444; to: RAN; cc: -; contact: Thales)**
Source: RAN1

Abstract:

RAN action requested (TR 38.811 is under RAN control)

Discussion:

conclusion: RAN approved to include this text into TR 38.811

Decision: The document was **noted**.

RP-180135 **Non Terrestrial Networks update on spectrum S band Geosynchronous Equatorial Orbit**
38.811 v0.3.0
Source: HUGHES Network Systems Ltd, Thales, Dish Network

Abstract:

The objective of this document is to add further background on how the S Band spectrum may be used internationally, and its applicability to how the spectrum may be used for NR operating via satellite and in a terrestrial environment.

Decision: The document was **approved**.

RP-180177 **NR-NTN: NR impact area identification, Phase Noise, and PTRS Design**
38.811 v0.3.0
Source: Fraunhofer IIS

Decision: The document was **withdrawn**.

RP-180179 **NR-NTN: update on Link budget analysis**
38.811 v0.3.0
Source: THALES

Abstract:

The link budget analysis in the annex has been completed for all deployment scenarios

Discussion:

Ericsson: we have a RAN SI to look at the channel model, worried that this is not covered by the SID and no WG has looked at it

Thales: we were asked by delegates to provide this and this is an informative annex

RAN chair: can we include it with the addition that the Annex is informative?

Ericsson: if we make it a 3GPP Tdoc it looks like 3GPP has reviewed it

Qualcomm: SI in informative anyway

Hughes: as satellite operator: the text is correct

Huawei: prefers that RAN1 looks at it to check it

Dish: satellite operators have checked it and they are here as well; if there is a problem we can still can correct this

Ericsson: problem was that it is not in the scope of the SI to analyse the performance

Fraunhofer: we looked in the document are ok with it, we think it is part of the SI to look at NR impacts

LG: supports Ericsson

Decision: The document was **rejected**.

RP-180180 **NR-NTN editorial changes to TR 38.811 v0.3.0**
38.811 v0.3.0
Source: THALES

Abstract:

editorial corrections to the TR 38.811

Decision: The document was **approved**.

RP-180183 **NR-NTN update on spectrum_L band GEO S band HAPS**
38.811 v0.3.0
Source: THALES

Discussion:

Huawei: have the bands been checked with RAN4

Ericsson: supposed to become satellite bands?

Hughes: they are already defined in ITU

Hughes: worried about coexistence in L-Band, so RAN4 should look at it

Thales: this is already in use

RAN chair: so not rasing new coexistence aspects

Decision: The document was **postponed**.

RP-180542 **Draft LS on coexistence L band and 28GHz band spectrum for Satellite services (to: RAN4; cc: -; contact: Thales)**
Source: Thales

Abstract:

related to RP-180183

Decision: The document was **withdrawn**.

RP-180184 **NR-NTN update on spectrum_Ka band HAPS**
38.811 v0.3.0
Source: THALES

Discussion:

Thales: information is coming ITU

Ericsson: same coexistence problem

RAN chair: so also 28GHz band should be covered by LSout RP-180542

Huawei: the band is also for NR and if we approve the pCR we would already decide before RAN WGs can do coexistence study

Thales: we could add a note that if there are coexistence issues that this would be further studied

Huawei: IMT and satellite are different services and putting this in the TR can cause confusion

Hughes: these frequencies are used already for satellite

RAN chair: the point is that we talk here about satellite over NR which seems to be a sensitive issue, so let's unapprove RP-180183 and RP-180184 and give RAN4 a chance to look at it, we can then see the status in June

Decision: The document was **postponed**.

RP-180333 **NR-NTN: NR impact area identification, initial downlink synchronisation**
38.811 v0.3.0
Source: THALES

Abstract:

The objective of this document is to identify any key impact regarding initial down link synchronization on the New Radio interface that may need further evaluations.

Discussion:

conclusion: 60kHz SCS from cellular columm, remove reference

Decision: The document was **revised to RP-180543**.

RP-180543 **NR-NTN: NR impact area identification, initial downlink synchronisation**
38.811 v0.3.0
Source: THALES

(Replaces RP-180333)

Discussion:

conclusion: approved unseen

Decision: The document was **approved**.

RP-180185 **NR-NTN Channel Modeling – Progress status**
38.811 v..
Source: THALES

Decision: The document was **noted**.

RP-180204 **Additional Use Cases for HAPS**
38.811 v..
Source: Facebook

Discussion:

MCC: Tdoc uses wrong Tdoc type discussion instead of pCR

Thales: suggests another round of discussions

Qualcomm: there are some aerial use cases in this which are not in the scope of the SI

Ericssson: yes, this would a SID update

Huawei: 6GHz for backhaul is a licensed band and should be checked by RAN4

Decision: The document was **noted**.

RP-180170 **Status Report of SID NR support Non-Terrestrial networks**
38.811 v..
Source: THALES

Abstract:

SI FS_NR_nonterr_nw is led by RAN

Discussion:

MCC: % complete was at 40% after RAN #78, so is this the status before RAN #79 or afterwards?

Decision: The document was **revised to RP-180544**.

RP-180544 **Status Report of SID NR support Non-Terrestrial networks**
38.811 v..
Source: THALES

(Replaces RP-180170)

Discussion:

Thales: 45% complete

Qualcomm: need to take part also in TU discussion

Vodafone: half of the NR bands seem to be included now in the TR which seem to be strange

RAN chair: not so far, RAN4 to check

Vodafone: we need to understand in which direction we plan to go

Ericsson: reference to ITU documents would be better than adding the bands to a 3GPP document

Orange: supports Ericsson's comment

Thales: there was a strong interest of people to know which bands could be used for NR over satellite

RAN chair: the topic is a bit sensitive as people who do not know what a TR means for 3GPP may misunderstand listed bands as 3GPP decision

Huawei: as we have the referencing proposal, can we withdraw LSout RP-180542 then?

RAN chair: suggests to have an offline discussion and then come back to see whether the LS is needed or can be withdrawn

conclusion: approved: 45%, June 18

Decision: The document was **noted**.

RP-180545 **TR 38.811 v0.4.0 including RAN #79 agreements**
38.811 v0.4.0
Source: Thales

Discussion:

conclusion: agreed unseen

Decision: The document was **agreed**.

9.3.2 Study on self-evaluation towards IMT-2020 submission [RAN SI: FS_5G_eval]

This agenda item was chaired by ITU-R AH convener Mr. Giovanni Romano (Telecom Italia)

RP-180039 **LS on Summary of email discussion "[ITU-R AH 01] Calibration for self-evaluation" (RT-180007; to: RAN, RAN1, RAN2, RAN4; cc: -; contact: Huawei)**
Source: 3GPP RAN ITU-R Ad Hoc

Abstract:

no explicit RAN action requested

Discussion:

conclusion: LS is superseded by RP-180496 since the attachment RT-180006 of LS RT-180007 (=RP-180039) needs to be updated

Decision: The document was **noted**.

RP-180496 **LS on Summary of email discussion "[ITU-R AH 01] Calibration for self-evaluation" (RT-180011; to: RAN, RAN1, RAN2, RAN4; cc: -; contact: Huawei)**
Source: 3GPP RAN ITU-R Ad Hoc

Abstract:

superseding RP-180039; no explicit RAN action requested

Discussion:

Huawei: late comment from Cewit which is not yet included

ITU-R AH convener: requests that delegates stick to the deadlines;

Qualcomm: sending to ITU-R a reference to this summary or attaching it

ITU-R AH convener: we can discuss offline what is best (if reference, then we need to allocate another RP Tdoc to reference an official RAN Tdoc and to include Cewit's late comment); the LSout will be in RP-180520

conclusion: Huawei requested to prepare a pCR for June (will include Cewit comment); no LS answer to ITU-R AH

Decision: The document was **noted**.

RP-180524 **Summary of calibration results for IMT-2020 self-evaluation**
Source: Huawei

Decision: The document was **approved**.

RP-180404 **Text proposal to TR 37.910**
37.910 v0.0.1
Source: Huawei, Ericsson, Telecom Italia

Abstract:

text proposal on the calibrations of evaluations

Discussion:

ITU-R AH convener: late Cewit comment requires an update of this pCR?

Huawei: yes

Decision: The document was **revised to RP-180522**.

RP-180522 **Text proposal to TR 37.910**
37.910 v0.0.1
Source: Huawei, Ericsson, Telecom Italia

(Replaces RP-180404)

Discussion:

conclusion: approved unseen

Decision: The document was **approved**.

RP-180523 **TR 37.910 v0.1.0 including RAN #79 agreements**
37.910 v0.1.0
Source: Huawei

Decision: The document was **agreed**.

RP-180403 **Status report for SI: Study on Self-Evaluation towards IMT-2020 submission; rapporteur: Huawei**
Source: Huawei

Abstract:

SI FS_5G_eval is led by RAN

Discussion:

MCC: % complete was 15% after RAN #78, so this is the status report after RAN #79

conclusion: approved: 25%, June 18

Decision: The document was **noted**.

9.3.3 Study on NR-based access to unlicensed spectrum [RAN1 SI: FS_NR_unlic]

RP-180216 **Status report for SI Study on NR-based access to unlicensed spectrum; rapporteur: Qualcomm**
Source: RAN1

Discussion:

conclusion: approved: 10%, June 18

Decision: The document was **noted**.

RP-180454 **Discussion on work on NR-U**
Source: Qualcomm Europe Inc.(France)

Discussion:

Telecom Italia: we should focus on LAA in the beginning

T-Mobile: yes, some prioritization needed

Qualcomm: would prefer to respect RAN1 decision and continue with existing scope

CalbleLabs, Samsung: support Qualcomm

RAN chair: prioritization will usually come when going from SI to WI, so let RAN1 work on it for the moment

Sprint: we would also prefer a prioritization

Ericsson: suggests to continue SI with current scope

Decision: The document was **noted**.

9.3.4 Study on Non-Orthogonal Multiple Access (NOMA) for NR [RAN1 SI: FS_NR_NOMA]

RP-180138 **Status Report of Study on 5G Non-Orthogonal Multiple Access; rapporteur: ZTE**
Source: RAN1

Discussion:

conclusion: approved: 0%, June 18

Decision: The document was **noted**.

RP-180139 **Skeleton of Study on 5G Non-Orthogonal Multiple Access**
Source: ZTE

Decision: The document was **withdrawn**.

9.3.5 Study on integrated access and backhaul for NR [RAN2 SI: FS_NR_IAB]

RP-180153 **Status report for SI on integrated access and backhaul for NR; rapporteur: KDDI**
Source: KDDI Corporation

Abstract:

see RP-180161 instead

Decision: The document was **withdrawn**.

RP-180161 **Status report for SI on integrated access and backhaul for NR; rapporteur: Qualcomm Incorporated**
Source: RAN2

Discussion:

MCC: late submission

conclusion: approved: 20%, June 18

Decision: The document was **noted**.

RP-180336 **Integrated Access Back-haul SI completion**
Source: Reliance Jio

Discussion:

Proposal 1 – Reprioritize the IAB Study Item closure in Release 15 and the WI discussions be started for Release 16 timeframe just as other release 16 items are being discussed on the "RAN_DRAFTS" reflector.

Proposal 2 – Prioritize Single Hop IAB over multi hop scenario.

Proposal 3 – LTE access over NR backhaul be studied with the same priority as NR access over NR backhaul

Vodafone: proposal 1: does it change anything? Topic has not yet really started and we have a lot of other REL-15 work.

Samsung: proposal 1 is the reality, target of the SI is REL-15; before doing multiple hops, single hop makes sense

RAN3 chair: RAN2 and RAN3 worked on this so it was not put on hold until March

Huawei: does not support proposal 2, for proposal 3 NR access has higher priority for us

RAN2 chair: scalability to multi-hop should be considered was a RAN2 agreement, also NR access is highest priority was agreed in RAN2 and we should stick to this

ZTE: multi-hop should not be deprioritized, proposal 1 is not realistic

Qualcomm: supports RAN2 chairman, proposals 2 and 3 should be discussed in WG

Decision: The document was **noted**.

9.3.6 Study on CU-DU lower layer split for New Radio [RAN3 SI: FS_NR_CU_DU_LLS]

RP-180209 **Status report of SI Study on CU-DU lower layer split for New Radio; rapporteur: NTT DOCOMO, INC.**
Source: RAN3

Discussion:

conclusion: approved: 95%, June 18

Decision: The document was **noted**.

9.3.7 Study of test methods for New Radio [RAN4 SI: FS_NR_test_methods]

RP-180235 **Status report of SI: Study on test methods for New Radio; rapporteur: Intel**
Source: RAN4

Abstract:

SI: 45%; June 18

Discussion:

MCC: target date change

conclusion: approved: 45%, June 18

Decision: The document was **noted**.

RP-180181 **TR 38.810 v2.0.0 on Study on test methods for New Radio; for approval**
38.810 v2.0.0
Source: Intel Corporation (UK) Ltd

Abstract:

RAN4 TR 38.810 is provided for approval

Discussion:

MCC: % complete of the SI (45%) does not imply that the TR is >80% complete, so RP-180181 should be just be noted

Intel: RF part is completed

MCC: as TR has to cover all parts we would just note the TR

RAN4 chair: important is that RAN5 understands that RAN5 can start work on this

RAN5 chair: understood

noted

Decision: The document was **noted**.

RP-180236 **Revision of SID: Study on test methods for New Radio**
Source: Intel Corporation

Abstract:

last approved SID: RP-171828

Discussion:

RAN chair: target date should be changed to June 18

Decision: The document was **revised to RP-180546**.

RP-180546 **Revision of SID: Study on test methods for New Radio**
Source: Intel Corporation

(Replaces RP-180236)

Decision: The document was **approved**.

9.4 Open REL-15 New Radio & LTE related SIs

9.4.1 Study on eNB(s) Architecture Evolution for E-UTRAN and NG-RAN [RAN3 SI: FS_LTE_arch_evo]

RP-180340 **Status Report for SI Study on eNB(s) Architecture Evolution for E-UTRAN and NG-RAN; rapporteur: China Unicom**
Source: RAN3

Discussion:

conclusion: approved: 100%, March 18; SI is completed

Decision: The document was **noted**.

RP-180339 **TR 37.876 V2.0.0 Study on eNB(s) Architecture Evolution for E-UTRAN and NG-RAN**
37.876 v2.0.0
Source: China Unicom

Abstract:

RAN3 TR 37.876 is provided for approval

Decision: The document was **approved**.

9.4.2 Study on evaluation methodology of new V2X use cases for LTE and NR [RAN1 SI: FS_LTE_NR_V2X_eval]

RP-180024 **LS to 3GPP on C-V2X evolution (5GAA_S-170179; to: RAN, SA; cc: SA1; contact: Intel)**
Source: 5GAA

Abstract:

no explicit RAN action requested

Discussion:

RAN chair: didn't we see that at RAN #78 already?

MCC: LS was provided to RAN #78 but not treated by RAN #78 and therefore it had to be resubmitted to RAN #79

conclusion: no reply LS from RAN to 5GAA

Decision: The document was **noted**.

RP-180035 **Reply to LS to R1-1719239 = RP-172155 on eV2X evaluation methodology (5GAA_S-180039; to: RAN1; cc: RAN, 5GAA WG2, 5GAA WG5; contact: Intel)**
Source: 5GAA WG4

Abstract:

no RAN action requested

Discussion:

Vodafone: will take this into account for email discussion until June 18

conclusion: no reply LS from RAN to 5GAA

Decision: The document was **noted**.

RP-180322 **Status report of SI: Study on evaluation methodology of new V2X use cases for LTE and NR; rapporteur: LG Electronics**
Source: RAN1

Discussion:

MCC: late submission; target date change

conclusion: approved: 30%, June 18

Decision: The document was **noted**.

9.4.3 Feasibility Study on 6 GHz for LTE and NR [New SI: RAN SI: FS_6GHz_LTE_NR]

RP-180119 **TR 37.890 V0.0.0: Feasibility Study on 6 GHz for LTE and NR in Licensed and Unlicensed Operations**

37.890 v0.0.0
Source: Ericsson

Abstract:

RAN TR 37.890 is provided here as skeleton

Decision: The document was **agreed**.

RP-180165 **TP to TR 37.890 General Regulatory Framework section**
37.890 v0.0.0
Source: Ericsson

Abstract:

This is a text proposal to TR 37.890 v0.0.0 providing content to the "General" part of Regulatory Framework section

Decision: The document was **approved**.

RP-180164 **TP to TR 37.890 Abbreviations section**
37.890 v0.0.0
Source: Ericsson

Abstract:

This is a text proposal to TR 37.890 v0.0.0 providing content to the "Abbreviations" section

Decision: The document was **approved**.

RP-180166 **TP to TR 37.890 Regulatory Aspects USA section**
37.890 v0.0.0
Source: Ericsson

Abstract:

This is a text proposal to TR 37.890 v0.0.0 providing content to the regulatory Framework "USA" section

Discussion:

Broadcom: good summary but in 4.2.1.2 it should better be clarified in first paragraph: "some companies have identified

Decision: The document was **revised to RP-180548**.

RP-180548 **TP to TR 37.890 Regulatory Aspects USA section**
37.890 v0.0.0
Source: Ericsson

(Replaces RP-180166)

Discussion:

conclusion: approved unseen

Decision: The document was **approved**.

RP-180167 **TP to TR 37.890 EU Regulatory Aspects Europe section**
37.890 v0.0.0
Source: Ericsson

Abstract:

This is a text proposal to TR 37.890 v0.0.0 providing content to the regulatory aspects "Europe/' section

Discussion:

Broadcom: more diversity in EU, we support to include this good summary

Decision: The document was **approved**.

RP-180547 **TR 37.890 v0.1.0 including RAN #79 agreements**
37.890 v0.1.0
Source: Ericsson

Discussion:

MCC: multiple versions of this Tdoc were distributed

Decision: The document was **revised to RP-180565**.

RP-180565 **TR 37.890 v0.2.0 including RAN #79 agreements**
37.890 v0.2.0
Source: Ericsson

(Replaces RP-180547)

Discussion:

conclusion: agreed unseen

Decision: The document was **agreed**.

RP-180168 **Revised SID on Feasibility Study on 6 GHz for LTE and NR in Licensed and Unlicensed Operations**
Source: Ericsson

Abstract:

last approved SID: RP-172804; providing correction to the title and additional editorial changes

Discussion:

Broadcom: what do we consider as NR in unlicensed in RAN1 and RAN2?

RAN chair: NR in unlicensed considered in this band?

Qualcomm: was discussed in RAN1 in Athens, whether we use it is still open

Decision: The document was **approved**.

RP-180169 **Status Report on Feasibility Study on 6 GHz for LTE and NR in Licensed and Unlicensed Operations**
Source: Ericsson

Abstract:

SI FS_6GHz_LTE_NR is led by RAN

Discussion:

MCC: SI was started in Dec.17; so this is the status after RAN #79;

conclusion: approved: 25%, June 18

Decision: The document was **noted**.

9.5 NR UE capabilities/IoT bits/UE categories

RP-180134 **Discussion on UE capability list**
Source: Ericsson

Decision: The document was **noted**.

RP-180449 **Way forward on NR UE mandatory/optional support for some features**
Source: Vodafone España SA

Discussion:

moved from AI 9.2.1 to AI 9.5

proposal:

- Agree the specific proposals in section 2 relating to how to handle the new features.

- Agree the proposals in section 3 that propose to re-use the process from LTE for mandatory features with capability signalling.

- Feedback from 3GPP members is requested on the basic features agreed in section 4, in particular for TDD UL/DL configuration support by the UE.

Mediatek: more a WG discussion, RAN should only focus on controversial issues

RAN chair: sounds reasonable

Qualcomm: same decisions for NSA and SA? would be useful

Vodafone: from design point of the view we should look for the same but if they are not the same we need to be able to cover this case as well

RAN chair: it seems technical work will go back to RAN1/2/4 but we will continue this topic after Monday lunch

Huawei: some guidance from RAN will still help as RAN1 spent a lot of time on this in the recent past

Decision: The document was **noted**.

RP-180488 **Views on Rel-15 UE Features List**
Source: AT&T GNS Belgium SPRL

(Replaces RP-180206)

Discussion:

Proposal:

• Technical discussions on the open issues listed in the Appendix shall continue at the working group level following RAN #79

- Features highlighted in yellow and the features with square bracket shall be discussed at the upcoming working group meetings

• RAN to progress its work in parallel

- Which features are optional or mandatory can be decided during RAN #79 at least for the features with agreed component description

Huawei: 3.1 is inline with offline discussion we had (we will not aim for this feature in June)

Qualcomm: would rather leave this decision to WG delegates

ATT: we should at least grap the "low hanging fruits" here at RAN

RAN chair: what's the plan in RAN1?

RAN1 chair: we spent ~50h on this topic, signalling work is done, no more discussion is needed for this; there are still some other ffs but would not like to spend another 50 hours on the UE feature list

Huawei: agrees with ATT's intend to reduce discussion time in RAN1 by looking at it at RAN so if operators can give feedback which features have more interest this would be helpful

NTT DOCOMO (WI rapporteur): we do not discuss optional features in RAN1, we can discuss mandatory features and put them in [ ] if controversial

Vodafone: we could give guidance to RAN1 which features do not need to be discussed in RAN1 as decision is already made

RAN chair: suggests Monday afternoon coffee break offline discussion on REL-15 UE feature list as discussion does not seem to converge so far

Decision: The document was **noted**.

RP-180510 **Summary of offline discussion on NR UE features**
Source: NTT DOCOMO

Discussion:

conclusion: further offline discussion in Tue morning coffee break on this

Decision: The document was **noted**.

RP-180537 **Way forward on mandating support of DL 4-layer MIMO**
Source: China Unicom, Huawei, HiSilicon, Deutsche Telekom, Sprint, Telecom Italia, Orange, Telia Company, Telefonica, Telstra, BT, NTT DOCOMO

Abstract:

related to RP-180510

Decision: The document was **not treated**.

RP-180042 **LS on NR UE feature list (R1-1803480; to: RAN, RAN2, RAN4; cc: RAN3; contact: NTT DOCOMO)**
Source: RAN1

Abstract:

no explicit RAN action requested

Discussion:

conclusion: draft response LSout in RP-180550

Decision: The document was **noted**.

RP-180217 **NR UE Features and Capabilities**
Source: Qualcomm Finland RFFE Oy

Decision: The document was **not treated**.

RP-180315 **IoT Bits for System Parameters**
Source: Qualcomm Incorporated

Abstract:

In this paper we are proposing the introduction of IoT bits for channel bandwidths and supported SCS

Discussion:

Proposal 1. Introduce IoT bits for all channel bandwidths in FR1 and FR2.

Proposal 2. Introduce IoT bits for mandatory SCS for FR1 and FR2.

Proposal 3. Introduce IoT bits for PI/2 BPSK if it is mandatory.

Qualcomm: presented it in RAN4 and got the request that this is a RAN decision

Orange: everything will become an IOT bit which will be in contradiction with previous agreement

Dish: same procedure as for LTE (2 infrastructure verndors), will this apply also to future REL?

Qualcomm: yes, 2 vendors

Vodafone: we are oversimlifying the discussion a bit, we have RAN4 requirements and RAN5 which will test; why would a BS work differently for a bandwidth or a SCS?

Qualcomm: not easy to know this at the moment, but RAN5 does limited testing for this

Huawei: if UE does not support an SCS how will the system know this? via IOT?

Samsung: too many configuration

OPPO: supports Qualcomm and Samsung

RAN chair: can we endorse the Tdoc with the clarification that this will not affect what is decided to be mandatory and which SCS we consider?

Deutsche Telekom: assumes that it is clear that if 2 infrastructure vendors support a feature, the IOT bit will be set to one; assumes that most of the features will be set to 1 soon

Qualcomm: a UE vendor has to support features for which IOT is set to 1 in the standard in order to be standard compliant

Orange: concerned: for SCS: if only one SCS is supported, the UE may not connect to the network

RAN chair: how time critical is this problem?

Qualcomm: depends on the signalling and we have an ASN.1 freeze

Vodafone: we want to avoid the wait 2 years until the bit is set to 1 and then someone starts to implement it; if I have only one vendor in my network, would I have to wait forever until a 2nd vendor will implement the feature

Ericsson: IOT bits we can still add them later on; there are already some signalling requests; future compatibility mechanisms to be looked at

RAN chair: it is clear that we need to address this topic, suggests to have an IOT bit mechanism and discuss further (until June) how can this be defined and to make sure that we limit the number of IOT bits somehow

RAN chair: proposal: agree to the bits and then set the bits in June

Orange: would like to discuss this first in RAN4 so that there is some guidance

Vodafone: IOT is the question and email discussion will not work; we can set IOT bit to 1 and when there is a problem the IOT bit could be set to false and the UE would use LTE (we are in NSA NR)

RAN chair: not yet convinced that this will work but suggests further offline discussion

Nokia: also ASN.1 for IOT bits have to be brought in June

Huawei: but RAN2 will not work on the ASN.1 for IOT

Nokia: yes, but a company input checked via RAN2 reflector would be recommended

conclusion: we will have a mechanism like this, companies are invited to discuss until June how the mechanism should look like in detail (also ASN.1 for IOT should be brought)

Decision: The document was **noted**.

RP-180377 **Views on NR UE capabilities**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180343 **Summary of Email Discussion on NR UE Category**
Source: MediaTek (Wuhan) Inc.

Discussion:

moved from AI 9.2.1 to AI 9.5

Proposal: No decision on NR UE Category in RAN#79

RAN chair: seems more time needed to converge on UE categories

Deutsche Telekom: same view as T-Mobile; coming back in 2-3 years?

Mediatek: 3GPP is contribution driven, people can bring inputs later

Decision: The document was **noted**.

RP-180162 **NR UE categories**
Source: Qualcomm Incorporated

Discussion:

Proposal 1: UE category for marketing purposes should reflect the best achievable data rate among the operation modes supported by the UE (NR standalone, NSA, LTE standalone)

Observation 1: Existing LTE UE categories that are recently introduced require calculation of peak data rate.

Observation 2: It is not practical to introduce a UE category for each single combination of UE capabilities a 5G UE may support.

Proposal 2: RAN to confirm that the UE implementation does not have to conform to any of NR categories to be defined.

Proposal 3: (Alternative to proposal 2) RAN to consider defining a way to calculate the peak data rate for marketing purposes.

Telecom Italia: we need to give some guidance on the technical characteristics for each UE cat.

Vodafone: we decided that UE cat. are for marketing so we do not need to go down to each technical characteristic

Decision: The document was **noted**.

RP-180252 **Proposal to define 5G UE categories**
Source: Telecom Italia S.p.A.

Discussion:

Proposal 1: Define 5G UE categories being able to provide the overall performance capabilities of the device.

Proposal 2: Define UE categories on the basis of the main use case addressed by the device.

Proposal 2bis: Define three 5G UE categories: 5G_MBB; 5G_MTC; 5G_uRLLC

Proposal 2ter: Define different KPIs for the different categories. For example, peak data rate for 5G_eMBB

Vodafone: for non-consumer but industrial market we do not need the characteristics

Telecom Italia: we had cat.0 and M to avoid that these devices are used for other purposes

Deutsche Telekom: concerned to differentiate MBB, MTC and URLLC as UE may apply to multiple cases

Telecom Italia: a chance to agree on proposal 1 for 5G UE cat. instead of RAT specific categories?

Decision: The document was **noted**.

RP-180355 **NR UE Category definition**
Source: Vodafone Telekomünikasyon A.S.

Discussion:

Proposal 1: To confirm that UE categories will be defined for NR.

Proposal 2: Agree on the NR UE categories as [indicated].

T-Mobile: there are more parameters to distinguish phones

Deutsche Telekom: list is too granular, and yes data rate is not the key parameter

Telecom Italia: still things it is useful for the customer to know the category

RAN chair: does not see real additional proposals compared to previous agreements

Deutsche Telekom: did we agree to have UE categories, thinks we agreed "if we define categories, they are for marketing purposes"

Mediatek: suggests Telecom Italia as email discussion rapporteur as this gets more operator driven

Telecom Italia: ok

conclusion: we will continue the email discussion until RAN #80 (rapporteur: Telecom Italia

Decision: The document was **noted**.

RP-180206 **Views on Rel-15 UE Features List**
Source: AT&T GNS Belgium SPRL

Abstract:

This contribution proposes that RAN needs to clearly identify features as mandatory or optional (with signaling indication) at this Plenary, toward the timely completion of R'15 NR specs in order to enable implementation and deployment of the R'15 5G system.

Decision: The document was **revised to RP-180488**.

RP-180549 **RAN1 aspects of NR UE feature list**
Source: NTT DOCOMO

Discussion:

Ericsson: remove the colours

Decision: The document was **revised to RP-180595**.

RP-180595 **RAN1 aspects of NR UE feature list**
Source: NTT DOCOMO

(Replaces RP-180549)

Decision: The document was **endorsed**.

RP-180550 **Draft LS on NR UE feature list (to: RAN1, RAN2, RAN4; cc: RAN3; contact: NTT DOCOMO)**
Source: NTT DOCOMO

Abstract:

related to RP-180549 and RP-180042

Discussion:

RAN chair: intention is to attach RP-180595

Decision: The document was **revised to RP-180596**.

RP-180596 **LS on NR UE feature list (to: RAN1, RAN2, RAN4; cc: RAN3; contact: NTT DOCOMO)**
Source: NTT DOCOMO

(Replaces RP-180550)

Decision: The document was **approved**.

RP-180360 **On the progress of pi/2 BPSK with spectrum shaping**
Source: IITH, CEWIT, IITM, Tejas Networks, Reliance Jio

Discussion:

moved from AI 15 to AI 9.5

Decision: The document was **withdrawn**.

RP-180582 **Way forward for pi/2 BPSK**
Source: RAN4 chairman

Abstract:

related to RP-180510 and RP-180360

Discussion:

proposal:

- It is agreed to change the name of feature 1-6 to“pi/2 BPSK with spectrum shaping for PUSCH”

- It is agreed to change the name of feature 1-7 to “pi/2 BPSK with spectrum shaping for PUCCH format ¾”

- RAN4 will not define the spectrum shaping filter and spectrum shaping filter coefficients in RAN4 specifications

- RAN4 will continue discuss the minimum performance requirements for pi/2 BPSK for PUSCH and pi/2 BPSK for PUCCH format ¾ with spectrum shaping

- RAN4 agreed to define the same minimum requirements for pi/2 BPSK for PUSCH and PUCCH with and without spectrum shaping filter for FR2

- The performance requirements are to define the boundary conditions to the filter implementation

- RAN4 will continue discuss the mandatory or optional for pi/2 BPSK with spectrum shaping for PUSCH and pi/2 BPSK with spectrum shaping for PUCCH format ¾

- RAN4 agreed the pi/2 BPSK for PUSCH and pi/2 BPSK for PUCCH format ¾ for FR1 is optional in RAN4 #86

Mediatek, Intel: some proposals are contradicting with what we agreed in RAN4

IITH: had an input, discussion took not yet place; first 2 bullets are ok for us;

we would like to make pi/2 BPSK mandatory for for PUSCH and PUCCH

Nokia: RAN4 is beyond the point of overload so we should limit the discussion to FR2

RAN chair: any views on making pi/2 BPSK mandatory for for PUSCH and PUCCH?

Intel: optional for FR1 and tbd for FR2 was the RAN4 decision; not clear why to make this mandatory

Ericsson: suggest to have the technical discussion in RAN4, we are fine with the way forward and if someone wants to reopen "optional for FR1" please bring inputs to RAN4

IITH: pi/2 BPSK for FR1 was supported by over 20 companies for over a year, only 1 company had concerns, so we are reverting this now as well

Nokia: argument for making a feature mandatory was initial access or forward compatibility but we did not see a corresponding justification, if the feature is beneficial it will be implemented anyway also if it is optional

Mediatek: current status allows to continue discussion in RAN4 so there is no need to decide about mandatory/optional today

RAN4 chair: agrees, we can take this up in RAN4 and take a decision in June

RAN4 chair: current RAN4 design principles stay?

RAN chair: yes

RAN4 chair: clarifies that spectum shaping terminology is not about a specific filtering or implementation

conclusion: topic will be discussed in RAN4, decision about mandatory/optional for pi/2 BPSK will be taken at RAN #80 in June

Decision: The document was **noted**.

RP-180438 **Discussion on UE capability signaling optimization scheme for NR SA**
Source: Intel Corporation

Discussion:

moved from AI 9.2.1 to AI 9.5

Proposal: Bring to the attention of SA plenary that RAN (or RAN2) is discussing mechanisms for optimization of the UE capability information size for Rel-15 that may also have system-level impacts.

RAN chair: intention to send an LS?

Intel: yes

Nokia: bit late for the proposal?

Intel: is for NR SA

Mediatek: supports to improve the signalling as we will have a lot of capabilities and TSG SA should look at this

Deutsche Telekom: maybe by June we could decide the scheme

Ericsson: supports the intention, is it too late to liaise with SA/CT next quarter?

Qualcomm: rather SA2/CT1 domain so they should look at this first

RAN2 chair: RAN/SA and maybe CT affected so we need to decide the sequence of the discussion; topic will probably come back next quarter

Vodafone: supports the Intel Tdoc and we could send an LS to SA2 but they will probably also need some discussion in SA2 first

RAN chair: we are quite late in the process with this so we need a clear ownership of this topic to make sure that this is coordinated well in the short remaining time

Deutsche Telekom: will also be discussed in SA, will require a database and who will control this? GSMA?

RAN3 chair: over AS would affect RAN3

Samsung: we need to make sure that we do not start something new which will not be complete in June and we end up with nothing

Intel: will be a mechanism on top of the existing mechanism

Broadcom: may be useful to inform SA via RAN chairman's report to SA

Decision: The document was **noted**.

RP-180551 **Way forward on UE ID based capability reporting**
Source: Intel

Abstract:

related to RP-180438

Decision: The document was **withdrawn**.

RP-180585 **Draft LS on optimisation of UE capability signalling (to: SA, RAN2; cc: SA2, RAN3, CT1; contact: Deutsche Telekom, Vodafone)**
Source: Deutsche Telekom, Vodafone

Abstract:

related to RP-180438

Discussion:

Ericsson: should be discussed in RAN2 as well

Vodafone: RAN2 can look at it in parallel to SA2

Decision: The document was **revised to RP-180598**.

RP-180598 **LS on optimisation of UE capability signalling (to: SA, RAN2; cc: SA2, RAN3, CT1; contact: Deutsche Telekom, Vodafone)**
Source: RAN

(Replaces RP-180585)

Decision: The document was **approved**.

RP-180316 **60kHz SCS Support in FR1**
Source: Qualcomm Incorporated

Decision: The document was **revised to RP-180505**.

RP-180505 **60kHz SCS Support in FR1**
Source: Qualcomm Incorporated

(Replaces RP-180316)

Decision: The document was **not treated**.

RP-180576 **Way forward in mandatory support of RAN1 Supplemental UL (SUL) UE features**
Source: Huawei

Discussion:

proposals:

- RAN1 UE feature 6-17 “Supplemental uplink with different numerologies between SUL and non SUL carriers” is mandatory with capability signaling for UEs supporting SUL band combination

- RAN1 UE feature 6-18 “Supplemental uplink with dynamic switch” is mandatory with capability signaling for UEs supporting SUL band combination

Qualcomm: both should be optional, compromise was to agree on first one and make other one optional

Samsung: first bullet ok for us but 2nd bullet is not acceptable

Ericsson: wants to have an additional coupling which is not in the slides

conclusion: no consensus, will be part of RAN1 discussion

Decision: The document was **noted**.

10 LTE

NOTE: This agenda item covers REL-15 LTE WIs/SIs. But LTE UE conformance aspects are covered under AI 13 and maintenance of closed REL-8 to REL-14 WIs/SIs is covered under AI 14. Open WIs/SIs that affect LTE and Next Generation (if any) have to be covered under AI 9.

10.1 New WI/SI proposals for LTE or LTE & UMTS

NOTE: New WIs/SIs (if not spectrum/testing related) have to follow the principles of the endorsed RP-172795.

RP-180351 **Thoughts on IOT Relaying**
Source: Ericsson GmbH, Eurolab

Decision: The document was **not treated**.

10.1.1 led by RAN1

RP-180374 **Motivation for new WI on L2 UE-to-Network Relaying for IoT Devices**
Source: Huawei, Huawei Device

Discussion:

moved from AI 10.1.2 to AI 10.1.1

Decision: The document was **not treated**.

RP-180373 **New WI proposal: L2 UE-to-Network Relaying for IoT Devices**
Source: Huawei, Huawei Device, Intel, LG Electronics, Sony

Discussion:

moved from AI 10.1.2 to AI 10.1.1

Decision: The document was **not treated**.

RP-180223 **Discussion on further enhancements of uplink for LTE**
Source: China Telecomunication Corp.

Decision: The document was **not treated**.

RP-180364 **Motivation for new WI proposal on LTE uplink enhancements for WTTc**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180363 **New WI proposal: LTE uplink enhancements for WTTc**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180366 **Motivation for new WI proposal on DL MIMO efficiency enhancements for LTE TDD**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180365 **New WI proposal: DL MIMO efficiency enhancements for LTE TDD**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180368 **Motivation for new WI proposal on DL MIMO efficiency enhancements for LTE FDD**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180367 **New WI proposal: DL MIMO efficiency enhancements for LTE FDD**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180370 **Motivation for new WID proposal on Enhanced LTE Support for Aerial Vehicles**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

RP-180369 **New WID proposal: Enhanced LTE Support for Aerial Vehicles**
Source: Huawei, HiSilicon

Decision: The document was **not treated**.

10.1.2 led by RAN2

RP-180221 **Motivation for new WI on even further mobility enhancement in E-UTRAN**
Source: China Telecomunication Corp.

Abstract:

motivation for new WI proposal

Decision: The document was **not treated**.

RP-180222 **New WI: Even further mobility enhancement in E-UTRAN**
Source: China Telecomunication Corp.

Abstract:

new WI for approval; leading WG: RAN2;

Decision: The document was **not treated**.

10.1.3 led by RAN3

RP-180342 **New WI on eNB(s) Architecture Evolution for E-UTRAN and NG-RAN**
Source: China Unicom

Abstract:

new WI for LTE & NR; leading WG: RAN3

Decision: The document was **revised to RP-180531**.

RP-180531 **New WI on eNB(s) Architecture Evolution for E-UTRAN and NG-RAN**
Source: China Unicom

(Replaces RP-180342)

Abstract:

new WI for LTE & NR; leading WG: RAN3; no Perf. part

Discussion:

Ericsson: 2TUs to complete until June 18 is optimistic; suggests to come back in June with the WI proposal

Orange: a lot of commonalities with F1 so thinks that 2TUs can fit; is a follow-up WI of a completed SI

Deutsche Telekom: supports Orange, RAN3 should not spend time to discuss whether they do it but just work on it

RAN chair: RAN3 chair included TUs for this in the latest plan?

RAN3 chair: yes

Samsung: e.g. NB-IOT was not yet discussed, concerned that we can complete all the work

RAN chair: assumes that functionality is there must be supported by the split

Orange: correct

RAN chair: so we will check in June where we are

RAN3 chair: to explain: some aspects were not studied in the SI so they will come back in the WI so there is a risk to overshoot

Decision: The document was **approved**.

10.1.4 led by RAN4 (not spectrum related)

RP-180239 **Motivation for SI: Study on Advanced Receivers LTE V2X**
Source: Intel Corporation

Decision: The document was **not treated**.

RP-180238 **New SI proposal: Study on Advanced Receivers for LTE V2X**
Source: Intel Corporation, LGE

Abstract:

new SI for LTE; leading WG: RAN4

Decision: The document was **not treated**.

RP-180335 **Motivation for further performance enhancement for LTE in high speed scenario**
Source: Huawei, NTT DOCOMO, INC., HiSilicon

Decision: The document was **withdrawn**.

RP-180337 **New WID on Further performance enhancement for LTE in high speed scenario**
Source: Huawei, NTT DOCOMO, INC., HiSilicon

Abstract:

new WI for LTE; leading WG: RAN4

Decision: The document was **withdrawn**.

RP-180376 **Motivation for new WI proposal: high speed train support with LTE**
Source: Huawei, NTT DOCOMO, HiSilicon

Decision: The document was **not treated**.

RP-180375 **New WI proposal: High speed train support with LTE**
Source: Huawei, NTT DOCOMO, HiSilicon

Decision: The document was **not treated**.

RP-180437 **Motivation for WI on Low Complexity 4Rx for LTE**
Source: Qualcomm Incorporated

Decision: The document was **not treated**.

RP-180436 **New WID for LTE: Low Complexity 4Rx**
Source: Qualcomm Incorporated

Decision: The document was **not treated**.

10.1.5 led by RAN4 (spectrum related)

RP-180154 **New WID on LTE Advanced inter-band CA Rel-15 for xDL/3UL with x=3,4,5**
Source: KDDI Corporation

Abstract:

new WI for LTE; leading WG: RAN4; basket WI; WI code to be used: LTE_CA_R15_xDL3UL

Decision: The document was **revised to RP-180515**.

RP-180515 **New WID on LTE Advanced inter-band CA Rel-15 for xDL/3UL with x=3,4,5**
Source: KDDI Corporation

(Replaces RP-180154)

Abstract:

ew WI for LTE; leading WG: RAN4; basket WI; WI code to be used: LTE_CA_R15_xDL3UL

Discussion:

KDDI: fallbacks to be removed and to be included in revision of RP-180330

Decision: The document was **revised to RP-180573**.

RP-180573 **New WID on LTE Advanced inter-band CA Rel-15 for xDL/3UL with x=3,4,5**
Source: KDDI Corporation

(Replaces RP-180515)

Abstract:

ew WI for LTE; leading WG: RAN4; basket WI; WI code to be used: LTE_CA_R15_xDL3UL

Decision: The document was **approved**.

RP-180178 **New WID on addition of Power Class 1 UE to bands B31/B72 for LTE**
Source: Airbus DS SLC

Abstract:

new WI for LTE; leading WG: RAN4; WI code to be used: LTE_PC1_B31_B72; to add Power Class 1 (+31dBm) for UE operating in Europe @ 450MHz in frequency bands that are suitable for BB-PPDR operation, i.e. band 31 and band 72.

Discussion:

RAN chair: would have RAN4 time to work on this in the next 3 months?

RAN4 chair: could be done and if not, the WI can still completed a bit later

Decision: The document was **approved**.

RP-180213 **Motivation for New E-UTRA 2.4 GHz TDD Band WI**
Source: GLOBALSTAR Inc.

Abstract:

MCC: wrong Tdoc type in Tdoc request

Discussion:

CableLabs: band was approved in FCC after quite some discussion

ATT: coexistence with WIFI and Bluetooth which are very close

Globalstar: there is an out-of-band emission limit which addresses this already from a regulatory point, also guard band to channel 11 etc. considered

Broadcom: interim agreement in FCC, limitations for the channel to be clarified, Bluetooth operates on channel 12 and 13 and needs to coexist with WLAN, frequency hopping could probably not solve potential interference problems; also impact on hearing aid could be a problem; so proper coexistence study would be needed

Globalstar: situation is similar to an existing case

Broadcom: does not agree that it is similar like band 40

RAN chair: are we in general ok to go ahead with the activity in 3GPP and do we know which additional coexistence work we would need;

Samsung: if we start something, then this should be a SI; we have coexistence concerns as well

ATT: it seems it would be useful to have a RAN4 SI to document the situation and look at the coexistence

CableLabs: coexistence with Bluetooth was not really considered in FCC;

RAN chair: and Bluetooth is close to the considered band

RAN chair: suggest to draft a SI in the next 3 months and come up with a SI in June

Globalstar: prefers to have still some offline discussion at RAN #79 on this

conclusion: further offline discussion, will come back to this

Decision: The document was **noted**.

RP-180212 **New WI Proposal for E-UTRA 2.4 GHz TDD Band**
Source: GLOBALSTAR Inc.

Abstract:

new WI for LTE; l;eading WG: RAN4; note: There is already a TDD band 41: 2,496-2,69GHz but this WI is about another range: 2,4835-2,495GHz

Decision: The document was **revised to RP-180583**.

RP-180583 **New WI Proposal for E-UTRA 2.4 GHz TDD Band**
Source: GLOBALSTAR Inc.

(Replaces RP-180212)

Abstract:

new WI for LTE; leading WG: RAN4;

Discussion:

Globalstar: a WI with a study phase

Samsung: is there a milestone for checking that study phase is completed

RAN chair: we will check the completion of the study phase in June

Broadcom: impact on other WGs?

RAN chair: WI is on RAN4 only

NTT DOCOMO (RAN4 chair): 0 TU in April but 30min in May is critical, so we will stick to these TUs and not spend more time?

RAN4 chair: time in RAN4 is really limited, so if more is needed, then this has to go offline

Broadcom: we entered this discussion because we feared there is a lack of study so does not think the study phase will be straight forward

Decision: The document was **approved**.

10.2 Open REL-15 LTE WIs (not spectrum related)

10.2.1 Shortened TTI and processing time for LTE [LTE_sTTIandPT]

RP-180324 **Status report of WI Shortened TTI and processing time for LTE; rapporteur: Ericsson**
Source: RAN1

Abstract:

note: Approval of RAN2 CRs (RP-172618) was postponed to June 18 (see RP-172755)

Discussion:

MCC: wrong target date (Dec.17) for Core part

conclusion: approved: Core: 99%, June 18; Perf.: 33%, June 18

Decision: The document was **noted**.

RP-180197 **Introduction of Shortened TTI and processing time for LTE into 36.201**
Source: RAN1

Decision: The document was **approved**.

10.2.2 Signalling reduction to enable light connection for LTE [LTE_LIGHT_CON]

RP-180048 **Status report for WI: Signalling reduction to enable light connection for LTE, rapporteur: Huawei**
Source: RAN2

Abstract:

RAN #78 put Core & Perf. part WI on hold until RAN #80

Discussion:

MCC: target date change, no target date provided for Core & Perf. part; indication to move Core & Perf. part to REL-16?

Huawei: would like to stop the WI as there is no work in SA on this

conclusion: approved: Core: 79%, March 18; Perf.: 0%, March 18; Core and Per. part stopped

Decision: The document was **noted**.

10.2.3 Further enh. to Coordinated Multi-Point (CoMP) Operation for LTE [feCOMP_LTE]

RP-180317 **Status report of WI: Further enhancements to Coordinated Multi-Point (CoMP) Operation for LTE; rapporteur: Intel Corporation**
Source: RAN1

Abstract:

compare RP-172755

Discussion:

MCC: 36.214 and 36.300 are not affected (WID will be revised), 36.306, 36.331 CRs are stable in RAN2 but not submitted yet to not interfere with NSA NR ASN.1 freeze; wrong target date for Core part in status report; target date change

conclusion: approved: Core: 99%, June 18; Perf.: 80%, June 18

Decision: The document was **noted**.

RP-180195 **Introduction of feCoMP into 36.211/36.212/36.213**
Source: RAN1

Decision: The document was **approved**.

RP-180478 **Revised WID: Further enhancements to Coordinated Multi-Point (CoMP) Operation for LTE**
Source: Intel

Abstract:

last approved WID: RP-171031

Discussion:

MCC: target date for 36.306, 36.331 needs to be corrected to June 18

Decision: The document was **revised to RP-180568**.

RP-180568 **Revised WID: Further enhancements to Coordinated Multi-Point (CoMP) Operation for LTE**
Source: Intel

(Replaces RP-180478)

Discussion:

conclusion: revision marks to be corrected

Decision: The document was **revised to RP-180584**.

RP-180584 **Revised WID: Further enhancements to Coordinated Multi-Point (CoMP) Operation for LTE**
Source: Intel

(Replaces RP-180568)

Decision: The document was **approved**.

RP-180318 **WI Summary: Further enhancements to Coordinated Multi-Point (CoMP) Operation for LTE**
Source: Intel Corporation

Discussion:

note: Core part WI is not yet completed, RAN2 CRs will be provided to RAN in June 18 (see RP-172755)

Decision: The document was **noted**.

10.2.4 Ultra Reliable Low Latency Communication for LTE [LTE_HRLLC]

RP-180125 **Status report of WI Ultra Reliable Low Latency Communication for LTE; rapporteur: Ericsson**
Source: RAN1

Discussion:

Nokia: Revisions to the scope and timescale are needed

conclusion: approved: Core: 30%, June 18; Perf.: 0%, Dec.18

Decision: The document was **noted**.

RP-180489 **Way forward for handling URLLC for LTE feature**
Source: Nokia, Nokia Shanghai Bell

Discussion:

There will be another offline discussion on this in the Wed morning coffee break

see RP-180562

Decision: The document was **not treated**.

RP-180498 **Status and scope of the URLLC for LTE WI**
Source: Ericsson

Discussion:

see RP-180562

Decision: The document was **not treated**.

RP-180514 **Way forward on completion of WI URLLC for LTE**
Source: Nokia

Discussion:

will be discussed offline on Tue morning

Decision: The document was **revised to RP-180562**.

RP-180562 **Way forward on completion of WI URLLC for LTE**
Source: Nokia

(Replaces RP-180514)

Discussion:

Nokia: there is still an LG comment on the reflector on aggregation levels that should be included

Quacomm: does not agree to add this

LG: wants to make sure that all enhancements should be treated equally and discussed in RAN1

Huawei: all 4 alternatives will be considered in the down selection; "blind repetition" should add HARQ-less, (S)PUCCH formats would favour one solution

Nokia: we could add "(if applicable)" to (S)PUCCH formats

Nokia: and we do not mention aggregation level 16?

RAN chair: correct

Huawei: 2nd priority topics should appear on RAN2 agenda as well

RAN2 chair: ok

Huawei: "valid" = meets requirements

RAN chair: RAN will not be able to verify this

conclusion:

"support blind PDSCH repetition" => "support blind HARQ-less PDSCH repetition",

"(S)PUCCH formats" => "(S)PUCCH formats (if applicable)"

add "valid for further discussion"

Decision: The document was **revised to RP-180580**.

RP-180580 **Way forward on completion of WI URLLC for LTE**
Source: Nokia

(Replaces RP-180562)

Discussion:

conclusion: was endorsed in the first place but then a typo was detected (HARQ-less was missing)

Decision: The document was **revised to RP-180586**.

RP-180586 **Way forward on completion of WI URLLC for LTE**
Source: Nokia

(Replaces RP-180580)

Decision: The document was **endorsed**.

10.2.5 V2X phase 2 based on LTE [LTE_eV2X]

RP-180047 **Status report for WI: V2X phase 2 based on LTE; rapporteur: Huawei**
Source: RAN1

Discussion:

MCC: Perf. part completion level missing (was 0% at RAN #78)

Huawei: small changes needed based on LG comments

Decision: The document was **revised to RP-180490**.

RP-180490 **Status report for WI: V2X phase 2 based on LTE; rapporteur: Huawei**
Source: RAN1

(Replaces RP-180047)

Discussion:

MCC: late request/submission

conclusion: approved: Core: 75%, June 18; Perf.: 0%, Dec.18

Decision: The document was **noted**.

10.2.6 UE Positioning Accuracy Enhancements for LTE [LCS_LTE_acc_enh]

RP-180186 **Status report of WI UE Positioning Accuracy Enhancements for LTE; rapporteur: Nokia**
Source: RAN2

Discussion:

conclusion: approved: Core: 50%, June 18; Perf.: 30%, June 18

Decision: The document was **noted**.

10.2.7 Enh. for high capacity stationary wireless link and introduction of 1024 QAM for LTE DL [LTE_1024QAM_DL]

RP-180046 **Status report for WI: Enhancements for high capacity stationary wireless link and introduction of 1024 QAM for LTE DL; rapporteur: Huawei**
Source: RAN1

Abstract:

compare RP-172755

Discussion:

MCC: approval of RAN2 CRs was postponed to RAN in June 18; RAN1 CRs to 36.211/36.212/36.213 missing?

Huawei: RAN1 CRs coming in June 18

conclusion: approved: Core: 99%, June 18; Perf.: 25%, June 18

Decision: The document was **noted**.

RP-180265 **RAN4 CRs to Enhancements for high capacity stationary wireless link and introduction of 1024 QAM for LTE DL**
Source: RAN4

Discussion:

MCC: 36.101/36.104/36.141 CRs?

Decision: The document was **approved**.

10.2.8 Enh. to LTE operation in unlicensed spectrum [LTE_unlic]

RP-180362 **Status report for WI: Enhancements to LTE operation in unlicensed spectrum; rapporteur: Nokia**
Source: RAN1

Discussion:

conclusion: approved: Core: 85%, June 18; Perf.: 0%, Dec.18

Decision: The document was **noted**.

RP-180266 **RAN4 CRs to Enhancements to LTE operation in unlicensed spectrum**
Source: RAN4

Decision: The document was **approved**.

RP-180402 **Revised WID: Enhancements to LTE operation in unlicensed spectrum**
Source: Nokia

Abstract:

last approved WID: RP-172841; corrected WI acronym, addition of the 37.XXX specs

Decision: The document was **approved**.

10.2.9 Core part: Further video enhancements for LTE [LTE_ViLTE_enh2-Core]

RP-180307 **Status report Core part: Further video enhancements for LTE; rapporteur: CMCC**
Source: RAN2

Abstract:

WID in RP-172726; compare RP-172755

Discussion:

approval of RAN2 CRs (RP-172619) was postponed at RAN #78 to June 18;

conclusion: approved: Core: 99%, June 18

Decision: The document was **noted**.

10.2.10 Core part: QoE Measurement Collection for streaming services in E-UTRAN [LTE_QMC_Streaming-Core]

RP-180210 **Status report of WI Quality of Experience (QoE) Measurement Collection for streaming services in E-UTRAN; rapporteur: China Unicom**
Source: RAN2

Abstract:

compare RP-172755

Discussion:

approval of RAN2 CRs (RP-172620) was postponed at RAN #78 to June 18;

conclusion: approved: Core: 99%, June 18

Decision: The document was **noted**.

10.2.11 Enhancing LTE CA Utilization [LTE_euCA]

RP-180044 **Status report for WI: Enhancing LTE CA Utilization; rapporteur: Nokia**
Source: RAN2

Discussion:

Huawei: status report and WID need to be updated as RAN1 has obviously some work for it

Decision: The document was **revised to RP-180512**.

RP-180512 **Status report for WI: Enhancing LTE CA Utilization; rapporteur: Nokia**
Source: RAN2

(Replaces RP-180044)

Discussion:

conclusion: approved: Core: 60%, June 18; Perf.: 0%, Dec.18

Decision: The document was **noted**.

RP-180513 **Revised WID: Enhancing LTE CA Utilization**
Source: Nokia

Discussion:

Ericsson: RAN3 specs removed but still secondary resp. WG?

Decision: The document was **revised to RP-180561**.

RP-180561 **Revised WID: Enhancing LTE CA Utilization**
Source: Nokia

(Replaces RP-180513)

Discussion:

Note: It was detected after RAN #79 that the target dates indicated in RP-180561 do not reflect the latest status (the rapporteur confirmed that the Perf. part target date is Dec.18 as approved in connection with the status report and not June 18 as shown in RP-180561).

Decision: The document was **approved**.

10.2.12 LTE connectivity to 5G-CN [LTE_5GCN_connect]

RP-180049 **Status report for WI: LTE connectivity to 5G-CN; rapporteur: Huawei**
Source: RAN2

Discussion:

conclusion: approved: Core: 30%, June 18; Perf.: 0%, June 18

Decision: The document was **noted**.

RP-180064 **Revised WID: LTE connectivity to 5G-CN**
Source: Huawei, HiSilicon

Abstract:

last approved WID: RP-172342; change of rapporteur

Decision: The document was **approved**.

10.2.13 Even further enhanced MTC for LTE [LTE_eMTC4]

RP-180124 **Status report of WI Even further enhanced MTC for LTE; rapporteur: Ericsson**
Source: RAN1

Discussion:

conclusion: approved: Core: 60%, June 18; Perf.: 0%, Dec. 18

Decision: The document was **noted**.

10.2.14 Further NB-IoT enhancements [NB_IOTenh2]

RP-180045 **Status report for WI: Further NB-IoT enhancements; rapporteur: Huawei**
Source: RAN1

Discussion:

conclusion: approved: Core: 60%, June 18; Perf.: 10%, Dec. 18

Decision: The document was **noted**.

RP-180267 **RAN4 CRs to Further NB-IoT enhancements**
Source: RAN4

Decision: The document was **approved**.

10.2.15 UE requirements for network-based CRS interf. mitigation for LTE [LTE_NW_CRS_IM]

RP-180428 **Status report for WI on UE requirements for network-based CRS interference mitigation for LTE; rapporteur: Ericsson**
Source: RAN4

Discussion:

conclusion: approved: Core: 70%, June 18; Perf.: 0%, Dec. 18

Decision: The document was **noted**.

10.2.16 Perf. part: LTE CRS-Interf. Mitigation perf. requirements for single RX chain UEs [LTE_1RX_CRS_IM-Perf]

RP-180237 **Status report of WI: Perf. part: LTE CRS-Interference Mitigation performance requirements for single RX chain UEs; rapporteur: Intel Corporation**
Source: RAN4

Discussion:

conclusion: approved: Perf.: 85%, June 18

Decision: The document was **noted**.

RP-180268 **RAN4 CRs to Perf. part: LTE CRS-Interference Mitigation performance requirements for single RX chain UE**
Source: RAN4

Decision: The document was **approved**.

10.2.17 Core part: UL data compression in LTE [LTE_UDC-Core]

RP-180230 **Status Report for WI: Core part: UL data compression in LTE; rapporteur: CATT**
Source: RAN2

Abstract:

compare RP-172755

Discussion:

MCC: wrong target date in status report; target date change; approval of RAN2 CRs (36.306, 36.323, 36.331) postponed to June 18;

conclusion: approved: Core: 99%, June 18

Decision: The document was **noted**.

RP-180231 **Summary for WI UL data compression in LTE**
Source: CATT

Decision: The document was **noted**.

10.2.18 Core part: Bluetooth/WLAN measurement collection in LTE MDT [New WI: LTE_MDT_BT_WLAN-Core]

RP-180305 **Status Report of WI Core part: Bluetooth/WLAN measurement collection in LTE Minimization of Drive Tests (MDT); rapporteur: CMCC**
Source: RAN2

Abstract:

WID in RP-172820

Discussion:

conclusion: approved: Core: 30%, June 18

Decision: The document was **noted**.

RP-180306 **Revised WID on BluetoothWLAN measurement collection in LTE Minimization of Drive Tests (MDT)**
Source: CMCC

Abstract:

last approved WID: RP-172820

Decision: The document was **approved**.

10.2.19 Core part: Enhanced LTE Support for Aerial Vehicles [New WI:LTE_Aerial-Core]

RP-180300 **Status report of WI Core part: Enhanced LTE Support for Aerial Vehicles; rapporteur: Ericsson**
Source: RAN2

Discussion:

conclusion: approved: Core: 15%, June 18

Decision: The document was **noted**.

10.2.20 Core part: Increased number of E-UTRAN data bearers [New WI: INOBEARRAN-Core]

RP-180144 **Status report for WI Core part: Increased number of E-UTRAN data bearers; rapporteur: Samsung**

Source: RAN2

Discussion:

conclusion: approved: Core: 0%, June 18

Decision: The document was **noted**.

RP-180143 **Revision of WI on Core part: Increased number of E-UTRAN data bearers**
Source: Samsung

Abstract:

last approved WID: RP-172835

Discussion:

Ericsson: RAN3 specs missing

Decision: The document was **revised to RP-180569**.

RP-180569 **Revision of WI on Core part: Increased number of E-UTRAN data bearers**
Source: Samsung

(Replaces RP-180143)

Decision: The document was **approved**.

10.2.21 UE requirements for LTE DL 8Rx antenna ports [New WI: LTE_8Rx_AP_DL]

RP-180056 **Status report for WI: UE requirements for LTE DL 8Rx antenna ports; rapporteur: Huawei**
Source: RAN4

Decision: The document was **withdrawn**.

RP-180133 **Status report for WI: UE requirements for LTE DL 8Rx antenna ports; rapporteur: Huawei**
Source: RAN4

Discussion:

MCC: % complete of Perf. part missing (was 0% at RAN #78);

Huawei: Perf. part is 0% complete

conclusion: approved: Core: 40%, June 18; Perf.: 0%, Dec.18

Decision: The document was **noted**.

RP-180269 **RAN4 CRs to UE requirements for LTE DL 8Rx antenna ports**
Source: RAN4

Decision: The document was **approved**.

10.3 Open REL-15 LTE WIs (spectrum related)

10.3.1 LTE Adv. intra-band CA Rel-15 for xDL/yUL including contiguous and non-contiguous spectrum [LTE_CA_R15_intra]

RP-180241 **Status report of WI LTE Advanced intra-band Carrier Aggregation Rel-15 for xDL/yUL including contiguous and non-contiguous spectrum; rapporteur: Ericsson**
Source: RAN4

Discussion:

conclusion: approved: Core: 67%, June 18; Perf: 67%, June 18

Decision: The document was **noted**.

RP-180270 **RAN4 CRs to LTE Advanced intra-band CA Rel-15 for xDL/yUL including contiguous and non-contiguous spectrum**
Source: RAN4

Decision: The document was **approved**.

RP-180243 **Revised WID: Rel-15 Basket WI for LTE Advanced Intra-band CA including contiguous and non-contiguous spectrum**
Source: Ericsson

Abstract:

last approved WID: RP-172410

Decision: The document was **approved**.

10.3.2 LTE Adv. inter-band CA Rel-15 for 2DL/1UL [LTE_CA_R15_2DL1UL]

RP-180251 **Status Report for Work Item LTE Advanced inter-band CA Rel-15 for 2DL/1UL; rapporteur: Qualcomm**
Source: RAN4

Discussion:

conclusion: approved: Core: 40%, June 18; Perf: 40%, June 18

Decision: The document was **noted**.

RP-180271 **RAN4 CRs to LTE Advanced inter-band CA Rel-15 for 2DL/1UL**
Source: RAN4

Decision: The document was **approved**.

RP-180253 **Revised WID on LTE Advanced inter-band CA Rel-15 for 2DL/1UL**
Source: Qualcomm India Pvt Ltd

Abstract:

last approved WID: RP-172334

Decision: The document was **revised to RP-180540**.

RP-180540 **Revised WID on LTE Advanced inter-band CA Rel-15 for 2DL/1UL**
Source: Qualcomm India Pvt Ltd

(Replaces RP-180253)

Discussion:

Qualcomm: one combination to be added and something to be removed

NTT DOCOMO: missing fallback

Decision: The document was **revised to RP-180575**.

RP-180575 **Revised WID on LTE Advanced inter-band CA Rel-15 for 2DL/1UL**
Source: Qualcomm India Pvt Ltd

(Replaces RP-180540)

Decision: The document was **approved**.

10.3.3 LTE Adv. inter-band CA Rel-15 for 3DL/1UL [LTE_CA_R15_3DL1UL]

RP-180052 **Status report for WI: LTE Advanced inter-band CA Rel-15 for 3DL/1UL; rapporteur: Huawei**
Source: RAN4

Discussion:

Huawei: one open issue to be added

Decision: The document was **revised to RP-180571**.

RP-180571 **Status report for WI: LTE Advanced inter-band CA Rel-15 for 3DL/1UL; rapporteur: Huawei**
Source: RAN4

(Replaces RP-180052)

Discussion:

conclusion: approved: Core: 65%, June 18; Perf: 65%, June 18

Decision: The document was **noted**.

RP-180272 **RAN4 CRs to LTE Advanced inter-band CA Rel-15 for 3DL/1UL**
Source: RAN4

Decision: The document was **approved**.

RP-180053 **Revised WID: LTE Advanced inter-band CA Rel-15 for 3DL/1UL**
Source: Huawei, HiSilicon

Abstract:

last approved WID: RP-172349

Discussion:

Huawei: one combination just 3 supporting companies

Decision: The document was **revised to RP-180570**.

RP-180570 **Revised WID: LTE Advanced inter-band CA Rel-15 for 3DL/1UL**
Source: Huawei, HiSilicon

(Replaces RP-180053)

Discussion:

Huawei: combination was removed

Decision: The document was **approved**.

10.3.4 LTE Adv. inter-band CA Rel-15 for 4DL/1UL [LTE_CA_R15_4DL1UL]

RP-180242 **Status report of WI LTE Advanced inter-band Carrier Aggregation Rel-15 for 4DL/1UL; rapporteur: Ericsson**
Source: RAN4

Discussion:

MCC: please use only integer values for % complete values

conclusion: approved: Core: 63%, June 18; Perf: 63%, June 18

Decision: The document was **noted**.

RP-180273 **RAN4 CRs to LTE Advanced inter-band CA Rel-15 for 4DL/1UL**
Source: RAN4

Decision: The document was **approved**.

RP-180244 **Revised WID: Rel-15 Basket WI for LTE Advanced Inter-band CA Rel-15 for 4DL/1UL**
Source: Ericsson

Abstract:

last approved WID: RP-172411

Discussion:

NTT DOCOMO: fallback missing supporting company

Decision: The document was **revised to RP-180572**.

RP-180572 **Revised WID: Rel-15 Basket WI for LTE Advanced Inter-band CA Rel-15 for 4DL/1UL**
Source: Ericsson

(Replaces RP-180244)

Discussion:

Ericsson: combination is removed

Decision: The document was **approved**.

10.3.5 LTE Adv. inter-band CA Rel-15 for 5DL/1UL [LTE_CA_R15_5DL1UL]

RP-180121 **Status Report: LTE Advanced inter-band CA Rel-15 for 5DL/1UL, Rapporteur: Nokia**
Source: RAN4

Discussion:

conclusion: approved: Core: 75%, June 18; Perf: 75%, June 18

Decision: The document was **noted**.

RP-180274 **RAN4 CRs to LTE Advanced inter-band CA Rel-15 for 5DL/1UL**
Source: RAN4

Decision: The document was **approved**.

RP-180122 **Revised WI: LTE Advanced inter-band CA Rel-15 for 5DL/1UL**
Source: Nokia

Abstract:

last approved WID: RP-172260

Decision: The document was **approved**.

10.3.6 LTE Adv. inter-band CA Rel-15 for 2DL/2UL [LTE_CA_R15_2DL2UL]

RP-180054 **Status report for WI: LTE Advanced inter-band CA Rel-15 for 2DL/2UL; rapporteur: Huawei**
Source: RAN4

Discussion:

conclusion: approved: Core: 60%, June 18; Perf: 60%, June 18

Decision: The document was **noted**.

RP-180055 **Revised WID: LTE Advanced inter-band CA Rel-15 for 2DL/2UL**
Source: Huawei, HiSilicon

Abstract:

last approved WID: RP-172351

Decision: The document was **withdrawn**.

10.3.7 LTE Adv. inter-band CA Rel-15 for xDL/2UL with x=3,4,5 [LTE_CA_R15_xDL2UL]

RP-180331 **Status report for WI: LTE-Advanced inter-band CA Rel-15 xDL/2UL with x=3,4,5**
Source: RAN4

Discussion:

conclusion: approved: Core: 80%, June 18; Perf: 80%, June 18

Decision: The document was **noted**.

RP-180275 **RAN4 CRs to LTE Advanced inter-band CA Rel-15 for xDL/2UL with x=3,4,5**
Source: RAN4

Decision: The document was **approved**.

RP-180330 **Revised WID: LTE Advanced inter-band CA rel-15 for xDL/2UL with x=3,4,5**
Source: LG Electronics

Abstract:

last approved WID: RP-172263; to add new xDL/2UL CA band combinations and updated status on each band combinations

Discussion:

NTT DOCOMO: KDDI is supporting 3UL which will have 2UL fallback combinations so this WID would need to be updated if we approve the 3UL WI from KDDI in RP-180515

conclusion: After approval of RP-180573 (revision of RP-180515) the RP-180330 has to be revised to add fallback

Decision: The document was **revised to RP-180574**.

RP-180574 **Revised WID: LTE Advanced inter-band CA rel-15 for xDL/2UL with x=3,4,5**
Source: LG Electronics

(Replaces RP-180330)

Decision: The document was **approved**.

10.3.8 LTE Adv. inter-band CA Rel-15 for xDL/1UL with x>5 [New WI: LTE_CA_R15_xDL1UL]

RP-180249 **Status Report for LTE Advanced inter-band CA Rel-15 for xDL/1UL with x>5; rapporteur: Qualcomm**
Source: RAN4

Discussion:

MCC: target date change for Perf. part (was Dec.18 before)

conclusion: approved: Core: 10%, June 18; Perf: 0%, June 18

Decision: The document was **noted**.

RP-180250 **Revised WID on LTE Advanced inter-band CA Rel-15 for xDL/1UL with x>5**
Source: Qualcomm Incorporated

Abstract:

last approved WID: RP-172839

Decision: The document was **approved**.

10.3.9 LTE Adv. inter-band CA (4DL/4UL) of Band 41C and Band 42C [LTE_CA_4DL4UL_B41_B41_B42_B42]

RP-180152 **Status report for WI: LTE Advanced Inter-band Carrier Aggregation (4DL/4UL) of Band 41C and Band 42C; rapporteur: KDDI**
Source: RAN4

Discussion:

MCC: target date change (Core and Perf. part completed 3 months earlier); why is the TR 36.715-04-04 only brought for information? (not in line with revised WID RP-180151;

conclusion: approved: Core: 100%, March 18; Perf.: 100%, March 18; Core and Perf. part WI is completed

Decision: The document was **noted**.

RP-180276 **RAN4 CRs to LTE Advanced Inter-band Carrier Aggregation (4DL/4UL) of Band 41C and Band 42C**

Source: RAN4

Decision: The document was **approved**.

RP-180160 **TR 36.715-04-04 v1.0.0 on LTE Advanced Band Carrier Aggregation (4DL/4UL) of Band 41 and Band 42; for information**

36.715-04-04 v1.0.0
Source: KDDI Corporation

Abstract:

RAN4 TR 36.715-04-04 is provided for information.

Discussion:

KDDI: work is complete

RAN chair: then we go for 1-step approval instead of for information

Decision: The document was **approved**.

RP-180151 **Revised WID on LTE Advanced Inter-band Carrier Aggregation (4DL/4UL) of Band 41C and Band 42C**

Source: KDDI Corporation

Abstract:

last approved WID: RP-172030

Discussion:

MCC: TR targets not properly covered in WID;

Decision: The document was **approved**.

10.3.10 Core part: V2X new band combinations for LTE [LTE_V2X_CA_bands-Core]

RP-180329 **Status report for WI: Core part: V2X new band combinations for LTE in REL-15; rapporteur: LG Electronics**

Source: RAN4

Discussion:

conclusion: approved: Core: 70%, June 18

Decision: The document was **noted**.

RP-180328 **Revised WID on V2X new band combinations for LTE in Rel-15**

Source: LG Electronics

Abstract:

last approved WID: RP-170944; to add new V2X concurrent band combinations

Decision: The document was **approved**.

10.3.11 Introduction of new band support for 4Rx antenna ports for LTE for REL-15 [LTE_4Rx_AP_DL_bands_R15]

RP-180051 **Status report for WI: Introduction of new band support for 4Rx antenna ports for LTE for Rel-15; rapporteur: Huawei**
Source: RAN4

Discussion:

conclusion: approved: Core: 90%, June 18; Perf.: 0%, June 18

Decision: The document was **noted**.

RP-180073 **Revised WID: Introduction of new band support for 4Rx antenna ports for LTE for Rel-15**
Source: Huawei, HiSilicon

Abstract:

last approved WID: RP-172347; to add B43 for 4Rx support

Decision: The document was **approved**.

10.3.12 Core part: LTE Advanced high power TDD UE (power class 2) for Rel-15 [LTE_TDD_HPUE_R15-Core]

RP-180057 **Status report for WI: Core part: LTE Advanced high power TDD UE (power class 2) for Rel-15; rapporteur: Huawei**
Source: RAN4

Discussion:

MCC: this WI was defined as REL-15 basket WI so it has to stay open until the end of the REL-15 and not be closed at RAN #79

conclusion: approved: 99%, June 18

Decision: The document was **noted**.

RP-180277 **RAN4 CRs to Core part: LTE Advanced high power TDD UE (power class 2) for Rel-15**
Source: RAN4

Decision: The document was **approved**.

RP-180240 **TR 36.760 v1.0.0 on LTE Advanced high power TDD UE (power class 2) for Rel-15**
36.760 v1.0.0
Source: Huawei, HiSilicon

Abstract:

RAN4 TR 36.760 is provided for 1-step approval

Decision: The document was **approved**.

10.3.13 New LTE band for 3.3-3.4 GHz for Africa [LTE_TDD_3300_Africa]

RP-180246 **Status report for WI: New LTE band for 3.3-3.4 GHz for Africa; rapporteur: Huawei**
Source: RAN4

Discussion:

conclusion: approved: Core: 100%, March 18; Perf.: 100%, March 18; Core and Perf part WI is completed

Decision: The document was **noted**.

RP-180470 **RAN3 CR on New LTE band for 3.3-3.4 GHz for Africa**
Source: RAN3

Decision: The document was **approved**.

RP-180278 **RAN4 CRs to New LTE band for 3.3-3.4 GHz for Africa**
Source: RAN4

Decision: The document was **approved**.

RP-180248 **TR 36.758 v1.0.0 TDD 3300-3400 MHz band for LTE; for 1-step approval**
36.758 v1.0.0
Source: Huawei, HiSilicon

Abstract:

RAN4 TR 36.758 is provided for 1-step approval

Decision: The document was **approved**.

RP-180247 **Revised WID: New LTE band for 3.3-3.4 GHz for Africa**
Source: Huawei, HiSilicon

Abstract:

last approved WID: RP-171759; addition of affected RAN3 specifications

Decision: The document was **approved**.

10.3.14 Additional LTE bands for UE cat. M1 and/or NB1 in Rel-15 [LTE_bands_R15_M1_NB1]

RP-180260 **Status report for Additional LTE bands for UE category M1 and/or NB1 in Rel-15**
Source: RAN4

Discussion:

conclusion: approved: Core: 99%, June 18; Perf.: 99%, June 18

Note: Perf. part CRs were brought in the past but % complete for Perf. part was forgotten to be raised.

Decision: The document was **noted**.

RP-180262 **Revised WID:Rel-15 Basket WI for LTE bands cat-M1 NB1**
Source: Ericsson

Abstract:

last approved WID: RP-172077

Decision: The document was **approved**.

10.3.15 Core part: Additional LTE bands for UE cat. M2 and/or NB2 in Rel-15 [LTE_bands_R15_M2_NB2-Core]

RP-180259 **Status report for WI Core part: Additional LTE bands for UE category M2 and/or NB2 in Rel-15**
Source: RAN4

Discussion:

conclusion: approved: Core: 99%, June 18

Decision: The document was **noted**.

RP-180261 **Revised WID: Rel-15 Basket WI for LTE bands cat-M2/NB2**
Source: Ericsson

Abstract:

last approved WID: RP-172078

Decision: The document was **approved**.

10.3.16 Extended-Band 12 new E-UTRA Band [Ext_B12_LTE]

RP-180158 **Status Report on Extended-Band12 new E-UTRA Band; rapporteur: Ericsson**
Source: RAN4

Discussion:

conclusion: approved: Core: 100%, March 18; Perf.: 100%, March 18; Core and Perf. part WI completed

Decision: The document was **noted**.

RP-180471 **RAN3 CR on Extended-Band12 new E-UTRA Band**
Source: RAN3

Decision: The document was **approved**.

RP-180279 **RAN4 CRs to Extended-Band12 new E-UTRA Band**
Source: RAN4

Decision: The document was **approved**.

RP-180157 **TR 36.761 V1.0.0 Extended-Band 12 new E-UTRA Band; for approval**
36.761 v1.0.0
Source: Ericsson

Abstract:

RAN4 TR 36.761 is provided for 1-step approval

Decision: The document was **approved**.

RP-180159 **Revised WID on Extended-Band12 new E-UTRA Band**
Source: Ericsson

Abstract:

last approved WID: RP-172625; adding the support of category M2 UE to the objectives,

Discussion:

MCC: adding this band for M2 should better be covered under WI LTE_bands_R15_M2_NB2-Core (AI 10.3.15)

Decision: The document was **approved**.

10.4 Open REL-15 LTE & UMTS WIs (not spectrum related)

10.4.1 Perf. part: Enh. of BS RF and EMC requirements for AAS [AASenh_BS_LTE_UTRA-Perf]

RP-180050 **Status report for WI Perf Part: Enhancements of Base Station (BS) RF and EMC requirements for Active Antenna System (AAS), rapporteur: Huawei**
Source: RAN4

Discussion:

conclusion: approved: Perf.: 25%, June 18

Decision: The document was **noted**.

RP-180280 **RAN4 CRs to Perf. part: Enhancements of Base Station (BS) RF and EMC requirements for Active Antenna System (AAS)**
Source: RAN4

Decision: The document was **approved**.

10.5 Open REL-15 LTE SIs

10.6 Small Technical Enh. and Improvements for REL-15 [TEI15]

RP-180447 **Small Technical Enhancements and Improvements for REL-15**
Source: RAN2

Decision: The document was **approved**.

RP-180472 **RAN3 CRs on Small Technical Enhancements and Improvements for REL-15**
Source: RAN3

Decision: The document was **approved**.

RP-180281 **RAN4 CRs to Small Technical Enhancements and Improvements for REL-15**
Source: RAN4

Decision: The document was **approved**.

10.7 Closed REL-15 LTE WIs (not spectrum related)

10.7.1 Perf. part: Perf. requirements of interf. cancellation receiver for LTE BS [LTE_IC_BS-Perf]

10.8 Closed REL-15 LTE & UMTS WIs (not spectrum related)

10.8.1 Core part: Enh. of BS RF and EMC requirements for AAS [AASenh_BS_LTE_UTRA-Core]

RP-180025 **Letter to 3GPP on revision of ERC Recommendation 74-01, on unwanted emissions in the spurious domain (CEPT ECC_WG_SE(18)032A17; to: RAN; cc: RAN4; contact: Bundesnetzagentur)**
Source: CEPT ECC WG SE

Abstract:

RAN action requested; note: REL-15 WI AASenh_BS_LTE_UTRA in on LTE/UTRA and not on NR

Discussion:

RAN4 answered this LS already in RP-180038

RAN chair: so no action for RAN

conclusion: no reply LS from RAN

Decision: The document was **noted**.

RP-180038 **Reply LS to CEPT ECC_WG_SE(18)032A17 = RP-180025 on revision of ERC Recommendation 74-01, on unwanted emissions in the spurious domain (R4-1803463; to: CEPT ECC WG SE; cc: RAN, CEPT ECC WG SE21; contact: Ericsson)**
Source: RAN4

Abstract:

no RAN action requested

Discussion:

conclusion: no LS answer from RAN to RAN4

Decision: The document was **noted**.

RP-180282 **RAN4 CRs to Core part: Enhancements of Base Station (BS) RF and EMC requirements for Active Antenna System (AAS)**
Source: RAN4

Decision: The document was **approved**.

10.9 Closed REL-15 LTE WIs (spectrum related)

10.9.1 Core part: E-UTRA 700MHz in Europe for Broadband-PPDR-Core [LTE700_Europe_PPDR-Core]

RP-180283 **RAN4 CRs to Core part: E-UTRA 700MHz in Europe for Broadband-PPDR-Core**
Source: RAN4

Decision: The document was **approved**.

10.9.2 FDD operating band in the L-band for LTE [LTE_FDD_L_Band]

10.9.3 TDD operating band in the L-band for LTE [LTE_TDD_L_Band]

10.9.4 LTE Extended 1.5 GHz SDL band (1427 - 1518 MHz) and LTE CA (2DL/1UL) with Band 20 [LTE_SDL_1500ext]

10.9.5 Core part: Addition of Power Class 1 UE to bands B3/B20/B28 for LTE [LTE_HPUE_B3_B20_B28-Core]

RP-180284 **RAN4 CRs to Core part: Addition of Power Class 1 UE to bands B3/B20/B28 for LTE**
Source: RAN4

Decision: The document was **approved**.

10.9.6 US 600 MHz Band for LTE [LTE600_US]

10.9.7 Core part: Addition of band 28 and 40 to LTE MTC cat.0 [LC_MTC_LTE_cat0_B28_B40-Core]

10.9.8 Core part: Add UE Power Class 2 to band 41 intra-band contiguous LTE CA [LTE_CA_C_B41_PC2-Core]

RP-180285 **RAN4 CRs to Core part: Add UE Power Class 2 to band 41 intra-band contiguous LTE Carrier Aggregation**
Source: RAN4

Decision: The document was **approved**.

10.9.9 450MHz E-UTRA FDD Band for LTE PPDR and PMR/PAMR in Europe [LTE450_Europe_PPDR]

RP-180286 **RAN4 CRs to 450MHz E-UTRA FDD Band for LTE PPDR and PMR/PAMR in Europe**
Source: RAN4

Decision: The document was **approved**.

10.9.10 Core part: ProSe Support for Band 72 in LTE [New WI: LTE450_B72_Europe_ProSe-Core]

10.9.11 LAA/eLAA for the CBRS 3.5GHz band in the United States [LTE_3550_CBRS_US_LAA]

10.9.12 450 MHz Band for LTE in Region 3 [LTE450_Reg3]

10.10 Closed REL-15 LTE and LTE & UMTS related SIs

10.11 LTE UE capabilities/FGIs/IoT bits/UE categories

RP-180031 **LS on introducing of LTE UE DL CAT 21 for 1.4Gbps in Rel.14 (R1-1803373; to: RAN2; cc: RAN; contact: HiSilicon)**
Source: RAN1

Abstract:

no RAN action requested

Discussion:

Huawei: package of CRs from RAN1 (covered in 36.306 CR) and RAN2 which were endorsed

RAN2 chair: CRpack in RP-180448

conclusion: no LS answer to RAN1

Decision: The document was **noted**.

11 UMTS

NOTE: This agenda item covers REL-15 UMTS WIs/SIs. But UMTS UE conformance aspects are covered under AI13.

Maintenance of closed REL-8 to REL-14 WIs/SIs is covered under AI 14. Open WIs/SIs that affect UMTS and LTE have to be covered under AI 10.

11.1 New WI/SI proposals for UMTS

NOTE: New WIs/SIs (if not spectrum/testing related) have to follow the principles of the endorsed RP-172795.

11.2 Open REL-15 UMTS WIs

11.3 Small Technical Enhancements and Improvements for REL-15 [TEI15]

RP-180067 **RAN6 agreed CRs for UMTS REL-15 WI: TEI15**
Source: RAN6

Decision: The document was **approved**.

11.4 Closed REL-15 UMTS WIs

11.4.1 Core part: Simplified HS-SCCH for UMTS [UTRA_simple_HSSCCH-Core]

11.5 Closed REL-15 UMTS SIs

11.6 UMTS UE capabilities/IoT bits/UE categories

12 GERAN

NOTE: This agenda item covers REL-14/15 GERAN WIs/SIs. But GERAN MS conformance aspects are covered under AI13. Maintenance of closed REL-8 to REL-13 WIs/SIs is covered under AI 14.6.

12.1 New WI/SI proposals for GERAN (normally led by RAN6)

NOTE: New WIs/SIs (if not spectrum/testing related) have to follow the principles of the endorsed RP-172795.

RP-180354 **Motivation for New WID on Further enhancements for Extended Coverage GSM for Cellular IoT (EC-GSM-IoT)**

Source: Nokia, Nokia Shanghai Bell

Abstract:

Motivation paper related to submitted WID in RP-180066.

Decision: The document was **noted**.

RP-180066 **New WID on Further enhancements for Extended Coverage GSM for support of Cellular Internet of Things**

Source: Nokia

Abstract:

new WI for GERAN; leading WG: RAN6; WI code to be used: CIoT_EC_GSM_fenh; follow-up WI of REL-14 WI CIoT_EC_GSM_radio_enh; proposes introduction of a new paging indication channel for each of the higher coverage classes to achieve reduced energy consumption for page reception along with improvements related to reduced system acquisition time during idle mode mobility

Discussion:

MCC: RAN6 reviewed and agreed this WID

Decision: The document was **revised to RP-180541**.

RP-180541 **New WID on Further enhancements for Extended Coverage GSM for support of Cellular Internet of Things**

Source: Nokia

(Replaces RP-180066)

Abstract:

new WI for GERAN; leading WG: RAN6; WI code to be used: CIoT_EC_GSM_fenh; follow-up WI of REL-14 WI CIoT_EC_GSM_radio_enh; proposes introduction of a new paging indication channel for each of the higher coverage classes to achieve reduced energy consumption for page reception along with improvements related to reduced system acquisition time during idle mode mobility

Discussion:

Huawei: no operator support for it we asked who is supporting it offline but it seems there is no operator support; WI would give out the wrong message that we are fragmenting the IOT eco system

Deutsche Telekom: same view

Nokia: Huawei was in RAN6 when this WI was discussed, it is not about fragmenting IOT eco-system as this technology is existing

Broadcom: would better focus on NB-IOT

Sierra Wireless: supporting this WI

ATT: who are the operators?

Nokia: as clarified earlier, multiple operators from multiple regions which are not 3GPP members

Huawei: GSMA has published 0 companies for EC-GSM so far, so we would give the wrong message

Nokia: this WI was agreed in RAN6, Huawei was there

Orange: is already in the spec, we should not limit small enhancements

Vodafone: there are operators who are paying money to 3GPP so we better focus on them then operators outside

RAN chair: let's allow for some more offline discussion and we will come back on this on Thu afternoon

Nokia: there are operators in Eastern Europe, Middle East/Africa, APAC which support this

Huawei: any operator on the WID?

RAN chair: this is not requested by the working procedures; anyone objecting to the WID? Noone

Decision: The document was **approved**.

12.2 Small Technical Enhancements and Improvements for REL-15 [TEI15]

RP-180068 **RAN6 agreed CRs for GERAN REL-15 WI: TEI15**
Source: RAN6

Decision: The document was **approved**.

13 New and open RAN5 UE Conformance testing WIs and SIs

NOTE: For closed WIs/SIs and TEIx_Test with x<14 see agenda item 14.

13.1 New WI/SI proposals for UE conformance testing (led by RAN5)

RP-180041 **LS on UE Conformance Test Aspects – Mission Critical Improvements (TCCA_LS_180315; to: RAN; cc: RAN5; contact: TCCA CCBG chairman)**
Source: TCCA

Abstract:

related to new WI proposal RP-180065; TCCA: TETRA and Critical Communications Association; CCBG: Critical Communications Broadband Group; no explicit RAN action requested

Discussion:

RAN5 chair: we have not yet seen the LS in RAN5

conclusion: no LS asnwer from RAN to TCCA

Decision: The document was **noted**.

RP-180065 **New Work Item Proposal: UE Conformance Test Aspects - Mission Critical Improvements**
Source: AT&T GNS Belgium SPRL

Abstract:

new WI for LTE; leading WG: RAN5; tested: REL-14 WI MCImp (SA/CT WI: Mission Critical Improvements); WI code to be used: MCImp-UEConTest; to provide conformance test specifications for the Rel-14 core requirements for improvements to Mission Critical Services (MCPTT, MCVideo and MCData).

Decision: The document was **revised to RP-180527**.

RP-180527 **New Work Item Proposal: UE Conformance Test Aspects - Mission Critical Improvements**
Source: AT&T GNS Belgium SPRL

(Replaces RP-180065)

Abstract:

new WI for LTE; leading WG: RAN5; tested: REL-14 WI MCImp (SA/CT WI: Mission Critical Improvements); WI code to be used: MCImp-UEConTest; to provide conformance test specifications for the Rel-14 core requirements for improvements to Mission Critical Services (MCPTT, MCVideo and MCData).

Discussion:

presented by FirstNet

Decision: The document was **approved**.

RP-180214 **New Work Item proposal: UE Conformance Test Aspects - 450 MHz Band for LTE in Region 3**
Source: China Unicom

Abstract:

new WI for LTE; leading WG: RAN5; tested: REL-15 WI LTE450_Reg3-Core; WI code to be used: LTE450_Reg3-UEConTest

Decision: The document was **approved**.

RP-180215 **New WI proposal: UE Conformance Test Aspects - Quality of Experience (QoE) Measurement Collection for streaming services in E-UTRAN**
Source: China Unicom

Abstract:

new WI for LTE; leading WG: RAN5; tested: REL-15 WI LTE_QMC_Streaming-Core; WI code to be used: LTE_QMC_Streaming-UEConTest

Discussion:

China Unicom: this is a WI which is 99% and RAN2 CRs will be submitted in June

Decision: The document was **approved**.

13.2 Open Rel-12 WIs

13.2.1 UE Conf. Test Aspects - Further Enh. to LTE TDD for DL-UL Interf. Management and Traffic Adaptation [LTE_TDD_eIMTA-UEConTest]

RP-180233 **Status Report for WI: UE Conformance Test Aspects - Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation**
Source: RAN5

Abstract:

Test: 100%, Mar, 2018

Discussion:

conclusion: approved: 100%, March 18; WI is completed

Decision: The document was **noted**.

RP-180074 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects - Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation (LTE_TDD_eIMTA-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

13.2.2 UE Conf. Test Aspects - Increasing the min. number of carriers for UE monitoring in UTRA and E-UTRA [LTE_UTRA_IncMon-UEConTest]

RP-180408 **Status report for WI UE Conformance Test Aspects - Increasing the minimum number of carriers for UE monitoring in UTRA and E-UTRA; rapporteur: Ericsson**
Source: RAN5

Discussion:

conclusion: approved: 30%, June 18

Decision: The document was **noted**.

RP-180075 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects: Increasing the minimum number of carriers for UE monitoring in UTRA and E-UTRA (LTE_UTRA_IncMon-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

13.3 Open Rel-13 WIs

13.3.1 UE Conf. Test Aspects - Rel-13 LTE CA configurations [LTE_CA_Rel13-UEConTest]

RP-180409 **Status report for WI UE Conformance Test Aspects - Rel-13 CA configurations; rapporteur: Ericsson**
Source: RAN5

Abstract:

Includes all Rel-13 CA configurations associated with the RAN4 Rel-13 CA WIs. The completion per CA configuration is provided by the attached RAN5 work plan attached to the SR (72 CA configurations completed).

Discussion:

MCC: a number of CRs provided, why is % complete unchanged (looks like no progress although there is progress): 65% in status report but 67% in attached workplan

RAN chair: let's go for 67% then

conclusion: approved: 67%, June 18

Decision: The document was **noted**.

RP-180076 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects - Rel-13 LTE CA configurations (LTE_CA_Rel13-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

13.3.2 UE Conf. Test Aspects - WLAN/3GPP Radio Level Integration and Interworking Enhancements [LTE_WLAN_radio-UEConTest]

RP-180173 **Status Report of WI: UE Conformance Test Aspects – Wireless Local Area Network (WLAN) – 3GPP Radio Level Integration and Interworking Enhancements; rapporteur: Intel Corporation; rapporteur: Intel**
Source: RAN5

Discussion:

MCC: status report is claiming 58%, March 18 which means a request to stop the WI, while revised WID RP-180175 intends to shift the target date to Sep.18 which would be a target date change of +6months (note: status report and revised WID need to be aligned)

conclusion: approved: 58%, Sep.18

Decision: The document was **noted**.

RP-180077 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects - x (LTE_WLAN_radio-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

RP-180175 **Revised WID: UE Conformance Test Aspects – Wireless Local Area Network (WLAN) – 3GPP Radio Level Integration and Interworking Enhancements**
Source: Intel Corporation (UK) Ltd

Abstract:

last approved WID: RP-171616

Decision: The document was **approved**.

13.3.3 UE Conf. Test Aspects - LTE CA Enh. Beyond 5 Carriers: PUCCH on Scell [LTE_CA_enh_b5C_PUCCH-UEConTest]

RP-180060 **Status report for WI: UE Conformance Test Aspects - LTE Carrier Aggregation Enhancement Beyond 5 Carriers - PUCCH on Scell; rapporteur: Huawei**
Source: RAN5

Discussion:

MCC: target date change (+6 months);

conclusion: approved: 20%, Sep.18

Decision: The document was **noted**.

13.3.4 UE Conf. Test Aspects - Support for Mission Critical Push To Talk over LTE (MCPTT) [MCPTT-ConTest]

RP-180131 Status report for WI UE Conformance Test Aspects - Support for Mission Critical Push To Talk (MCPTT) over LTE; rapporteur: NIST
Source: RAN5

Discussion:

MCC: status report is in contradiction with revised WID; WI cannot be 100% complete in March 18 since TS 36.579-3 and TS 36.579-5 are not provided for Approval but for Information;

RAN5 chairman: on behalf of the rapporteur (NIST) and RAN5: 95%, June 18 is correct

conclusion: approved: 95%, June 18

Decision: The document was **noted**.

RP-180078 RAN5 agreed non TTCN CR(s) WI MS Conformance Test Aspects - Support for Mission Critical Push To Talk over LTE (MCPTT) (MCPTT-ConTest)
Source: RAN5

Decision: The document was **approved**.

RP-180126 TS 36.579-1 v2.0.0 Mission Critical Services over LTE conformance testing, Part 1 Common test environment; for approval
36.579-1 v2.0.0
Source: NIST, Samsung

Abstract:

RAN5 TS 36.579-1 is provided for approval; v1.0.0 was provided for information at RAN#78.

Decision: The document was **approved**.

RP-180127 TS 36.579-2 v2.0.0 Mission Critical Services over LTE conformance testing, Part 2 Mission Critical Push To Talk (MCPTT) User Equipment (UE) Protocol test specification; for approval
36.579-2 v2.0.0
Source: NIST, Samsung

Abstract:

RAN5 TS 36.579-2 is provided for approval; v1.0.0 was provided for information at RAN#78.

Decision: The document was **approved**.

RP-180128 TS 36.579-3 v1.0.0 Mission Critical Services over LTE conformance testing, Part 3 Mission Critical Push To Talk (MCPTT) Server Application test specification; for information
36.579-3 v1.0.0
Source: NIST, Samsung

Abstract:

RAN5 TS 36.579-3 is provided for information

Decision: The document was **noted**.

RP-180129 **Draft TS - TS 36.579-4 v2.0.0 Mission Critical Services over LTE conformance testing, Part 4 Test Applicability and Implementation Conformance Statement (ICS); for approval**
36.579-4 v2.0.0
Source: NIST, Samsung

Abstract:

RAN5 TS 36.579-4 is provided for approval; v1.0.0 was provided for information at RAN#78.

Decision: The document was **approved**.

RP-180130 **Draft TS - TS 36.579-5 v.1.0.0 Mission Critical Services over LTE conformance testing, Part 5 Abstract test suite (ATS); for information**
36.579-5 v1.0.0
Source: NIST, Samsung

Abstract:

RAN5 TS 36.579-5 is provided for information

Decision: The document was **noted**.

RP-180132 **Revised WID: Conformance Test Aspects - Support for MCPTT (MCPTT-ConTest)**
Source: NIST

Abstract:

last approved WID: RP-162511; proposed specifications received final number, update of rapporteur's organization

Decision: The document was **approved**.

13.3.5 UE Conf. Test Aspects - Interf. Mitigation for Downlink Control Channels of LTE [LTE_IM_DLCCH-UEConTest]

RP-180174 **Status Report of WI: UE Conformance Test Aspects – Interference Mitigation for Downlink Control Channels of LTE; rapporteur: Intel Corporation**
Source: RAN5

Discussion:

MCC: status report is claiming 83%, March 18 which means a request to stop the WI, while revised WID RP-180176 intends to shift the target date to Sep.18 which would be a target date change of +6months (note: status report and revised WID need to be aligned)

conclusion: approved: 83%, Sep.18

Decision: The document was **noted**.

RP-180079 **RAN5 agreed non TTCN CR(s) WI MS Conformance Test Aspects -Interference Mitigation for Downlink Control Channels of LTE (LTE_IM_DLCCH-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

RP-180176 **Revised WID: UE Conformance Test Aspects – Interference Mitigation for Downlink Control Channels of LTE**
Source: Intel Corporation (UK) Ltd

Abstract:

last approved WID: RP-170121

Decision: The document was **approved**.

13.3.6 UE Conf. Test Aspects - Elevation Beamforming/Full-Dimension MIMO for LTE [LTE_EBF_FDMIMO-UEConTest]

RP-180410 **Status report for WI UE Conformance Test Aspects – Elevation Beamforming/Full-Dimension MIMO for LTE; rapporteur: Ericsson**
Source: RAN5

Discussion:

conclusion: approved: 10%, June 18

Decision: The document was **noted**.

RP-180091 **RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – Elevation Beamforming/Full-Dimension MIMO for LTE**
Source: RAN5

Decision: The document was **approved**.

13.4 Open Rel-14 WIs

13.4.1 UE Conf. Test Aspects - Radiated Perf. of Multiple-antenna Receivers in the LTE UE [LTE_MIMO_OTA-UEConTest]

RP-180172 **Status Report of WI: UE Conformance Test Aspects – Radiated Performance of Multiple-antenna Receivers in the LTE UE; rapporteur: Intel Corporation; rapporteur: Intel**
Source: RAN5

Discussion:

MCC: WID RP-171615 claims that there will be a CR to TR 36.978 where is it provided?

RAN5 chair: in RP-171356 (RAN #76)

conclusion: approved: 100%, March 18; WI is completed

Decision: The document was **noted**.

RP-180080 **RAN5 agreed non TTCN CR(s) WI MS Conformance Test Aspects - Radiated Performance of Multiple-antenna Receivers in the LTE UE (LTE_MIMO_OTA-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

13.4.2 UE Conf. Test Aspects - Rel-14 CA configurations [LTE_CA_R14-UEConTest]

RP-180411 **Status report for WI UE Conformance Test Aspects - Rel-14 CA configurations; rapporteur: Ericsson**

Source: RAN5

Abstract:

Includes all Rel-14 CA associated with the RAN4 Rel-14 bucket CA WIs . The completion per CA configuration is provided by the attached RAN5 work plan attached to the SR (69 Rel-14 CA configurations completed).

Discussion:

conclusion: approved: 19%, Dec.18

Decision: The document was **noted**.

RP-180081 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects - Rel-14 CA configurations (LTE_CA_R14-UEConTest)**

Source: RAN5

Decision: The document was **approved**.

13.4.3 UE Conf. Test Aspects - Support for V2V services based on LTE sidelink [LTE_SL_V2V-UEConTest]

RP-180059 **Status report for WI: UE Conformance Test Aspects - Support for V2V services based on LTE sidelink; rapporteur: Huawei**

Source: RAN5

Discussion:

conclusion: approved: 80%, June 18

Decision: The document was **noted**.

RP-180082 **RAN5 agreed non TTCN CR(s) WI MS Conformance Test Aspects - Support for V2V services based on LTE sidelink (LTE_SL_V2V-UEConTest)**

Source: RAN5

Decision: The document was **approved**.

13.4.4 UE Conf. Test Aspects - Support for LTE-based V2X Services [LTE_V2X-UEConTest]

RP-180058 **Status report for WI: UE Conformance Test Aspects -Support for LTE-based V2X Services; rapporteur: Huawei**

Source: RAN5

Discussion:

conclusion: approved: 55%, June 18

Decision: The document was **noted**.

RP-180083 **RAN5 agreed non TTCN CR(s) WI MS Conformance Test Aspects - Support for LTE-based V2X Services**

(LTE_V2X-UEConTest)
Source: RAN5

Decision: The document was **approved**.

13.4.5 UE Conf. Test Aspects - Enh. LAA for LTE [LTE_eLAA-UEConTest]

RP-180256 **Status report of WI: UE Conformance Test Aspects – Enhanced LAA for LTE; rapporteur: Qualcomm**
Source: RAN5

Discussion:

MCC: target date change (+3 months)

conclusion: approved: 70%, June 18

Decision: The document was **noted**.

RP-180084 **RAN5 agreed non TTCN CR(s) WI MS Conformance Test Aspects -Enhanced LAA for LTE**

(LTE_eLAA-UEConTest)
Source: RAN5

Decision: The document was **approved**.

13.4.6 UE Conf. Test Aspects - SRS switching between LTE component carriers [LTE_SRS_switch-UEConTest]

RP-180061 **Status report for WI: UE Conformance Test Aspects - SRS (sounding reference signal) switching between LTE component carriers; rapporteur: Huawei**
Source: RAN5

Discussion:

MCC: target date change (+3 months)

conclusion: approved: 45%, June 18

Decision: The document was **noted**.

RP-180085 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – SRS (sounding reference signal) switching between LTE component carriers**

(LTE_SRS_switch-UEConTest)
Source: RAN5

Decision: The document was **approved**.

13.4.7 UE Conf. Test Aspects - QoE Measurement Collection for streaming services in UTRAN [UMTS_QMC_Streaming-UEConTest]

RP-180063 **Status report for WI: UE Conformance Test Aspects - Quality of Experience (QoE) Measurement Collection for streaming services in UTRAN; rapporteur: Huawei**
Source: RAN5

Discussion:

MCC: WID RP-171866 claims that there will be a 34.108 and a 34.123-3 CR as well, were they provided in the past or is there no CR to these specs?

Note: 34.123-3 is coming from STF160 later as usual.

RAN5 chair: 34.108 CR was approved in R5-172979 (RP-171380), however after scope reduction of the WI the CR still needs to be undone; this can be done under maintenance in the next RAN5 meeting

MCC: ok, but still remove 34.108 line from affected specs in the WID as in total 34.108 is not affected

conclusion: approved: 100%, March 18; WI is completed

Decision: The document was **noted**.

RP-180086 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – Quality of Experience (QoE) Measurement Collection for streaming services in UTRAN**

(UMTS_QMC_Streaming-UEConTest)
Source: RAN5

Decision: The document was **approved**.

RP-180559 **Revised WID: UE Conformance Test Aspects - Quality of Experience (QoE) Measurement Collection for streaming services in UTRAN**
Source: Huawei

Decision: The document was **approved**.

13.4.8 UE Conf. Test Aspects - Perf. enh. for high speed scenario in LTE [LTE_high_speed-UEConTest]

RP-180304 **Status report for UE Conformance Test Aspects - Performance enhancements for high speed scenario in LTE; rapporteur: CMCC**
Source: RAN5

Abstract:

latest WID in RP-170367

Discussion:

conclusion: approved: 70%, June 18

Decision: The document was **noted**.

RP-180087 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – Performance enhancements for high speed scenario in LTE**

(LTE_high_speed-UEConTest)
Source: RAN5

Decision: The document was **approved**.

13.4.9 UE Conf. Test Aspects - 4 Rx antenna ports with CA for LTE DL [LTE_4Rx_AP_DL_CA-UEConTest]

RP-180412 **Status report for WI UE Conformance Test Aspects - 4 Rx antenna ports with CA for LTE DL; rapporteur: Ericsson**
Source: RAN5

Discussion:

MCC: target date change (+3 months)

conclusion: approved: 70%, June 18

Decision: The document was **noted**.

RP-180088 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – 4 Rx antenna ports with CA for LTE DL**

(LTE_4Rx_AP_DL_CA-UEConTest)
Source: RAN5

Decision: The document was **approved**.

13.4.10 UE Conf. Test Aspects - Evolution to and Interworking with eCall in IMS (EIEI) [EIEI-UEConTest]

RP-180257 **Status report of WI: UE Conformance Test Aspects – EIEI (Evolution to and Interworking with eCall in IMS); rapporteur: Qualcomm**
Source: RAN5

Discussion:

MCC: WID RP-171057 claims that 36.523-3 is affected but no CR is submitted to RAN #79, was it provided in the past or is it not affected?

RAN5 chair: 36.523-3 is coming from STF160 later as usual.

conclusion: approved: 100%, March 18; WI is completed

Decision: The document was **noted**.

RP-180089 **RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – Evolution to and Interworking with eCall in IMS (EIEI-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

13.4.11 UE Conf. Test Aspects - Requirements for a new UE cat.1bis with single receiver based on cat.1 for LTE [LTE_UE_cat_1RX-UEConTest]

RP-180258 **Status report of WI: UE Conformance Test Aspects – Requirements for a new UE category 1bis with single receiver based on category 1 for LTE**
Source: RAN5

Discussion:

MCC: target date change (+3 months)

conclusion: approved: 70%, June 18

Decision: The document was **noted**.

RP-180090 **RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – Requirements for a new UE category 1bis with single receiver based on category 1 for LTE (LTE_UE_cat_1RX-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

RP-180263 **Revision of WI : UE Conformance Test Aspects – Requirements for a new UE category 1bis with single receiver based on category 1 for LTE**
Source: Qualcomm

Abstract:

last approved WID: RP-171058

Decision: The document was **approved**.

RP-180517 **Resubmission of clause 8 part of CR: Cat1bis: Addition of new CAT1-bis SDR TCs**
36.521-1 CR-4145 Cat: F (Rel-15) v15.0.0
Source: ETSI MCC, Qualcomm Incorporated

Abstract:

late request; RAN5 related company CR; REL-14 CR R5-177393 was approved by RAN #78 in RP-172218 but it was just recently spotted that the clause 8 part was not implemented; as the spec exists now in REL-15, this company CR for the ongoing REL-14 WI LTE_UE_cat_1RX-UEConTest is submitted here for REL-15

Discussion:

MCC: will add a corresponding remark to the final RAN #78 report RP-180516 for RP-172218

Decision: The document was **approved**.

13.4.12 UE Conf. Test Aspects - Voice and Video Enhancement for LTE [LTE_VoLTE_ViLTE_enh-UEConTest]

RP-180234 **Status Report for WI: UE Conformance Test Aspects - Voice and Video Enhancement for LTE**
Source: RAN5

Discussion:

MCC: target date change (+3 months)

conclusion: approved: 65%, June 18

Decision: The document was **noted**.

13.4.13 UE Conf. Test Aspects - Enhancements of NB-IoT [NB_IOTenh-UEConTest]

RP-180062 **Status report for WI: UE Conformance Test Aspects – Enhancements of NB-IoT; rapporteur: Huawei**
Source: RAN5

Discussion:

conclusion: approved: 30%, Dec.18

Decision: The document was **noted**.

RP-180092 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects - Enhancements of NB-IoT (NB_IOTenh-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

13.4.14 UE Conf. Test Aspects - Further enhanced MTC for LTE [LTE_feMTC-UEConTest]

RP-180413 **Status report for WI UE Conformance Test Aspects - Further enhanced MTC for LTE; rapporteur: Ericsson**
Source: RAN5

Discussion:

conclusion: approved: 21%, June 18

Decision: The document was **noted**.

RP-180093 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects - Further enhanced MTC for LTE (LTE_feMTC-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

RP-180414 **Revised WID: UE Conformance Test Aspects - Further enhanced MTC for LTE**
Source: Ericsson

Abstract:

last approved WID: RP-171885

Decision: The document was **approved**.

13.4.15 UE Conf. Test Aspects - Uplink capacity enhancements for LTE [New WI: LTE_UL_CAP_enh-UEConTest]

RP-180415 **Status report for WIUE Conformance Test Aspects - Uplink capacity enhancements for LTE; rapporteur: Ericsson**
Source: RAN5

Discussion:

conclusion: approved: 8%, Dec. 18

Decision: The document was **noted**.

RP-180094 **RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – Uplink capacity enhancements for LTE (LTE_UL_CAP_enh-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

13.4.16 UE Conf. Test Aspects - L2 latency reduction techniques for LTE [New WI: LTE_LATRED_L2-UEConTest]

RP-180416 **Status report for WI UE Conformance Test Aspects - L2 latency reduction techniques for LTE; rapporteur: Ericsson**
Source: RAN5

Discussion:

MCC: target date change (WI completed 3 months earlier); revision of WID RP-172640 needed as TS 36.508 and 36.523-3 are indicated as affected but there is no CR for them (note: This WI was approved by RAN #78)

conclusion: approved: 100%, March 18; WI is completed

Decision: The document was **noted**.

RP-180095 **RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – L2 latency reduction techniques for LTE (LTE_LATRED_L2-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

RP-180530 **Revised WID: UE Conformance Test Aspects - L2 latency reduction techniques for LTE**
Source: Ericsson

Abstract:

last approved WID: RP-172640

Decision: The document was **approved**.

13.5 Open Rel-15 WIs

13.5.1 UE Conf. Test Aspects - 5G system with NR and LTE [5GS_NR_LTE-UEConTest]

RP-180417 **Status report for WI UE Conformance Test Aspects – 5G system with NR and LTE; rapporteur: Ericsson**
Source: RAN5

Discussion:

conclusion: approved: 10%, Dec.18

Decision: The document was **noted**.

RP-180418 **Revised WID: UE Conformance Test Aspects – 5G system with NR and LTE**
Source: Ericsson

Abstract:

last approved WID: RP-172647

Decision: The document was **approved**.

13.5.2 UE Conf. Test Aspects - Rel-15 CA configurations [LTE_CA_R15-UEConTest]

RP-180419 **Status report for WI UE Conformance Test Aspects - Rel-15 CA configurations; rapporteur: Ericsson**

Source: RAN5

Abstract:

Includes all Rel-15 CA associated with the RAN4 Rel-15 bucket CA WIs . The completion per CA configuration is provided by the attached RAN5 work plan attached to the SR (no Rel-15 CA configurations completed yet).

Discussion:

conclusion: approved: 8%, June 19

Decision: The document was **noted**.

RP-180097 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects - Rel-15 CA configurations (LTE_CA_R15-UEConTest)**

Source: RAN5

Decision: The document was **approved**.

RP-180420 **Revised WID on: UE Conformance Test Aspects - Rel-15 CA**

Source: Ericsson

Abstract:

last approved WID: RP-172645

Decision: The document was **approved**.

13.5.3 UE Conf. Test Aspects - 450MHz E-UTRA FDD Band for LTE PPDR and PMR/PAMR in Europe (Band 72) [LTE450_Europe_PPDR-UEConTest]

RP-180136 **Status report of WI: UE Conformance Test Aspects - 450MHz E-UTRA FDD Band for LTE PPDR and PMR/PAMR in Europe (Band 72); rapporteur: Airbus DS SLC**

Source: RAN5

Discussion:

MCC: latest WID RP-172037 claims TS 34.108, TS 34.121-2, TS 34.122

TS 36.523-3, TR 36.903, TR 36.905, TR 34.902 are affected but neither CRpack RP-172228 (RAN #78) nor CRpack RP-180098 (RAN #79) include these CRs; where are the CRs or where is the revised WID that removes the not affected specs?

conclusion: approved: 100%, March 18; WI is completed

Decision: The document was **noted**.

RP-180098 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects - 450MHz E-UTRA FDD Band for LTE PPDR and PMR/PAMR in Europe (Band 72) (LTE450_Europe_PPDR-UEConTest)**

Source: RAN5

Decision: The document was **approved**.

RP-180528 **Revised WID: UE Conformance Test Aspects - 450MHz E-UTRA FDD Band for LTE PPDR and PMR/PAMR in Europe (Band 72)**
Source: Airbus

Abstract:

latest approved WID RP-172037

Decision: The document was **approved**.

13.5.4 UE Conf. Test Aspects - E-UTRA 700MHz in Europe for Broadband-PPDR [LTE700_Europe_PPDR-UEConTest]

RP-180137 **Status report of WI: UE Conformance Test Aspects - E-UTRA 700MHz in Europe for Broadband-PPDR; rapporteur: Airbus DS SLC**
Source: RAN5

Discussion:

MCC: latest WID RP-172038 claims TS 34.108, TS 34.121-2, TS 34.122

TS 36.523-3, TR 36.903, TR 36.905, TR 34.902 are affected but neither CRpack RP-172229 (RAN #78) nor CRpack RP-180099 (RAN #79) include these CRs;

conclusion: approved: 100%, March 18; WI is completed

Decision: The document was **noted**.

RP-180099 **RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects - E-UTRA 700MHz in Europe for Broadband-PPDR (LTE700_Europe_PPDR-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

RP-180529 **Revised WID: UE Conformance Test Aspects - E-UTRA 700MHz in Europe for Broadband-PPDR**
Source: Airbus

Abstract:

latest approved WID RP-172038

Decision: The document was **approved**.

13.5.5 UE Conf. Test Aspects - FDD operating band in the L-band for LTE [New WI: LTE_FDD_L_band-UEConTest]

RP-180146 **Status report for WI: UE Conformance Test Aspects - FDD operating band in the L-band for LTE; rapporteur: NTT DOCOMO, INC**
Source: RAN5

Discussion:

conclusion: approved: 50%, June 18

Decision: The document was **noted**.

RP-180100 **RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – FDD operating band in the L-band for LTE (LTE_FDD_L_band-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

RP-180145 **Revised WID - UE Conformance Test Aspects - FDD operating band in the L-band for LTE**
Source: NTT DOCOMO, INC.

Abstract:

last approved WID: RP-172267

Decision: The document was **approved**.

13.5.6 UE Conf. Test Aspects - Add UE Power Class 2 to band 41 intra-band contiguous LTE CA [New WI: LTE_CA_C_B41_PC2-UEConTest]

RP-180476 **Status report for WI UE Conformance Test Aspects - Add UE Power Class 2 to band 41 intra-band contiguous LTE Carrier Aggregation; rapporteur: Sprint**
Source: RAN5

Discussion:

MCC: late Tdoc request

conclusion: approved: 5%, June 18

Decision: The document was **noted**.

13.5.7 UE Conf. Test aspects - LTE bands with UE category M1 and/or NB1 in Rel-15 [New WI: LTE_bands_R15_M1_NB1-UEConTest]

RP-180421 **Status report for WI UE Conformance Test Aspects - Additional LTE bands for UE category M1 and/or NB1 in Rel-15; rapporteur: Ericsson**
Source: RAN5

Discussion:

conclusion: approved: 19%, June 18

Decision: The document was **noted**.

13.5.8 UE Conf. Test aspects - LTE bands with UE category M2 and/or NB2 in Rel-15 [New WI: LTE_bands_R15_M2_NB2-UEConTest]

RP-180422 **Status report for WI UE Conformance Test Aspects - Additional LTE bands for UE category M2and/or NB2 in Rel-15; rapporteur: Ericsson**
Source: RAN5

Discussion:

conclusion: approved: 14%, June 18

Decision: The document was **noted**.

RP-180101 **RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – UE Conformance Test aspects - LTE bands with UE category M2 and/or NB2 in Rel-15 (LTE_bands_R15_M2_NB2-UEConTest)**
Source: RAN5

Decision: The document was **approved**.

13.5.9 Test - (Small) Technical Enhancements and Improvements for Rel-15 [TEI15_Test]

RP-180102 **RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-15 Conformance Testing (TEI15_Test)**
Source: RAN5

Decision: The document was **approved**.

13.6 Open Rel-15 SIs

13.6.1 Study on UE Application Layer Data Throughput Perf. Expansion for CA [New SI: FS_UE_App_Data_Perf_CA]

RP-180202 **Status report of SI: Study on UE Application Layer Data Throughput Performance Expansion for Carrier Aggregation; rapporteur: PCTEST Engineering Lab**
Source: RAN5

Discussion:

MCC: no target date provided (at RAN #78: target was June 18)

conclusion: approved: 10%, June 18

Decision: The document was **noted**.

RP-180103 **RAN5 agreed non TTCN CR(s) under WI Study on UE Application Layer Data Throughput Performance Expansion for Carrier Aggregation (FS_UE_App_Data_Perf_CA)**
Source: RAN5

Decision: The document was **approved**.

RP-180203 **Revision of SI: Study on UE Application Layer Data Throughput Performance Expansion for Carrier Aggregation**
Source: PCTEST Engineering Lab

Abstract:

last approved SID: RP-172262

Decision: The document was **approved**.

14 Maintenance for closed WIs/SIs for REL-14 and earlier

NOTE: REL-4, REL-5, REL-6 and REL-7 were closed after RAN #65,

i.e. no CRs to specifications of these releases will be considered anymore.

14.1 TSG RAN WG1

14.1.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases

14.1.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9)

14.1.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10)

14.1.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11)

14.1.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12)

14.1.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13)

RP-180188 **Maintenance of Rel-13 LTE carrier aggregation enhancement beyond 5 carriers**
Source: RAN1

Decision: The document was **approved**.

RP-180190 **Maintenance of Rel-13 Further LTE Physical Layer Enhancements for MTC**
Source: RAN1

Decision: The document was **approved**.

RP-180191 **Maintenance of Rel-13 NB-IoT feature**
Source: RAN1

Decision: The document was **approved**.

RP-180194 **Maintenance of Rel-13 Elevation Beamforming/Full-Dimension (FD) MIMO for LTE**
Source: RAN1

Decision: The document was **approved**.

RP-180198 **Maintenance of Rel-13 LTE TDD-FDD joint operation including Carrier Aggregation**
Source: RAN1

Decision: The document was **approved**.

14.1.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14)

RP-180187 **Maintenance of Rel-14 Uplink Capacity Enhancements for LTE**
Source: RAN1

Decision: The document was **approved**.

RP-180189 **Maintenance of Rel-14 eFD-MIMO**
Source: RAN1

Decision: The document was **approved**.

RP-180192 **Maintenance of Rel-14 FeMTC**
Source: RAN1

Decision: The document was **approved**.

RP-180193 **Maintenance of Rel-14 NB-IoT enhancements for LTE**
Source: RAN1

Decision: The document was **approved**.

RP-180196 **Maintenance of Rel-14 Voice and Video Enhancement for LTE**
Source: RAN1

Decision: The document was **approved**.

RP-180199 **CRs to 36.211 related to NB_IOT**
Source: RAN1

Decision: The document was **approved**.

14.1.8 Approval of linked CR packages led by RAN WG1

14.2 TSG RAN WG2

14.2.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases

14.2.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9)

14.2.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10)

14.2.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11)

14.2.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12)

14.2.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13)

RP-180123 **Clarification early contention resolution not supported in NB-IoT**
36.300 CR-1115 rev 2 Cat: F (Rel-13) v13.10.0
Source: Qualcomm Incorporated

Abstract:

RAN2 agreed version is in R2-1803810. An error was detected after the WG meeting which is corrected in by this company CR. This company CR has not been seen in the WG meeting.

Discussion:

withdrawn as no longer needed due to the RAN2 agreed R2-1804135 in RP-180482

Decision: The document was **withdrawn**.

RP-180441 **RAN2 CRs to Closed REL-13 Wis, part 1**
Source: RAN2

Decision: The document was **approved**.

RP-180442 **RAN2 CRs to Closed REL-13 Wis, part 2**
Source: RAN2

Decision: The document was **approved**.

14.2.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14)

RP-180443 **RAN2 CRs to Closed REL-14 Wis, part 1**
Source: RAN2

Discussion:

MCC: company CR RP-180494 (REL-14) intends to replace R2-1803890 (REL-15) of RP-180443

conclusion: all CRs of RP-180443 are approved except R2-1803890 which is revised in RP-180494

Decision: The document was **partially approved**.

RP-180494 **Correction on SRS carrier switching**
36.306 CR-1566 rev 2 Cat: F (Rel-14) v14.5.0
Source: Huawei, HiSilicon, Qualcomm Incorporated

Abstract:

company CR to RAN2 TS 36.306 in order to replace R2-1803890 of RP-180443 because the RAN2 CR R2-1803890 was agreed for REL-15 although proponents intend to have the CR for REL-14 (as in this company CR)

Discussion:

to replace R2-1803890 of RP-180443

Huawei: CR was provided to RAN2 reflector, CR was discussed in RAN2 as REL-14 CR but the CR cover says REL-15

Decision: The document was **approved**.

RP-180444 **RAN2 CRs to Closed REL-14 Wis, part 2**
Source: RAN2

Decision: The document was **approved**.

RP-180445 **RAN2 CRs to Closed REL-14 Wis, part 3**
Source: RAN2

Decision: The document was **approved**.

RP-180446 **RAN2 CRs to Closed REL-14 Wis, part 4**
Source: RAN2

Decision: The document was **approved**.

RP-180448 **Endorsed CRs for the Introduction of LTE DL 1.4Gbps Category**
Source: RAN2

Abstract:

see LS RP-180031

Discussion:

MCC: CRs of this CRpack were just endorsed, RAN will have to decide

Decision: The document was **approved**.

14.2.8 Approval of linked CR packages led by RAN WG2

RP-180482 **Early contention resolution**
Source: RAN2

Abstract:

related to LS R2-18033797; includes also linked CRs from RAN1

Discussion:

MCC: 36.331 CRs could not be agreed in RAN2 so they were postponed and not included in this CRpack; postponing also RAN1 36.213 CRs? what about 36.300 REL-13 CR?

RAN2 chair: 36.300 CR is for REL-13 to just indicate that the functionality is not supported in REL-13, in REL-14/15 it is already there; RAN1 CRs should be postponed until RAN2 CRs are coming

conclusion: only 36.300 CR is approved (R2-1804135), RAN1 CRs (R1-1803132, R1-1803133) are postponed, a joint RAN1/RAN2 CRpack expected in the future

Decision: The document was **partially approved**.

14.3 TSG RAN WG3

14.3.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases

14.3.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9)

14.3.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10)

14.3.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11)

14.3.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12)

14.3.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13)

14.3.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14)

RP-180473 **RAN3 CRs to closed Rel-14 WIs (incl. TEI14)**
Source: RAN3

Decision: The document was **approved**.

14.3.8 Approval of linked CR packages led by RAN WG3

14.4 TSG RAN WG4

14.4.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases

14.4.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9)

RP-180287 **RAN4 CRs to closed Rel-9 Wis**
Source: RAN4

Decision: The document was **approved**.

14.4.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10)

RP-180288 **RAN4 CRs to closed Rel-10 WIs (incl. TEI10)**
Source: RAN4

Decision: The document was **approved**.

14.4.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11)

RP-180289 **RAN4 CRs to closed Rel-11 WIs (incl. TEI11)**
Source: RAN4

Decision: The document was **approved**.

14.4.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12)

RP-180290 **RAN4 CRs to closed Rel-12 WIs (incl. TEI12)**
Source: RAN4

Decision: The document was **approved**.

14.4.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13)

RP-180291 **RAN4 CRs to closed Rel-13 WIs (incl. TEI13), part 1**
Source: RAN4

Decision: The document was **approved**.

RP-180292 **RAN4 CRs to closed Rel-13 WIs (incl. TEI13), part 2**
Source: RAN4

Decision: The document was **approved**.

RP-180293 **RAN4 CRs to closed Rel-13 WIs (incl. TEI13), part 3**
Source: RAN4

Decision: The document was **approved**.

RP-180294 **RAN4 CRs to closed Rel-13 WIs (incl. TEI13), part 4**
Source: RAN4

Decision: The document was **approved**.

14.4.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14)

RP-180295 **RAN4 CRs to CRs to closed Rel-14 WIs (incl. TEI14), part 1**
Source: RAN4

Decision: The document was **approved**.

RP-180296 **RAN4 CRs to CRs to closed Rel-14 WIs (incl. TEI14), part 2**
Source: RAN4

Decision: The document was **approved**.

RP-180297 **RAN4 CRs to CRs to closed Rel-14 WIs (incl. TEI14), part 3**
Source: RAN4

Decision: The document was **approved**.

RP-180298 **RAN4 CRs to CRs to closed Rel-14 WIs (incl. TEI14), part 4**
Source: RAN4

Decision: The document was **approved**.

RP-180299 **RAN4 CRs to CRs to closed Rel-14 WIs (incl. TEI14), part 5**
Source: RAN4

Decision: The document was **approved**.

14.4.8 Approval of linked CR packages led by RAN WG4

14.5 TSG RAN WG5

14.5.1 Approval of CRs to closed REL-10 WIs (incl. TEI10_Test) and WIs of previous releases

RP-180104 **RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test)**
Source: RAN5

Decision: The document was **approved**.

RP-180105 **RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-9 Conformance Testing(TEI9_Test)**
Source: RAN5

Decision: The document was **approved**.

RP-180106 **RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-10 Conformance Testing (TEI10_Test)**
Source: RAN5

Decision: The document was **approved**.

14.5.2 Approval of CRs to closed REL-11 WIs (incl. TEI11_Test)

RP-180107 **RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-11 Conformance Testing (TEI11_Test)**
Source: RAN5

Decision: The document was **approved**.

14.5.3 Approval of CRs to closed REL-12 WIs (incl. TEI12_Test)

RP-180108 **RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-12 Conformance Testing (TEI12_Test)**
Source: RAN5

Decision: The document was **approved**.

14.5.4 Approval of CRs to closed REL-13 WIs (incl. TEI13_Test)

RP-180109 **RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-13 Conformance Testing (TEI13_Test) (Batch 1)**
Source: RAN5

Decision: The document was **approved**.

RP-180110 **RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-13 Conformance Testing (TEI13_Test) (Batch 2)**
Source: RAN5

Decision: The document was **approved**.

14.5.5 Approval of CRs to closed REL-14 WIs (incl. TEI14_Test)

RP-180096 **RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-14 Conformance Testing (TEI14_Test)**
Source: RAN5

Decision: The document was **approved**.

RP-180111 **CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (prose), Annex A**
34.229-3 v..
Source: RAN5

Decision: The document was **approved**.

RP-180112 **CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (TTCN), Annex A**

34.229-3 v..
Source: RAN5

Decision: The document was **approved**.

RP-180113 **CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A**

34.123-3 v..
Source: RAN5

Decision: The document was **withdrawn**.

RP-180114 **CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (TTCN), Annex A**

34.123-3 v..
Source: RAN5

Decision: The document was **approved**.

RP-180115 **CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A**

36.523-3 v..
Source: RAN5

Decision: The document was **approved**.

RP-180116 **CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (TTCN), Annex A**

36.523-3 v..
Source: RAN5

Decision: The document was **approved**.

RP-180117 **CR to 37.751-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A**

37.571-4 v..
Source: RAN5

Decision: The document was **withdrawn**.

RP-180118 **CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (TTCN), Annex A**

37.571-4 v..
Source: RAN5

Decision: The document was **approved**.

14.5.6 Approval of linked CR packages led by RAN WG5

14.6 TSG RAN WG6

14.6.1 Approval of CRs to closed Rel-8 WIs and WIs of previous releases

14.6.2 Approval of CRs to closed Rel-9 WIs (incl. TEI9)

14.6.3 Approval of CRs to closed Rel-10 WIs (incl. TEI10)

14.6.4 Approval of CRs to closed Rel-11 WIs (incl. TEI11)

RP-180069 **RAN6 agreed CRs for REL-11 WI: TEI11 (+ mirror CRs)**
Source: RAN6

Decision: The document was **approved**.

14.6.5 Approval of CRs to closed Rel-12 WIs (incl. TEI12)

14.6.6 Approval of CRs to closed Rel-13 WIs (incl. TEI13)

RP-180070 **RAN6 agreed CRs for REL-13 WI: CIoT_EC_GSM-Perf (+ mirror CR)**
Source: RAN6

Decision: The document was **approved**.

14.6.7 Approval of CRs to closed Rel-14 WIs (incl. TEI14)

RP-180071 **RAN6 agreed CRs for REL-14 WI: CIoT_EC_GSM_radio_enh**
Source: RAN6

Decision: The document was **approved**.

RP-180072 **RAN6 agreed CRs for REL-14 WI: TEI14**
Source: RAN6

Decision: The document was **approved**.

14.6.8 Approval of linked CR packages led by RAN WG6

14.7 Closed SIs for REL-14 and earlier

15 Inter WG/TSG-related discussions & decisions

RP-180477 **Exception Sheet Renewal**
Source: SA chairman (Samsung)

Abstract:

update of the form

Decision: The document was **not treated**.

16 Terms of Reference (ToR)

17 Project management

RP-180019 **3GPP Work Plan review at Plenary #79**
Source: ETSI MCC

Decision: The document was **not treated**.

RP-180485 **Editorial modifications of the WID template**
Source: ETSI MCC

Decision: The document was **not treated**.

RP-180486 **TR 21.914 v2.0.0 on Summary of 3GPP Release 14**
21.914 v2.0.0
Source: ETSI MCC

Decision: The document was **not treated**.

RP-180487 **TR 21.915 v0.0.0 on Summary of 3GPP Release 15**
21.915 v0.0.0
Source: ETSI MCC

Decision: The document was **not treated**.

RP-180566 **Status of time budgets for RAN1/2/3/4/6 ongoing and new WIs/SIs after RAN #79**
Source: RAN1/RAN2/RAN3/RAN4/RAN6 chairmen

Abstract:

to be endorsed by email after RAN #79

Decision: The document was **by email discussion**.

18 Future meeting schedule

RAN meeting schedule 2010 - 2020:

MEETING	DATES	LOCATION	HOST
RAN #47	16 March – 19 March 2010	Vienna, Austria	EF3
RAN #48	1 June – 4 June 2010	Seoul, Korea	TTA
RAN #49	14 Sep. – 17 Sep. 2010	San Antonio, USA	NAF3
RAN #50	7 Dec. – 10 Dec. 2010	Istanbul, Turkey	EF3
RAN #51 @	15 March – 18 March 2011	Kansas City, USA	Sprint Nextel
RAN #52	31 May – 3 June 2011	Bratislava, Slovakia	EF3
RAN #53	13 Sep. – 16 Sep. 2011	Fukuoka, Japan	ARIB & TTC
RAN #54	6 Dec. – 9 Dec. 2011	Berlin, Germany	EF3
RAN #55	28 Feb. – 2 March 2012	Xiamen, China	ZTE, CMCC
REL-12 workshop ***	11 June - 12 June 2012	Ljubljana, Slovenia	EF3
RAN #56	13 June – 15 June 2012	Ljubljana, Slovenia	EF3

MEETING	DATES	LOCATION	HOST
RAN #57	4 Sep. – 7 Sep. 2012	Chicago, USA	NAF3
RAN #58	4 Dec. – 7 Dec. 2012	Barcelona, Spain	EF3
RAN #59 @	26 Feb. – 1 March 2013	Vienna, Austria	EF3
RAN #60	11 June – 14 June 2013	Oranjestad, Aruba	NAF3
RAN #61	3 Sep. – 6 Sep. 2013	Porto, Portugal	EF3
RAN #62	3 Dec. – 6 Dec. 2013	Busan, Korea	TTA
RAN #63 **	3 March – 6 March 2014	Fukuoka, Japan	ARIB & TTC
RAN #64	10 June – 13 June 2014	Sophia Antipolis, France	ETSI
RAN workshop LTE-U	13 June 2014	Sophia Antipolis, France	ETSI
RAN #65	9 Sep. – 12 Sep. 2014	Edinburgh, Scotland	EF3
RAN #66 **	8 Dec. – 11 Dec. 2014	Maui, USA	NAF3
RAN #67 ** @	9 March – 12 March 2015	Shanghai, China	Huawei
RAN #68 **	15 June – 18 June 2015	Malmö, Sweden	EF3
workshop LAA	29 Aug. 2015	Beijing, China	Huawei
RAN #69 **	14 Sep. – 16 Sep. 2015	Phoenix, USA	NAF3
workshop 5G	17 Sep. – 18 Sep. 2015	Phoenix, USA	NAF3
RAN #70 **	7 Dec. – 10 Dec. 2015	Sitges, Spain	EF3
5G Req. ad hoc	28 Jan. - 29 Jan. 2016	Barcelona, Spain	EF3
RAN #71 **	7 March – 10 March 2016	Göteborg, Sweden	EF3
RAN #72 **	13 June – 16 June 2016	Busan, Korea	TTA
RAN #73 **	19 Sep. – 22 Sep. 2016	New Orleans, USA	NAF3
RAN #74 **	5 Dec. – 8 Dec. 2016	Vienna, Austria	EF3
RAN #75 ** @	6 March - 9 March 2017	Dubrovnik, Croatia	EF3
RAN #76 **	5 June - 8 June 2017	West Palm Beach, USA	NAF3
RAN #77 **	11 Sep. - 14 Sep. 2017	Sapporo, Japan	ARIB & TTC
RAN #78 **	18 Dec. - 21 Dec. 2017	Lisbon, Portugal	EF3
**RAN #79 ** **	**19 March – 22 March 2018**	**Chennai, India**	**IF3**
RAN #80 **	11 June – 14 June 2018	La Jolla (CA), USA	NAF3
RAN #81 **	10 Sep. – 13 Sep. 2018	Gold Coast, Australia	Telstra
Workshop on 3GPP submission towards IMT-2020	24 Oct. – 25 Oct. 2018	Brussels, Belgium	EC
RAN #82 **	10 Dec. – 13 Dec. 2018	Sorrento, Italy	EF3
RAN #83 ** @	18 March - 21 March 2019	tbd, China	Huawei
RAN #84 **	3 June - 6 June 2019	tbd, North America	NAF3
RAN #85 **	16 Sep. - 19 Sep. 2019	tbd, North America	NAF3
RAN #86 **	9 Dec. - 12 Dec. 2019	Sitges, Spain	EF3
RAN #87 **	16 March - 19 March 2020	tbd, Korea	TTA
RAN #88 **	15 June – 18 June 2020	tbd, Europe	EF3
RAN #89 **	14 Sep. – 17 Sep. 2020	tbd, Europe	EF3
RAN #90 **	7 Dec. – 10 Dec. 2020	tbd, USA	NAF3

***: RAN Workshop on REL-12 and onwards
**: 1 week TSG i.e. in same week with CT and SA, therefore RAN starting on Monday (compare RP-131328)
@: elections

19 Any other business

At 18:00 on Thursday the RAN chairman checked whether there are any objections to continue for another 30min. No objections.

20 Closing of the meeting

The TSG RAN chairman Balazs Bertenyi (Nokia) thanked the delegates for participating and contributing to RAN meeting #79, he thanked the host for organizing the meeting and he closed the meeting on Thursday March 22nd, 2018 at 18:30.

EX-1016, 1058 of 1750

Annex A:
List of participants

The list of participants of this RAN meeting #79 is attached to this report.

Total number of participants: 268 (registered before the meeting: 339)

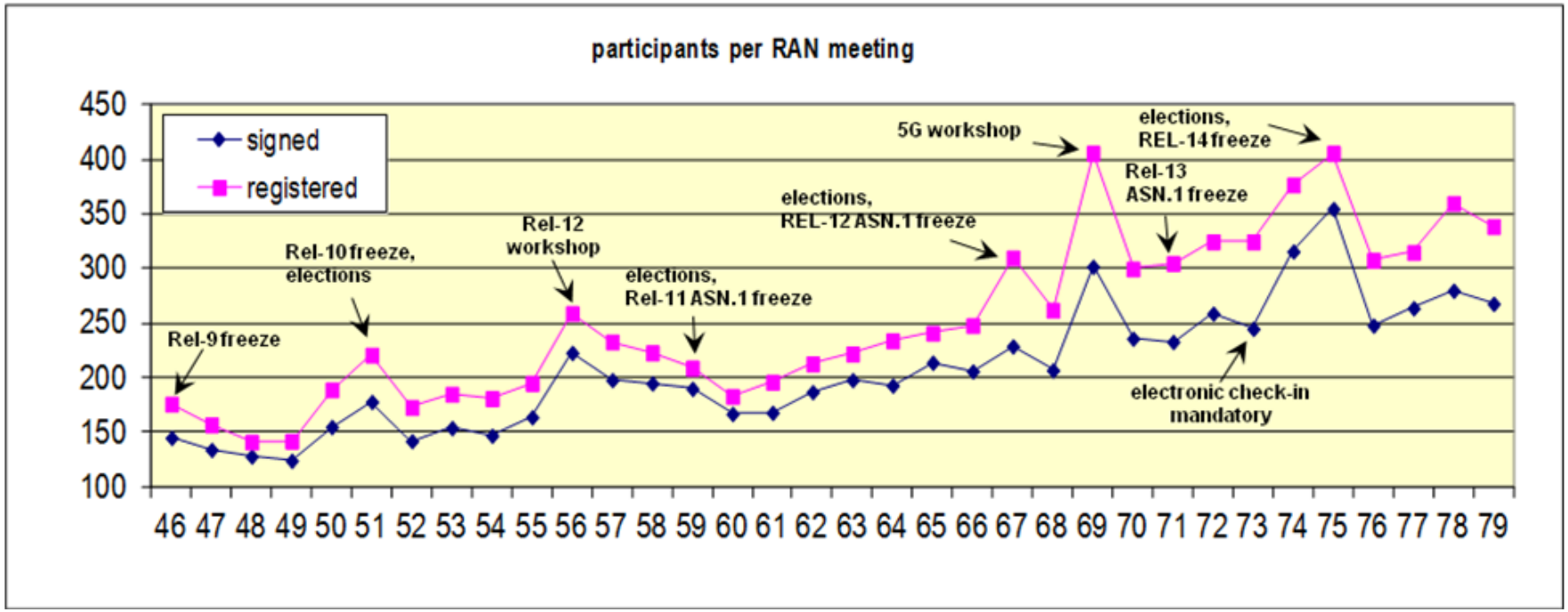


Fig. A-1: Participants per RAN meeting (registered beforehand and actual participants who signed)
(1 week TSG: #63, #66 and further meetings)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

EX-1016, 1059 of 1750

Annex B:
List of Tdocs

The list of Tdocs of this RAN meeting #79 is attached to this report.

Total number of Tdocs: 598 (RP-180001 - RP-180598) of which 579 Tdocs are available, i.e. 19 are not available and they are withdrawn.

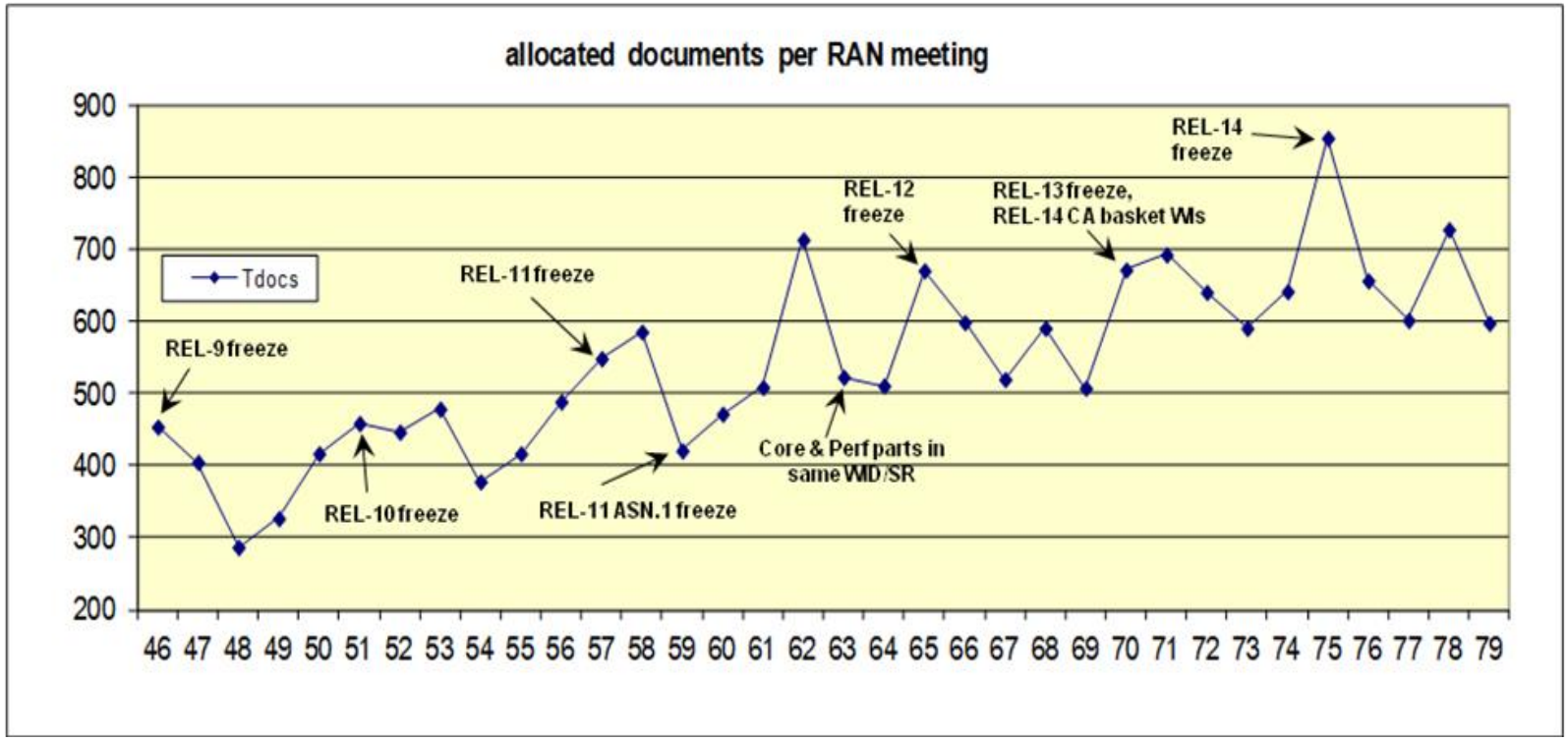


Fig. B-1: Number of allocated Tdocs per RAN meeting

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex C:
Incoming liaison statements (LSin)

In total 27 LSs/LTIs were received for RAN #79. 26 LSs/LTIs were treated. 1 LS (RP-180567) was not treated.

Document	Original	Title	From	Decision	Reply in
RP-180020	S1-180595	LS on support of Voice Service Continuity from 5G System to UTRAN CS (S1-180595; to: SA3, SA2; cc: RAN, SA; contact: T-Mobile Austria)	SA1	noted	
RP-180021	S1-180628	Reply LS to SP-171079 = RP-180023 on URLLC (S1-180628; to: SA, SA2; cc: RAN, RAN1, RAN2; contact: Vodafone)	SA1	noted	
RP-180022	SP-171078	Response LS to S1-174610 on voice service continuity from 5G to 2/3G (SP-171078; to: SA1, SA2, SA3; cc: RAN, SA3-LI; contact: China Unicom)	SA	noted	
RP-180023	SP-171079	Reply LS to S2-179646 = RP-172173 on URLLC (SP-171079; to: SA1, SA2; cc: RAN, RAN1, RAN2; contact: Vodafone)	SA	noted	
RP-180024	5GAA_S-170179	LS to 3GPP on C-V2X evolution (5GAA_S-170179; to: RAN, SA; cc: SA1; contact: Intel)	5GAA	noted	
RP-180025	CEPT ECC_WG_SE(18)032A17	Letter to 3GPP on revision of ERC Recommendation 74-01, on unwanted emissions in the spurious domain (CEPT ECC_WG_SE(18)032A17; to: RAN; cc: RAN4; contact: Bundesnetzagentur)	CEPT ECC WG SE	noted	
RP-180026	NGMN_LS_171222	LS on Architectural Proposal for the Handling of Network Operations Data with Specific Focus on Virtualized Networks (NGMN_LS_171222; to: CT, RAN, SA, ETSI, TM Forum; cc: - ; contact: Deutsche Telekom)	NGMN	noted	
RP-180027	ITU-R WP5D/TEMP/465(Rev.1)	LS on Availability of initial description template information related to proposals for the terrestrial components of the radio interface(s) for IMT-2020 (ITU-R WP5D/TEMP/465(Rev.1); to: RAN, SA, ATIS WTSC, 5G Infrastructure Association, ChEG Chinese Evaluation Group, Canadian Evaluation Group, Wireless World Research Forum, TCOE India, 5GMF, TTA SPG33, Trans-Pacific Evaluation Group, ETSI Evaluation Group, Egyptian Evaluation Group, Korea, China; cc: -; contact: Counsellor ITU-R SG 5)	ITU-R WP5D	noted	

EX-1016, 1060 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Document	Original	Title	From	Decision	Reply in
RP-180028	ITU-R WP5D/TEMP/464(Rev.1)	LS on Confirmation of receipt of initial description templates related to proposals for the terrestrial components of the radio interface(s) for IMT-2020 (ITU-R WP5D/TEMP/464(Rev.1); to:RAN, SA, Korea, China, 3GPP2, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, TIA, TSDSI, TTA, TTC, WiMAX Forum, EBU, WWRF, 5G Americas, CDG, GSMA, Wi-Fi Alliance, Wireless Innovation Forum, XGP Forum, EU METIS Project, NGMN, 5G Innovation Centre, 5GMF, IMT 2020 Promotion Group, APT Wireless Group, NYU Wireless, ATIS WTSC, 5G Infrastructure Association, ChEG Chinese Evaluation Group, Canadian Evaluation Group, Wireless World Research Forum, TCOE India, TTA SPG33, Trans-Pacific Evaluation Group, ETSI Evaluation Group, Egyptian Evaluation Group; cc: -; contact: Counsellor ITU-R SG 5)	ITU-R WP5D	noted	
RP-180029	ITU-R WP5D/TEMP/450(Rev.1)	LS on the Revised schedule for updating Recommendation ITU-R M.2012 to Revision 4 (ITU-R WP5D/TEMP/450(Rev.1); to: RAN, SA, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, WiMAX Forum, TSDSI, TTA, TTC; cc: -; contact: Counsellor ITU-R SG 5)	ITU-R WP5D	noted	
RP-180030	ITU-R WP5D/TEMP/445(Rev.1)	LS on IMT-2020 in support of PPDR (ITU-R WP5D/TEMP/445Rev.1; to: RAN, SA; cc: -; contact: Counsellor ITU-R SG 5)	ITU-R WP5D	replied to	RP-180555
RP-180031	R1-1803373	LS on introducing of LTE UE DL CAT 21 for 1.4Gbps in Rel.14 (R1-1803373; to: RAN2; cc: RAN; contact: HiSilicon)	RAN1	noted	
RP-180032	R2-1804091	LS to RAN on IMT-2020 requirement for 0ms handover interruption time in Rel-15 (R2-1804091; to: RAN; cc: -; contact: ZTE)	RAN2	noted	
RP-180033	R4-1802691	Reply LS to RP-172823 on NR interworking with GSM and UMTS (R4-1802691; to: RAN; cc: SA1, SA2, RAN2, RAN3, RAN4, RAN5, RAN6, SA, CT; contact: Huawei)	RAN4	noted	
RP-180034	ITU_T_JCA-IMT2020-O-003	LS on Invitation to update the information in the IMT2020 roadmap (ITU_T_JCA-IMT2020-O-003; to: RAN, ITU-R/ITU-T/ITU-D study groups, BBF (Architecture and Migration, Routing and Transport, Wireline Convergence), ETSI (ISG MEC, ISG NFV, Millimetre Wave Transmission), GSMA (Network 2020), IEEE (Next Generation Fronthaul Interface (1914) Working Group, Time-Sensitive Networking for Fronthaul - 802.1cm, 5G), IETF (DETNET, DMM, SFC), MEF (Technical & Operations Committee), NGNM (5G Work Programme), OASIS (TOSCA), oneM2M, ONF (Architecture, Mobile Networks), ONAP, OSSDN, SCF, TM Forum, TTA (Telecommunications Convergence); cc: -; contact: Ericsson)	ITU-T JCA IMT2020	noted	
RP-180035	5GAA_S-180039	Reply to LS to R1-1719239 = RP-172155 on eV2X evaluation methodology (5GAA_S-180039; to: RAN1; cc: RAN, 5GAA WG2, 5GAA WG5; contact: Intel)	5GAA WG4	noted	
RP-180036	R1-1803444	LS on 3GPP TR38.811 Chapter 6 skeleton (R1-1803444; to: RAN; cc: -; contact: Thales)	RAN1	noted	

EX-1016, 1061 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Document	Original	Title	From	Decision	Reply in
RP-180037	ITU_T_SG15_LS115	Reply LS to RP-172097 on Initiation of work to support IMT-2020/5G in the Transport Network (ITU_T_SG15_LS115; to: RAN, SA; cc: MEF, BBF, NGMN, ITU-T SG13; contact: Ciena)	ITU-T SG15	replied to	RP-180557
RP-180038	R4-1803463	Reply LS to CEPT ECC_WG_SE(18)032A17 = RP-180025 on revision of ERC Recommendation 74-01, on unwanted emissions in the spurious domain (R4-1803463; to: CEPT ECC WG SE; cc: RAN, CEPT ECC WG SE21; contact: Ericsson)	RAN4	noted	
RP-180039	RT-180007	LS on Summary of email discussion "[ITU-R AH 01] Calibration for self-evaluation" (RT-180007; to: RAN, RAN1, RAN2, RAN4; cc: -; contact: Huawei)	3GPP RAN ITU-R Ad Hoc	noted	
RP-180040	RT-180009	DRAFT Reply Letter to RP-172144 = ITU-R WP5D/TEMP/388r1 on Update submission for LTE-Advanced toward Rev. 4 of Rec. ITU-R M.2012 (RT-180009; to: RAN; cc: -; contact: Telecom Italia)	3GPP RAN ITU-R Ad Hoc	noted	
RP-180041	TCCA_LS_180315	LS on UE Conformance Test Aspects – Mission Critical Improvements (TCCA_LS_180315; to: RAN; cc: RAN5; contact: TCCA CCBG chairman)	TCCA	noted	
RP-180042	R1-1803480	LS on NR UE feature list (R1-1803480; to: RAN, RAN2, RAN4; cc: RAN3; contact: NTT DOCOMO)	RAN1	noted	
RP-180043	NGMN_LS_180212	LS on NGMN Paper on 5G End-to-End Architecture Framework (NGMN_LS_180212; to: SA3, ETSI SAGE, ETSI TC CYBER, ISO/IEC JTC1/SC 27, FIDO Alliance; cc: SA, RAN, SA1, SA2, SA3-LI, SA5, ETSI ISG NFV, ETSI ISG MEC, ETSI TC LI, Broadband Forum, Wireless Broadband Alliance, IEEE LAN/MAN, MEF, TM Forum; contact: Vodafone)	NGMN	noted	
RP-180492	NGMN_LS_180318	LS on NGMN View on Importance of Completion of Architecture Options in Release 15 (NGMN_LS_180318; to: RAN; cc: -; contact: Telecom Italia)	NGMN	noted	
RP-180496	RT-180011	LS on Summary of email discussion "[ITU-R AH 01] Calibration for self-evaluation" (RT-180011; to: RAN, RAN1, RAN2, RAN4; cc: -; contact: Huawei)	3GPP RAN ITU-R Ad Hoc	noted	
RP-180567	NGMN_LS180320	LS on on the 5G trials framework (NGMN_LS180320; to: RAN; cc: -; contact: Vodafone)	NGMN	not treated	

EX-1016, 1062 of 3750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

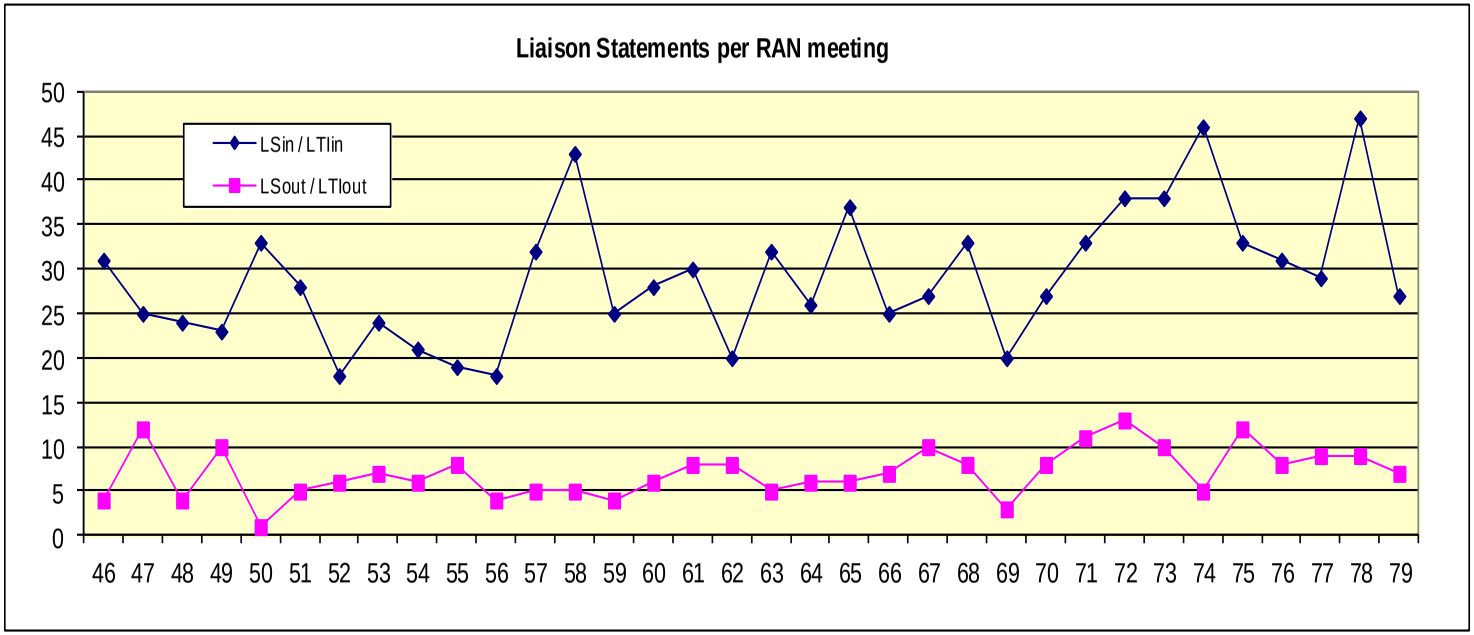


Fig. C-1: Number of incoming/outgoing Liason Statements (LS) and Letter to ITU (LTI) per RAN meeting

EX-1016, 1063 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex D:
Outgoing liaison statements (LSout)

Only final outgoing LSs are listed here. 7 outgoing LSs/LTIs of RAN #79 (0 of them approved by email):

Document	Title	To	Cc	reply to LSin
RP-180518 ***	DRAFT Reply Letter to ITU-R WP5D/TEMP/388r1 = RP-172144 on Update submission for LTE-Advanced toward Rev. 4 of Rec. ITU-R M.2012 (to: SA; cc: -; contact: Telecom Italia)	SA	-	ITU-R WP5D/TEMP/388r1 = RP-172144
RP-180555 ***	Draft Reply Letter to ITU-R WP5D/TEMP/445Rev.1 = RP-180030 on IMT-2020 in support of PPDR (to: SA; cc: -; contact: Telecom Italia)	SA	-	ITU-R WP5D/TEMP/445Rev.1 = RP-180030
RP-180556 ***	Draft Letter to ITU on 3GPP IMT-2020 Self-evaluation (to:SA; cc: -; contact: Qualcomm)	SA	-	-
RP-180557	Reply LS ITU_T_SG15_LS115 = RP-180037 on work to support IMT-2020/5G in the Transport Network (to: ITU-T SG15; cc: -; contact: Ericsson)	ITU-T SG15	-	ITU_T_SG15_LS115 = RP-180037
RP-180590	LS on secured signalling only connection (to: SA2, SA3, RAN3; cc: RAN2, SA; contact: Nokia)	SA2, SA3, RAN3	RAN2, SA	-
RP-180596	LS on NR UE feature list (to: RAN1, RAN2, RAN4; cc: RAN3; contact: NTT DOCOMO)	RAN1, RAN2, RAN4	RAN3	-
RP-180598	LS on optimisation of UE capability signalling (to: SA, RAN2; cc: SA2, RAN3, CT1; contact: Deutsche Telekom, Vodafone)	SA, RAN2	SA2, RAN3, CT1	-

***: uses Letter to ITU template (LTI)

LSout RP-180518, RP-180555, RP-180556 were sent out to SA on Wed of RAN #79

EX-1016, 1064 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

EX-1016, 1065 of 1750

Annex E:
List of Change Requests (CRs)

1114 CRs (incl. cat.A CRs) were handled at RAN #79 and 1107 CRs were approved.

A corresponding list of all CRs is included in the attached Tdoc list.

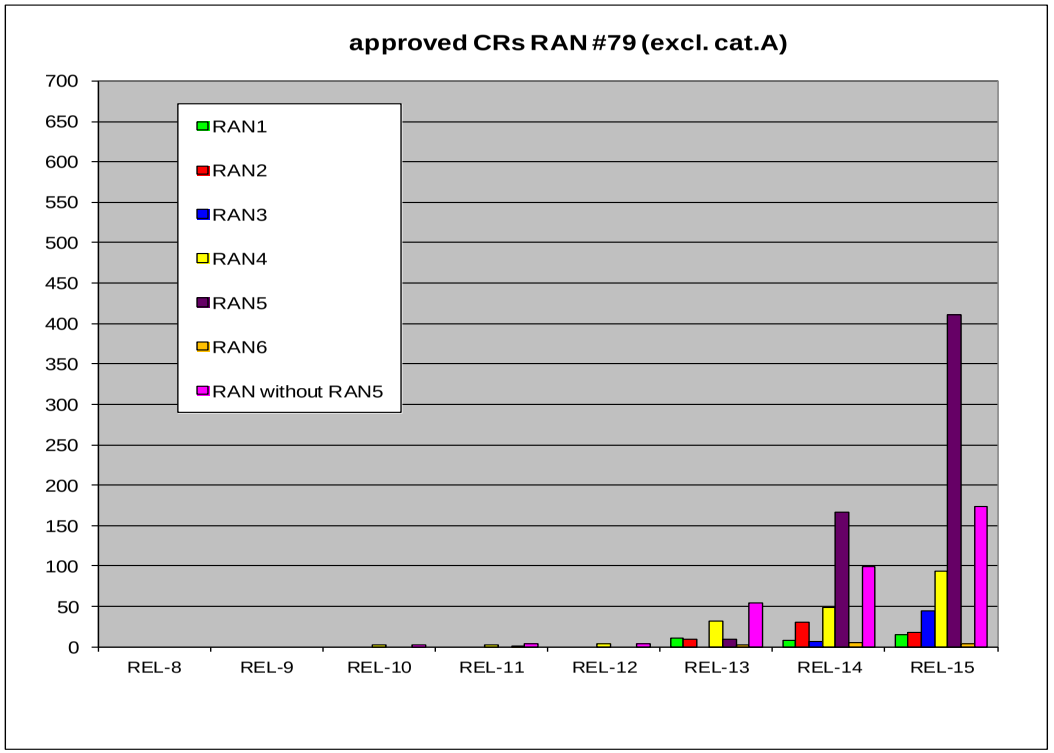


Fig. E-1: Approved CRs (excluding category A CRs) of this RAN meeting per WG and release

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

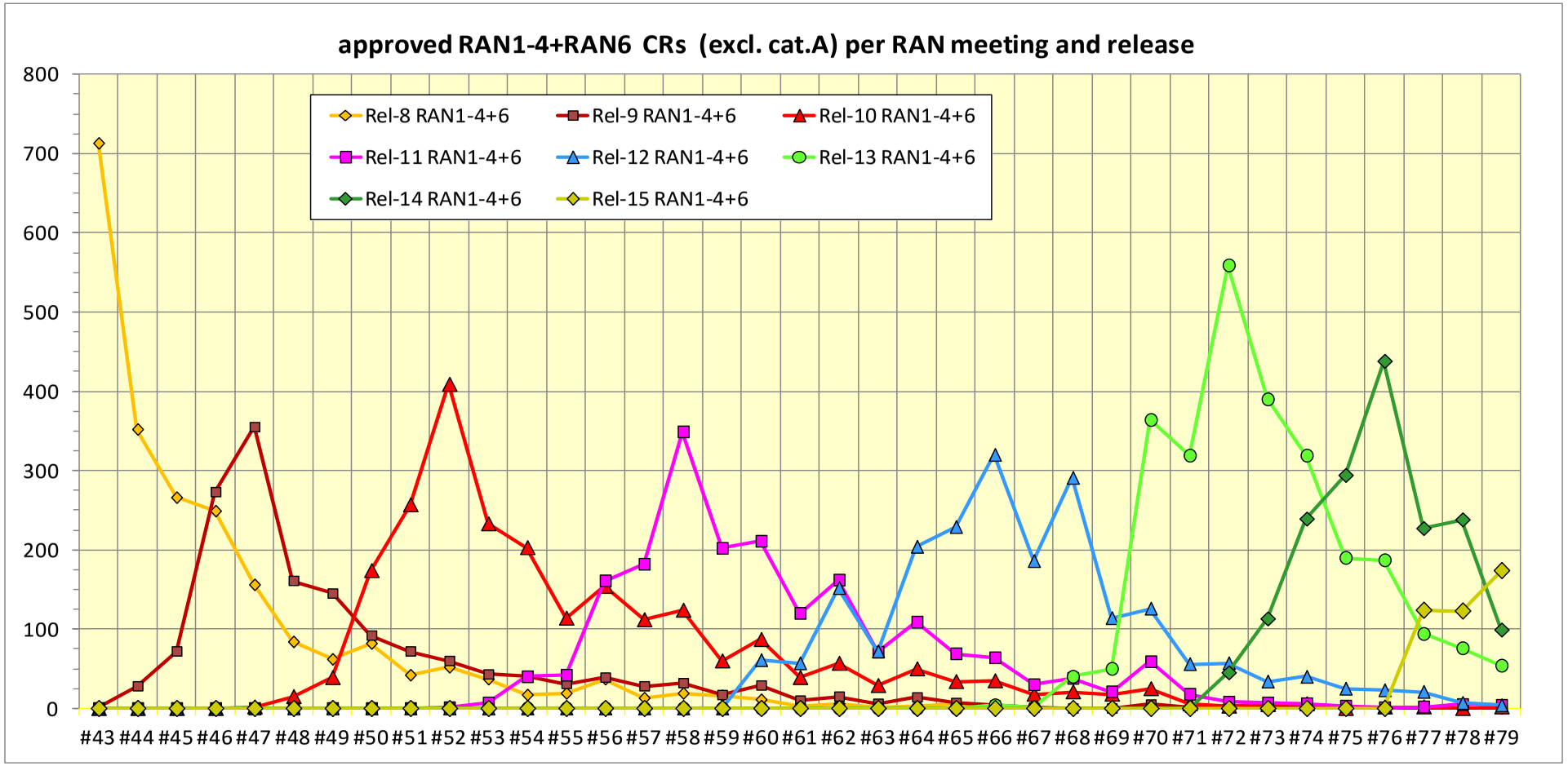


Fig. E-2: Approved CRs RAN1+2+3+4+6 (<u>excluding</u> category A CRs) of this and previous RAN meetings per release
<u>REL freeze</u>: REL-8: RAN #42, REL-9: RAN #46, REL-10: RAN #51, REL-11: RAN #57, REL-12: RAN #65, REL-13: RAN #70, REL-14: RAN #75, REL-15: RAN #80;
<u>ASN.1 freeze</u>: REL-8: RAN #43 (713 CRs* at #43), REL-9: RAN #47 (355 CRs* at #47), REL-10: RAN #52 (409 CRs* at #52) (apart from Un: #53),
REL-11: RAN #59 (349 CRs* at #58), REL-12: RAN #67 (320 CRs* at #66), REL-13: RAN #71 (apart from NB-IOT: #72) (559 CRs* at #72),
REL-14: RAN #76 (438 CRs* at #76), REL-15: RAN #81
***: peak number of CRs in this release (excl. cat.A and testing CRs)**

EX-1016, 1066 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

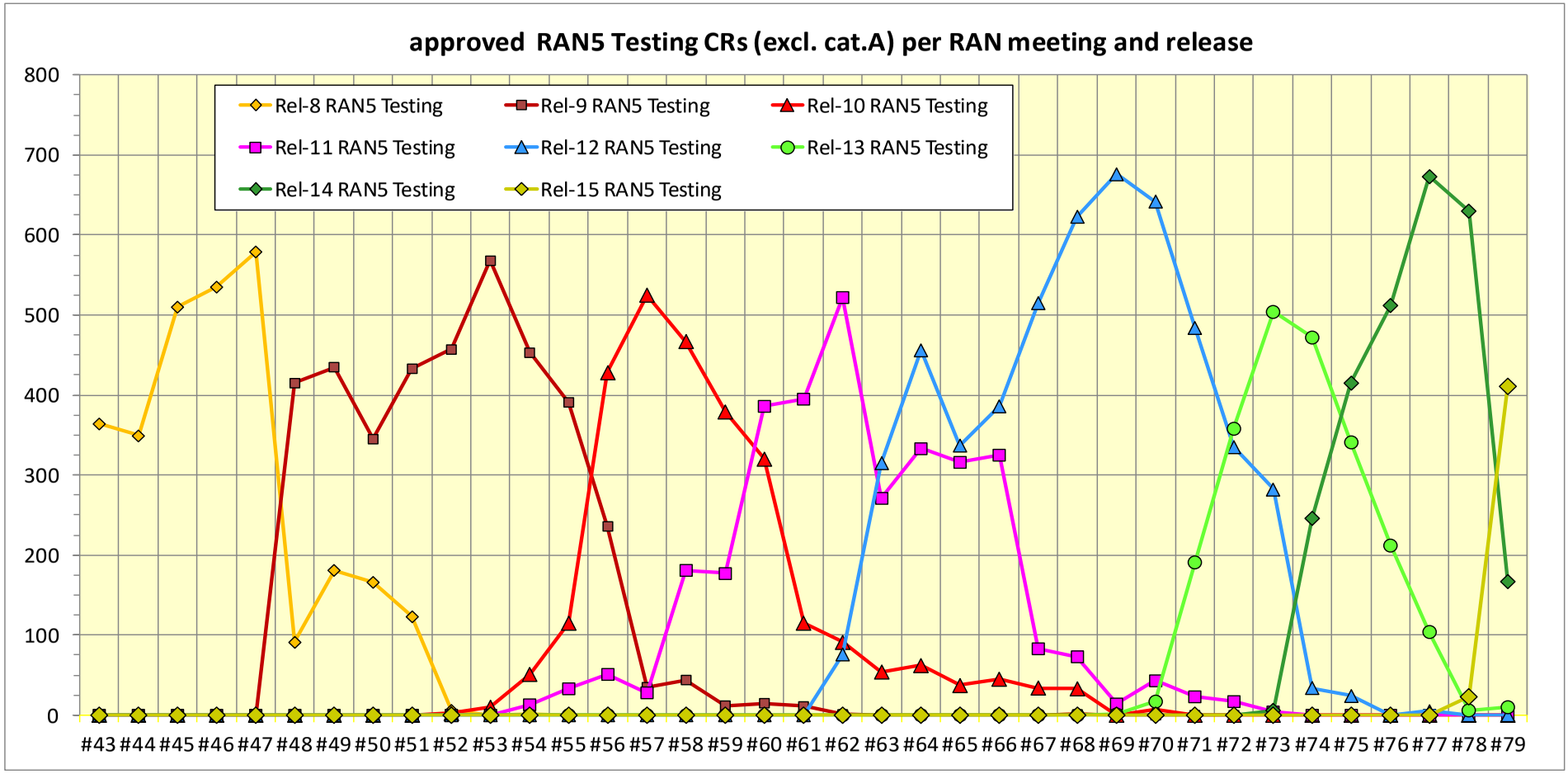


Fig. E-3: Approved CRs RAN5 (excluding category A CRs) of this and previous RAN meetings per release
REL freeze: REL-8: RAN #42, REL-9: RAN #46, REL-10: RAN #51, REL-11: RAN #57, REL-12: RAN #65, REL-13: RAN #70, REL-14: RAN #75, REL-15: RAN #80;
ASN.1 freeze: REL-8: RAN #43, REL-9: RAN #47, REL-10: RAN #52 (apart from Un: #53), REL-11: RAN #59, REL-12: RAN #67,
REL-13: RAN #71 (apart from NB-IOT: #72), REL-14: RAN #76, REL-15: RAN #81

EX-1016, 1067 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

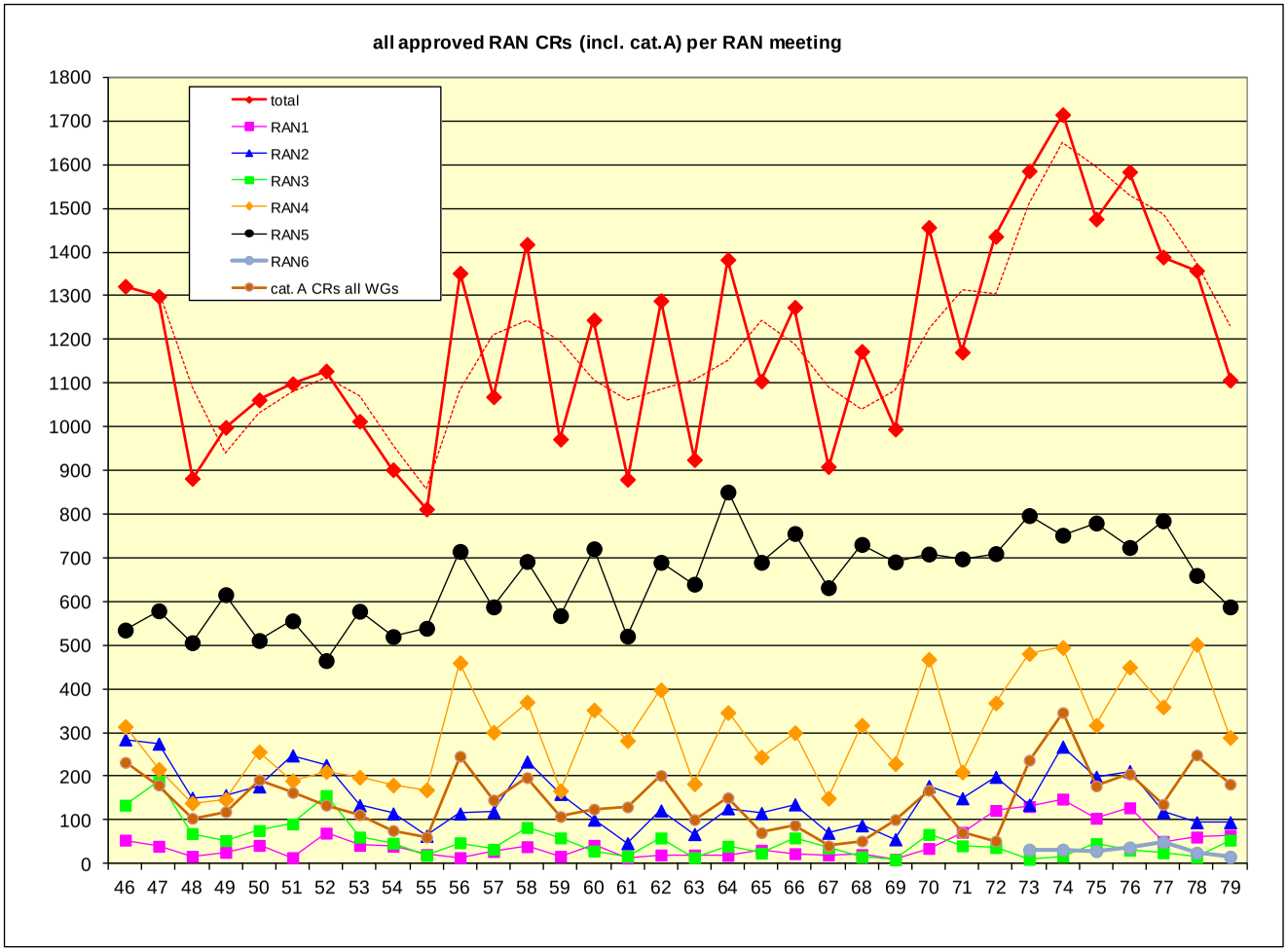


Fig. E-4: Approved CRs (all releases <u>including</u> category A CRs) per RAN WG and per RAN meeting
<u>REL freeze</u>: REL-8: RAN #42, REL-9: RAN #46, REL-10: RAN #51, REL-11: RAN #57, REL-12: RAN #65, REL-13: RAN #70, REL-14: RAN #75, REL-15: RAN #80;
<u>ASN.1 freeze</u>: REL-8: RAN #43, REL-9: RAN #47, REL-10: RAN #52 (apart from Un: #53),REL-11: RAN #59, REL-12: RAN #67,
REL-13: RAN #71 (apart from NB-IOT: #72), REL-14: RAN #76, REL-15: RAN #81

EX-1016, 1068 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

EX-1016, 1069 of 1750

Annex F:
Summary of RAN work items (WI) and study items (SI)

An overview of recent RAN work items and study items (starting from REL-9 and including the new WIs & SIs approved at this meeting) is attached to this report.

This overview is used as input for the 3GPP workplan which lists all 3GPP work and study items.

NOTE: REL-4, REL-5, REL-6 and REL-7 were closed after RAN #65, i.e. no CRs to specifications of these releases will be considered anymore.

REL-7:		
REL-7 stage 1 freeze:	Sep.05	TSG #29
REL-7 stage 2 freeze:	Sep. 06	TSG #33
REL-7 freeze:	March 07	TSG #35
REL-7 ASN.1 freeze:	March 08	TSG #39
REL-8:	7 quarters	
REL-8 stage 1 freeze:	Dec.07	TSG #38
REL-8 stage 2 freeze:	June 08	TSG #40
REL-8 freeze:	Dec.08	TSG #42
REL-8 ASN.1 freeze:	March 09	TSG #43
REL-9:	4 quarters	
REL-9 stage 1 freeze:	Dec.08	TSG #42
REL-9 stage 2 freeze:	June 09	TSG #44
REL-9 freeze:	Dec.09	TSG #46
REL-9 ASN.1 freeze:	March 10	TSG #47
REL-10:	5 quarters	
REL-10 stage 1 freeze:	March 10	TSG #47
REL-10 stage 2 freeze:	Sep.10	TSG #49
REL-10 freeze:	March 11	TSG #51
REL-10 ASN.1 freeze:	June 11	TSG #52 (apart from Un for Relays: frozen in Sep.11 at TSG #53)
REL-11:	6 quarters	
REL-11 stage 1 freeze:	Sep.11	TSG #53
REL-11 stage 2 freeze:	March 12	TSG #55
REL-11 freeze:	Sep.12	TSG #57
REL-11 ASN.1 freeze:	March 13	TSG #59

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

REL-12:	8 quarters	
REL-12 stage 1 freeze:	March 13	TSG #59
REL-12 stage 2 freeze:	Dec.13	TSG #62
REL-12 freeze:	Sep.14	TSG #65
REL-12 ASN.1 freeze:	March 15	TSG #67

REL-13:	5 quarters	
REL-13 stage 1 freeze:	Sep.14	TSG #65
REL-13 stage 2 freeze:	June 15	TSG #68
REL-13 freeze:	Dec.15	TSG #70
REL-13 ASN.1 freeze:	March 16	TSG #71 (apart from NB-IoT aspects in 36.331: frozen in June 16 at RAN #72)

REL-14:	5 quarters	
REL-14 stage 1 freeze:	March 16	TSG #71
REL-14 stage 2 freeze:	Sep.16	TSG #73
REL-14 freeze:	March 17	TSG #75**
REL-14 ASN.1 freeze:	June 17	TSG #76**

**: These target dates were endorsed by SA #69 (in connection with proposal SP-150564), and with RP-152228 the REL-14 freeze date was confirmed.

REL-15:	5 quarters	
REL-15 stage 1 freeze:	June 17	TSG #76
REL-15 stage 2 freeze:	Dec.17	TSG #78
REL-15 freeze:	June 18	TSG #80 (planned), see RP-152228
REL-15 ASN.1 freeze:	Sep.18	TSG #81 (planned)

note: Acc. to RP-170741: "early drop": completion of stage 3 for Non-Standalone (NSA) 5G-NR eMBB (incl. low latency support) with Option 3 targeted for Dec.17 (ASN.1 freeze: March 18).

note: Acc. to RP-180554: introduction of a "late drop of REL-15" (to be completed in Dec.18, ASN.1 freeze in March 19) to exclusively contain NR architecture options that were not completed by the REL-15 ASN.1 freeze in Sep.18 (option 4, 7; NR-NR DC to be considered to be added, option 5 if not completed by Sep.18).

REL-16:	6 quarters	
REL-16 stage 1 freeze:	Dec.18	TSG #82 (planned)
REL-16 stage 2 freeze:	June 19	TSG #84 (planned)
REL-16 freeze:	Dec.19	TSG #86 (planned), see RP-152228
REL-16 ASN.1 freeze:	March 20	TSG #87 (planned)

EX-1016, 1070 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

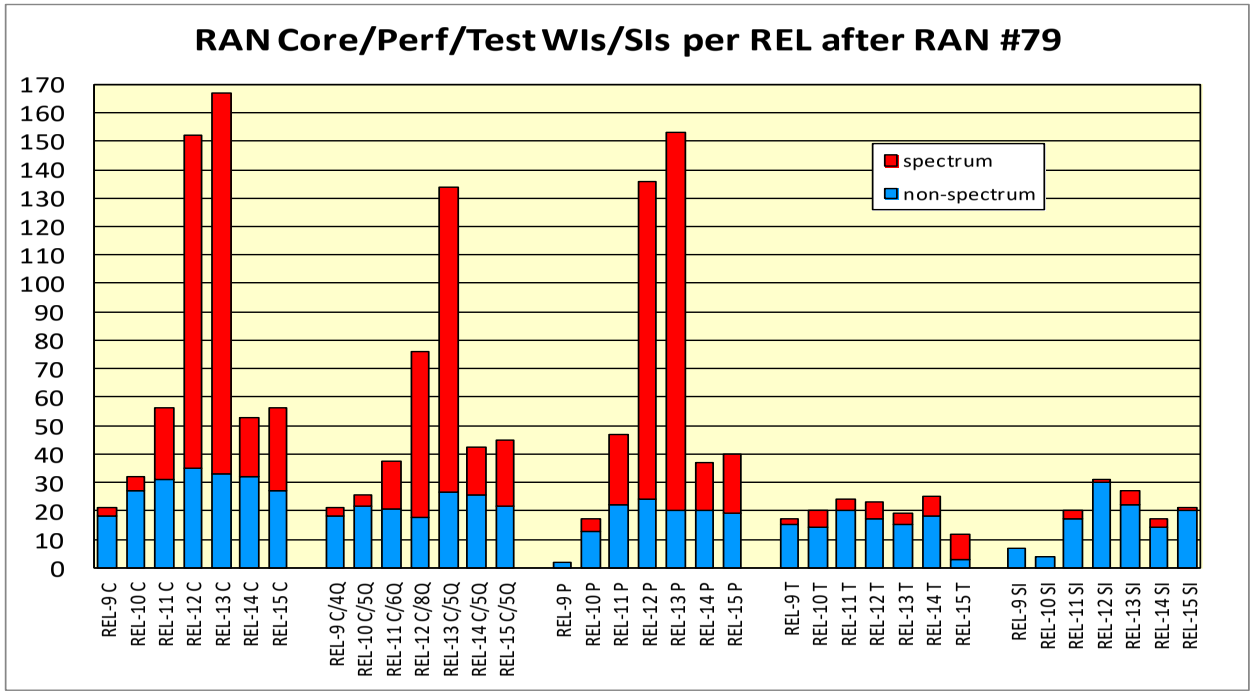


Fig. F-1: Statistics of all approved RAN WIs/SIs of REL-9/10//11/12/13/14/15 split into spectrum and non-spectrum related topics (<u>including</u> already completed WIs/SIs)
Note: For REL-15 the planned freeze in June 18 was used in this figure.

EX-1016, 1071 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

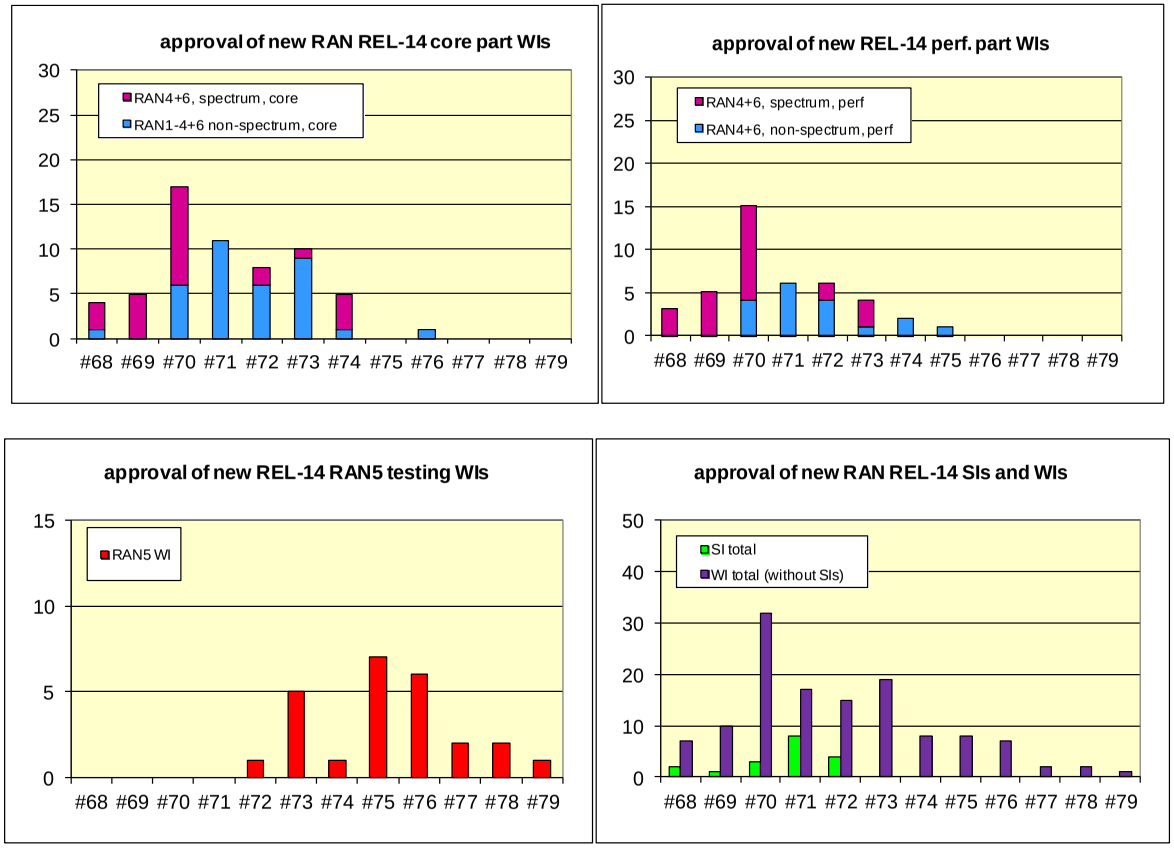


Fig. F-2: Overview of <u>new</u> REL-14 WIs and SIs per RAN meeting
REL-13 freeze: RAN #70 (Dec.15), ASN.1 freeze: RAN #71 (March 16);
REL-14 freeze: RAN #75 (March 17), ASN.1 freeze: RAN #76 (June 17);
(including WIs shifted from REL-13 to REL-14 or from REL-15 to REL-14)

EX-1016, 1072 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

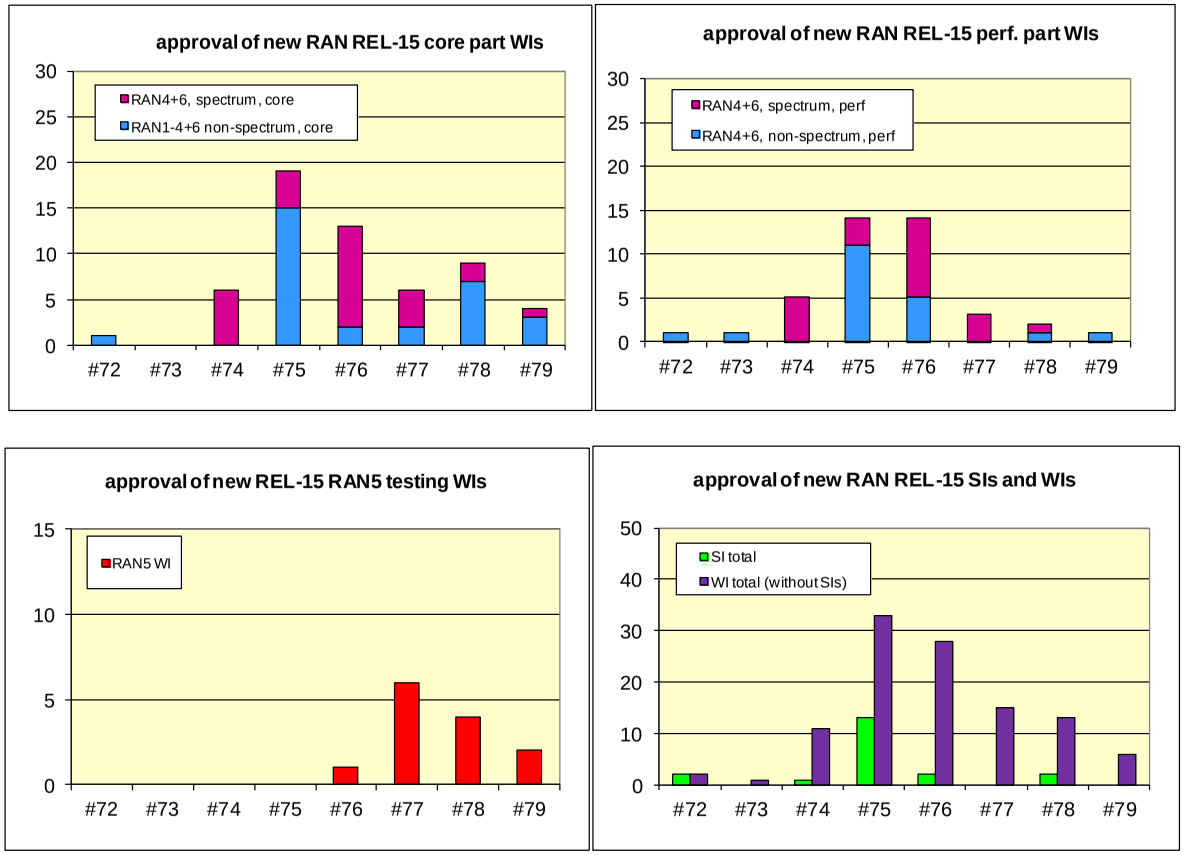


Fig. F-3: Overview of <u>new</u> REL-15 WIs and SIs per RAN meeting
REL-14 freeze: RAN #75 (March 17), ASN.1 freeze: RAN #76 (June 17);
REL-15 freeze: planned for RAN #80 (June 18), ASN.1 freeze: planned for RAN #81 (Sep.18);
(including WIs shifted from REL-14 to REL-15)

EX-1016, 1073 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

EX-1016, 1074 of 1750

Annex G:
RAN email discussions between RAN #79 and RAN #80:

Time budget summary:

Goal: to endorse TU summary as outcome of RAN #79.

Rapporteur: RAN1/2/3/4/6 chairmen.

conclusion: Email discussion was kicked off on the RAN reflector by the RAN1 chairman on 29.03.2018 with draft-RP-180566.
The endorsed time budget overview was sent out on 06.04.2018 in **RP-180566**.

New REL-16 WI/SI proposals:

RAN #78 endorsed RP-172795 on the handling of new SI/WI proposals and RAN #79 endorsed RP-180594 adding further email discussions.
Email discussions took place on RAN_DRAFTS email reflector:

- **[NR_MIMO]**: Moderator: Samsung
  kicked off by Juho Lee on 02.05.2018; a summary is provided to RAN #80 in RP-180900, a REL-16 WID is proposed in RP-180901
- **[LTE_MIMO]**: Moderator: Samsung
  kicked off by Juho Lee on 02.05.2018; a summary is provided to RAN #80 in RP-180906, a REL-16 WID is proposed in RP-180907
- **[NR_Voice]** Moderator: Huawei
  kicked off by Simone Provvedi on 25.04.2018; a summary is provided to RAN #80 in RP-181053, a REL-16 SID is proposed in RP-181060
- **[IoT_MTC]**: (for LTE & NR) Moderator: Ericsson
  kicked off by Asbjörn Grövlen on 02.05.2018; a summary is provided to RAN #80 in RP-180747, REL-16 SIs/WIs are proposed in RP-180748/749/750
- **[Broadcast]**(for LTE & NR) Moderator: Qualcomm
  kicked off by Lorenzo Casaccia on 08.05.2018 in 2 streams (Mixed Mode Multicasting, Terrestrial Broadcast);
  a summary is provided to RAN #80 in RP-180668, a REL-16 NR SID is proposed in RP-180669 and an LTE WID in RP-180672
- **[NR_V2X]**: Moderator: Vodafone
  kicked off by Siva Subramani on 17.05.2018; a summary is provided to RAN #80 in RP-181063, a REL-16 SID is proposed in RP-181064
- **[NR_Positioning]**: Moderator: Intel
  kicked off by Seunghee Han on 02.05.2018; a summary is provided to RAN #80 in RP-180896, a REL-16 SID is proposed in RP-180897
- **[NR_FlexibleDuplex-RemoteInterference]**: Moderator: LG
  kicked off by YunYung Yi on 30.04.2018; a summary is provided to RAN #80 in RP-180999, a REL-16 SID is proposed in RP-181000
- **[NR_Power_Consumption]**: Moderator: CATT (for the standalone aspects start after March 18)
  kicked off by Fang-Chen Cheng on 27.04.2018; a summary is provided to RAN #80 in RP-180923
- **[NR_misc]**: Moderator: NTT DOCOMO
  (Note: individual SI/WI is needed for each individual item, i.e. no umbrella enhancement WI/SI.)
  kicked off by Kazuki Takeda on 04.05.2018; a summary is provided to RAN #80 in RP-180993
- **[NR_URLLC]**: Moderator: Nokia (to be started after March 18)
  kicked off by Antti Toskala on 10.04.2018; a summary is provided to RAN #80 in RP-180973, a REL-16 WID is proposed in RP-180975
- **[NR_Mobility]**: Moderator: Intel (to be started after March 18)
  kicked off by Youn Hyoung Heo on 17.04.2018; a summary is provided to RAN #80 in RP-180938, a REL-16 WID is proposed in RP-180939

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

- **[Rel-16 LTE enhancements]** (other than IoT, MIMO, broadcast): Moderator: Softbank
  kicked off by Yosuke Akimoto on 10.04.2018; a summary is provided to RAN #80 in RP-180757, also multipe SIs/WIs are proposed
- **[NR_spectrum_enh]**: NR spectrum utilization efficiency enhancements (RP-180380) Moderator: Huawei
  kicked off by David Mazzarese on 27.04.2018; a summary is provided to RAN #80 in RP-180876, a REL-16 WID is proposed in RP-180885
- **[NR_Beyond_52GHz]**: NR design beyond 52.6 GHz (RP-180320, RP−180453); Moderator: Intel
  kicked off by Eddy Kwon on 02.05.2018; a summary is provided to RAN #80 in RP-180929, a REL-16 SID is proposed in RP-180931
- **[NR_Coverage]**: Evaluations of NR coverage (RP-180220) Moderator: China Telecom
  Email discussion in parallel with self-evaluation SI email discussions
  kicked off by Jianchi Zhu on 02.05.2018; a summary is provided to RAN #80 in RP-180753, a REL-16 WID is proposed in RP-180752
- **[NR_SI_non_terrestrial]**: Moderator: Thales
  Study on solutions evaluation for NR to support Non Terrestrial Network (RP-180182)
  kicked off by Nicolas Chuberre on 14.05.2018; a summary is provided to RAN #80 in RP-180663, a REL-16 SID is proposed in RP-180662
- **[Data collection/MDT/SON]**: Moderator: CMCC
  Data collection/MDT/SON for NR (RP-180313, RP-180462)
  kicked off by Liang Liu on 30.04.2018; a summary is provided to RAN #80 in RP-180863, a REL-16 SID is proposed in RP-180865
- **[Study on 6 - 24 GHz frequency range]**: Moderator: Dish
  Study on 6 - 24 GHz frequency range (RP-180455); email discussion until September 2018
  kicked off by Antti Immonen on 28.05.2018; a summary is provided to RAN #80 in RP-180972.

NOTE: Other individual company proposals are also encouraged to be further developed on the RAN_DRAFTS exploder.

Peak data rate values for REL-15 NR UE categories:
This is a coninuation of the email discussion after RAN #78 that was summarized in RP-180343. The continuation was decided after RP-180355 discussion.
Rapporteur: Telecom Italia.
conclusion: Email discussion was kicked off on the RAN reflector by Giovanni Romano on 12.04.2018.
A summary is provided to RAN #80 in RP-181118.

EX-1016, 1075 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex H:
Actions decided by RAN #79

Nothing to report.

EX-1016, 1076 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex I:
History

Document history		
Date	**TSG RAN Tdoc**	**Subject**
22.03.2018	-	Draft report of RAN #79 provided directly after RAN #79
25.05.2018	RP-180601	Draft report of RAN #79 v1.0 provided for approval to RAN #80
11.06.2018	RP-181300	Report of RAN #79 as approved by RAN #80

In case of comments/questions/corrections please contact:

Author: **Dr. Joern Krause (3GPP TSG RAN MCC Support)**

ETSI Mobile Competence Centre (MCC)
Tel. +33-492-94 4261
email: Joern.Krause@etsi.org

APPENDIX 24a

Spec	CR	Rev	REL	Cat	Plenary doc	WG doc	TSG status
25.101	1108	1	Rel-11	F	RP-180289	R4-1803216	approved
25.101	1109	-	Rel-15	B	RP-180279	R4-1802294	approved
25.101	1110	-	Rel-15	B	RP-180278	R4-1802993	approved
25.104	0959	-	Rel-15	B	RP-180279	R4-1802001	approved
25.104	0960	-	Rel-15	B	RP-180278	R4-1802994	approved
25.113	0066	1	Rel-15	F	RP-180282	R4-1803406	approved
25.123	0576	-	Rel-15	B	RP-180279	R4-1802295	approved
25.123	0577	-	Rel-15	B	RP-180278	R4-1802995	approved
25.133	1434	-	Rel-15	B	RP-180279	R4-1802296	approved
25.133	1435	-	Rel-13	F	RP-180294	R4-1802783	approved
25.133	1436	-	Rel-14	A	RP-180294	R4-1802784	approved
25.133	1437	-	Rel-15	A	RP-180294	R4-1802785	approved
25.133	1438	-	Rel-15	B	RP-180278	R4-1802996	approved
25.141	0992	-	Rel-15	B	RP-180279	R4-1802002	approved
25.141	0993	-	Rel-15	B	RP-180278	R4-1802997	approved
25.300	0059	1	Rel-15	C	RP-180067	R6-180039	approved
25.306	0523	-	Rel-15	C	RP-180067	R6-180005	approved
25.331	5955	-	Rel-15	F	RP-180067	R6-180043	approved
25.461	0109	-	Rel-15	B	RP-180471	R3-180914	approved
25.461	0110	-	Rel-15	B	RP-180470	R3-181139	approved
25.466	0079	1	Rel-15	B	RP-180471	R3-181423	approved
25.466	0080	1	Rel-15	B	RP-180470	R3-181442	approved
34.121-1	1653	-	Rel-14	F	RP-180096	R5-180270	approved
34.121-1	1654	-	Rel-15	F	RP-180099	R5-180284	approved
34.121-1	1655	-	Rel-15	F	RP-180099	R5-180326	approved
34.123-1	3920	1	Rel-14	F	RP-180086	R5-181234	approved
34.123-1	3921	1	Rel-14	F	RP-180086	R5-181235	approved
34.123-1	3922	-	Rel-14	F	RP-180096	R5-180867	approved
34.123-2	0788	-	Rel-14	F	RP-180086	R5-180608	approved
34.123-3	3614	1	Rel-14	F	RP-180114	R5s180082	approved
34.123-3	3615	-	Rel-14	F	RP-180114	R5s180027	approved
34.229-1	1244	-	Rel-14	F	RP-180109	R5-180229	approved
34.229-1	1245	-	Rel-14	F	RP-180104	R5-180230	approved
34.229-1	1246	-	Rel-14	F	RP-180104	R5-180231	approved
34.229-1	1247	-	Rel-13	F	RP-180109	R5-180271	approved
34.229-1	1248	-	Rel-14	F	RP-180104	R5-180327	approved
34.229-1	1249	1	Rel-14	F	RP-180104	R5-181190	approved
34.229-1	1250	-	Rel-14	F	RP-180104	R5-180431	approved
34.229-1	1251	-	Rel-14	F	RP-180105	R5-180433	approved
34.229-1	1252	-	Rel-14	F	RP-180104	R5-180434	approved
34.229-1	1253	1	Rel-14	F	RP-180104	R5-181191	approved
34.229-1	1254	-	Rel-14	F	RP-180107	R5-180483	approved
34.229-1	1255	-	Rel-14	F	RP-180105	R5-180492	approved
34.229-1	1256	-	Rel-14	F	RP-180109	R5-180494	approved
34.229-1	1257	-	Rel-14	F	RP-180104	R5-180507	approved
34.229-1	1258	-	Rel-14	F	RP-180107	R5-180512	approved
34.229-1	1259	1	Rel-14	F	RP-180089	R5-181194	approved
34.229-1	1260	1	Rel-14	F	RP-180107	R5-181192	approved
34.229-1	1261	-	Rel-14	F	RP-180108	R5-180631	approved
34.229-1	1262	-	Rel-14	F	RP-180089	R5-180676	approved
34.229-1	1265	1	Rel-14	F	RP-180107	R5-181313	approved
34.229-1	1266	1	Rel-14	F	RP-180107	R5-181314	approved
34.229-1	1267	-	Rel-14	F	RP-180105	R5-180782	approved

34.229-1	1269	1	Rel-14	F	RP-180105	R5-181193	approved
34.229-2	0240	-	Rel-13	F	RP-180109	R5-180272	approved
34.229-2	0241	1	Rel-14	F	RP-180089	R5-181195	approved
34.229-3	0524	1	Rel-14	F	RP-180112	R5s180092	approved
34.229-3	0525	1	Rel-14	F	RP-180112	R5s180093	approved
34.229-3	0527	1	Rel-14	F	RP-180112	R5s180200	approved
34.229-3	0530	1	Rel-14	B	RP-180112	R5s180116	approved
34.229-3	0531	-	Rel-14	F	RP-180112	R5s180023	approved
34.229-3	0538	-	Rel-14	F	RP-180112	R5s180053	approved
34.229-3	0539	-	Rel-14	F	RP-180112	R5s180061	approved
34.229-3	0540	-	Rel-13	F	RP-180109	R5-180273	approved
34.229-3	0541	-	Rel-14	F	RP-180112	R5s180112	approved
34.229-3	0542	-	Rel-14	B	RP-180112	R5s180126	approved
34.229-3	0543	-	Rel-14	B	RP-180112	R5s180128	approved
34.229-3	0544	-	Rel-14	B	RP-180112	R5s180130	approved
34.229-3	0545	-	Rel-14	B	RP-180112	R5s180132	approved
34.229-3	0546	-	Rel-14	B	RP-180112	R5s180134	approved
34.229-3	0547	-	Rel-14	B	RP-180112	R5s180136	approved
34.229-3	0548	-	Rel-14	B	RP-180112	R5s180138	approved
34.229-3	0549	-	Rel-14	B	RP-180112	R5s180142	approved
34.229-3	0550	-	Rel-14	B	RP-180112	R5s180144	approved
34.229-3	0551	-	Rel-14	F	RP-180089	R5-180613	approved
34.229-3	0552	-	Rel-14	F	RP-180104	R5-180632	approved
34.229-3	0555	-	Rel-14	B	RP-180112	R5s180162	approved
34.229-3	0564	-	Rel-14	F	RP-180111	R5s180209	approved
36.101	4862	1	Rel-15	B	RP-180265	R4-1803224	approved
36.101	4863	-	Rel-14	F	RP-180296	R4-1801538	approved
36.101	4864	-	Rel-15	A	RP-180296	R4-1801539	approved
36.101	4865	1	Rel-14	F	RP-180296	R4-1803378	approved
36.101	4866	-	Rel-15	A	RP-180296	R4-1801542	approved
36.101	4867	1	Rel-15	F	RP-180266	R4-1803380	approved
36.101	4868	1	Rel-15	B	RP-180277	R4-1803222	approved
36.101	4870	-	Rel-15	B	RP-180275	R4-1801653	approved
36.101	4871	-	Rel-14	F	RP-180298	R4-1801654	approved
36.101	4872	-	Rel-15	A	RP-180298	R4-1801655	approved
36.101	4873	1	Rel-13	F	RP-180292	R4-1803130	approved
36.101	4874	-	Rel-14	A	RP-180292	R4-1801657	approved
36.101	4875	-	Rel-15	A	RP-180292	R4-1801658	approved
36.101	4876	1	Rel-14	F	RP-180296	R4-1803098	approved
36.101	4877	-	Rel-15	A	RP-180296	R4-1801687	approved
36.101	4878	-	Rel-14	F	RP-180295	R4-1801688	approved
36.101	4879	-	Rel-15	A	RP-180295	R4-1801689	approved
36.101	4881	1	Rel-13	F	RP-180292	R4-1803088	approved
36.101	4882	-	Rel-14	A	RP-180292	R4-1801697	approved
36.101	4883	-	Rel-15	A	RP-180292	R4-1801698	approved
36.101	4884	-	Rel-14	F	RP-180292	R4-1801704	approved
36.101	4885	-	Rel-15	A	RP-180292	R4-1801705	approved
36.101	4886	-	Rel-13	F	RP-180295	R4-1801720	approved
36.101	4887	-	Rel-14	A	RP-180295	R4-1801721	approved
36.101	4888	-	Rel-15	A	RP-180295	R4-1801722	approved
36.101	4889	-	Rel-13	F	RP-180291	R4-1801723	approved
36.101	4890	-	Rel-14	A	RP-180291	R4-1801724	approved
36.101	4891	-	Rel-15	A	RP-180291	R4-1801725	approved
36.101	4892	-	Rel-13	F	RP-180291	R4-1801726	approved
36.101	4893	-	Rel-14	A	RP-180291	R4-1801727	approved

36.101	4894	-	Rel-15	A	RP-180291	R4-1801728	approved
36.101	4895	1	Rel-13	F	RP-180292	R4-1803087	approved
36.101	4896	-	Rel-14	A	RP-180292	R4-1801732	approved
36.101	4898	-	Rel-15	B	RP-180276	R4-1801743	approved
36.101	4899	1	Rel-13	F	RP-180294	R4-1803212	approved
36.101	4900	-	Rel-14	A	RP-180294	R4-1801793	approved
36.101	4902	1	Rel-14	F	RP-180297	R4-1803213	approved
36.101	4903	-	Rel-15	A	RP-180297	R4-1801843	approved
36.101	4906	-	Rel-13	F	RP-180294	R4-1801846	approved
36.101	4907	1	Rel-14	F	RP-180294	R4-1803588	approved
36.101	4908	-	Rel-15	A	RP-180294	R4-1801848	approved
36.101	4909	-	Rel-15	B	RP-180272	R4-1801853	approved
36.101	4910	2	Rel-15	B	RP-180269	R4-1803450	approved
36.101	4911	-	Rel-15	B	RP-180270	R4-1801869	approved
36.101	4912	-	Rel-15	B	RP-180273	R4-1801872	approved
36.101	4918	-	Rel-12	F	RP-180290	R4-1801969	approved
36.101	4919	-	Rel-13	F	RP-180290	R4-1801970	approved
36.101	4920	-	Rel-14	F	RP-180290	R4-1801971	approved
36.101	4921	-	Rel-15	A	RP-180290	R4-1801972	approved
36.101	4922	2	Rel-15	B	RP-180268	R4-1803580	approved
36.101	4923	1	Rel-15	F	RP-180284	R4-1803206	approved
36.101	4924	-	Rel-13	F	RP-180294	R4-1802024	approved
36.101	4925	1	Rel-14	A	RP-180294	R4-1803217	approved
36.101	4926	1	Rel-15	A	RP-180294	R4-1803218	approved
36.101	4927	1	Rel-14	F	RP-180295	R4-1803161	approved
36.101	4928	-	Rel-15	A	RP-180295	R4-1802045	approved
36.101	4929	1	Rel-15	B	RP-180279	R4-1803177	approved
36.101	4930	-	Rel-13	A	RP-180285	R4-1802127	approved
36.101	4931	-	Rel-14	A	RP-180285	R4-1802128	approved
36.101	4932	-	Rel-15	A	RP-180285	R4-1802129	approved
36.101	4933	1	Rel-15	F	RP-180286	R4-1803229	approved
36.101	4934	-	Rel-13	F	RP-180283	R4-1802131	approved
36.101	4935	-	Rel-14	A	RP-180283	R4-1802132	approved
36.101	4936	1	Rel-15	F	RP-180283	R4-1803214	approved
36.101	4937	-	Rel-15	F	RP-180271	R4-1802235	approved
36.101	4938	1	Rel-15	F	RP-180271	R4-1803234	approved
36.101	4939	1	Rel-15	F	RP-180271	R4-1803235	approved
36.101	4940	1	Rel-14	F	RP-180298	R4-1803089	approved
36.101	4941	-	Rel-15	A	RP-180298	R4-1802363	approved
36.101	4942	-	Rel-10	F	RP-180285	R4-1802502	approved
36.101	4943	-	Rel-11	A	RP-180285	R4-1802503	approved
36.101	4944	-	Rel-12	A	RP-180285	R4-1802504	approved
36.101	4945	-	Rel-12	F	RP-180290	R4-1802519	approved
36.101	4946	-	Rel-13	A	RP-180290	R4-1802528	approved
36.101	4947	-	Rel-14	A	RP-180290	R4-1802531	approved
36.101	4948	-	Rel-15	A	RP-180290	R4-1802532	approved
36.101	4949	-	Rel-14	F	RP-180299	R4-1802533	approved
36.101	4950	-	Rel-15	A	RP-180299	R4-1802534	approved
36.101	4951	1	Rel-13	B	RP-180292	R4-1803211	approved
36.101	4952	-	Rel-14	A	RP-180292	R4-1802541	approved
36.101	4953	-	Rel-15	A	RP-180292	R4-1802542	approved
36.101	4954	-	Rel-13	F	RP-180294	R4-1802752	approved
36.101	4955	-	Rel-14	A	RP-180294	R4-1802753	approved
36.101	4956	-	Rel-15	A	RP-180294	R4-1802754	approved
36.101	4957	-	Rel-15	F	RP-180286	R4-1802766	approved

36.101	4959	-	Rel-15	B	RP-180271	R4-1802908	approved
36.101	4960	1	Rel-14	F	RP-180295	R4-1803165	approved
36.101	4961	-	Rel-15	A	RP-180295	R4-1802915	approved
36.101	4962	1	Rel-14	F	RP-180299	R4-1803164	approved
36.101	4963	-	Rel-15	A	RP-180299	R4-1802917	approved
36.101	4964	1	Rel-14	F	RP-180299	R4-1803215	approved
36.101	4965	-	Rel-15	A	RP-180299	R4-1802980	approved
36.101	4966	-	Rel-14	F	RP-180299	R4-1802981	approved
36.101	4967	-	Rel-15	A	RP-180299	R4-1802982	approved
36.101	4968	-	Rel-13	F	RP-180292	R4-1802987	approved
36.101	4969	1	Rel-15	B	RP-180278	R4-1803219	approved
36.101	4970	-	Rel-15	B	RP-180274	R4-1803176	approved
36.101	4973	-	Rel-15	A	RP-180292	R4-1803585	approved
36.104	4754	1	Rel-15	B	RP-180265	R4-1803257	approved
36.104	4755	-	Rel-15	B	RP-180272	R4-1801854	approved
36.104	4757	-	Rel-15	B	RP-180273	R4-1801873	approved
36.104	4758	-	Rel-15	B	RP-180274	R4-1801998	approved
36.104	4759	1	Rel-15	B	RP-180281	R4-1803225	approved
36.104	4760	-	Rel-15	B	RP-180279	R4-1802297	approved
36.104	4761	-	Rel-15	F	RP-180266	R4-1802455	approved
36.104	4762	1	Rel-13	F	RP-180293	R4-1803209	approved
36.104	4763	-	Rel-14	A	RP-180293	R4-1802721	approved
36.104	4764	-	Rel-15	A	RP-180293	R4-1802722	approved
36.104	4765	-	Rel-15	F	RP-180267	R4-1802729	approved
36.104	4766	-	Rel-15	B	RP-180271	R4-1802910	approved
36.104	4767	-	Rel-15	B	RP-180278	R4-1803001	approved
36.113	0074	-	Rel-15	B	RP-180279	R4-1802298	approved
36.113	0075	1	Rel-15	F	RP-180282	R4-1803407	approved
36.113	0076	-	Rel-15	B	RP-180278	R4-1803002	approved
36.124	0046	-	Rel-15	B	RP-180279	R4-1802299	approved
36.124	0047	-	Rel-15	B	RP-180278	R4-1803000	approved
36.133	5518	4	Rel-15	F	RP-180264	R4-1803142	approved
36.133	5521	2	Rel-15	F	RP-180264	R4-1801083	approved
36.133	5524	1	Rel-15	F	RP-180264	R4-1801044	approved
36.133	5526	1	Rel-15	F	RP-180264	R4-1803150	approved
36.133	5527	-	Rel-14	F	RP-180296	R4-1801482	approved
36.133	5528	-	Rel-15	A	RP-180296	R4-1801483	approved
36.133	5529	1	Rel-14	F	RP-180291	R4-1803162	approved
36.133	5530	-	Rel-15	A	RP-180291	R4-1801660	approved
36.133	5534	1	Rel-13	F	RP-180293	R4-1803092	approved
36.133	5535	-	Rel-14	A	RP-180293	R4-1801667	approved
36.133	5536	-	Rel-15	A	RP-180293	R4-1801669	approved
36.133	5537	-	Rel-13	F	RP-180293	R4-1801671	approved
36.133	5538	-	Rel-14	A	RP-180293	R4-1801702	approved
36.133	5539	-	Rel-15	A	RP-180293	R4-1801703	approved
36.133	5540	1	Rel-13	F	RP-180293	R4-1803093	approved
36.133	5541	-	Rel-14	A	RP-180293	R4-1801709	approved
36.133	5542	-	Rel-15	A	RP-180293	R4-1801710	approved
36.133	5543	-	Rel-13	F	RP-180291	R4-1801711	approved
36.133	5544	-	Rel-14	A	RP-180291	R4-1801712	approved
36.133	5545	1	Rel-15	A	RP-180291	R4-1803584	approved
36.133	5546	-	Rel-13	F	RP-180291	R4-1801714	approved
36.133	5547	-	Rel-14	A	RP-180291	R4-1801715	approved
36.133	5548	-	Rel-15	A	RP-180291	R4-1801716	approved
36.133	5549	-	Rel-13	F	RP-180291	R4-1801717	approved

36.133	5550	-	Rel-14	A	RP-180291	R4-1801718	approved
36.133	5551	-	Rel-15	A	RP-180291	R4-1801719	approved
36.133	5552	1	Rel-14	F	RP-180297	R4-1803586	approved
36.133	5553	1	Rel-15	A	RP-180297	R4-1803587	approved
36.133	5554	1	Rel-14	F	RP-180299	R4-1803473	approved
36.133	5555	-	Rel-15	A	RP-180299	R4-1801911	approved
36.133	5556	-	Rel-14	F	RP-180299	R4-1801912	approved
36.133	5557	-	Rel-15	A	RP-180299	R4-1801913	approved
36.133	5558	1	Rel-14	F	RP-180299	R4-1803474	approved
36.133	5559	-	Rel-15	A	RP-180299	R4-1801915	approved
36.133	5560	-	Rel-14	F	RP-180299	R4-1801916	approved
36.133	5561	-	Rel-15	A	RP-180299	R4-1801917	approved
36.133	5562	-	Rel-14	F	RP-180298	R4-1801973	approved
36.133	5563	-	Rel-15	A	RP-180298	R4-1801974	approved
36.133	5564	1	Rel-13	F	RP-180294	R4-1803475	approved
36.133	5565	-	Rel-14	A	RP-180299	R4-1801976	approved
36.133	5566	-	Rel-15	A	RP-180281	R4-1801977	approved
36.133	5567	-	Rel-13	F	RP-180294	R4-1801978	approved
36.133	5568	-	Rel-14	A	RP-180294	R4-1801979	approved
36.133	5569	-	Rel-15	A	RP-180294	R4-1801980	approved
36.133	5571	1	Rel-15	F	RP-180264	R4-1803493	approved
36.133	5573	-	Rel-15	A	RP-180296	R4-1802229	approved
36.133	5574	-	Rel-14	F	RP-180296	R4-1802230	approved
36.133	5575	-	Rel-15	B	RP-180279	R4-1802300	approved
36.133	5576	-	Rel-14	F	RP-180297	R4-1802382	approved
36.133	5577	-	Rel-15	A	RP-180297	R4-1802383	approved
36.133	5578	-	Rel-14	F	RP-180298	R4-1802384	approved
36.133	5579	-	Rel-15	A	RP-180298	R4-1802385	approved
36.133	5580	-	Rel-14	F	RP-180298	R4-1802386	approved
36.133	5581	-	Rel-15	A	RP-180298	R4-1802387	approved
36.133	5582	1	Rel-15	F	RP-180264	R4-1803476	approved
36.133	5590	1	Rel-14	F	RP-180297	R4-1803083	approved
36.133	5591	-	Rel-15	A	RP-180297	R4-1802584	approved
36.133	5592	2	Rel-14	F	RP-180298	R4-1803497	approved
36.133	5593	1	Rel-15	A	RP-180298	R4-1803589	approved
36.133	5594	2	Rel-14	F	RP-180295	R4-1803486	approved
36.133	5595	1	Rel-15	A	RP-180295	R4-1803590	approved
36.133	5596	-	Rel-15	F	RP-180264	R4-1802597	approved
36.133	5597	-	Rel-14	F	RP-180295	R4-1802600	approved
36.133	5598	-	Rel-15	A	RP-180295	R4-1802601	approved
36.133	5599	-	Rel-14	F	RP-180295	R4-1802602	approved
36.133	5600	-	Rel-15	A	RP-180295	R4-1802603	approved
36.133	5601	-	Rel-15	F	RP-180264	R4-1802618	approved
36.133	5602	1	Rel-14	F	RP-180295	R4-1803577	approved
36.133	5603	1	Rel-15	A	RP-180295	R4-1803578	approved
36.133	5604	-	Rel-14	F	RP-180296	R4-1802623	approved
36.133	5605	-	Rel-15	A	RP-180296	R4-1802624	approved
36.133	5611	-	Rel-13	D	RP-180293	R4-1802653	approved
36.133	5612	-	Rel-14	A	RP-180293	R4-1802654	approved
36.133	5613	-	Rel-15	A	RP-180293	R4-1802655	approved
36.133	5614	2	Rel-14	F	RP-180296	R4-1803483	approved
36.133	5615	2	Rel-14	F	RP-180296	R4-1803484	approved
36.133	5618	-	Rel-15	A	RP-180296	R4-1802661	approved
36.133	5619	-	Rel-15	A	RP-180296	R4-1802662	approved
36.133	5622	1	Rel-15	B	RP-180264	R4-1803478	approved

36.133	5624	-	Rel-15	F	RP-180264	R4-1802673	approved
36.133	5625	1	Rel-15	F	RP-180264	R4-1803129	approved
36.133	5628	2	Rel-15	B	RP-180264	R4-1803581	approved
36.133	5631	1	Rel-15	F	RP-180264	R4-1803116	approved
36.133	5632	1	Rel-15	F	RP-180264	R4-1803132	approved
36.133	5640	-	Rel-13	F	RP-180294	R4-1802780	approved
36.133	5641	-	Rel-14	A	RP-180294	R4-1802781	approved
36.133	5642	-	Rel-15	A	RP-180294	R4-1802782	approved
36.133	5643	2	Rel-13	F	RP-180293	R4-1803582	approved
36.133	5644	-	Rel-14	A	RP-180293	R4-1802804	approved
36.133	5645	-	Rel-15	A	RP-180293	R4-1802805	approved
36.133	5646	1	Rel-14	F	RP-180297	R4-1803145	approved
36.133	5647	-	Rel-15	A	RP-180297	R4-1802807	approved
36.133	5648	-	Rel-14	F	RP-180298	R4-1802813	approved
36.133	5649	1	Rel-15	A	RP-180298	R4-1803579	approved
36.133	5655	-	Rel-14	F	RP-180296	R4-1802857	approved
36.133	5656	-	Rel-15	A	RP-180296	R4-1802858	approved
36.133	5657	-	Rel-14	F	RP-180296	R4-1802862	approved
36.133	5658	-	Rel-15	A	RP-180296	R4-1802863	approved
36.133	5659	1	Rel-14	F	RP-180298	R4-1803085	approved
36.133	5660	-	Rel-15	A	RP-180298	R4-1802865	approved
36.133	5661	-	Rel-15	B	RP-180278	R4-1802992	approved
36.141	1114	-	Rel-15	B	RP-180272	R4-1801855	approved
36.141	1116	-	Rel-15	B	RP-180273	R4-1801874	approved
36.141	1117	-	Rel-15	B	RP-180274	R4-1801999	approved
36.141	1118	1	Rel-15	B	RP-180281	R4-1803226	approved
36.141	1120	-	Rel-15	B	RP-180279	R4-1802301	approved
36.141	1121	1	Rel-13	F	RP-180293	R4-1803210	approved
36.141	1122	-	Rel-14	A	RP-180293	R4-1802724	approved
36.141	1123	-	Rel-15	A	RP-180293	R4-1802725	approved
36.141	1124	-	Rel-13	F	RP-180293	R4-1802726	approved
36.141	1125	-	Rel-14	A	RP-180293	R4-1802727	approved
36.141	1126	-	Rel-15	A	RP-180293	R4-1802728	approved
36.141	1127	-	Rel-15	F	RP-180267	R4-1802730	approved
36.141	1128	-	Rel-15	B	RP-180271	R4-1802911	approved
36.141	1129	-	Rel-15	B	RP-180278	R4-1803003	approved
36.201	0023	-	Rel-15	B	RP-180197	R1-1803057	approved
36.211	0400	1	Rel-15	B	RP-180195	R1-1802982	approved
36.211	0410	-	Rel-13	F	RP-180190	R1-1803016	approved
36.211	0411	-	Rel-14	A	RP-180190	R1-1803017	approved
36.211	0412	-	Rel-13	F	RP-180190	R1-1803018	approved
36.211	0413	-	Rel-14	A	RP-180190	R1-1803019	approved
36.211	0414	-	Rel-13	F	RP-180191	R1-1803073	approved
36.211	0415	-	Rel-14	A	RP-180191	R1-1803074	approved
36.211	0416	-	Rel-15	A	RP-180191	R1-1803075	approved
36.211	0417	-	Rel-14	F	RP-180189	R1-1803079	approved
36.211	0418	-	Rel-15	A	RP-180189	R1-1803080	approved
36.211	0419	-	Rel-15	A	RP-180190	R1-1803090	approved
36.211	0420	-	Rel-15	A	RP-180190	R1-1803091	approved
36.211	0421	-	Rel-14	F	RP-180199	R1-1803111	approved
36.211	0422	-	Rel-15	A	RP-180199	R1-1803112	approved
36.211	0423	-	Rel-14	F	RP-180187	R1-1803114	approved
36.211	0424	-	Rel-15	A	RP-180187	R1-1803115	approved
36.211	0425	-	Rel-13	F	RP-180191	R1-1803160	approved
36.211	0426	-	Rel-14	A	RP-180191	R1-1803161	approved

36.211	0427	-	Rel-15	A	RP-180191	R1-1803162	approved
36.212	0268	1	Rel-15	B	RP-180195	R1-1802984	approved
36.212	0279	1	Rel-15	B	RP-180201	R1-1803183	approved
36.213	0995	2	Rel-15	B	RP-180195	R1-1802986	approved
36.213	1013	2	Rel-15	B	RP-180201	R1-1803184	approved
36.213	1014	2	Rel-15	B	RP-180201	R1-1803185	approved
36.213	1015	3	Rel-15	B	RP-180201	R1-1803187	approved
36.213	1016	-	Rel-13	F	RP-180194	R1-1803011	approved
36.213	1017	-	Rel-14	A	RP-180194	R1-1803012	approved
36.213	1018	-	Rel-13	F	RP-180190	R1-1803014	approved
36.213	1019	-	Rel-14	A	RP-180190	R1-1803015	approved
36.213	1020	-	Rel-13	F	RP-180191	R1-1803021	approved
36.213	1021	-	Rel-14	F	RP-180192	R1-1803022	approved
36.213	1022	-	Rel-14	F	RP-180192	R1-1803023	approved
36.213	1023	-	Rel-14	F	RP-180193	R1-1803024	approved
36.213	1024	-	Rel-14	F	RP-180187	R1-1803025	approved
36.213	1025	-	Rel-14	F	RP-180196	R1-1803026	approved
36.213	1026	-	Rel-13	F	RP-180198	R1-1803028	approved
36.213	1027	-	Rel-14	A	RP-180198	R1-1803029	approved
36.213	1028	-	Rel-13	F	RP-180194	R1-1803070	approved
36.213	1029	-	Rel-14	A	RP-180194	R1-1803071	approved
36.213	1030	-	Rel-15	A	RP-180194	R1-1803072	approved
36.213	1031	-	Rel-14	A	RP-180191	R1-1803076	approved
36.213	1032	-	Rel-15	A	RP-180191	R1-1803077	approved
36.213	1033	-	Rel-13	F	RP-180188	R1-1803084	approved
36.213	1034	-	Rel-14	A	RP-180188	R1-1803085	approved
36.213	1035	-	Rel-15	A	RP-180188	R1-1803086	approved
36.213	1036	-	Rel-15	A	RP-180194	R1-1803088	approved
36.213	1037	-	Rel-15	A	RP-180190	R1-1803089	approved
36.213	1038	-	Rel-15	A	RP-180192	R1-1803092	approved
36.213	1039	-	Rel-15	A	RP-180192	R1-1803093	approved
36.213	1040	-	Rel-15	A	RP-180187	R1-1803094	approved
36.213	1041	-	Rel-15	A	RP-180196	R1-1803095	approved
36.213	1042	-	Rel-15	A	RP-180198	R1-1803096	approved
36.213	1043	-	Rel-15	A	RP-180193	R1-1803113	approved
36.213	1044	-	Rel-14	F	RP-180482	R1-1803132	postponed
36.213	1045	-	Rel-15	A	RP-180482	R1-1803133	postponed
36.213	1046	-	Rel-13	F	RP-180190	R1-1803156	approved
36.213	1047	-	Rel-14	A	RP-180190	R1-1803157	approved
36.213	1048	-	Rel-15	A	RP-180190	R1-1803158	approved
36.214	0048	1	Rel-15	B	RP-180201	R1-1803550	approved
36.214	0049	-	Rel-15	A	RP-180193	R1-1803104	approved
36.300	1069	1	Rel-14	F	RP-180443	R2-1803740	approved
36.300	1087	-	Rel-14	F	RP-180444	R2-1801861	approved
36.300	1088	-	Rel-15	A	RP-180444	R2-1801863	approved
36.300	1089	3	Rel-15	A	RP-180444	R2-1803914	approved
36.300	1091	1	Rel-14	F	RP-180445	R2-1803787	approved
36.300	1094	1	Rel-15	A	RP-180445	R2-1803788	approved
36.300	1099	1	Rel-13	F	RP-180441	R2-1803791	approved
36.300	1100	1	Rel-14	A	RP-180441	R2-1803792	approved
36.300	1101	1	Rel-15	A	RP-180441	R2-1803793	approved
36.300	1104	-	Rel-15	F	RP-180440	R2-1803478	approved
36.300	1105	1	Rel-13	B	RP-180441	R2-1803836	approved
36.300	1106	1	Rel-14	A	RP-180441	R2-1804006	approved
36.300	1107	1	Rel-15	A	RP-180441	R2-1804007	approved

36.300	1110	2	Rel-14	F	RP-180444	R2-1803913	approved
36.300	1113	-	Rel-15	A	RP-180443	R2-1803741	approved
36.300	1115	2	Rel-13	F	RP-180123	-	withdrawn
36.300	1115	4	Rel-13	F	RP-180482	R2-1804135	approved
36.300	1116	-	Rel-15	F	RP-180447	R2-1803964	approved
36.300	1117	-	Rel-15	F	RP-180440	R2-1803918	approved
36.300	1118	-	Rel-15	F	RP-180440	R2-1803919	approved
36.300	1119	-	Rel-13	F	RP-180442	R2-1803920	approved
36.300	1120	-	Rel-14	A	RP-180442	R2-1803921	approved
36.300	1121	-	Rel-15	A	RP-180442	R2-1803922	approved
36.300	1122	-	Rel-15	B	RP-180440	R2-1803923	approved
36.304	0402	4	Rel-14	F	RP-180445	R2-1803827	approved
36.304	0405	1	Rel-14	C	RP-180443	R2-1804111	approved
36.304	0407	2	Rel-14	F	RP-180443	R2-1803817	approved
36.306	1545	-	Rel-14	F	RP-180443	R2-1802201	approved
36.306	1552	1	Rel-14	C	RP-180443	R2-1804112	approved
36.306	1555	2	Rel-14	B	RP-180448	R2-1803845	approved
36.306	1559	2	Rel-15	B	RP-180440	R2-1804110	approved
36.306	1561	1	Rel-14	F	RP-180446	R2-1803851	approved
36.306	1564	1	Rel-14	F	RP-180446	R2-1803844	approved
36.306	1566	1	Rel-15	F	RP-180443	R2-1803890	revised
36.306	1566	2	Rel-14	F	RP-180494	-	approved
36.307	4365	1	Rel-15	B	RP-180276	R4-1803349	approved
36.307	4366	-	Rel-10	B	RP-180288	R4-1802118	approved
36.307	4367	-	Rel-11	B	RP-180288	R4-1802119	approved
36.307	4368	-	Rel-12	B	RP-180288	R4-1802120	approved
36.307	4369	-	Rel-13	A	RP-180288	R4-1802121	approved
36.307	4370	-	Rel-14	A	RP-180288	R4-1802122	approved
36.307	4371	-	Rel-15	A	RP-180288	R4-1802123	approved
36.307	4372	-	Rel-11	B	RP-180276	R4-1802174	approved
36.307	4373	-	Rel-12	B	RP-180276	R4-1802179	approved
36.307	4374	-	Rel-13	B	RP-180276	R4-1802184	approved
36.307	4375	-	Rel-14	B	RP-180276	R4-1802186	approved
36.314	0049	-	Rel-15	F	RP-180447	R2-1802865	approved
36.314	0050	2	Rel-15	F	RP-180447	R2-1804022	approved
36.321	1212	1	Rel-14	F	RP-180443	R2-1803838	approved
36.321	1213	1	Rel-15	A	RP-180443	R2-1803843	approved
36.321	1217	1	Rel-14	F	RP-180445	R2-1803789	approved
36.321	1218	1	Rel-15	A	RP-180445	R2-1803790	approved
36.321	1229	1	Rel-14	F	RP-180444	R2-1803905	approved
36.321	1230	1	Rel-15	A	RP-180444	R2-1803906	approved
36.321	1238	1	Rel-14	F	RP-180443	R2-1803936	approved
36.321	1239	1	Rel-15	A	RP-180443	R2-1803937	approved
36.321	1240	2	Rel-13	F	RP-180441	R2-1803812	approved
36.321	1241	-	Rel-14	A	RP-180441	R2-1803831	approved
36.321	1242	-	Rel-15	A	RP-180441	R2-1803832	approved
36.331	3208	3	Rel-15	F	RP-180491	-	approved
36.331	3216	-	Rel-14	F	RP-180443	R2-1802166	approved
36.331	3217	-	Rel-15	A	RP-180443	R2-1802167	approved
36.331	3221	-	Rel-14	F	RP-180443	R2-1802199	approved
36.331	3222	-	Rel-15	A	RP-180443	R2-1802200	approved
36.331	3223	1	Rel-14	F	RP-180445	R2-1803799	approved
36.331	3224	1	Rel-15	A	RP-180445	R2-1803800	approved
36.331	3237	2	Rel-14	C	RP-180443	R2-1804113	approved
36.331	3244	2	Rel-14	B	RP-180448	R2-1803846	approved

36.331	3245	2	Rel-15	A	RP-180448	R2-1803847	approved
36.331	3254	2	Rel-13	F	RP-180442	R2-1803889	approved
36.331	3255	1	Rel-14	A	RP-180442	R2-1803852	approved
36.331	3256	1	Rel-15	A	RP-180442	R2-1803853	approved
36.331	3257	1	Rel-14	F	RP-180445	R2-1804038	approved
36.331	3262	2	Rel-14	F	RP-180446	R2-1803887	approved
36.331	3263	2	Rel-15	A	RP-180446	R2-1803888	approved
36.331	3265	1	Rel-13	C	RP-180442	R2-1804062	approved
36.331	3266	1	Rel-14	A	RP-180442	R2-1804063	approved
36.331	3267	1	Rel-15	A	RP-180442	R2-1804064	approved
36.331	3271	1	Rel-14	F	RP-180444	R2-1803907	approved
36.331	3272	1	Rel-15	A	RP-180444	R2-1803908	approved
36.331	3273	1	Rel-14	F	RP-180446	R2-1803848	approved
36.331	3274	1	Rel-15	A	RP-180446	R2-1803849	approved
36.331	3275	2	Rel-13	F	RP-180441	R2-1804082	approved
36.331	3276	1	Rel-14	A	RP-180441	R2-1803840	approved
36.331	3277	1	Rel-15	A	RP-180441	R2-1803841	approved
36.331	3278	2	Rel-14	F	RP-180446	R2-1804122	approved
36.331	3279	2	Rel-15	A	RP-180446	R2-1804123	approved
36.331	3281	-	Rel-14	F	RP-180443	R2-1803500	approved
36.331	3282	-	Rel-15	A	RP-180443	R2-1803501	approved
36.331	3292	1	Rel-14	F	RP-180444	R2-1803909	approved
36.331	3295	2	Rel-14	F	RP-180441	R2-1803815	approved
36.331	3296	2	Rel-15	A	RP-180441	R2-1803816	approved
36.331	3297	2	Rel-15	A	RP-180443	R2-1804114	approved
36.331	3301	1	Rel-15	A	RP-180444	R2-1803915	approved
36.331	3304	2	Rel-13	F	RP-180441	R2-1804118	approved
36.331	3305	-	Rel-14	A	RP-180441	R2-1803999	approved
36.331	3306	-	Rel-15	A	RP-180441	R2-1804000	approved
36.331	3307	1	Rel-15	A	RP-180445	R2-1804124	approved
36.355	0189	1	Rel-14	F	RP-180446	R2-1803401	approved
36.413	1558	-	Rel-15	F	RP-180468	R3-180694	approved
36.413	1559	1	Rel-15	F	RP-180468	R3-181511	approved
36.413	1561	-	Rel-14	F	RP-180473	R3-181018	approved
36.413	1562	-	Rel-15	A	RP-180473	R3-181019	approved
36.413	1563	2	Rel-15	B	RP-180472	R3-181552	approved
36.413	1566	-	Rel-14	F	RP-180473	R3-181179	approved
36.413	1567	1	Rel-15	A	RP-180473	R3-181378	approved
36.413	1568	-	Rel-14	F	RP-180473	R3-181191	approved
36.413	1569	-	Rel-15	A	RP-180473	R3-181192	approved
36.413	1571	2	Rel-15	F	RP-180472	R3-181528	approved
36.413	1575	-	Rel-15	F	RP-180468	R3-181537	approved
36.423	1050	-	Rel-15	B	RP-180468	R3-180696	approved
36.423	1051	1	Rel-15	F	RP-180468	R3-181510	approved
36.423	1052	1	Rel-15	F	RP-180468	R3-181513	approved
36.423	1053	-	Rel-15	F	RP-180468	R3-180712	approved
36.423	1054	-	Rel-15	B	RP-180468	R3-180713	approved
36.423	1056	-	Rel-15	F	RP-180468	R3-180715	approved
36.423	1060	-	Rel-14	F	RP-180473	R3-180841	approved
36.423	1061	1	Rel-15	F	RP-180468	R3-181452	approved
36.423	1067	2	Rel-15	F	RP-180468	R3-181572	approved
36.423	1071	2	Rel-15	F	RP-180468	R3-181554	approved
36.423	1073	-	Rel-15	F	RP-180468	R3-181031	approved
36.423	1078	1	Rel-15	F	RP-180468	R3-181454	approved
36.423	1079	2	Rel-15	F	RP-180468	R3-181555	approved

36.423	1081	1	Rel-15	F	RP-180468	R3-181455	approved
36.423	1082	1	Rel-15	F	RP-180468	R3-181490	approved
36.423	1083	1	Rel-15	F	RP-180468	R3-181491	approved
36.423	1087	1	Rel-15	F	RP-180314	-	approved
36.423	1087	-	Rel-15	F	RP-180469	R3-181246	not pursued
36.423	1092	1	Rel-15	D	RP-180472	R3-181407	approved
36.423	1093	-	Rel-15	A	RP-180473	R3-181379	approved
36.423	1094	-	Rel-15	F	RP-180468	R3-181561	approved
36.423	1095	-	Rel-15	F	RP-180468	R3-181566	approved
36.423	1096	-	Rel-15	F	RP-180468	R3-181567	approved
36.423	1097	1	Rel-15	F	RP-180468	R3-181568	approved
36.425	0010	1	Rel-14	F	RP-180473	R3-181380	approved
36.465	0018	1	Rel-14	F	RP-180473	R3-181381	approved
36.508	1091	-	Rel-14	F	RP-180096	R5-180274	approved
36.508	1093	-	Rel-15	F	RP-180092	R5-180317	approved
36.508	1094	1	Rel-15	F	RP-180092	R5-181601	approved
36.508	1095	-	Rel-15	F	RP-180108	R5-180377	approved
36.508	1096	1	Rel-15	F	RP-180104	R5-181141	approved
36.508	1097	-	Rel-15	F	RP-180085	R5-180395	approved
36.508	1098	-	Rel-15	F	RP-180085	R5-180396	approved
36.508	1099	1	Rel-15	F	RP-180082	R5-181216	approved
36.508	1100	1	Rel-15	F	RP-180083	R5-181217	approved
36.508	1101	-	Rel-15	F	RP-180083	R5-180407	approved
36.508	1102	2	Rel-15	F	RP-180082	R5-181607	approved
36.508	1103	1	Rel-15	F	RP-180089	R5-181196	approved
36.508	1104	1	Rel-15	F	RP-180107	R5-181293	approved
36.508	1106	1	Rel-15	F	RP-180109	R5-181295	approved
36.508	1111	-	Rel-15	F	RP-180084	R5-180715	approved
36.508	1112	1	Rel-15	F	RP-180082	R5-181666	approved
36.508	1113	1	Rel-15	F	RP-180089	R5-181197	approved
36.508	1114	1	Rel-15	F	RP-180076	R5-181616	approved
36.508	1115	2	Rel-15	F	RP-180081	R5-181357	approved
36.508	1116	-	Rel-15	F	RP-180081	R5-180749	approved
36.508	1117	-	Rel-15	F	RP-180097	R5-180753	approved
36.508	1118	-	Rel-15	F	RP-180097	R5-180780	approved
36.508	1119	1	Rel-15	F	RP-180083	R5-181218	approved
36.508	1120	-	Rel-15	F	RP-180100	R5-180918	approved
36.508	1121	-	Rel-15	F	RP-180076	R5-180934	approved
36.508	1122	-	Rel-15	F	RP-180109	R5-180939	approved
36.508	1123	-	Rel-15	F	RP-180109	R5-180940	approved
36.508	1126	-	Rel-15	F	RP-180100	R5-181054	approved
36.508	1127	-	Rel-15	F	RP-180104	R5-181066	approved
36.508	1128	1	Rel-15	F	RP-180104	R5-181142	approved
36.508	1129	1	Rel-15	F	RP-180104	R5-181143	approved
36.508	1130	-	Rel-15	F	RP-180088	R5-181101	approved
36.508	1131	-	Rel-15	F	RP-180109	R5-181309	approved
36.509	0186	1	Rel-14	F	RP-180083	R5-181219	approved
36.509	0189	-	Rel-14	F	RP-180080	R5-180880	approved
36.509	0190	1	Rel-14	F	RP-180083	R5-181345	approved
36.509	0191	1	Rel-14	F	RP-180082	R5-181317	approved
36.521-1	3964	-	Rel-14	F	RP-180096	R5-180275	approved
36.521-1	3965	-	Rel-15	F	RP-180099	R5-180351	approved
36.521-1	3967	1	Rel-15	F	RP-180082	R5-181646	approved
36.521-1	3968	1	Rel-15	F	RP-180083	R5-181647	approved
36.521-1	3969	-	Rel-15	F	RP-180083	R5-180356	approved

36.521-1	3970	1	Rel-15	F	RP-180082	R5-181645	approved
36.521-1	3971	-	Rel-15	F	RP-180083	R5-180358	approved
36.521-1	3972	1	Rel-15	F	RP-180076	R5-181520	approved
36.521-1	3973	1	Rel-15	F	RP-180082	R5-181563	approved
36.521-1	3974	1	Rel-15	F	RP-180099	R5-181529	approved
36.521-1	3975	1	Rel-15	F	RP-180099	R5-181530	approved
36.521-1	3976	-	Rel-15	F	RP-180090	R5-180385	approved
36.521-1	3977	-	Rel-15	F	RP-180090	R5-180386	approved
36.521-1	3978	-	Rel-15	F	RP-180090	R5-180387	approved
36.521-1	3979	-	Rel-15	F	RP-180090	R5-180388	approved
36.521-1	3980	-	Rel-15	F	RP-180090	R5-180389	approved
36.521-1	3981	1	Rel-15	F	RP-180082	R5-181565	approved
36.521-1	3982	1	Rel-15	F	RP-180082	R5-181564	approved
36.521-1	3983	1	Rel-15	F	RP-180082	R5-181566	approved
36.521-1	3985	-	Rel-15	F	RP-180074	R5-180414	approved
36.521-1	3986	-	Rel-15	F	RP-180074	R5-180415	approved
36.521-1	3987	-	Rel-15	F	RP-180074	R5-180416	approved
36.521-1	3988	-	Rel-15	F	RP-180074	R5-180417	approved
36.521-1	3989	-	Rel-15	F	RP-180074	R5-180418	approved
36.521-1	3990	1	Rel-15	F	RP-180083	R5-181572	approved
36.521-1	3991	-	Rel-15	F	RP-180088	R5-180464	approved
36.521-1	3992	-	Rel-15	F	RP-180092	R5-180466	approved
36.521-1	4001	1	Rel-15	F	RP-180088	R5-181558	approved
36.521-1	4002	1	Rel-15	F	RP-180088	R5-181559	approved
36.521-1	4003	1	Rel-15	F	RP-180088	R5-181641	approved
36.521-1	4004	1	Rel-15	F	RP-180088	R5-181642	approved
36.521-1	4005	1	Rel-15	F	RP-180088	R5-181643	approved
36.521-1	4006	1	Rel-15	F	RP-180088	R5-181644	approved
36.521-1	4007	1	Rel-15	F	RP-180076	R5-181663	approved
36.521-1	4008	-	Rel-15	F	RP-180098	R5-180500	approved
36.521-1	4009	-	Rel-15	F	RP-180092	R5-180509	approved
36.521-1	4010	1	Rel-15	F	RP-180092	R5-181602	approved
36.521-1	4011	1	Rel-15	F	RP-180092	R5-181603	approved
36.521-1	4012	-	Rel-15	F	RP-180098	R5-180513	approved
36.521-1	4013	-	Rel-15	F	RP-180098	R5-180516	approved
36.521-1	4014	1	Rel-15	F	RP-180082	R5-181567	approved
36.521-1	4015	1	Rel-15	F	RP-180083	R5-181648	approved
36.521-1	4016	1	Rel-15	F	RP-180083	R5-181573	approved
36.521-1	4018	1	Rel-15	F	RP-180083	R5-181574	approved
36.521-1	4019	1	Rel-15	F	RP-180082	R5-181568	approved
36.521-1	4020	1	Rel-15	F	RP-180083	R5-181575	approved
36.521-1	4021	1	Rel-15	F	RP-180082	R5-181569	approved
36.521-1	4022	1	Rel-15	F	RP-180081	R5-181624	approved
36.521-1	4023	-	Rel-15	F	RP-180083	R5-180575	approved
36.521-1	4024	-	Rel-15	F	RP-180083	R5-180576	approved
36.521-1	4025	-	Rel-15	F	RP-180083	R5-180578	approved
36.521-1	4026	1	Rel-15	F	RP-180082	R5-181631	approved
36.521-1	4027	1	Rel-15	F	RP-180082	R5-181632	approved
36.521-1	4028	1	Rel-15	F	RP-180082	R5-181511	approved
36.521-1	4029	1	Rel-15	F	RP-180099	R5-181531	approved
36.521-1	4030	1	Rel-15	F	RP-180083	R5-181577	approved
36.521-1	4031	1	Rel-15	F	RP-180083	R5-181578	approved
36.521-1	4032	1	Rel-15	F	RP-180083	R5-181579	approved
36.521-1	4033	1	Rel-15	F	RP-180083	R5-181580	approved
36.521-1	4034	1	Rel-15	F	RP-180083	R5-181516	approved

36.521-1	4035	1	Rel-15	F	RP-180084	R5-181636	approved
36.521-1	4036	1	Rel-15	F	RP-180082	R5-181633	approved
36.521-1	4037	1	Rel-15	F	RP-180083	R5-181581	approved
36.521-1	4039	1	Rel-15	F	RP-180083	R5-181582	approved
36.521-1	4040	1	Rel-15	F	RP-180084	R5-181539	approved
36.521-1	4041	-	Rel-15	F	RP-180088	R5-180739	approved
36.521-1	4042	-	Rel-15	F	RP-180088	R5-180740	approved
36.521-1	4043	-	Rel-15	F	RP-180088	R5-180741	approved
36.521-1	4044	-	Rel-15	F	RP-180102	R5-180742	approved
36.521-1	4045	-	Rel-15	F	RP-180102	R5-180743	approved
36.521-1	4047	1	Rel-15	F	RP-180081	R5-181625	approved
36.521-1	4048	1	Rel-15	F	RP-180097	R5-181650	approved
36.521-1	4049	-	Rel-15	F	RP-180097	R5-180755	approved
36.521-1	4050	1	Rel-15	F	RP-180097	R5-181651	approved
36.521-1	4051	-	Rel-15	F	RP-180104	R5-180762	approved
36.521-1	4052	-	Rel-15	F	RP-180093	R5-180769	approved
36.521-1	4053	-	Rel-15	F	RP-180094	R5-180770	approved
36.521-1	4054	-	Rel-15	F	RP-180094	R5-180771	approved
36.521-1	4055	-	Rel-15	F	RP-180094	R5-180772	approved
36.521-1	4056	-	Rel-15	F	RP-180094	R5-180774	approved
36.521-1	4058	1	Rel-15	F	RP-180083	R5-181649	approved
36.521-1	4059	-	Rel-15	F	RP-180081	R5-180794	approved
36.521-1	4060	-	Rel-15	F	RP-180106	R5-180795	approved
36.521-1	4061	1	Rel-15	F	RP-180110	R5-181654	approved
36.521-1	4062	-	Rel-15	F	RP-180090	R5-180797	approved
36.521-1	4063	-	Rel-15	F	RP-180097	R5-180798	approved
36.521-1	4064	-	Rel-15	F	RP-180096	R5-180799	approved
36.521-1	4065	-	Rel-15	F	RP-180079	R5-180812	approved
36.521-1	4066	-	Rel-15	F	RP-180079	R5-180815	approved
36.521-1	4067	-	Rel-15	F	RP-180110	R5-180840	approved
36.521-1	4068	1	Rel-15	F	RP-180110	R5-181341	approved
36.521-1	4069	1	Rel-15	F	RP-180110	R5-181342	approved
36.521-1	4070	-	Rel-15	F	RP-180110	R5-180843	approved
36.521-1	4071	-	Rel-15	F	RP-180110	R5-180844	approved
36.521-1	4072	1	Rel-15	F	RP-180108	R5-181545	approved
36.521-1	4073	1	Rel-15	F	RP-180076	R5-181664	approved
36.521-1	4076	1	Rel-15	F	RP-180076	R5-181521	approved
36.521-1	4077	1	Rel-15	F	RP-180076	R5-181522	approved
36.521-1	4078	-	Rel-15	F	RP-180076	R5-180855	approved
36.521-1	4079	1	Rel-15	F	RP-180081	R5-181626	approved
36.521-1	4080	1	Rel-15	F	RP-180081	R5-181627	approved
36.521-1	4081	1	Rel-15	F	RP-180081	R5-181628	approved
36.521-1	4082	1	Rel-15	F	RP-180076	R5-181621	approved
36.521-1	4083	1	Rel-15	F	RP-180081	R5-181533	approved
36.521-1	4085	1	Rel-15	F	RP-180107	R5-181543	approved
36.521-1	4086	2	Rel-15	F	RP-180088	R5-181361	approved
36.521-1	4089	-	Rel-15	F	RP-180076	R5-180926	approved
36.521-1	4090	-	Rel-15	F	RP-180076	R5-180927	approved
36.521-1	4091	-	Rel-15	F	RP-180076	R5-180928	approved
36.521-1	4092	-	Rel-15	F	RP-180081	R5-180929	approved
36.521-1	4093	1	Rel-15	F	RP-180081	R5-181561	approved
36.521-1	4094	1	Rel-15	F	RP-180083	R5-181583	approved
36.521-1	4095	-	Rel-15	F	RP-180076	R5-180935	approved
36.521-1	4096	1	Rel-15	F	RP-180076	R5-181527	approved
36.521-1	4097	-	Rel-15	F	RP-180092	R5-180938	approved

36.521-1	4098	-	Rel-15	F	RP-180096	R5-180941	approved
36.521-1	4099	-	Rel-15	F	RP-180106	R5-180942	approved
36.521-1	4100	-	Rel-15	F	RP-180110	R5-180943	approved
36.521-1	4103	1	Rel-15	F	RP-180106	R5-181362	approved
36.521-1	4104	-	Rel-15	F	RP-180106	R5-180947	approved
36.521-1	4105	1	Rel-15	F	RP-180110	R5-181547	approved
36.521-1	4106	-	Rel-15	F	RP-180110	R5-180949	approved
36.521-1	4107	1	Rel-15	F	RP-180082	R5-181634	approved
36.521-1	4108	1	Rel-15	F	RP-180084	R5-181639	approved
36.521-1	4109	-	Rel-15	F	RP-180076	R5-180992	approved
36.521-1	4113	1	Rel-15	F	RP-180084	R5-181540	approved
36.521-1	4114	1	Rel-15	F	RP-180106	R5-181653	approved
36.521-1	4115	1	Rel-15	F	RP-180076	R5-181534	approved
36.521-1	4116	1	Rel-15	F	RP-180081	R5-181629	approved
36.521-1	4117	1	Rel-15	F	RP-180076	R5-181622	approved
36.521-1	4125	1	Rel-15	F	RP-180097	R5-181537	approved
36.521-1	4126	1	Rel-15	F	RP-180097	R5-181538	approved
36.521-1	4127	-	Rel-15	F	RP-180100	R5-181055	approved
36.521-1	4128	1	Rel-15	F	RP-180100	R5-181610	approved
36.521-1	4129	-	Rel-15	F	RP-180100	R5-181057	approved
36.521-1	4130	1	Rel-15	F	RP-180101	R5-181615	approved
36.521-1	4131	1	Rel-15	F	RP-180106	R5-181549	approved
36.521-1	4132	1	Rel-15	F	RP-180106	R5-181546	approved
36.521-1	4133	1	Rel-15	F	RP-180106	R5-181550	approved
36.521-1	4134	-	Rel-15	F	RP-180106	R5-181080	approved
36.521-1	4135	1	Rel-15	F	RP-180107	R5-181544	approved
36.521-1	4138	1	Rel-15	F	RP-180081	R5-181619	approved
36.521-1	4140	-	Rel-15	F	RP-180088	R5-181096	approved
36.521-1	4141	-	Rel-15	F	RP-180088	R5-181097	approved
36.521-1	4142	-	Rel-15	F	RP-180088	R5-181098	approved
36.521-1	4143	-	Rel-15	F	RP-180088	R5-181099	approved
36.521-1	4144	-	Rel-15	F	RP-180091	R5-181102	approved
36.521-1	4145	-	Rel-15	F	RP-180517	-	approved
36.521-2	0663	1	Rel-15	F	RP-180088	R5-181562	approved
36.521-2	0664	-	Rel-14	F	RP-180096	R5-180276	approved
36.521-2	0665	-	Rel-15	F	RP-180098	R5-180334	approved
36.521-2	0666	-	Rel-15	F	RP-180099	R5-180335	approved
36.521-2	0669	1	Rel-15	F	RP-180085	R5-181640	approved
36.521-2	0670	-	Rel-15	F	RP-180074	R5-180419	approved
36.521-2	0671	2	Rel-15	F	RP-180105	R5-181695	approved
36.521-2	0672	1	Rel-15	F	RP-180092	R5-181604	approved
36.521-2	0675	1	Rel-15	F	RP-180087	R5-181608	approved
36.521-2	0676	-	Rel-15	F	RP-180088	R5-180557	approved
36.521-2	0677	1	Rel-15	F	RP-180110	R5-181552	approved
36.521-2	0678	1	Rel-15	F	RP-180081	R5-181535	approved
36.521-2	0680	1	Rel-15	F	RP-180094	R5-181614	approved
36.521-2	0682	1	Rel-15	F	RP-180090	R5-181596	approved
36.521-2	0684	-	Rel-15	F	RP-180079	R5-180811	approved
36.521-2	0685	-	Rel-15	F	RP-180106	R5-180830	approved
36.521-2	0686	-	Rel-15	F	RP-180110	R5-180839	approved
36.521-2	0687	1	Rel-15	F	RP-180107	R5-181553	approved
36.521-2	0689	1	Rel-15	F	RP-180081	R5-181536	approved
36.521-2	0690	1	Rel-15	F	RP-180110	R5-181554	approved
36.521-2	0691	1	Rel-15	F	RP-180110	R5-181548	approved
36.521-2	0692	1	Rel-15	F	RP-180090	R5-181597	approved

36.521-2	0693	1	Rel-15	F	RP-180077	R5-181609	approved
36.521-2	0694	-	Rel-15	F	RP-180087	R5-181006	approved
36.521-2	0697	-	Rel-15	F	RP-180075	R5-181049	approved
36.521-2	0698	1	Rel-15	F	RP-180100	R5-181612	approved
36.521-2	0699	1	Rel-15	F	RP-180108	R5-181555	approved
36.521-2	0700	-	Rel-15	F	RP-180088	R5-181100	approved
36.521-2	0701	-	Rel-15	F	RP-180076	R5-181108	approved
36.521-2	0702	1	Rel-15	F	RP-180081	R5-181353	approved
36.521-2	0704	1	Rel-15	F	RP-180084	R5-181667	approved
36.521-3	2069	-	Rel-15	F	RP-180098	R5-180336	approved
36.521-3	2070	-	Rel-15	F	RP-180099	R5-180337	approved
36.521-3	2072	-	Rel-15	F	RP-180085	R5-180397	approved
36.521-3	2073	-	Rel-15	F	RP-180085	R5-180398	approved
36.521-3	2074	-	Rel-15	F	RP-180085	R5-180399	approved
36.521-3	2075	2	Rel-15	F	RP-180110	R5-181358	approved
36.521-3	2076	2	Rel-15	F	RP-180110	R5-181359	approved
36.521-3	2077	-	Rel-15	F	RP-180110	R5-180411	approved
36.521-3	2078	1	Rel-15	F	RP-180087	R5-181514	approved
36.521-3	2079	1	Rel-15	F	RP-180087	R5-181515	approved
36.521-3	2080	-	Rel-15	F	RP-180110	R5-180589	approved
36.521-3	2082	-	Rel-15	F	RP-180104	R5-180591	approved
36.521-3	2083	1	Rel-15	F	RP-180076	R5-181528	approved
36.521-3	2084	-	Rel-15	F	RP-180110	R5-180593	approved
36.521-3	2085	-	Rel-15	F	RP-180110	R5-180594	approved
36.521-3	2086	-	Rel-15	F	RP-180110	R5-180595	approved
36.521-3	2087	-	Rel-15	F	RP-180106	R5-180596	approved
36.521-3	2088	-	Rel-15	F	RP-180106	R5-180597	approved
36.521-3	2089	-	Rel-15	F	RP-180106	R5-180598	approved
36.521-3	2090	-	Rel-15	F	RP-180106	R5-180599	approved
36.521-3	2091	1	Rel-15	F	RP-180108	R5-181655	approved
36.521-3	2092	1	Rel-15	F	RP-180108	R5-181656	approved
36.521-3	2093	-	Rel-15	F	RP-180108	R5-180602	approved
36.521-3	2094	-	Rel-15	F	RP-180108	R5-180603	approved
36.521-3	2095	1	Rel-15	F	RP-180108	R5-181657	approved
36.521-3	2096	1	Rel-15	F	RP-180108	R5-181658	approved
36.521-3	2097	-	Rel-15	F	RP-180108	R5-180606	approved
36.521-3	2098	-	Rel-15	F	RP-180108	R5-180607	approved
36.521-3	2100	-	Rel-15	F	RP-180090	R5-180744	approved
36.521-3	2101	-	Rel-15	F	RP-180090	R5-180745	approved
36.521-3	2107	1	Rel-15	F	RP-180090	R5-181589	approved
36.521-3	2108	1	Rel-15	F	RP-180090	R5-181590	approved
36.521-3	2109	1	Rel-15	F	RP-180090	R5-181591	approved
36.521-3	2110	-	Rel-15	F	RP-180090	R5-180912	approved
36.521-3	2111	1	Rel-15	F	RP-180090	R5-181592	approved
36.521-3	2112	1	Rel-15	F	RP-180090	R5-181593	approved
36.521-3	2113	1	Rel-15	F	RP-180090	R5-181594	approved
36.521-3	2114	1	Rel-15	F	RP-180084	R5-181541	approved
36.521-3	2115	1	Rel-15	F	RP-180090	R5-181598	approved
36.521-3	2116	1	Rel-15	F	RP-180090	R5-181595	approved
36.521-3	2117	-	Rel-15	F	RP-180076	R5-180937	approved
36.521-3	2118	-	Rel-15	F	RP-180106	R5-180952	approved
36.521-3	2119	1	Rel-15	F	RP-180110	R5-181659	approved
36.521-3	2120	1	Rel-15	F	RP-180110	R5-181556	approved
36.521-3	2121	-	Rel-15	F	RP-180110	R5-180955	approved
36.521-3	2122	-	Rel-15	F	RP-180110	R5-180956	approved

36.521-3	2123	-	Rel-15	F	RP-180110	R5-180957	approved
36.521-3	2124	1	Rel-15	F	RP-180110	R5-181344	approved
36.521-3	2125	-	Rel-15	F	RP-180110	R5-180959	approved
36.521-3	2126	2	Rel-15	F	RP-180110	R5-181363	approved
36.521-3	2127	-	Rel-15	F	RP-180076	R5-181004	approved
36.521-3	2128	1	Rel-15	F	RP-180100	R5-181611	approved
36.521-3	2129	-	Rel-15	F	RP-180075	R5-181087	approved
36.521-3	2130	-	Rel-15	F	RP-180110	R5-181104	approved
36.521-3	2131	1	Rel-15	F	RP-180082	R5-181635	approved
36.523-1	4366	-	Rel-15	F	RP-180108	R5-180263	approved
36.523-1	4367	1	Rel-15	F	RP-180092	R5-181275	approved
36.523-1	4368	1	Rel-15	F	RP-180092	R5-181276	approved
36.523-1	4370	-	Rel-14	F	RP-180096	R5-180277	approved
36.523-1	4372	-	Rel-15	F	RP-180083	R5-180359	approved
36.523-1	4373	-	Rel-15	F	RP-180083	R5-180360	approved
36.523-1	4374	1	Rel-15	F	RP-180083	R5-181220	approved
36.523-1	4375	-	Rel-15	F	RP-180105	R5-180375	approved
36.523-1	4376	1	Rel-15	F	RP-180109	R5-181299	approved
36.523-1	4377	1	Rel-15	F	RP-180109	R5-181338	approved
36.523-1	4378	1	Rel-15	F	RP-180083	R5-181221	approved
36.523-1	4379	-	Rel-15	F	RP-180109	R5-180432	approved
36.523-1	4381	-	Rel-15	F	RP-180083	R5-180447	approved
36.523-1	4382	-	Rel-15	F	RP-180083	R5-180448	approved
36.523-1	4383	1	Rel-15	F	RP-180082	R5-181213	approved
36.523-1	4384	-	Rel-15	F	RP-180083	R5-180450	approved
36.523-1	4385	-	Rel-15	F	RP-180083	R5-180451	approved
36.523-1	4386	-	Rel-15	F	RP-180083	R5-180452	approved
36.523-1	4387	1	Rel-15	F	RP-180083	R5-181222	approved
36.523-1	4388	1	Rel-15	F	RP-180083	R5-181223	approved
36.523-1	4389	1	Rel-15	F	RP-180092	R5-181277	approved
36.523-1	4393	1	Rel-15	F	RP-180109	R5-181161	approved
36.523-1	4398	-	Rel-15	F	RP-180109	R5-180550	approved
36.523-1	4399	-	Rel-15	F	RP-180109	R5-180551	approved
36.523-1	4400	-	Rel-15	F	RP-180104	R5-180552	approved
36.523-1	4401	1	Rel-15	F	RP-180083	R5-181319	approved
36.523-1	4402	1	Rel-15	F	RP-180083	R5-181320	approved
36.523-1	4406	1	Rel-15	F	RP-180105	R5-181145	approved
36.523-1	4407	-	Rel-15	F	RP-180108	R5-180625	approved
36.523-1	4413	1	Rel-15	F	RP-180104	R5-181301	approved
36.523-1	4414	1	Rel-15	F	RP-180108	R5-181329	approved
36.523-1	4422	1	Rel-15	F	RP-180084	R5-181318	approved
36.523-1	4423	1	Rel-15	F	RP-180090	R5-181231	approved
36.523-1	4424	1	Rel-15	F	RP-180084	R5-181227	approved
36.523-1	4425	1	Rel-15	F	RP-180107	R5-181157	approved
36.523-1	4426	-	Rel-15	F	RP-180107	R5-180721	approved
36.523-1	4427	1	Rel-15	F	RP-180089	R5-181198	approved
36.523-1	4428	1	Rel-15	F	RP-180089	R5-181199	approved
36.523-1	4429	-	Rel-15	F	RP-180109	R5-180726	approved
36.523-1	4430	-	Rel-15	F	RP-180089	R5-180728	approved
36.523-1	4431	-	Rel-15	F	RP-180109	R5-180731	approved
36.523-1	4432	1	Rel-15	F	RP-180109	R5-181158	approved
36.523-1	4433	1	Rel-15	F	RP-180109	R5-181304	approved
36.523-1	4434	1	Rel-15	F	RP-180109	R5-181305	approved
36.523-1	4435	1	Rel-15	F	RP-180105	R5-181154	approved
36.523-1	4437	1	Rel-15	F	RP-180077	R5-181315	approved

36.523-1	4438	1	Rel-15	F	RP-180077	R5-181316	approved
36.523-1	4442	1	Rel-15	F	RP-180107	R5-181148	approved
36.523-1	4443	1	Rel-15	F	RP-180106	R5-181302	approved
36.523-1	4446	1	Rel-15	F	RP-180096	R5-181151	approved
36.523-1	4448	1	Rel-15	F	RP-180082	R5-181214	approved
36.523-1	4449	1	Rel-15	F	RP-180082	R5-181215	approved
36.523-1	4451	1	Rel-15	F	RP-180104	R5-181152	approved
36.523-1	4452	-	Rel-15	F	RP-180104	R5-180899	approved
36.523-1	4453	1	Rel-15	F	RP-180109	R5-181300	approved
36.523-1	4454	1	Rel-15	F	RP-180083	R5-181224	approved
36.523-1	4455	1	Rel-15	F	RP-180104	R5-181153	approved
36.523-1	4458	1	Rel-15	F	RP-180109	R5-181306	approved
36.523-1	4459	1	Rel-15	F	RP-180093	R5-181281	approved
36.523-1	4460	1	Rel-15	F	RP-180105	R5-181330	approved
36.523-1	4461	-	Rel-15	F	RP-180109	R5-181040	approved
36.523-1	4462	1	Rel-15	F	RP-180104	R5-181331	approved
36.523-1	4463	1	Rel-15	F	RP-180105	R5-181303	approved
36.523-1	4464	1	Rel-15	F	RP-180104	R5-181144	approved
36.523-1	4465	1	Rel-15	F	RP-180104	R5-181149	approved
36.523-1	4466	1	Rel-15	F	RP-180106	R5-181150	approved
36.523-1	4467	-	Rel-15	F	RP-180109	R5-181120	approved
36.523-1	4468	1	Rel-15	F	RP-180106	R5-181146	approved
36.523-1	4469	1	Rel-15	F	RP-180109	R5-181307	approved
36.523-1	4470	-	Rel-15	F	RP-180109	R5-181156	approved
36.523-1	4471	-	Rel-15	F	RP-180083	R5-181232	approved
36.523-1	4472	-	Rel-15	F	RP-180083	R5-181233	approved
36.523-1	4473	-	Rel-15	F	RP-180092	R5-181279	approved
36.523-1	4474	-	Rel-15	F	RP-180095	R5-181288	approved
36.523-1	4475	-	Rel-15	F	RP-180095	R5-181289	approved
36.523-1	4476	-	Rel-15	F	RP-180095	R5-181290	approved
36.523-1	4477	-	Rel-15	F	RP-180095	R5-181291	approved
36.523-1	4478	-	Rel-15	F	RP-180109	R5-181310	approved
36.523-1	4479	-	Rel-15	F	RP-180109	R5-181352	approved
36.523-1	4480	-	Rel-15	F	RP-180089	R5-181354	approved
36.523-2	1118	1	Rel-15	F	RP-180092	R5-181326	approved
36.523-2	1119	-	Rel-14	F	RP-180096	R5-180278	approved
36.523-2	1120	1	Rel-15	F	RP-180098	R5-181163	approved
36.523-2	1121	1	Rel-15	F	RP-180099	R5-181164	approved
36.523-2	1122	-	Rel-15	F	RP-180076	R5-180369	approved
36.523-2	1124	-	Rel-15	F	RP-180083	R5-180456	approved
36.523-2	1125	1	Rel-15	F	RP-180092	R5-181280	approved
36.523-2	1127	1	Rel-15	F	RP-180087	R5-181230	approved
36.523-2	1128	-	Rel-15	F	RP-180109	R5-180553	approved
36.523-2	1129	1	Rel-15	F	RP-180083	R5-181322	approved
36.523-2	1130	1	Rel-15	F	RP-180078	R5-181274	approved
36.523-2	1134	-	Rel-15	F	RP-180090	R5-180713	approved
36.523-2	1135	-	Rel-15	F	RP-180084	R5-180718	approved
36.523-2	1136	1	Rel-15	F	RP-180089	R5-181200	approved
36.523-2	1137	-	Rel-15	F	RP-180081	R5-180752	approved
36.523-2	1138	-	Rel-15	F	RP-180097	R5-180758	approved
36.523-2	1139	-	Rel-15	F	RP-180097	R5-180781	approved
36.523-2	1142	-	Rel-15	F	RP-180100	R5-180920	approved
36.523-2	1144	1	Rel-15	F	RP-180093	R5-181282	approved
36.523-2	1145	-	Rel-15	F	RP-180109	R5-181069	approved
36.523-2	1148	1	Rel-15	F	RP-180081	R5-181229	approved

36.523-2	1149	1	Rel-15	F	RP-180104	R5-181159	approved
36.523-2	1151	1	Rel-15	F	RP-180109	R5-181160	approved
36.523-2	1152	-	Rel-15	F	RP-180109	R5-181162	approved
36.523-2	1153	-	Rel-15	F	RP-180077	R5-181168	approved
36.523-2	1154	-	Rel-15	F	RP-180095	R5-181292	approved
36.523-3	3911	1	Rel-14	B	RP-180116	R5s180068	approved
36.523-3	3923	1	Rel-14	B	RP-180116	R5s180069	approved
36.523-3	3940	1	Rel-14	B	RP-180116	R5s180070	approved
36.523-3	3957	1	Rel-14	F	RP-180116	R5s180071	approved
36.523-3	3983	1	Rel-14	B	RP-180116	R5s180072	approved
36.523-3	3987	1	Rel-14	F	RP-180116	R5s180073	approved
36.523-3	3990	1	Rel-14	F	RP-180116	R5s180074	approved
36.523-3	3991	1	Rel-14	F	RP-180116	R5s180075	approved
36.523-3	3992	1	Rel-14	B	RP-180116	R5s180076	approved
36.523-3	3993	1	Rel-14	F	RP-180116	R5s180077	approved
36.523-3	3994	1	Rel-14	B	RP-180116	R5s180078	approved
36.523-3	3995	1	Rel-14	F	RP-180116	R5s180079	approved
36.523-3	3996	1	Rel-14	F	RP-180116	R5s180080	approved
36.523-3	3997	1	Rel-14	F	RP-180116	R5s180198	approved
36.523-3	3998	1	Rel-14	F	RP-180116	R5s180083	approved
36.523-3	3999	1	Rel-14	F	RP-180116	R5s180084	approved
36.523-3	4000	1	Rel-14	F	RP-180116	R5s180085	approved
36.523-3	4001	1	Rel-14	F	RP-180116	R5s180086	approved
36.523-3	4002	1	Rel-14	F	RP-180116	R5s180087	approved
36.523-3	4003	1	Rel-14	F	RP-180116	R5s180088	approved
36.523-3	4004	1	Rel-14	F	RP-180116	R5s180090	approved
36.523-3	4005	1	Rel-14	F	RP-180116	R5s180091	approved
36.523-3	4007	1	Rel-14	F	RP-180116	R5s180094	approved
36.523-3	4008	1	Rel-14	B	RP-180116	R5s180095	approved
36.523-3	4010	1	Rel-14	B	RP-180116	R5s180096	approved
36.523-3	4011	1	Rel-14	B	RP-180116	R5s180097	approved
36.523-3	4012	1	Rel-14	F	RP-180116	R5s180098	approved
36.523-3	4013	1	Rel-14	F	RP-180116	R5s180199	approved
36.523-3	4014	1	Rel-14	F	RP-180116	R5s180099	approved
36.523-3	4015	1	Rel-14	F	RP-180116	R5s180100	approved
36.523-3	4016	1	Rel-14	F	RP-180116	R5s180101	approved
36.523-3	4017	1	Rel-14	F	RP-180116	R5s180102	approved
36.523-3	4018	1	Rel-14	F	RP-180116	R5s180201	approved
36.523-3	4019	1	Rel-14	F	RP-180116	R5s180103	approved
36.523-3	4020	1	Rel-14	F	RP-180116	R5s180104	approved
36.523-3	4021	1	Rel-14	F	RP-180116	R5s180105	approved
36.523-3	4022	1	Rel-14	F	RP-180116	R5s180106	approved
36.523-3	4023	1	Rel-14	F	RP-180116	R5s180107	approved
36.523-3	4024	1	Rel-14	F	RP-180116	R5s180108	approved
36.523-3	4025	1	Rel-14	F	RP-180116	R5s180109	approved
36.523-3	4027	1	Rel-14	F	RP-180116	R5s180117	approved
36.523-3	4028	1	Rel-14	F	RP-180116	R5s180118	approved
36.523-3	4029	1	Rel-14	B	RP-180116	R5s180119	approved
36.523-3	4030	1	Rel-14	F	RP-180116	R5s180120	approved
36.523-3	4031	1	Rel-14	F	RP-180116	R5s180121	approved
36.523-3	4032	1	Rel-14	F	RP-180116	R5s180122	approved
36.523-3	4033	1	Rel-14	F	RP-180116	R5s180123	approved
36.523-3	4034	-	Rel-14	F	RP-180116	R5s180021	approved
36.523-3	4035	-	Rel-14	F	RP-180116	R5s180022	approved
36.523-3	4036	-	Rel-14	F	RP-180116	R5s180024	approved

36.523-3	4037	-	Rel-14	F	RP-180116	R5s180025	approved
36.523-3	4038	-	Rel-14	F	RP-180116	R5s180026	approved
36.523-3	4039	-	Rel-14	F	RP-180116	R5s180028	approved
36.523-3	4040	-	Rel-14	F	RP-180116	R5s180029	approved
36.523-3	4041	-	Rel-14	F	RP-180116	R5s180030	approved
36.523-3	4042	-	Rel-14	F	RP-180116	R5s180031	approved
36.523-3	4044	-	Rel-14	F	RP-180116	R5s180042	approved
36.523-3	4045	-	Rel-14	F	RP-180116	R5s180047	approved
36.523-3	4048	-	Rel-14	F	RP-180116	R5s180050	approved
36.523-3	4049	-	Rel-14	B	RP-180116	R5s180051	approved
36.523-3	4050	-	Rel-14	F	RP-180116	R5s180054	approved
36.523-3	4051	-	Rel-14	F	RP-180116	R5s180055	approved
36.523-3	4052	-	Rel-14	F	RP-180116	R5s180056	approved
36.523-3	4053	-	Rel-14	F	RP-180116	R5s180057	approved
36.523-3	4054	-	Rel-14	F	RP-180116	R5s180058	approved
36.523-3	4055	-	Rel-14	F	RP-180116	R5s180059	approved
36.523-3	4057	-	Rel-14	F	RP-180116	R5s180062	approved
36.523-3	4058	-	Rel-14	F	RP-180116	R5s180063	approved
36.523-3	4061	-	Rel-14	F	RP-180116	R5s180066	approved
36.523-3	4062	-	Rel-14	F	RP-180116	R5s180067	approved
36.523-3	4063	-	Rel-14	B	RP-180116	R5s180110	approved
36.523-3	4064	-	Rel-14	F	RP-180116	R5s180124	approved
36.523-3	4065	-	Rel-14	F	RP-180116	R5s180125	approved
36.523-3	4067	-	Rel-14	F	RP-180116	R5s180146	approved
36.523-3	4070	-	Rel-14	F	RP-180116	R5s180149	approved
36.523-3	4071	1	Rel-14	F	RP-180083	R5-181323	approved
36.523-3	4072	-	Rel-14	F	RP-180078	R5-180617	approved
36.523-3	4073	2	Rel-14	F	RP-180104	R5-181332	approved
36.523-3	4076	-	Rel-14	F	RP-180116	R5s180152	approved
36.523-3	4077	-	Rel-14	F	RP-180116	R5s180153	approved
36.523-3	4082	1	Rel-14	F	RP-180083	R5-181225	approved
36.523-3	4085	-	Rel-14	F	RP-180116	R5s180166	approved
36.523-3	4087	-	Rel-14	F	RP-180116	R5s180168	approved
36.523-3	4088	-	Rel-14	F	RP-180116	R5s180169	approved
36.523-3	4089	-	Rel-14	F	RP-180116	R5s180170	approved
36.523-3	4090	-	Rel-14	F	RP-180116	R5s180171	approved
36.523-3	4105	-	Rel-14	F	RP-180115	R5s180210	approved
36.903	0369	1	Rel-14	F	RP-180085	R5-181512	approved
36.903	0370	1	Rel-13	F	RP-180109	R5-181517	approved
36.903	0371	1	Rel-13	F	RP-180109	R5-181518	approved
36.903	0372	1	Rel-14	F	RP-180087	R5-181513	approved
36.903	0375	-	Rel-14	F	RP-180090	R5-181031	approved
36.903	0376	-	Rel-14	F	RP-180090	R5-181032	approved
36.905	0121	-	Rel-15	F	RP-180102	R5-180768	approved
36.905	0122	-	Rel-14	F	RP-180096	R5-180800	approved
36.905	0123	1	Rel-14	F	RP-180107	R5-181542	approved
36.905	0124	1	Rel-14	F	RP-180076	R5-181617	approved
36.905	0128	-	Rel-14	F	RP-180081	R5-181696	approved
37.104	0806	-	Rel-15	B	RP-180279	R4-1802003	approved
37.104	0807	1	Rel-15	B	RP-180281	R4-1803227	approved
37.104	0808	1	Rel-15	F	RP-180267	R4-1803223	approved
37.104	0809	-	Rel-15	B	RP-180278	R4-1803004	approved
37.105	0074	1	Rel-15	F	RP-180282	R4-1803583	approved
37.113	0078	-	Rel-15	B	RP-180279	R4-1802004	approved
37.113	0079	1	Rel-15	F	RP-180282	R4-1803408	approved

37.113	0080	-	Rel-15	B	RP-180278	R4-1803005	approved
37.114	0064	-	Rel-15	F	RP-180282	R4-1803553	approved
37.141	0807	-	Rel-15	B	RP-180279	R4-1802005	approved
37.141	0808	-	Rel-13	F	RP-180287	R4-1802007	approved
37.141	0809	-	Rel-14	A	RP-180287	R4-1802008	approved
37.141	0810	-	Rel-15	A	RP-180287	R4-1802009	approved
37.141	0811	-	Rel-15	F	RP-180267	R4-1802320	approved
37.141	0812	1	Rel-15	B	RP-180281	R4-1803228	approved
37.141	0813	1	Rel-15	B	RP-180278	R4-1803220	approved
37.144	0014	1	Rel-14	F	RP-180295	R4-1803351	approved
37.145-2	0016	1	Rel-13	F	RP-180280	R4-1803390	approved
37.145-2	0017	-	Rel-14	A	RP-180280	R4-1802953	approved
37.171	0019	1	Rel-14	F	RP-180297	R4-1803485	approved
37.171	0020	-	Rel-14	F	RP-180297	R4-1801919	approved
37.171	0022	-	Rel-14	F	RP-180297	R4-1801921	approved
37.171	0023	-	Rel-14	F	RP-180297	R4-1801922	approved
37.171	0024	-	Rel-14	F	RP-180297	R4-1801923	approved
37.340	0004	1	Rel-15	F	RP-180440	R2-1803878	approved
37.340	0008	1	Rel-15	F	RP-180440	R2-1803928	approved
37.544	0024	1	Rel-14	F	RP-180080	R5-181660	approved
37.544	0025	-	Rel-14	F	RP-180080	R5-180882	approved
37.544	0026	1	Rel-14	F	RP-180080	R5-181661	approved
37.571-1	0225	-	Rel-14	F	RP-180096	R5-180279	approved
37.571-1	0226	1	Rel-15	F	RP-180090	R5-181599	approved
37.571-1	0227	1	Rel-15	F	RP-180090	R5-181600	approved
37.571-1	0228	-	Rel-15	F	RP-180090	R5-180295	approved
37.571-1	0229	-	Rel-15	F	RP-180090	R5-180296	approved
37.571-1	0230	-	Rel-15	F	RP-180090	R5-180297	approved
37.571-1	0231	-	Rel-15	F	RP-180093	R5-180298	approved
37.571-1	0232	-	Rel-15	F	RP-180093	R5-180299	approved
37.571-1	0233	-	Rel-15	F	RP-180093	R5-180300	approved
37.571-1	0234	-	Rel-15	F	RP-180093	R5-180301	approved
37.571-1	0235	1	Rel-15	F	RP-180093	R5-181584	approved
37.571-1	0236	-	Rel-15	F	RP-180093	R5-180303	approved
37.571-1	0237	-	Rel-15	F	RP-180093	R5-180304	approved
37.571-1	0238	1	Rel-15	F	RP-180093	R5-181585	approved
37.571-1	0239	1	Rel-15	F	RP-180093	R5-181586	approved
37.571-1	0240	-	Rel-15	F	RP-180093	R5-180307	approved
37.571-1	0241	-	Rel-15	F	RP-180093	R5-180308	approved
37.571-1	0242	1	Rel-15	F	RP-180092	R5-181605	approved
37.571-1	0243	1	Rel-15	F	RP-180092	R5-181606	approved
37.571-1	0244	-	Rel-15	F	RP-180092	R5-180311	approved
37.571-1	0245	-	Rel-15	F	RP-180099	R5-180325	approved
37.571-1	0246	-	Rel-15	F	RP-180096	R5-180352	approved
37.571-1	0247	-	Rel-15	F	RP-180093	R5-180583	approved
37.571-1	0248	-	Rel-15	F	RP-180106	R5-180584	approved
37.571-1	0249	-	Rel-15	F	RP-180108	R5-180585	approved
37.571-1	0250	2	Rel-15	F	RP-180102	R5-181360	approved
37.571-1	0251	1	Rel-15	F	RP-180100	R5-181613	approved
37.571-2	0101	-	Rel-14	F	RP-180096	R5-180280	approved
37.571-2	0102	-	Rel-15	F	RP-180096	R5-181111	approved
37.571-2	0103	-	Rel-15	F	RP-180096	R5-181112	approved
37.571-2	0104	-	Rel-15	F	RP-180096	R5-181113	approved
37.571-3	0082	-	Rel-14	F	RP-180096	R5-180281	approved
37.571-3	0083	-	Rel-15	F	RP-180090	R5-180312	approved

37.571-3	0084	-	Rel-15	F	RP-180093	R5-180313	approved
37.571-3	0085	-	Rel-15	F	RP-180092	R5-180314	approved
37.571-3	0086	-	Rel-15	F	RP-180106	R5-180586	approved
37.571-3	0087	-	Rel-15	F	RP-180108	R5-180587	approved
37.571-3	0088	1	Rel-15	F	RP-180096	R5-181273	approved
37.571-3	0089	-	Rel-15	F	RP-180096	R5-180878	approved
37.571-4	0094	1	Rel-14	F	RP-180118	R5s180081	approved
37.571-4	0095	1	Rel-14	B	RP-180118	R5s180113	approved
37.571-4	0096	1	Rel-14	B	RP-180118	R5s180114	approved
37.571-4	0097	1	Rel-14	B	RP-180118	R5s180115	approved
37.571-4	0098	-	Rel-13	F	RP-180109	R5-180282	approved
37.571-4	0099	-	Rel-14	F	RP-180105	R5-180677	approved
37.571-5	0173	-	Rel-14	F	RP-180096	R5-180283	approved
37.571-5	0174	-	Rel-15	F	RP-180090	R5-180315	approved
37.571-5	0175	-	Rel-15	F	RP-180092	R5-180316	approved
37.571-5	0176	1	Rel-15	F	RP-180096	R5-181346	approved
37.901	0047	-	Rel-15	F	RP-180103	R5-180901	approved
38.101-1	0003	-	Rel-15	F	RP-180264	R4-1802403	approved
38.101-2	0004	-	Rel-15	F	RP-180264	R4-1802404	approved
38.101-3	0005	-	Rel-15	F	RP-180264	R4-1802405	approved
38.104	0004	-	Rel-15	F	RP-180264	R4-1802142	approved
38.113	0002	-	Rel-15	F	RP-180264	R4-1803319	approved
38.113	0003	-	Rel-15	B	RP-180264	R4-1803467	approved
38.124	0001	-	Rel-15	F	RP-180264	R4-1803471	approved
38.133	0032	-	Rel-15	B	RP-180264	R4-1803513	approved
38.202	0001	-	Rel-15	F	RP-180200	R1-1803551	approved
38.211	0001	-	Rel-15	F	RP-180200	R1-1803552	approved
38.212	0001	-	Rel-15	F	RP-180200	R1-1803553	approved
38.213	0001	-	Rel-15	F	RP-180200	R1-1803554	approved
38.214	0001	-	Rel-15	F	RP-180200	R1-1803555	approved
38.215	0002	-	Rel-15	F	RP-180200	R1-1803556	approved
38.300	0009	1	Rel-15	F	RP-180440	R2-1803877	approved
38.306	0003	3	Rel-15	F	RP-180440	R2-1804120	approved
38.321	0039	1	Rel-15	F	RP-180440	R2-1803854	approved
38.321	0041	-	Rel-15	B	RP-180440	R2-1803796	approved
38.322	0003	-	Rel-15	F	RP-180440	R2-1803406	approved
38.323	0002	1	Rel-15	F	RP-180440	R2-1803858	approved
38.331	0008	1	Rel-15	F	RP-180479	-	approved
38.401	0007	-	Rel-15	F	RP-180468	R3-181479	approved
38.425	0001	1	Rel-15	F	RP-180468	R3-181526	approved
38.425	0002	-	Rel-15	F	RP-180468	R3-180706	approved
38.425	0003	1	Rel-15	B	RP-180468	R3-181382	approved
38.425	0006	2	Rel-15	F	RP-180468	R3-181546	approved
38.425	0010	2	Rel-15	F	RP-180468	R3-181553	approved
38.425	0014	1	Rel-15	F	RP-180468	R3-181410	approved
38.425	0015	1	Rel-15	F	RP-180468	R3-181447	approved
38.425	0016	-	Rel-15	F	RP-180468	R3-181325	approved
38.425	0017	1	Rel-15	F	RP-180468	R3-181515	approved
38.470	0002	-	Rel-15	F	RP-180468	R3-180716	approved
38.470	0006	-	Rel-15	F	RP-180468	R3-181462	approved
38.470	0007	1	Rel-15	B	RP-180468	R3-181533	approved
38.473	0001	2	Rel-15	B	RP-180468	R3-181580	approved
38.473	0001	3	Rel-15	B	RP-180493	-	rejected
38.473	0013	-	Rel-15	F	RP-180431	-	withdrawn
43.059	0088	1	Rel-15	B	RP-180068	R6-180048	approved

43.064	0116	2	Rel-14	F	RP-180072	R6-180052	approved
45.002	0213	-	Rel-14	F	RP-180071	R6-180028	approved
45.005	0611	-	Rel-13	F	RP-180070	R6-180026	approved
45.005	0612	-	Rel-14	F	RP-180071	R6-180027	approved
45.005	0613	-	Rel-14	A	RP-180070	R6-180038	approved
45.008	0655	1	Rel-14	F	RP-180072	R6-180037	approved
45.008	0656	-	Rel-11	F	RP-180069	R6-180033	approved
45.008	0657	-	Rel-12	A	RP-180069	R6-180034	approved
45.008	0658	-	Rel-13	A	RP-180069	R6-180035	approved
45.008	0659	-	Rel-14	A	RP-180069	R6-180036	approved
51.010-1	5153	1	Rel-13	F	RP-180109	R5-181237	approved
51.010-1	5154	-	Rel-13	F	RP-180106	R5-180501	approved
51.010-1	5155	1	Rel-13	F	RP-180109	R5-181335	approved
51.010-2	4401	-	Rel-13	F	RP-180109	R5-180506	approved
51.021	0293	-	Rel-14	F	RP-180071	R6-180029	approved
51.021	0294	-	Rel-13	F	RP-180070	R6-180030	approved

Subject	CR written to	WG status	WG
Correction to Table 7.11 Additional receiver spurious emission requ	11.13.0	agreed	R4
CR to 25.101: Introduction of Band 85 (B12-extended)	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
CR to 25.104: Introduction of Band 85	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
CR to TS 25.113: correction of the CISPR reference and ESD levels	14.0.0	agreed	R4
CR to 25.123: Introduction of Band 85 (B12-extended)	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
CR to 25.133: Introduction of Band 85 (B12-extended)	15.1.0	agreed	R4
CR for 25.133 introducing band 68	13.1.0	agreed	R4
CR for 25.133 introducing band 68	14.1.0	agreed	R4
CR for 25.133 introducing band 68	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
CR to 25.141: Introduction of Band 85	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
Introduction of QoE Measurement Collection for MTSI services	15.0.0	agreed	R6
Introduction of QoE Measurement Collection for MTSI services	15.0.0	agreed	R6
RRC ASN.1 corrections	15.1.0	agreed	R6
Introduction of band 85	15.1.0	agreed	R3
Introduction of the TDD 3.3-3.4GHz band (Band 52)	15.1.0	agreed	R3
Introduction of band 85	15.1.0	agreed	R3
Introduction of the TDD 3.3-3.4GHz band (Band 52)	15.1.0	agreed	R3
Removal of technical content in 34.121-1 v14.3.0 and substitution w	14.3.0	agreed	R5
Band 68 protection to 34.121-1 spurious emissions	15.0.0	agreed	R5
Band 68 information to E-UTRA band group in 34.121-1	15.0.0	agreed	R5
Updating of Measurement Control and Report for Application layer r	14.3.0	agreed	R5
Updating of Cell Update: Application layer measurement report ava	14.3.0	agreed	R5
Updates to eDECOR test cases 12.2.1.1c and 12.4.1.1g	14.3.0	agreed	R5
Update test applicability statements for R14 QMC Streaming WI	14.2.0	agreed	R5
Correction to the function f_UTRAN34_ActivateFirstPDP_Context	14.1.0	agreed	R5s
Correction of f_UTRAN_InitialiseQoS for duplicated entry in select/c	14.1.0	agreed	R5s
Editorial update of headers for UE category M1 test cases	14.1.0	agreed	R5
Expired grace period for session timer requirement	14.1.0	agreed	R5
Update audio media requirements	14.1.0	agreed	R5
Removal of technical content in 34.229-1 v13.4.0 and substitution w	13.4.0	agreed	R5
Corrections to Communication Forwarding on non reply regarding c	14.1.0	agreed	R5
Corrections to Rseq header in 180 Ringing	14.1.0	agreed	R5
Fixing step numbering of generic function being used in 17.2	14.1.0	agreed	R5
Correction to IMS test case 19.4.7 regarding port in Record-Route h	14.1.0	agreed	R5
Corrections to Conferencing test cases	14.1.0	agreed	R5
Corrections to Converged IP Communications test cases I.8.1a and	14.1.0	agreed	R5
Corrections to Converged IP Communications test case I.8.1d	14.1.0	agreed	R5
Corrections to 19.4.5	14.1.0	agreed	R5
Fixing cross reference for audio media feature tag	14.1.0	agreed	R5
Clarification to A.3.1 regarding the Contact header	14.1.0	agreed	R5
Corrections to G.8.1	14.1.0	agreed	R5
Updates to default USIM settings for IMS eCall test cases	14.1.0	agreed	R5
Updates to test case G.19	14.1.0	agreed	R5
Update to FBBA test case H.17.1	14.1.0	agreed	R5
Updates to IMS eCall test cases	14.1.0	agreed	R5
Update of Annex C.11a Generic procedure for WLAN MTSI MT spe	14.1.0	agreed	R5
Update of Annex C.26a Generic procedure for WLAN MTSI MT vide	14.1.0	agreed	R5
Resubmission of missed Addition of Generic Test Procedure C.32a	14.1.0	agreed	R5

Correction to XML body of A.4.1	14.1.0	agreed	R5
Removal of technical content in 34.229-2 v13.4.0 and substitution w	13.4.0	agreed	R5
Correction of eCall over IMS test case applicability	14.1.0	agreed	R5
Clean-up and harmonisation of IMS test case implementation for EU	14.1.0	agreed	R5s
Correction of f_UTRAN_IPCAN_Release	14.1.0	agreed	R5s
Postponing activation of dedicated bearer in MT call scenarios	14.1.0	agreed	R5s
Addition of IMS test case G.15.17	14.1.0	agreed	R5s
Correction of function f_IMS_CC_StartCall	14.1.0	agreed	R5s
Correction to IMS three way session creation test cases 15.21a and	14.1.0	agreed	R5s
Correction for IMS UTRAN test cases 6.3 and 7.1	14.1.0	agreed	R5s
Removal of technical content in 34.229-3 v13.4.0 and substitution w	13.4.0	agreed	R5
Correction to IMS function fl_IMS_Server_RemoveSecurityContext	14.1.0	agreed	R5s
Addition of IMS test case J.8.1 for CAT-M1 UEs	14.1.0	agreed	R5s
Addition of IMS test case J.12.1 for CAT-M1 UEs	14.1.0	agreed	R5s
Addition of IMS test case J.12.2 for CAT-M1 UEs	14.1.0	agreed	R5s
Addition of IMS test case J.15.1 for CAT-M1 UEs	14.1.0	agreed	R5s
Addition of IMS test case J.15.3 for CAT-M1 UEs	14.1.0	agreed	R5s
Addition of IMS test case J.15.4 for CAT-M1 UEs	14.1.0	agreed	R5s
Addition of IMS test case J.15.6 for CAT-M1 UEs	14.1.0	agreed	R5s
Addition of IMS test case J.15.2 for CAT-M1 UEs	14.1.0	agreed	R5s
Addition of IMS test case J.19.2 for CAT-M1 UEs	14.1.0	agreed	R5s
EIEI: Test Model updates	14.1.0	agreed	R5
Routine maintenance for TS 34.229-3	14.1.0	agreed	R5
Addition of IMS test case G.12.2	14.1.0	agreed	R5s
Add new verified and e-mail agreed TTCN test cases in the TC lists	14.1.0	agreed	R5s
CR on UE RF requirments for DL 1024QAM in TS 36.101	15.1.0	agreed	R4
Update EVM requirements for V2X	14.6.0	agreed	R4
Update EVM requirements for V2X	15.1.0	agreed	R4
CR on IBE requirements for intra-band contiguous multiple carriers	14.6.0	agreed	R4
CR on IBE requirements for intra-band contiguous multiple carriers	15.1.0	agreed	R4
CR for TS 36.101: Removal UE requirements for shared spectrum	15.1.0	agreed	R4
Introduction of power class 2 HPUE in Band 40 and 42 to TS 36.10	15.1.0	agreed	R4
Introduction of additional xDL/2UL CA band combinations in rel-15	15.1.0	agreed	R4
Correction to Test Parameters for Cat M1 PUCCH 1-0 static test	14.6.0	agreed	R4
Correction to Test Parameters for Cat M1 PUCCH 1-0 static test	15.1.0	agreed	R4
Correction to UE-selected subband CQI test for eMTC	13.10.0	agreed	R4
Correction to UE-selected subband CQI test for eMTC	14.6.0	agreed	R4
Correction to UE-selected subband CQI test for eMTC	15.1.0	agreed	R4
CR for removing square bracket for V2X eNB sync test (Rel-14)	14.6.0	agreed	R4
CR for removing square bracket for V2X eNB sync test (Rel-15)	15.1.0	agreed	R4
Correction on FRC for 4Rx CA tests (Rel-14)	14.6.0	agreed	R4
Correction on FRC for 4Rx CA tests (Rel-15)	15.1.0	agreed	R4
Maintennace CR for R13 Non-BL/UE requirements (R13)	13.10.0	agreed	R4
Maintennace CR for R13 Non-BL/UE requirements (R14)	14.6.0	agreed	R4
Maintennace CR for R13 Non-BL/UE requirements (R15)	15.1.0	agreed	R4
PDSCH Demodulation downlink power allocation parameters for UE	14.6.0	agreed	R4
PDSCH Demodulation downlink power allocation parameters for UE	15.1.0	agreed	R4
Correction to DL power allocation of CSI reporting for 4Rx UE in 9.9	13.10.0	agreed	R4
Correction to DL power allocation of CSI reporting for 4Rx UE in 9.9	14.6.0	agreed	R4
Correction to DL power allocation of CSI reporting for 4Rx UE in 9.9	15.1.0	agreed	R4
Corrections to LAA CQI reporting requirements	13.10.0	agreed	R4
Corrections to LAA CQI reporting requirements	14.6.0	agreed	R4
Corrections to LAA CQI reporting requirements	15.1.0	agreed	R4
Addition of two sided OCNG pattern for FS3	13.10.0	agreed	R4
Addition of two sided OCNG pattern for FS3	14.6.0	agreed	R4

Addition of two sided OCNG pattern for FS3	15.1.0	agreed	R4
Correction of MPDCCH performance requirements	13.10.0	agreed	R4
Correction of MPDCCH performance requirements	14.6.0	agreed	R4
Introduction of UL CA_41C-42C into TS36.101	15.1.0	agreed	R4
CR to 36.101 on default power class	13.10.0	agreed	R4
CR to 36.101 on default power class	14.6.0	agreed	R4
Correction of A-MPR table for UE Cat.M2 of Band 1	14.6.0	agreed	R4
Correction of A-MPR table for UE Cat.M2 of Band 1	15.1.0	agreed	R4
Correction on Test Parameters for FRC for CA more than 3DL CA	13.10.0	agreed	R4
Correction on Test Parameters for FRC for CA more than 3DL CA	14.6.0	agreed	R4
Correction on Test Parameters for FRC for CA more than 3DL CA	15.1.0	agreed	R4
Introduction of completed R15 3DL/1UL band combinations to TS 3	15.1.0	agreed	R4
CR on UE RF requirement for 8Rx	15.1.0	agreed	R4
Introduction of additional band combinations for Intra-band CA	15.1.0	agreed	R4
Introduction of Rel-15 LTE 4DL/1UL combinations in 36.101	15.1.0	agreed	R4
Correction for CA CQI tests (R12)	12.18.0	agreed	R4
Correction for CA CQI tests (R13)	13.10.0	agreed	R4
Correction for CA CQI tests (R14)	14.6.0	agreed	R4
Correction for CA CQI tests (R15)	15.1.0	agreed	R4
CR for enhanced PDCCH demodulation performance for category 1	15.1.0	agreed	R4
Correction of a target band for FDD class 1 HP-UE	15.1.0	agreed	R4
Corrections to Spurious emission band UE co-existence for CA	13.10.0	agreed	R4
Corrections to Spurious emission band UE co-existence for CA	14.6.0	agreed	R4
Corrections to Spurious emission band UE co-existence for CA	15.1.0	agreed	R4
Correction CR for Semi-OL rank1 test (CAT F)	14.6.0	agreed	R4
Correction CR for Semi-OL rank1 test (CAT A)	15.1.0	agreed	R4
CR to 36.101: Introduction of Band 85 (B12-extended)	15.1.0	agreed	R4
PC2 for CA_41C REL-13	13.10.0	agreed	R4
PC2 for CA_41C REL-14	14.6.0	agreed	R4
PC2 for CA_41C REL-15	15.1.0	agreed	R4
Correction of band 72 MOP	15.1.0	agreed	R4
Correction to UL-MIMO MOP Table Rel-13	13.10.0	agreed	R4
Correction to UL-MIMO MOP Table Rel-14	14.6.0	agreed	R4
Correction to UL-MIMO MOP Table Rel-15	15.1.0	agreed	R4
MSD for CA_2A-71A	15.1.0	agreed	R4
Introduction of CA band combination basis Delta TIB,c table	15.1.0	agreed	R4
Introduction of CA band combination basis Delta RIB,c table	15.1.0	agreed	R4
Clean up of PDSCH demodulation requirements for FeMTC	14.6.0	agreed	R4
Clean up of PDSCH demodulation requirements for FeMTC	15.1.0	agreed	R4
PC2 for CA_41C REL-10	10.25.0	agreed	R4
PC2 for CA_41C REL-11	11.22.0	agreed	R4
PC2 for CA_41C REL-12	12.18.0	agreed	R4
Adding note about timing difference for TDD CA (2Rx)	12.18.0	agreed	R4
Adding note about timing difference for TDD CA (2Rx)	13.10.0	agreed	R4
Adding note about timing difference for TDD CA (2Rx)	14.6.0	agreed	R4
Adding note about timing difference for TDD CA (2Rx)	15.1.0	agreed	R4
Adding note about timing difference for TDD CA and TDD FDD CA	14.6.0	agreed	R4
Adding note about timing difference for TDD CA and TDD FDD CA	15.1.0	agreed	R4
CR to 36.101: Introduction of A-MPR table for NS4 and NS12 for CA	13.10.0	agreed	R4
CR to 36.101: Introduction of A-MPR table for NS4 and NS12 for CA	14.6.0	agreed	R4
CR to 36.101: Introduction of A-MPR table for NS4 and NS12 for CA	15.1.0	agreed	R4
CSI 4RX: Correction to reference channels and MCS schemes used	13.10.0	agreed	R4
CSI 4RX: Correction to reference channels and MCS schemes used	14.6.0	agreed	R4
CSI 4RX: Correction to reference channels and MCS schemes used	15.1.0	agreed	R4
Correction to Band 72 ProSe frequencies	15.1.0	agreed	R4

CR for 36.101	15.1.0	agreed	R4
CR on Enhanced CRS-IM test case applicability (Rel-14)	14.6.0	agreed	R4
CR on Enhanced CRS-IM test case applicability (Rel-15)	15.1.0	agreed	R4
CR on definition of 4x1 MIMO correlation matrices (Rel-14)	14.6.0	agreed	R4
CR on definition of 4x1 MIMO correlation matrices (Rel-15)	15.1.0	agreed	R4
CR to TS 36.101: Correction of CA table 7.3.1A-0bD R14	14.6.0	agreed	R4
CR to TS 36.101: Correction of CA table 7.3.1A-0bD R15	15.1.0	agreed	R4
CR to TS 36.101: Correction of CA table 7.3.1A-6 R14	14.6.0	agreed	R4
CR to TS 36.101: Correction of CA table 7.3.1A-6 R15	15.1.0	agreed	R4
PDSCH Demodulation downlink power allocation parameters for UE	13.10.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
Introduction of 5DL CA combinations to 36.101	15.1.0	agreed	R4
Correction of MPDCCH performance requirements	15.1.0	agreed	R4
CR on BS RF requirments for DL 1024QAM in TS 36.104	15.1.0	agreed	R4
Introduction of completed R15 3DL/1UL band combinations to TS 3	15.1.0	agreed	R4
Introduction of Rel-15 LTE 4DL/1UL combinations in 36.104	15.1.0	agreed	R4
Introduction of 5DL CA combinations to 36.104	15.1.0	agreed	R4
CR to 36.104: Introduction of new additional unwanted emission lim	15.1.0	agreed	R4
CR to 36.104: Introduction of Band 85 (B12-extended)	15.1.0	agreed	R4
Removing Section 9 from 36.104	15.1.0	agreed	R4
CR on clarifications of NB-IoT RB power dynamic range for in-band	13.10.0	agreed	R4
CR on clarifications of NB-IoT RB power dynamic range for in-band	14.6.0	agreed	R4
CR on clarifications of NB-IoT RB power dynamic range for in-band	15.1.0	agreed	R4
CR on corrections of tables for NB-IoT small cell support (TS 36.10	15.1.0	agreed	R4
CR for 36.104	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
CR to 36.113: Introduction of Band 85 (B12-extended)	15.1.0	agreed	R4
CR to TS 36.113: correction of the CISPR reference and ESD level	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
CR to 36.124: Introduction of Band 85 (B12-extended)	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
CR on TS36.133 on interruptions for NSA EN-DC	15.1.0	agreed	R4
Number of carriers	15.1.0	agreed	R4
Editorial corrections for NSA NR	15.1.0	agreed	R4
CR on NR PSCell addition and release delay	15.1.0	agreed	R4
Remove [ ] from UE Cat 1bis RRM requirements (Rel-14)	14.6.0	agreed	R4
Remove [ ] from UE Cat 1bis RRM requirements (Rel-15)	15.1.0	agreed	R4
Correction of test requirement for LAA Test cases A.8.26.x	14.6.0	agreed	R4
Correction of test requirement for LAA Test cases A.8.26.x	15.1.0	agreed	R4
Correction to Reference NPRACH Configurations	13.10.0	agreed	R4
Correction to Reference NPRACH Configurations	14.6.0	agreed	R4
Correction to Reference NPRACH Configurations	15.1.0	agreed	R4
Finalising NB-IoT NPRACH Test cases A.6.2.16 and A.6.2.17	13.10.0	agreed	R4
Finalising NB-IoT NPRACH Test cases A.6.2.16 and A.6.2.17	14.6.0	agreed	R4
Finalising NB-IoT NPRACH Test cases A.6.2.16 and A.6.2.17	15.1.0	agreed	R4
Correction to NB-IoT UE Transmit Timing Accuracy Test cases	13.10.0	agreed	R4
Correction to NB-IoT UE Transmit Timing Accuracy Test cases	14.6.0	agreed	R4
Correction to NB-IoT UE Transmit Timing Accuracy Test cases	15.1.0	agreed	R4
Correction to successful report rate threshold for FS3 channel occu	13.10.0	agreed	R4
Correction to successful report rate threshold for FS3 channel occu	14.6.0	agreed	R4
Correction to successful report rate threshold for FS3 channel occu	15.1.0	agreed	R4
Correction to incorrect reference for A8.26.9 and A8.26.10	13.10.0	agreed	R4
Correction to incorrect reference for A8.26.9 and A8.26.10	14.6.0	agreed	R4
Correction to incorrect reference for A8.26.9 and A8.26.10	15.1.0	agreed	R4
Correction to OCNG pattern for FS3 RSSI and channel occupancy	13.10.0	agreed	R4

Correction to OCNG pattern for FS3 RSSI and channel occupancy	14.6.0	agreed	R4
Correction to OCNG pattern for FS3 RSSI and channel occupancy	15.1.0	agreed	R4
CR for applibility correction for non-BLCE UE R14	14.6.0	agreed	R4
CR for applibility correction for non-BLCE UE R15	15.1.0	agreed	R4
Correction of test requirements for RSTD intra-frequency reporting	14.6.0	agreed	R4
Correction of test requirements for RSTD intra-frequency reporting	15.1.0	agreed	R4
Correction of test requirements for RSTD inter-frequency reporting	14.6.0	agreed	R4
Correction of test requirements for RSTD inter-frequency reporting	15.1.0	agreed	R4
Correction of test requirements for RSTD measurement performanc	14.6.0	agreed	R4
Correction of test requirements for RSTD measurement performanc	15.1.0	agreed	R4
RRM-Cat1Bis: Missing references to the core requirements (Rel-14	14.6.0	agreed	R4
RRM-Cat1Bis: Missing references to the core requirements (Rel-15	15.1.0	agreed	R4
Corrections on enhanced RLM tests in CEModeA (R14)	14.6.0	agreed	R4
Corrections on enhanced RLM tests in CEModeA (R15)	15.1.0	agreed	R4
Correction for LAA channel occupancy test (R13)	13.10.0	agreed	R4
Correction for LAA channel occupancy test (R14)	14.6.0	agreed	R4
Correction for LAA channel occupancy test (R15)	15.1.0	agreed	R4
Correction for LAA RSSI measurement accuracy requirement (R13	13.10.0	agreed	R4
Correction for LAA RSSI measurement accuracy requirement (R14	14.6.0	agreed	R4
Correction for LAA RSSI measurement accuracy requirement (R15	15.1.0	agreed	R4
Requirements for LTE incmon with NR	15.1.0	agreed	R4
Changes to conditions for V2X GNSS reliability requirements	15.1.0	agreed	R4
Changes to conditions for V2X GNSS reliability requirements	14.6.0	agreed	R4
CR to 36.133: Introduction of Band 85 (B12-extended)	15.1.0	agreed	R4
Updating HO requirement without SFN acquisition for feMTC	14.6.0	agreed	R4
Updating HO requirement without SFN acquisition for feMTC R15	15.1.0	agreed	R4
Updating HO test cases without SFN acquisition for feMTC CEMod	14.6.0	agreed	R4
Updating HO test cases without SFN acquisition for feMTC CEMod	15.1.0	agreed	R4
Updating HO test cases without SFN acquisition for feMTC CEMod	14.6.0	agreed	R4
Updating HO test cases without SFN acquisition for feMTC CEMod	15.1.0	agreed	R4
Interruption time for MG in EN-DC	15.1.0	agreed	R4
CR on RRM measurement requirements for UE cat M1	14.6.0	agreed	R4
CR on RRM measurement requirements for UE cat M1 R15	15.1.0	agreed	R4
CR on intra RSTD accuracy requirement for FeMTC	14.6.0	agreed	R4
CR on intra RSTD accuracy requirement for FeMTC R15	15.1.0	agreed	R4
CR on non-uniform gap inter frequency requirements when DRX is	14.6.0	agreed	R4
CR on non-uniform gap inter frequency requirements when DRX is	15.1.0	agreed	R4
CR on TS36133 for event triggering and reporting criteria	15.1.0	agreed	R4
Correction on interruption test cases for SRS switching in CA R14	14.6.0	agreed	R4
Correction on interruption test cases for SRS switching in CA R15	15.1.0	agreed	R4
Correction on interruption test cases for SRS switching in DC R14	14.6.0	agreed	R4
Correction on interruption test cases for SRS switching in DC R15	15.1.0	agreed	R4
CR on measurement gap patterns in TS 36.133	15.1.0	agreed	R4
Clean-up for high speed performance enhancement	14.6.0	agreed	R4
Clean-up for high speed performance enhancement	15.1.0	agreed	R4
CR on introducing PSSCH RMC configuration for V2X UE autonom	14.6.0	agreed	R4
CR on introducing PSSCH RMC configuration for V2X UE autonom	15.1.0	agreed	R4
Editorial change on RLM requirement	13.10.0	agreed	R4
Editorial change on RLM requirement	14.6.0	agreed	R4
Editorial change on RLM requirement	15.1.0	agreed	R4
CR for intra frequency RSTD reporting delay test case for eNB-IOT	14.6.0	agreed	R4
CR for inter frequency RSTD reporting delay test case for eNB-IOT	14.6.0	agreed	R4
CR for intra frequency RSTD reporting delay test case for eNB-IOT	15.1.0	agreed	R4
CR for inter frequency RSTD reporting delay test case for eNB-IOT	15.1.0	agreed	R4
CR on TS36.133 for UE capability in idle mode	15.1.0	agreed	R4

CR on TS36.133 for NR RRM measurement in EN-DC	15.1.0	agreed	R4
CR on TS36.133 for inter-frequency E-UTRAN RRM measurement	15.1.0	agreed	R4
CR on TS36.133 for inter-RAT handover from E-UTRAN to NR	15.1.0	agreed	R4
CR on TS36.133 for UE measurement capability related to EN-DC	15.1.0	agreed	R4
CR on TS36.133 for EN-DC SSTD measurement	15.1.0	agreed	R4
CR for 36.133 introducing band 68	13.10.0	agreed	R4
CR for 36.133 introducing band 68	14.6.0	agreed	R4
CR for 36.133 introducing band 68	15.1.0	agreed	R4
Clarification on coverage enhancement level for category NB1 UEs	13.10.0	agreed	R4
Clarification on coverage enhancement level for cat-NB1 in IDLE st	14.6.0	agreed	R4
Clarification on coverage enhancement level for cat-NB1 in IDLE st	15.1.0	agreed	R4
Clarification on enhanced RLM requirements for FeMTC	14.6.0	agreed	R4
Clarification on enhanced RLM requirements for FeMTC	15.1.0	agreed	R4
Editorial correction to test cases on SI reading test in DRX for cat-M	14.6.0	agreed	R4
Editorial correction to test cases on SI reading test in DRX for cat-M	15.1.0	agreed	R4
Editorial correction in RSTD requirements for UE category 1bis	14.6.0	agreed	R4
Editorial correction in RSTD requirements for UE category 1bis	15.1.0	agreed	R4
OTDOA NB-IoT: Corrections to core and test requirements for NB-I	14.6.0	agreed	R4
OTDOA NB-IoT: Corrections to core and test requirements for NB-I	15.1.0	agreed	R4
OTDOA eMTC: Corrections to core and test requirements for eMTC	14.6.0	agreed	R4
OTDOA eMTC: Corrections to core and test requirements for eMTC	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
Introduction of completed R15 3DL/1UL band combinations to TS 3	15.1.0	agreed	R4
Introduction of Rel-15 LTE 4DL/1UL combinations in 36.141	15.1.0	agreed	R4
Introduction of 5DL CA combinations to 36.141	15.1.0	agreed	R4
CR to 36.141: Introduction of new additional unwanted emission lim	15.1.0	agreed	R4
CR to 36.141: Introduction of Band 85 (B12-extended)	15.1.0	agreed	R4
CR on clarifications of NB-IoT RB power dynamic range for in-band	13.10.0	agreed	R4
CR on clarifications of NB-IoT RB power dynamic range for in-band	14.6.0	agreed	R4
CR on clarifications of NB-IoT RB power dynamic range for in-band	15.1.0	agreed	R4
CR on corrections of table for NB-IoT stand-alone test configuration	13.10.0	agreed	R4
CR on corrections of table for NB-IoT stand-alone test configuration	14.6.0	agreed	R4
CR on corrections of table for NB-IoT stand-alone test configuration	15.1.0	agreed	R4
CR on corrections of tables for NB-IoT small cell support (TS 36.14	15.1.0	agreed	R4
CR for 36.141	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
Introduction of shortened processing time and shortened TTI into 3	14.1.0	agreed	R1
Introduction of feCoMP into 36.211	15.0.0	agreed	R1
Clarification on PUSCH and PDSCH scrambling for BL/CE UEs	13.8.0	agreed	R1
Clarification on PUSCH and PDSCH scrambling for BL/CE UEs	14.5.0	agreed	R1
Clarification on the hopping parameter for PUSCH transmission cor	13.8.0	agreed	R1
Clarification on the hopping parameter for PUSCH transmission cor	14.5.0	agreed	R1
Clarification on the NPRACH starting subcarrier partitioning for mul	13.8.0	agreed	R1
Clarification on the NPRACH starting subcarrier partitioning for mul	14.5.0	agreed	R1
Clarification on the NPRACH starting subcarrier partitioning for mul	15.0.0	agreed	R1
CR 36.211 for Correction on CDM-8 Sequence Mapping for 24 and	14.5.0	agreed	R1
CR 36.211 for Correction on CDM-8 Sequence Mapping for 24 and	15.0.0	agreed	R1
Clarification on PUSCH and PDSCH scrambling for BL/CE UEs	15.0.0	agreed	R1
Clarification on the hopping parameter for PUSCH transmission cor	15.0.0	agreed	R1
Interference randomization in CSS	14.5.0	agreed	R1
Interference randomization in CSS	15.0.0	agreed	R1
Correction on DM-RS in DwPTS in special subframe configuration 1	14.5.0	agreed	R1
Correction on DM-RS in DwPTS in special subframe configuration 1	15.0.0	agreed	R1
Clarification on NPDCCH RE mapping	13.8.0	agreed	R1
Clarification on NPDCCH RE mapping	14.5.0	agreed	R1

Clarification on NPDCCH RE mapping	15.0.0	agreed	R1
Introduction of FeCoMP into 36.212	15.0.1	agreed	R1
Introduction of EN-DC into 36.212	15.0.1	agreed	R1
Introduction of FeCoMP into 36.213	15.0.0	agreed	R1
Introducing support for EN-DC co-existence into 36.213 s00-s05	15.0.0	agreed	R1
Introducing support for EN-DC co-existence into 36.213 s06-s09	15.0.0	agreed	R1
Introducing support for EN-DC co-existence into 36.213 s10-s13	15.0.0	agreed	R1
Correction on CSI reporting for Class B K=1	13.8.0	agreed	R1
Correction on CSI reporting for Class B K=1	14.5.0	agreed	R1
Correction to determination of number of PUCCH repetitions for BL	13.8.0	agreed	R1
Correction to determination of number of PUCCH repetitions for BL	14.5.0	agreed	R1
Clarification on UL power control for NB-IoT	13.8.0	agreed	R1
Correction on PUCCH resource determination in HARQ-ACK bundl	14.5.0	agreed	R1
Correction on higher layer parameter schedulingInfoSIB1-BR-r13	14.5.0	agreed	R1
Correction on Msg3 power control	14.5.0	agreed	R1
Correction on DwPTS usage in special subframe configuration 10	14.5.0	agreed	R1
UCI multiplexing for eVoLTE	14.5.0	agreed	R1
Corrections for antenna switching	13.8.0	agreed	R1
Corrections for antenna switching	14.5.0	agreed	R1
Correction on CSI reporting for Class B K>1	13.8.0	agreed	R1
Correction on CSI reporting for Class B K>1	14.5.0	agreed	R1
Correction on CSI reporting for Class B K>1	15.0.0	agreed	R1
Clarification on UL power control for NB-IoT	14.5.0	agreed	R1
Clarification on UL power control for NB-IoT	15.0.0	agreed	R1
Multiple CSI reports for eCA	13.8.0	agreed	R1
Multiple CSI reports for eCA	14.5.0	agreed	R1
Multiple CSI reports for eCA	15.0.0	agreed	R1
Correction on CSI reporting for Class B K=1	15.0.0	agreed	R1
Correction to determination of number of PUCCH repetitions for BL	15.0.0	agreed	R1
Correction on PUCCH resource determination in HARQ-ACK bundl	15.0.0	agreed	R1
Correction on higher layer parameter schedulingInfoSIB1-BR-r13	15.0.0	agreed	R1
Correction on DwPTS usage in special subframe configuration 10	15.0.0	agreed	R1
UCI multiplexing for eVoLTE	15.0.0	agreed	R1
Corrections for antenna switching	15.0.0	agreed	R1
Correction on Msg3 power control	15.0.0	agreed	R1
Support of early contention resolution	14.5.0	agreed	R1
Support of early contention resolution	15.0.0	agreed	R1
SPS for eMTC	13.8.0	agreed	R1
SPS for eMTC	14.5.0	agreed	R1
SPS for eMTC	15.0.0	agreed	R1
Inter-RAT measurements of NR	15.0.1	agreed	R1
Revision of UE measurement report definitions considering NB-IoT	15.0.1	agreed	R1
Reference Signals for MBSFN with 1.25kHz and 7.5khz sub-carrier	14.5.0	agreed	R2
CR on CBR measurement	14.5.0	agreed	R2
CR on CBR measurement	15.0.0	agreed	R2
Miscellaneous correction to V2X in TS 36.300	15.0.0	agreed	R2
Missing description of RRC Connection Re-establishment for the C	14.5.0	agreed	R2
Missing description of RRC Connection Re-establishment for the C	15.0.0	agreed	R2
Correction on the SI-RNTI for MPDCCH	13.10.0	agreed	R2
Correction on the SI-RNTI for MPDCCH	14.5.0	agreed	R2
Correction on the SI-RNTI for MPDCCH	15.0.0	agreed	R2
Clarification for the use of en-gNB in LTE Stage-2	15.0.0	agreed	R2
Measurement Requirements for LAA-WiFi Hardware Sharing Probl	13.10.0	agreed	R2
Measurement Requirements for LAA-WiFi Hardware Sharing Probl	14.5.0	agreed	R2
Measurement Requirements for LAA-WiFi Hardware Sharing Probl	15.0.0	agreed	R2

Miscellaneous correction to V2X in TS 36.300	14.5.0	agreed	R2
Reference Signals for MBSFN with 1.25kHz and 7.5khz sub-carrier	15.0.0	agreed	R2
Clarification early contention resolution not supported in NB-IoT	13.10.0	-	R2
Clarification of contention resolution in NB-IoT	13.10.0	agreed	R2
RoHC support for Mission Critical services over MBMS	15.0.0	agreed	R2
Clarification on HRL for EN-DC	15.0.0	agreed	R2
Stage 2 alignment for NSA Energy Savings	15.0.0	agreed	R2
Paging failure in CE Capable UEs	13.10.0	agreed	R2
Paging failure in CE Capable UEs	14.5.0	agreed	R2
Paging failure in CE Capable UEs	15.0.0	agreed	R2
E-UTRA - NR Cell Resource Coordination	15.0.0	agreed	R2
Correction to relaxed monitoring reference RSRP reset (Alternative	14.5.0	agreed	R2
Introduction of support of relaxed monitoring for BL and CE UE	14.5.0	agreed	R2
Support of CE mode B restriction for Rel-14 eMTC	14.5.0	agreed	R2
Correction to description for HARQ-ACK delay for Rel-14 MTC	14.5.0	agreed	R2
Introduction of support of relaxed monitoring for BL and CE UE	14.5.0	agreed	R2
Introduction of LTE DL 1.4Gbps Category	14.5.0	endorsed	R2
Introduction of EN-DC capabilities	14.5.0	agreed	R2
Capability for for reading shared PLMN information from non-CSG c	14.5.0	agreed	R2
Supported bandwidths in Fallback band combination	14.5.0	agreed	R2
Correction on SRS carrier switching	14.5.0	agreed	R2
Correction on SRS carrier switching	14.5.0	-	R2
Introduction of 4UL CA into TS36.307	15.0.0	agreed	R4
Addition of missing features for TS 36.307 REL-10	10.22.0	agreed	R4
Addition of missing features for TS 36.307 REL-11	11.19.0	agreed	R4
Addition of missing features for TS 36.307 REL-12	12.15.0	agreed	R4
Addition of missing features for TS 36.307 REL-13	13.8.0	agreed	R4
Addition of missing features for TS 36.307 REL-14	14.4.0	agreed	R4
Addition of missing features for TS 36.307 REL-15	15.0.0	agreed	R4
Introduction of 4UL CA into TS36.307	11.19.0	agreed	R4
Introduction of 4UL CA into TS36.307	12.15.0	agreed	R4
Introduction of 4UL CA into TS36.307	13.8.0	agreed	R4
Introduction of 4UL CA into TS36.307	14.4.0	agreed	R4
CR on distribution of total PRB usage	14.0.0	agreed	R2
CR on distribution of scheduled IP throughput	14.0.0	agreed	R2
Correction on SI-RNTI value for FeMBMS	14.5.0	agreed	R2
Correction on SI-RNTI value for FeMBMS	15.0.0	agreed	R2
Correct introduction of multiple HARQ processes for NB-IoT	14.5.0	agreed	R2
Correct introduction of multiple HARQ processes for NB-IoT	15.0.0	agreed	R2
Clarification to Sidelink Booking Processes	14.5.0	agreed	R2
Clarification to Sidelink Booking Processes	15.0.0	agreed	R2
Removal of Type3 PH for single serving cell case	14.5.0	agreed	R2
Removal of Type3 PH for single serving cell case	15.0.0	agreed	R2
MAC Corrections for RRC Resume	13.7.0	agreed	R2
MAC Corrections for RRC Resume	14.5.0	agreed	R2
MAC Corrections for RRC Resume	15.0.0	agreed	R2
Miscellaneous corrections from review in preparation for ASN.1 free	15.0.1	-	R2
Correction on SRS carrier switching	14.5.1	agreed	R2
Correction on SRS carrier switching	15.0.1	agreed	R2
Correction to field description for HARQ-ACK delay for Rel-14 MTC	14.5.1	agreed	R2
Correction to field description for HARQ-ACK delay for Rel-14 MTC	15.0.1	agreed	R2
Correction to RRCConnectionReestablishment message in 36.331	14.5.1	agreed	R2
Correction to RRCConnectionReestablishment message in 36.331	15.0.1	agreed	R2
Introduction of support of relaxed monitoring for BL and CE UE	14.5.1	agreed	R2
Introduction of LTE DL 1.4Gbps Category	14.5.1	endorsed	R2

Introduction of LTE DL 1.4Gbps Category	15.0.1	endorsed	R2
Correction to handling of p-Max procedure for high-power UEs	13.8.1	agreed	R2
Correction to handling of p-Max procedure for high-power UEs	14.5.1	agreed	R2
Correction to handling of p-Max procedure for high-power UEs	15.0.1	agreed	R2
Small correction on PhysicalConfigDedicated-NB	14.5.1	agreed	R2
Correction on Override of the highPriorityAccess Establishment Cau	14.5.1	agreed	R2
Correction on Override of the highPriorityAccess Establishment Cau	15.0.1	agreed	R2
Different power class support for band combinations	13.8.1	agreed	R2
Different power class support for band combinations	14.5.1	agreed	R2
Different power class support for band combinations	15.0.1	agreed	R2
Clarifications on V2X resource selection in the absence of positionir	14.5.1	agreed	R2
Clarifications on V2X resource selection in the absence of positionir	15.0.1	agreed	R2
Correction to GERAN redirection without security	14.5.1	agreed	R2
Correction to GERAN redirection without security	15.0.1	agreed	R2
Correction to pucch-ConfigDedicated for fallback configuration	13.8.1	agreed	R2
Correction to pucch-ConfigDedicated for fallback configuration	14.5.1	agreed	R2
Correction to pucch-ConfigDedicated for fallback configuration	15.0.1	agreed	R2
Signalling for reading shared PLMN information from non-CSG cells	14.5.1	agreed	R2
Signalling for Inbound mobility for open CSG cells	15.0.1	agreed	R2
Clarification to PUCCH Configuration for LAA SCells	14.5.1	agreed	R2
Clarification to PUCCH Configuration for LAA SCells	15.0.1	agreed	R2
Correction on SI-offsetIndicator for the sidelink resource pool	14.5.1	agreed	R2
Clarification on the NPRACH starting subcarrier partitioning for mult	14.5.1	agreed	R2
Clarification on the NPRACH starting subcarrier partitioning for mult	15.0.1	agreed	R2
Introduction of support of relaxed monitoring for BL and CE UE	15.0.1	agreed	R2
Correction on SI-offsetIndicator for the sidelink resource pool	15.0.1	agreed	R2
RRC Corrections for RRC Resume	13.8.1	agreed	R2
RRC Corrections for RRC Resume	14.5.1	agreed	R2
RRC Corrections for RRC Resume	15.0.1	agreed	R2
Small correction on PhysicalConfigDedicated-NB	15.0.1	revised	R2
Segmentation of LPP Messages	14.4.0	agreed	R2
Add NR UE Security Capabilities to DL NAS Transport message	15.0.0	agreed	R3
clarification and correction on S1 for EN-DC	15.0.0	agreed	R3
Correct ASN.1 error for NAS DELIVERY INDICATION	14.4.1	agreed	R3
Correct ASN.1 error for NAS DELIVERY INDICATION	15.0.0	agreed	R3
Support for unlicensed access as secondary RAT in S1AP	15.0.0	agreed	R3
Stage-3 impacts to support 'voice centric' UE in CE mode B	14.4.1	agreed	R3
Stage-3 impacts to support "voice centric" UE in CE mode B	15.0.0	agreed	R3
Enhanced Coverage Restricted indication for Paging	14.4.1	agreed	R3
Enhanced Coverage Restricted indication for Paging	15.0.0	agreed	R3
MDT correction	15.0.0	agreed	R3
Add missing range for secondary RAT data volume	15.0.0	agreed	R3
X2AP corrections for agreed EN-DC BL CR	15.0.0	agreed	R3
Essential corrections for EN-DC	15.0.0	agreed	R3
Clarification on HRL for EN-DC	15.0.0	agreed	R3
Correction of counter Check procedure for EN-DC	15.0.0	agreed	R3
Support for supplementary UL carrier	15.0.0	agreed	R3
Correction on SgNB initiated SgNB Modification procedure	15.0.0	agreed	R3
Correction on Offset of NB-IoT Channel Number to EARFCN	14.5.0	agreed	R3
Correction of mandatory/optional/Conditional IEs in 36.423	15.0.0	agreed	R3
Support for S-RLF	15.0.0	agreed	R3
Update of EN-DC X2 Setup and EN-DC Configuration Update	15.0.0	agreed	R3
Removal of wrong abnormal behaviour that does not exist in EN-DC	15.0.0	agreed	R3
CR for addition of cause	15.0.0	agreed	R3
clarification and correction on X2 for EN-DC	15.0.0	agreed	R3

Corrections for EN-DC	15.0.0	agreed	R3
Resolve the remaining issues over X2 for EN-DC	15.0.0	agreed	R3
Introduction of DRB ID for EN-DC	15.0.0	agreed	R3
Removing data forwarding from the corresponding node for EN-DC	15.0.0	-	R3
Removing data forwarding from the corresponding node for EN-DC	15.0.0	agreed	R3
Rapporteur correction of 36.423 before NSA ASN.1 freeze	15.0.0	agreed	R3
Correction on Offset of NB-IoT Channel Number to EARFCN	15.0.0	agreed	R3
Correction of TAC for NG-RAN cells before NSA ASN.1 freeze	15.0.0	agreed	R3
Remove PDCP change indication in SN modification request messa	15.0.0	agreed	R3
Change the presence of container in SgNB reconfiguration complet	15.0.0	agreed	R3
Addition of Measurement Timing Configuration information	15.0.0	agreed	R3
Avoiding exceeding the max size of the NR RAN Container	14.0.0	agreed	R3
Avoiding exceeding the max size of the NR RAN Container	14.1.0	agreed	R3
Removal of technical content in 36.508 v14.4.0 and substitution with	14.4.0	agreed	R5
New Cells for NB-IOT OTDOA tests - LTE Cell	15.0.0	agreed	R5
New Cells for NB-IOT OTDOA tests - NB-IOT Cell	15.0.0	agreed	R5
Correction to DRX onDurationTimer for FDD-HD operation in MAC	15.0.0	agreed	R5
Corrections to the generic test procedures for IMS MT calls in E-UT	15.0.0	agreed	R5
Addition of default configuration of DCI 3B to TS 36.508	15.0.0	agreed	R5
Update of SRS switching test environment	15.0.0	agreed	R5
Update the USIM EFs configuration for V2X.	15.0.0	agreed	R5
Editorial, clean up of V2X default message definitions.	15.0.0	agreed	R5
Addition of connection diagram of simultaneous E-UTRA V2X sideli	15.0.0	agreed	R5
Include AdditionalSpectrumEmission for V2X as per RAN2 spec	15.0.0	agreed	R5
Addition of default USIM settings for IMS eCall test cases	15.0.0	agreed	R5
Addition of new Generic Test Procedure for IPSec Tunnel Disconne	15.0.0	agreed	R5
Updates to default NB-IoT messages to support the in-band operati	15.0.0	agreed	R5
Addition of new Enhanced LAA IE in PhysicalConfigDedicatedSCell	15.0.0	agreed	R5
Addition of Connection Diagrams for V2X and V2V Sidelink Commu	15.0.0	agreed	R5
Update to generic procedure 36.508 4.5A.27 for eCall Only Support	15.0.0	agreed	R5
Test frequencies for Rel-13 LTE CA configurations	15.0.0	agreed	R5
Test frequencies for Rel-14 LTE CA configurations	15.0.0	agreed	R5
Added R14 CA combination to Test frequencies for CA signalling te	15.0.0	agreed	R5
Added R15 CA combination to Test frequencies for CA signalling te	15.0.0	agreed	R5
Addition of CA_29A-70C, CA_66A-70A, CA_66A-70C, CA_66C-70A	15.0.0	agreed	R5
Changes and additions to GNSS requirements for V2X testing	15.0.0	agreed	R5
Addition of Band 74 Signaling Test environment	15.0.0	agreed	R5
Correction to test frequencies for CA_7A-7A	15.0.0	agreed	R5
Correction to interval-ULHoppingConfigCommonModeA/B-r13	15.0.0	agreed	R5
Correction to sr-ConfigIndex for CatM1 with 3MHz BW	15.0.0	agreed	R5
Addition of the Band 74 information into TS 36.508	15.0.0	agreed	R5
Correction to test frequency f4 for E-UTRA FDD bands 25 and 26	15.0.0	agreed	R5
Correction to MeasConfig-DEFAULT	15.0.0	agreed	R5
Correction to UE registration with test mode activation procedure 4.	15.0.0	agreed	R5
Connection diagrams for new 4Rx CA demodulation test cases	15.0.0	agreed	R5
Correction to RRCConnectionResume-NB specific message conter	15.0.0	agreed	R5
Addition of table 5.4.4c.1-2 for STCH PDCP SDU payload contents	14.2.0	agreed	R5
Introduction of ATF definition into TS 36.509	14.2.0	agreed	R5
Addition of UTC time reset command for V2X testing	14.2.0	agreed	R5
Correction to UE behaviour upon AT command +CUSPCREQ recei	14.2.0	agreed	R5
Removal of technical content in 36.521-1 v14.5.0 and substitution w	14.5.0	agreed	R5
Band 68 introduction to 36.521-1 Chapter 5	15.0.0	agreed	R5
Update the message contents and test requirement for V2V Sidelin	15.0.0	agreed	R5
Update the message contents and test requirement for V2X test cas	15.0.0	agreed	R5
Introduction of new V2X test case 6.3.5G.2 Power Control Absolute	15.0.0	agreed	R5

Update Annexes F.1.2 and F.3.2 for 4.2GHz < f <= 6GHz of 6.2.2/6	15.0.0	agreed	R5
Update Annexes F.1.2 and F.3.2 for V2X test cases 6.3.5G.2 and 6	15.0.0	agreed	R5
Updates of the CQI reporting TC 9.6.1.3.3 and 9.6.1.4.3 for TDD FD	15.0.0	agreed	R5
Resubmission of Updates to Performance Test Cases for V2X Side	15.0.0	agreed	R5
Band 68 introduction to 36.521-1 output power requirements	15.0.0	agreed	R5
Band 68 introduction to 36.521-1 spurious requirements	15.0.0	agreed	R5
Introduction of TC 9.7_1.1.2 TDD CQI reporting under AWGN cond	15.0.0	agreed	R5
Introduction of TC 9.7_1.1.1 FDD CQI reporting under AWGN cond	15.0.0	agreed	R5
Introduction of TC 9.7_1.1.3 FDD CQI reporting under fading condit	15.0.0	agreed	R5
Introduction of TC 9.7_1.1.4 TDD CQI reporting under fading condit	15.0.0	agreed	R5
Update of Annexes F.1.5 and F.3.5	15.0.0	agreed	R5
Update of test case 6.5.1G.1, Frequency Error for V2X non-concurr	15.0.0	agreed	R5
Addition of new test case 6.5.2.1G.1, EVM for V2X non-concurrent	15.0.0	agreed	R5
Addition of new test case 6.5.2.2G.1, Carrier leakage for V2X non-c	15.0.0	agreed	R5
Update of eIMTA performance test case 8.2.2.2.5	15.0.0	agreed	R5
Addition of eIMTA CQI reporting test case 9.2.5	15.0.0	agreed	R5
Addition of eIMTA CQI reporting test case 9.3.1.1.5	15.0.0	agreed	R5
Addition of eIMTA CQI reporting test case 9.3.1.2.6	15.0.0	agreed	R5
Add the test tolerance information into Annex F for multiple eIMTA t	15.0.0	agreed	R5
Editorial, Cleaning up the style of titles of V2X test cases in TS 36.5	15.0.0	agreed	R5
Update of TC8.13.3.6.1 and 8.13.3.6.2	15.0.0	agreed	R5
Introduction of new test case 8.12.1.1.3 “Demodulation of NPDSCH	15.0.0	agreed	R5
Introduction of New TC 8.13.1.1.3 FDD PDSCH Closed Loop Multi I	15.0.0	agreed	R5
Introduction of New TC 8.13.1.1.4 FDD PDSCH Closed Loop Four-	15.0.0	agreed	R5
Introduction of New TC 8.13.1.3.1 FDD PDSCH Closed Loop Single	15.0.0	agreed	R5
Introduction of New TC 8.13.1.4.1 FDD PDSCH Single-layer Spatia	15.0.0	agreed	R5
Introduction of New TC 8.13.2.3.1 TDD PDSCH Closed Loop Single	15.0.0	agreed	R5
Introduction of New TC 8.13.2.4.1 TDD PDSCH Single-layer Spatia	15.0.0	agreed	R5
Update to Rx test cases for 5DL CA	15.0.0	agreed	R5
Band 72 introduction to 36.521-1 spurious requirements	15.0.0	agreed	R5
Introduce definitions and symbols of NB2	15.0.0	agreed	R5
Add the term NB2 into the applicability of minimum requirements	15.0.0	agreed	R5
Add the term NB2 into Operating bands, Channel bandwidth and Ca	15.0.0	agreed	R5
Addition of Band 72 in 36.521-1 Receiver test cases	15.0.0	agreed	R5
Addition of Band 72 in 36.521-1 Sections 9 and 12	15.0.0	agreed	R5
Introduction of Maximum Power Reduction (MPR) for V2X Commur	15.0.0	agreed	R5
Introduction of Maximum Power Reduction (MPR) for V2X Commur	15.0.0	agreed	R5
Introduction of Configured UE transmitted Output Power for V2X Co	15.0.0	agreed	R5
Introduction of UE Transmit OFF power for V2X Communication / In	15.0.0	agreed	R5
Update to General ON/OFF time mask for V2X Communication / No	15.0.0	agreed	R5
Introduction of General ON/OFF time mask for V2X Communicatior	15.0.0	agreed	R5
Introduction of PSSS/SSSS time mask for V2X Communication / No	15.0.0	agreed	R5
Introduction of TDD sustained data rate performance for CA (5DL C	15.0.0	agreed	R5
Introduction of UE maximum output power for V2X Commincation /	15.0.0	agreed	R5
Introduction of UE maximum output power for V2X Commincation /	15.0.0	agreed	R5
Introduction of UE Transmit OFF power for V2X Communication / S	15.0.0	agreed	R5
Supplement the TC In-band emissions for non-allocated RB for V2X	15.0.0	agreed	R5
Update of the V2V SEM and SE test cases	15.0.0	agreed	R5
Insert TT statement for V2V SEM and SE test cases in Annex F	15.0.0	agreed	R5
Addition of Band 68 in 36.521-1 Receiver test cases	15.0.0	agreed	R5
Introduction of Spurious emission for V2X Communication / Sidelink	15.0.0	agreed	R5
Introduction of Spurious emission band UE co-existence for V2X Co	15.0.0	agreed	R5
Introduction of Spectrum Emission Mask for V2X Communication /S	15.0.0	agreed	R5
Introduction of Additional Spectrum Emission Mask for V2X Commu	15.0.0	agreed	R5
Add TT statement for V2X SEM and SE test cases in Annex F	15.0.0	agreed	R5

Addition of IBE and EVM test requirement for Elaa	15.0.0	agreed	R5
Completion of Performance Test Cases 14.2 and 14.3 for V2V Side	15.0.0	agreed	R5
Completion of Performance Test Case 14.8 for V2X Sidelink comm	15.0.0	agreed	R5
Addition of new TC 6.6.1G.3	15.0.0	agreed	R5
eLAA_Update to 6.3.5A.1.2 and 6.3.5A.2.2	15.0.0	agreed	R5
Completion of FDD 4Rx SDR test cases	15.0.0	agreed	R5
Completion of TDD 4Rx SDR test cases	15.0.0	agreed	R5
Completion of TDD FDD 4Rx SDR test cases	15.0.0	agreed	R5
Minimum conformance requirements update for spurious emission	15.0.0	agreed	R5
Introduction of Rel-15 test requirement for spurious emission band	15.0.0	agreed	R5
Updated to RF section 7 test cases for Rel-14 CA combination	15.0.0	agreed	R5
Align CA capability definitions for demodulation test cases in sub-cl	15.0.0	agreed	R5
Added operation band and bandwidth information for Rel-15 CA	15.0.0	agreed	R5
Updated to RF section 7 test cases for Rel-15 CA combination	15.0.0	agreed	R5
Resolve RMC name conflict in PHICH demodulation test	15.0.0	agreed	R5
New feMTC test case 8.11.1.1.3.2, FDD and half-duplex FDD PDS	15.0.0	agreed	R5
New UL 256-QAM test case, 6.2.3_5, Maximum Power Reduction (	15.0.0	agreed	R5
New UL 256-QAM test case, 6.6.2.3_5, Adjacent Channel Leakage	15.0.0	agreed	R5
Updates to legacy Tx test cases for UL 256-QAM	15.0.0	agreed	R5
Update Annex A with reference measurement channels for UL 256-	15.0.0	agreed	R5
Update to UE Maximum Output Power for V2X Communication / Nc	15.0.0	agreed	R5
Editorial Correction – Alignment of Rel-14 CA configurations to TS	15.0.0	agreed	R5
Editorial Correction – Alignment of RMC to 36.101	15.0.0	agreed	R5
Corrections for eMTC demodulation test cases	15.0.0	agreed	R5
Correction of TC 7.3EB	15.0.0	agreed	R5
Editorial Correction – Alignment of Rel-15 CA configuration to TS 3	15.0.0	agreed	R5
Correction of A-MPR for Band 48 (NS_27)	15.0.0	agreed	R5
Applicability of LTE DL Control Channel Interference Mitigation test	15.0.0	agreed	R5
IM DLLCH Definitions, symbols and abbreviations	15.0.0	agreed	R5
Update of Category M1 UL CEModeB TCs	15.0.0	agreed	R5
Updates of Annex A for LAA	15.0.0	agreed	R5
Correction to LAA CQI TCs	15.0.0	agreed	R5
Correction to LAA performance TCs	15.0.0	agreed	R5
Correction to TC 6.7F	15.0.0	agreed	R5
Update of section 8.1.2 for DL 256QAM	15.0.0	agreed	R5
Correction to 3DL/4DL CA Receiver Test Cases	15.0.0	agreed	R5
Introduction of Minimum Output Power for CA (3UL CA)	15.0.0	agreed	R5
Introduction of UE Transmit OFF power for CA (3UL CA)	15.0.0	agreed	R5
Introduction of General ON/OFF time mask for CA (3UL CA)	15.0.0	agreed	R5
Introduction of TDD PDSCH Closed Loop Multi Layer Spatial Multip	15.0.0	agreed	R5
Introduction of TDD PDSCH Open Loop Spatial Multiplexing 2x2 for	15.0.0	agreed	R5
Introduction of TDD PDSCH Single Antenna Port Performance for C	15.0.0	agreed	R5
Update of 5DL CA Receiver Test Cases	15.0.0	agreed	R5
Update of CA Performance Test Cases	15.0.0	agreed	R5
Correction of test points and test requirement for TC 6.6.3.2A.2	15.0.0	agreed	R5
Updates to PDSCH scheduling for CQI reporting test cases for CA	15.0.0	agreed	R5
Editorial change of Additional spurious emissions for CA (inter-banc	15.0.0	agreed	R5
Update of TDD PDSCH Closed Loop Multi Layer Spatial Multiplexin	15.0.0	agreed	R5
Update of TDD Sustained data rate performance for CA (4DL CA)	15.0.0	agreed	R5
Update of TDD FDD CA PDSCH Single Antenna Port Performance	15.0.0	agreed	R5
Update of test applicability and minimum requirement in 9.6.1.3.4 a	15.0.0	agreed	R5
Addition of new TC 6.7G.3	15.0.0	agreed	R5
Correction to Rx Test Environment for 4 and 5 DL CA with Wgap	15.0.0	agreed	R5
Editorial correction to Table 6.2.5.3-3 Delta TIB (three bands)	15.0.0	agreed	R5
Correction to NB-IoT Configured UE transmitted power test 6.2.5F	15.0.0	agreed	R5

Correction to operating band for NB-IoT	15.0.0	agreed	R5
Correction to test configuration tables for intra-contiguous 2CA Tx t	15.0.0	agreed	R5
Update to test requirements in CatM1 TC 6.7EA	15.0.0	agreed	R5
Correction to 4x4MIMO CSI test cases	15.0.0	agreed	R5
Editorial correction to 4x4MIMIO demodulation test cases	15.0.0	agreed	R5
Correction to LAA performance tests	15.0.0	agreed	R5
Editorial correction in Annex F for CatM1 TC 8.11.1.1.1	15.0.0	agreed	R5
Updation of Spectrum Emission Mask for V2X Communication / No	15.0.0	agreed	R5
eLAA: Updates to Maximum output power	15.0.0	agreed	R5
Introduction of CA_3A-7A-20A (3DL-2UL) to section 7	15.0.0	agreed	R5
Updates to test case 6.6.1A.2 Occupied bandwidth	15.0.0	agreed	R5
Correction to test case 6.6.3.1A.1	15.0.0	agreed	R5
Correction to typo of the test case numbering of 8.2.2.1.1_A.3	15.0.0	agreed	R5
Update test cases 6.2.2A.2 and 6.2.3A.2 for 12A-66A 2ULCA	15.0.0	agreed	R5
Addition of the information about timing difference for TDD CA (2Rx	15.0.0	agreed	R5
Missing requirements for CA_29A-66A-66A, CA_29A-66C	15.0.0	agreed	R5
Receiver requirements for CA_29A-66A-70A, CA_29A-66A-66A-70	15.0.0	agreed	R5
Addition of the Band 74 information into TS 36.521-1 chapter 5	15.0.0	agreed	R5
Addition of the Band 74 information into TS 36.521-1 chapter 6	15.0.0	agreed	R5
Addition of the Band 74 information into TS 36.521-1 chapter 7	15.0.0	agreed	R5
Update of the operation bands about Category M2 and NB2	15.0.0	agreed	R5
Reference sensitivity adjustment due to support for 4 antenna ports	15.0.0	agreed	R5
CSI 4RX: Correction to RI tests and used reference channels and M	15.0.0	agreed	R5
Correction of message exceptions with zeroTxPowerResourceConf	15.0.0	agreed	R5
Editorial Correction of DCI format in 4Rx demodulation test case	15.0.0	agreed	R5
Intra-band non-contiguous sensitivity test case corrections	15.0.0	agreed	R5
Introduction of CA_3A-7A-20A-32A 4DL/1UL to section 7	15.0.0	agreed	R5
Introduction of 4Rx CA TDD TM9 demodulation test cases	15.0.0	agreed	R5
Introduction of 4Rx CA FDD TM4 demodulation test cases	15.0.0	agreed	R5
Introduction of 4Rx CA TDD TM4 demodulation test cases	15.0.0	agreed	R5
Update of Annex F and G for new 4Rx CA demodulation test cases	15.0.0	agreed	R5
Beamforming model for FD-MIMO	15.0.0	agreed	R5
Resubmission of clause 8 part of CR: Cat1bis: Addition of new CAT	15.0.0	-	R5
Corrections to applicability of 4Rx SDR test cases	15.0.0	agreed	R5
Removal of technical content in 36.521-2 v14.5.0 and substitution w	14.5.0	agreed	R5
Addition of FDD Band 72 to RF ICS in 36.521-2	15.0.0	agreed	R5
Addition of FDD Band 68 to RF ICS in 36.521-2	15.0.0	agreed	R5
Addition of test applicability of RRM SRS test cases	15.0.0	agreed	R5
Addition of test applicabilities of eIMTA new test cases.	15.0.0	agreed	R5
Editorial change to applicability condition for RRM TC8.7.4	15.0.0	agreed	R5
Addition of applicability for TC8.12.1.1.3	15.0.0	agreed	R5
Added applicability to TS 36.521-2 for eHST RF test cases	15.0.0	agreed	R5
Addition of applicability and ICS for 4Rx with CA	15.0.0	agreed	R5
Correct RRM LAA test applicability in 36521-2	15.0.0	agreed	R5
Addition of new R14 CA configurations to 36.521-2	15.0.0	agreed	R5
Introduction of test applicabilities for UL 256QAM	15.0.0	agreed	R5
Cat1bis RRM RSRQ applicability	15.0.0	agreed	R5
Test Case Applicability and Conditions for LTE DL Control Channel	15.0.0	agreed	R5
Corrections to Applicability test conditions related to eDL-MIMO	15.0.0	agreed	R5
Correction to applicability of TC 7.6.3A.3	15.0.0	agreed	R5
Updates to Applicability of RF conformance test case 8.7.1.1_A.5	15.0.0	agreed	R5
Update of test applicability for 9.6.1.3.4 and 9.6.1.4.4 in 36.521-1	15.0.0	agreed	R5
Correction to test applicability for LAA RRM test cases	15.0.0	agreed	R5
Correction to test applicability for LAA performance test cases	15.0.0	agreed	R5
Correction to the comment content for test cases 5.1.20 and 5.2.10	15.0.0	agreed	R5

Correction to test case conditions C179 and C180 for RRM in Table	15.0.0	agreed	R5
Correction to test case conditions C196 and C197 for RRM in Tabl	15.0.0	agreed	R5
Applicability of RRM Incmon test cases	15.0.0	agreed	R5
Addition of the Band 74 information into TS 36.521-2	15.0.0	agreed	R5
[Editorial] Update of the 4Rx capable bands	15.0.0	agreed	R5
Applicability for new 4Rx CA demodulation test cases	15.0.0	agreed	R5
Introduction of CA_3A-7A-20A (3DL-2U)L to Annex A	15.0.0	agreed	R5
Addition of test applicability for 5DL CA Performance Test Cases	15.0.0	agreed	R5
eLAA: Applicability spec update	15.0.0	agreed	R5
Band 72 information to E-UTRA band group in 36.521-3	15.0.0	agreed	R5
Band 68 information to E-UTRA band group in 36.521-3	15.0.0	agreed	R5
Test tolerance, Addition of new test case 7.6.1 to 36.521-3	15.0.0	agreed	R5
Test tolerance, Addition of new test case 7.6.2 to 36.521-3	15.0.0	agreed	R5
Test tolerance, Addition of cell mapping and test tolerance in 36.52	15.0.0	agreed	R5
Test tolerance, Update of test case 6.2.16 to add TT information.	15.0.0	agreed	R5
Test tolerance, Update of test case 6.2.17 to add TT information.	15.0.0	agreed	R5
Test tolerance, Update of Annex F to add TT information for 6.2.16	15.0.0	agreed	R5
Insertion of test tolerance statements for HST test cases 4.2.22&4.2	15.0.0	agreed	R5
Update the HST test cases in line with the test tolerance analysis in	15.0.0	agreed	R5
Correct RRM LAA test applicability in 36521-3	15.0.0	agreed	R5
[Editorial] Correction of cell SNR for 7.3.3	15.0.0	agreed	R5
Cell mapping correction for 4DL CA Tests	15.0.0	agreed	R5
[Editorial] Correction of prach-StartingSubframe-r13 for 6.2.10	15.0.0	agreed	R5
Correction of 7.3.48	15.0.0	agreed	R5
Correction of 7.3.49	15.0.0	agreed	R5
Correct test equipment connections for RRM 2CC tests - Chapter 8	15.0.0	agreed	R5
Correct test equipment connections for RRM 2CC tests - Chapter 8	15.0.0	agreed	R5
Correct test equipment connections for RRM 2CC tests - Chapter 9	15.0.0	agreed	R5
Correct test equipment connections for RRM 2CC tests - Chapter 9	15.0.0	agreed	R5
Correct test equipment connections for RRM 3CC tests - Chapter 8	15.0.0	agreed	R5
Correct test equipment connections for RRM 3CC tests - Chapter 8	15.0.0	agreed	R5
Correct test equipment connections for RRM 3CC tests - Chapter 9	15.0.0	agreed	R5
Correct test equipment connections for RRM 3CC tests - Chapter 9	15.0.0	agreed	R5
Correct test equipment connections for RRM 4CC tests - Chapter 8	15.0.0	agreed	R5
Correct test equipment connections for RRM 4CC tests - Chapter 8	15.0.0	agreed	R5
Correct test equipment connections for RRM 4CC tests - Chapter 9	15.0.0	agreed	R5
Correct test equipment connections for RRM 4CC tests - Chapter 9	15.0.0	agreed	R5
Updated to Cat-1bis RRM TC 4.2.20 and 4.2.21 and Test Tolerance	15.0.0	agreed	R5
Updated to Cat-1bis RRM TC 5.1.19 and 5.1.20 and Test Tolerance	15.0.0	agreed	R5
Cat1bis RRM RSRQ Annex E	15.0.0	agreed	R5
Cat1bis RRM RSRQ Annex F	15.0.0	agreed	R5
Addition of Cat1bis CGI Reading tests	15.0.0	agreed	R5
Cat1bis: Addition of new CAT1-bis Intra-Frequency Event triggered	15.0.0	agreed	R5
Cat1bis: Addition of new CAT1-bis RSRQ Measurement accuracy t	15.0.0	agreed	R5
Cat1bis: Addition of new CAT1-bis Transmit timing accuracy test ca	15.0.0	agreed	R5
Cat1bis: Addition of new CAT1-bis Timing advance accuracy test ca	15.0.0	agreed	R5
eLAA: Addition of 3-DL event reporting test case for deactivated Sc	15.0.0	agreed	R5
Cat1bis: Addition of new radio link monitoring test cases for CAT1-b	15.0.0	agreed	R5
Updates to Cat1bis RSRP Measurement accuracy test cases	15.0.0	agreed	R5
Editorial correction to a incorrect reference in 8.16.59	15.0.0	agreed	R5
Correction to clause 7.3 RRM 4Rx test cases	15.0.0	agreed	R5
Correction to LAA RRM tests 8.26.x	15.0.0	agreed	R5
Correction to test applicability of LAA RRM test cases	15.0.0	agreed	R5
Correction to channel bandwidth to be tested for LAA RRM test cas	15.0.0	agreed	R5
Correction to successful report rate threshold for LAA channel occu	15.0.0	agreed	R5

Correction to LAA CSI-RSRP measurement tests	15.0.0	agreed	R5
Correction to LAA RSRP/RSRQ measurement tests	15.0.0	agreed	R5
Correction to LAA RSSI measurement and channel occupancy tests	15.0.0	agreed	R5
Correction to CatNB1 HD-FDD Transmit Timing Accuracy Tests	15.0.0	agreed	R5
Introduction to the new 5DL CA test case 8.16.76	15.0.0	agreed	R5
Addition of the Band 74 information into TS 36.521-3	15.0.0	agreed	R5
Update of Incmon RRM test cases 8.3.7, 8.3.8, 8.3.9 and 8.4.7	15.0.0	agreed	R5
Update of NPRACH Test cases 6.2.16 and 6.2.17	15.0.0	agreed	R5
Update of V2V RRM Test Cases	15.0.0	agreed	R5
Correction to SCM test cases 13.5.4, 13.5.5 and 13.5.6	15.0.0	agreed	R5
Add test case for NB-IoT / Radio link failure / T301 expiry / T311 ex	15.0.0	agreed	R5
Add test case for NB-IoT / Radio link failure / RRC connection re-es	15.0.0	agreed	R5
Removal of technical content in 36.523-1 v14.3.0 and substitution w	14.3.0	agreed	R5
Update UE/ USIM configuration for V2X test case 24.1.6	15.0.0	agreed	R5
Update UE/ USIM configuration for V2X test case 24.1.7	15.0.0	agreed	R5
Update UE/ USIM configuration for V2X test case 24.1.8	15.0.0	agreed	R5
Correction of IMS Emergency Call test case 11.2.3	15.0.0	agreed	R5
Correction to eMTC MAC test case 7.1.4a.1	15.0.0	agreed	R5
Correction to RRC test case 8.1.1.2 for CAT-M1 UEs	15.0.0	agreed	R5
Correction to V2X test case 24.1.10	15.0.0	agreed	R5
Correction to MAC test case 7.1.2.9 for CAT-M1 UEs	15.0.0	agreed	R5
Correction on V2X Sidelink test case 24.1.1	15.0.0	agreed	R5
Correction on V2X Sidelink test case 7.3.9.1	15.0.0	agreed	R5
Correction on V2X Sidelink test case 24.1.9	15.0.0	agreed	R5
Correction on V2X Sidelink test case 24.1.14	15.0.0	agreed	R5
Correction on V2X Sidelink test case 24.1.15	15.0.0	agreed	R5
Correction on V2X Sidelink test case 24.1.17	15.0.0	agreed	R5
Correction on V2X Sidelink test case 24.1.18	15.0.0	agreed	R5
Addition of new V2X Sidelink test case 24.1.20	15.0.0	agreed	R5
Correction to NB-IoT testcse 22.4.13	15.0.0	agreed	R5
Correction to NB-IoT test case 22.2.4	15.0.0	agreed	R5
Correction to NB-IoT EMM test case 22.5.13	15.0.0	agreed	R5
Correction to NB-IoT test case 22.6.3	15.0.0	agreed	R5
Correction to LTE PDCP test case 7.3.6.1	15.0.0	agreed	R5
Corrections to test case 24.1.16	15.0.0	agreed	R5
Addition of V2X Sidelink Communication test case 24.1.19	15.0.0	agreed	R5
Updates to test cases 8.1.3.7 & 8.5.2.1 for Band>64 support	15.0.0	agreed	R5
Editorial correction to DC test case 8.2.2.9.2	15.0.0	agreed	R5
Correction to EMM test case 9.2.1.2.10	15.0.0	agreed	R5
Correction to EMM test case 9.2.3.1.1a	15.0.0	agreed	R5
Addition of the new Enhanced LAA test case: eLAA / Logical chann	15.0.0	agreed	R5
Update of Test case 8.5.4.1 with Cat-1bis capability check	15.0.0	agreed	R5
Addition of the new Enhanced LAA test case 7.1.4.30: eLAA / Cross	15.0.0	agreed	R5
Update of eMBMS SC Rel-11 test cases 17.4.x	15.0.0	agreed	R5
Correction of Test case 8.5.4.1 for feICIC support	15.0.0	agreed	R5
Addition of the new eCall over IMS Test Case 11.3.4	15.0.0	agreed	R5
Addition of the new eCall over IMS Test Case 8.2.4.28	15.0.0	agreed	R5
Correction to CA test cases (RRC Part 2) when executed using LAA	15.0.0	agreed	R5
Updates to IMS eCall test cases	15.0.0	agreed	R5
Correction to CA test cases (RRC Part 3) when executed using LAA	15.0.0	agreed	R5
Correction to NB-IoT testcse 22.3.2.4	15.0.0	agreed	R5
Correction to NB-IoT testcse 22.4.23	15.0.0	agreed	R5
Correction to NBIOT TC 22.2.10	15.0.0	agreed	R5
Updates to Multilayer test cases for Band>64 support	15.0.0	agreed	R5
LWA / WLAN Association Success / EUTRA RRC_Connected to W	15.0.0	agreed	R5

LWIP / WLAN Association Success / EUTRA RRC_Connected to V	15.0.0	agreed	R5
Correction to Rel-11 eDDA test case 8.2.2.6.2	15.0.0	agreed	R5
Correction to EMM test case 9.2.3.1.5a	15.0.0	agreed	R5
Updates to eDECOR test cases 9.2.1.1.7d and 9.2.3.1.1b	15.0.0	agreed	R5
Updates to V2V test case 24.1.2	15.0.0	agreed	R5
Updates to V2V test case 24.1.4	15.0.0	agreed	R5
Correction to EMM test case 9.2.3.2.17	15.0.0	agreed	R5
Correction to 1xRTT MT call Test Cases	15.0.0	agreed	R5
Correction to GCF WI-081 test case 7.1.2.4 with Cat-M1 UE.	15.0.0	agreed	R5
Addition of GNSS details for V2X test cases	15.0.0	agreed	R5
Correction to several EMM test cases for IMS disabled over UMTS	15.0.0	agreed	R5
Correction to NB-IoT MAC test case 22.3.1.3	15.0.0	agreed	R5
New feMTC test case 8.2.2.6.6 RRC connection reconfiguration/ UE	15.0.0	agreed	R5
Correction to EUTRA Multi-Layer procedures test case 13.4.1.5	15.0.0	agreed	R5
Clarifying the Test Loop Mode used in the NB-IoT test cases	15.0.0	agreed	R5
Adding clarification to EMM test case 9.1.5.1	15.0.0	agreed	R5
Correction to IMS Emergency Call test case 11.2.12	15.0.0	agreed	R5
Update of Transport block size selection (EUTRA) test cases 7.1.7.	15.0.0	agreed	R5
Correction to LTE<>IRAT testcases for IMS disabled over UMTS	15.0.0	agreed	R5
Correction of Test Case 8.6.7.3	15.0.0	agreed	R5
Removing test case 22.4.17	15.0.0	agreed	R5
Correction to eICIC call Test Cases	15.0.0	agreed	R5
Corrections to NB-IoT "S1-U Only" Impacted Test Cases	15.0.0	agreed	R5
Correction to NB-IoT PDCP test case 22.3.3.6	15.0.0	agreed	R5
Updates to V2X test case 24.1.3	15.0.0	agreed	R5
Updates to V2X test case 24.1.5	15.0.0	agreed	R5
Add test case for NB-IoT/Tracking area update/Inter-RAT change b	15.0.0	agreed	R5
New test case 7.1.4.1a for Layer 2 Latency Reduction	15.0.0	agreed	R5
New test case 7.1.4.2a for Layer 2 Latency Reduction	15.0.0	agreed	R5
New test case 7.1.4.2b for Layer 2 Latency Reduction	15.0.0	agreed	R5
New test case 7.1.4.11a for Layer 2 Latency Reduction	15.0.0	agreed	R5
Correction to NB-IoT test case 22.5.7b	15.0.0	agreed	R5
Updates to NB-IoT test case 22.6.1	15.0.0	agreed	R5
Resubmission of Addition of the new eCall over IMS Test Case 11.3	15.0.0	agreed	R5
Add applicability for radio link failure test cases	15.0.0	agreed	R5
Removal of technical content in 36.523-2 v14.4.0 and substitution w	14.4.0	agreed	R5
Addition of FDD Band 72 to signalling ICS	15.0.0	agreed	R5
Addition of FDD Band 68 to signalling ICS	15.0.0	agreed	R5
New CA band combination CA_1A-3A-8A-40A - Updates of Table A	15.0.0	agreed	R5
Addition of applicability and tests conditions for V2X test cases	15.0.0	agreed	R5
Addition of applicability for new Enhancements of NB-IoT Test testc	15.0.0	agreed	R5
Update the wrong TC number in Table 4-1	15.0.0	agreed	R5
Correction to applicability of 22.6.x series NB-IoT test cases	15.0.0	agreed	R5
Addition of applicability for new V2X Sidelink test case 24.1.19	15.0.0	agreed	R5
Update for ProSe Rel-13 TCs applicability	15.0.0	agreed	R5
Addition of new PICS for CAT1bis UL and DL Category	15.0.0	agreed	R5
Addition of applicability of new Enhanced LAA test cases 7.1.4.30 a	15.0.0	agreed	R5
Addition of applicability for eCall over IMS test cases	15.0.0	agreed	R5
Addition of new R14 CA configurations to 36.523-2	15.0.0	agreed	R5
Addition of new R15 CA configurations to 36.523-2	15.0.0	agreed	R5
Addition of CA_29A-66A-66A-70A, CA_29A-66A-66A-70C, CA_29A	15.0.0	agreed	R5
Added FDD Band 74 to signalling ICS	15.0.0	agreed	R5
Applicabilities for new feMTC TC	15.0.0	agreed	R5
Correction to applicability of SMS-over-SGs test cases 11.1.5 and 1	15.0.0	agreed	R5
Introduction of CA_3A-7A-20A-32A 4DL/1UL to Annex A	15.0.0	agreed	R5

Addition of DL Category 20 to Table A.4.3.2-2	15.0.0	agreed	R5
Removing the applicability of test case 22.4.17	15.0.0	agreed	R5
Correction to applicability of CA test cases when executed using LA	15.0.0	agreed	R5
Addition of applicability statements for LWA Test Case 8.2.5.4 & LW	15.0.0	agreed	R5
Applicability for new Layer 2 Latency Reduction	15.0.0	agreed	R5
Addition of GCF WI-257 NB-IoT test case 22.3.1.1	14.2.0	agreed	R5s
Addition of GCF WI-257 NB-IoT test case 22.4.23	14.2.0	agreed	R5s
LTE_TDD: Addition of LTE-A PRO (Rel-13) eMTC MAC test case 7	14.2.0	agreed	R5s
Correction to LTE-A CA MAC test cases 7.1.3.11.x	14.2.0	agreed	R5s
LTE_TDD: Addition of feMDT test case 8.6.4.11	14.2.0	agreed	R5s
LTE_TDD : Correction for EUTRA MAC test cases 7.1.6.x	14.2.0	agreed	R5s
Correction to GCF WI-179 EUTRA NIMTC test case 10.5.4	14.2.0	agreed	R5s
Correction to GCF WI-081 TC 8.1.2.7	14.2.0	agreed	R5s
Addition of LAA testcase 7.1.11.1	14.2.0	agreed	R5s
Correction to function f_GetNextSendOccasion_7_1_6_X	14.2.0	agreed	R5s
Addition of Rel-13 eDRX test case 7.1.6.5	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.5.6	14.2.0	agreed	R5s
Correction to LTE-HRPD Inter-RAT Idle mode test case 6.2.3.8a	14.2.0	agreed	R5s
Correction to DRX onDurationTimer for FDD-HD operation	14.2.0	agreed	R5s
Correction to LTE MAC test case 7.1.2.2 for CAT-M1 UEs	14.2.0	agreed	R5s
Correction to LTE MAC test case 7.1.3.9 for CAT-M1 UEs	14.2.0	agreed	R5s
Correction to LTE MAC test case 7.1.4.16 for CAT-M1 UEs	14.2.0	agreed	R5s
Correction to LTE MAC test case 7.1.4.21 for CAT-M1 UEs	14.2.0	agreed	R5s
Correction to LTE MAC test case 7.2.2.6 for CAT-M1 UEs	14.2.0	agreed	R5s
Correction to LTE MAC test case 7.1.2.8 for CAT-M1 UEs	14.2.0	agreed	R5s
Correction to Carrier Aggregation MAC test case 7.1.9.1.2 for LAA	14.2.0	agreed	R5s
Correction to MAC test cases 7.1.2.10.x and 7.1.2.11.x	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.4.1	14.2.0	agreed	R5s
Addition of GCF WI-257 NB-IoT test case 22.6.2	14.2.0	agreed	R5s
Addition of GCF WI-257 NB-IoT test case 22.6.3	14.2.0	agreed	R5s
Addition of GCF WI-257 NB-IoT test case 22.6.5	14.2.0	agreed	R5s
Correction to function f_EUTRA_OptionalMultiPDN_IMSRegistratio	14.2.0	agreed	R5s
Correction to NBIOT testcase 22.5.13	14.2.0	agreed	R5s
Correction to function f_EUTRA_CellInfo_SetPRACH_Configuratio	14.2.0	agreed	R5s
Correction to function f_NBIOT_L2_Enter_State2B_NB	14.2.0	agreed	R5s
Correction to NBIOT test case 22_3_2_4	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.3.1.3	14.2.0	agreed	R5s
Correction to LTE RRC test case 8.1.1.2 for CAT-M1 UEs	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.5.7a	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.3.3.6	14.2.0	agreed	R5s
Correction to common function f_EUTRA_SS_ConfigRachProcedu	14.2.0	agreed	R5s
Correction to common function f_EUTRA_508RRC_IntraLTE_HO_	14.2.0	agreed	R5s
Correction to LTE eMTC MAC test case 7.1.7.2.2 and 7.1.6.1a	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.3.1.6	14.2.0	agreed	R5s
Correction to Guard timers for NBIOT test cases	14.2.0	agreed	R5s
LTE_TDD : Correction for EUTRA MAC test cases 7.1.6.x	14.2.0	agreed	R5s
Corrections to some EUTRA MDT test cases	14.2.0	agreed	R5s
Addition of GCF WI-257 NB-IoT test case 22.3.3.4	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.5.16	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.5.13	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.3.2.4	14.2.0	agreed	R5s
Correction to EUTRA RRC test case 8.5.4.1	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.4.20	14.2.0	agreed	R5s
Correction to function f_MTCSFB_EUTRA_1xRTT	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.3.1.1	14.2.0	agreed	R5s

Correction to EMM test case 9.2.3.1.6	14.2.0	agreed	R5s
Correction of duplicated entry in select/case statements	14.2.0	agreed	R5s
Correction to EUTRA registration procedure for multi-PDN UEs	14.2.0	agreed	R5s
Correction for EUTRA eMDT test cases 8.6.6.5, 8.6.6.6 and 8.6.6.7	14.2.0	agreed	R5s
Correction to IMS Emergency Call test case 11.2.3	14.2.0	agreed	R5s
Correction to LTE-A CA test cases for execution on LAA band	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.2.5	14.2.0	agreed	R5s
Correction to SCM test cases 13.5.x	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.4.23	14.2.0	agreed	R5s
LTE_TDD: Addition of eDRX test case 7.1.6.5	14.2.0	agreed	R5s
Correction to function f_NBIOT_InitialRegistration_Step13	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.4.22	14.2.0	agreed	R5s
Correction to function f_UTRAN_SwitchPower_Off	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.5.6	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.5.8	14.2.0	agreed	R5s
Correction to test case 22.4.8	14.2.0	agreed	R5s
Correction for EUTRA feMDT test case 8.6.4.11	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.3.1.2	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.3.1.6	14.2.0	agreed	R5s
Correction to GCF WI-081 test case 7.1.2.4 with Cat-M1 UE	14.2.0	agreed	R5s
Addition of (Rel-13) eMTC MAC test case 7.1.4a.1	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.5.18	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.2.4	14.2.0	agreed	R5s
Correction to MAC test case 7.1.2.9 for CAT-M1 UEs	14.2.0	agreed	R5s
Correction to NB-IOT TC 22.5.8	14.2.0	agreed	R5s
V2X: Test Model updates	14.2.0	agreed	R5
Add new Pixit for MCPTT off-network scenarios with D2D ProSe	14.2.0	agreed	R5
Routine maintenance for TS 36.523-3	14.2.0	agreed	R5
Correction to EMM test case 9.2.3.1.1a	14.2.0	agreed	R5s
Correction to EMM test case 9.2.1.1.7c, 9.2.4.1.2 and 22.5.18	14.2.0	agreed	R5s
Addition of PIXITs for V2X test cases	14.2.0	agreed	R5
Correction to MAC test cases 7.1.4.x	14.2.0	agreed	R5s
Correction to function f_EUTRA_CellConfig_Def for cells on LAA fre	14.2.0	agreed	R5s
Correction to IMS Emergency Call test case 11.2.12	14.2.0	agreed	R5s
LTE_TDD : Correction for EUTRA MAC test cases 7.1.6.3	14.2.0	agreed	R5s
Correction to GCF WI-257 NB-IoT test case 22.5.7b	14.2.0	agreed	R5s
Add new verified and e-mail agreed TTCN test cases in the TC lists	14.2.0	agreed	R5s
Test tolerance, addition of test tolerance analysis of SRS switching	13.4.0	agreed	R5
Test tolerance, addition of test tolerance analysis of NB-IoT test cas	13.4.0	agreed	R5
Test tolerance, addition of test tolerance analysis of NB-IoT test cas	13.4.0	agreed	R5
Addition of test tolerance analysis for HST test case 8.2.11	13.4.0	agreed	R5
Add Test Tolerance analysis for Cat-1bis RRM test cases 4.2.20 an	13.4.0	agreed	R5
Add Test Tolerance analysis for Cat-1bis RRM test cases 5.1.19 an	13.4.0	agreed	R5
Update TP analyses for spurious co-existence to Rel-15 requiremer	14.5.0	agreed	R5
Correction of test point analysis for A-MPR for Band 48 (NS_27)	14.5.0	agreed	R5
Correction of TP analyses for spurious co-existence	14.5.0	agreed	R5
Addition of test points analysis for CA_3DL_3A-7A-20A_2UL	14.5.0	agreed	R5
Addition of test points analysis for CA_3A-7A-20A-32A 4DL/1UL	14.5.0	agreed	R5
CR to 37.104: Introduction of Band 85	15.1.0	agreed	R4
CR to 37.104: Introduction of new additional unwanted emission lim	15.1.0	agreed	R4
CR NB-IoT small cells: co-location requirements fix	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
CR to TS 37.105	15.0.0	agreed	R4
CR to 37.113: Introduction of Band 85	15.1.0	agreed	R4
CR to TS 37.113: correction of the CISPR reference and ESD level	15.1.0	agreed	R4

Introduction of TDD 3.3-3.4GHz band (band 52)	15.1.0	agreed	R4
CR to TS37.114	15.0.0	agreed	R4
CR to 37.141: Introduction of Band 85	15.1.0	agreed	R4
Correction to GSM/EDGE output power dynamics	13.9.0	agreed	R4
Correction to GSM/EDGE output power dynamics	14.6.0	agreed	R4
Correction to GSM/EDGE output power dynamics	15.1.0	agreed	R4
CR NB-IoT small cells: co-location requirements fix	15.1.0	agreed	R4
CR to 37.141: Introduction of new additional unwanted emission lim	15.1.0	agreed	R4
Introduction of TDD 3.3-3.4GHz band into TS 37.141	15.1.0	agreed	R4
Inclusion of RTS as harmonized method in 37.144	14.5.0	agreed	R4
CR to TS 37.145-2: corrections to the EIS test requirements (7.2) R	13.5.0	agreed	R4
CR to TS 37.145-2: corrections to the EIS test requirements (7.2) R	14.3.0	agreed	R4
Change WLAN measurement reporting delay to 20 seconds	14.4.0	agreed	R4
Delete WLAN beacon interval test value	14.4.0	agreed	R4
Clarification concerning assistance data for WLAN requirements	14.4.0	agreed	R4
Deletion of optional IEs from WLAN test cases	14.4.0	agreed	R4
Clarifications to WLAN measurement requirements	14.4.0	agreed	R4
Miscellaneous corrections	15.0.0	agreed	R2
Baseline CR for TS 37.340 (RAN3 part) covering agreements of RA	15.0.0	agreed	R2
Addition of Radiated Two-Stage (RTS) in TS 37.544	14.4.0	agreed	R5
Introduction of RTS Anechoic Chamber Specification and Validation	14.4.0	agreed	R5
Addition of UE ATF requirements in TS 37.544	14.4.0	agreed	R5
Removal of technical content in 37.571-1 v14.4.0 and substitution w	14.4.0	agreed	R5
New OTDOA Cat1bis TC 9.1.1A and 9.1.2A	15.0.0	agreed	R5
New OTDOA Cat1bis TC 9.2.1A and 9.2.2A	15.0.0	agreed	R5
New OTDOA Cat1bis TC 9.1.3A and 9.1.4A	15.0.0	agreed	R5
New OTDOA Cat1bis TC 9.2.4A and 9.2.5A	15.0.0	agreed	R5
Annex C OTDOA Cat1bis tests	15.0.0	agreed	R5
UE Category M1/M2 General Sections for OTDOA	15.0.0	agreed	R5
New OTDOA Cat M1/M2 reporting delay normal mode tests	15.0.0	agreed	R5
New OTDOA Cat M1/M2 reporting delay enhanced mode tests	15.0.0	agreed	R5
New OTDOA Cat M1/M2 reporting accuracy normal mode tests	15.0.0	agreed	R5
New OTDOA Cat M1/M2 reporting accuracy enhanced mode tests	15.0.0	agreed	R5
New OTDOA Cat M1/M2 inter-freq reporting delay normal mode tes	15.0.0	agreed	R5
New OTDOA Cat M1/M2 inter-freq reporting delay enhanced mode	15.0.0	agreed	R5
New OTDOA Cat M1/M2 inter-freq reporting accuracy normal mode	15.0.0	agreed	R5
New OTDOA Cat M1/M2 inter-freq reporting accuracy enhanced m	15.0.0	agreed	R5
New ECID Cat M1/M2 tests	15.0.0	agreed	R5
Annex C OTDOA and ECID Cat M1/M2	15.0.0	agreed	R5
NB-IOT General Sections	15.0.0	agreed	R5
NB-IOT OTDOA Test Cases	15.0.0	agreed	R5
NB-IOT Annex E	15.0.0	agreed	R5
Band 68 addition to band groups in 37.571-1	15.0.0	agreed	R5
[Editorial] Correct normative reference for minimum conformance re	15.0.0	agreed	R5
feMTC Annex E	15.0.0	agreed	R5
4Rx support for OTDOA 2CC	15.0.0	agreed	R5
4Rx support for OTDOA 3CC	15.0.0	agreed	R5
WLAN core specification updates	15.0.0	agreed	R5
Addition of the Band 74 information into TS 37.571-1	15.0.0	agreed	R5
Removal of technical content in 37.571-2 v14.3.0 and substitution w	14.3.0	agreed	R5
Update Main Behaviour positioning method	15.0.0	agreed	R5
Missing Release 14 Information Element for otdoa	15.0.0	agreed	R5
Update Simulated Environment conditions for MBS, WLAN, and Blu	15.0.0	agreed	R5
Removal of technical content in 37.571-3 v14.3.1 and substitution w	14.3.1	agreed	R5
Applicability of Cat1bis OTDOA tests	15.0.0	agreed	R5

Applicability of feMTC OTDOA and ECID tests	15.0.0	agreed	R5
Applicability of NB-IOT OTDOA tests	15.0.0	agreed	R5
4Rx support for OTDOA 2CC - Applicability	15.0.0	agreed	R5
4Rx support for OTDOA 3CC - Applicability	15.0.0	agreed	R5
Update Applicability for Rel-14 WLAN Positioning Protocol Tests ar	15.0.0	agreed	R5
Update Applicability for Rel-14 Sensor Positioning Protocol Tests ar	15.0.0	agreed	R5
Correction to EUTRA release information for UE Positioning TCs	14.1.0	agreed	R5s
Addition of LTE UE Positioning test case 7.3.4.2.15s (BDS)	14.1.0	agreed	R5s
Addition of LTE UE Positioning test case 7.3.4.4.15s (BDS)	14.1.0	agreed	R5s
Addition of LTE UE Positioning test case 7.3.5.1.15s (BDS)	14.1.0	agreed	R5s
Removal of technical content in 37.571-4 v13.4.0 and substitution w	13.4.0	agreed	R5
Routine maintenance for TS 37.571-4	14.1.0	agreed	R5
Removal of technical content in 37.571-5 v14.2.0 and substitution w	14.2.0	agreed	R5
Assistance Data for OTDOA Cat1bis	15.0.0	agreed	R5
Assistance Data for OTDOA NB-IOT	15.0.0	agreed	R5
Added MBS, WLAN, and Bluetooth assistance data	15.0.0	agreed	R5
UE Application Layer Data Throughput for CA Scope and Objective	11.14.0	agreed	R5
Implementation of endorced CRs to 38.101-1	15.0.0	agreed	R4
Implementation of endorsed CR to 38.101-2	15.0.0	agreed	R4
Implementation of endorsed CRs to 38.101-3	15.0.0	agreed	R4
TS 38.104 Combined updates (NSA) from RAN4 #86 and AH-1801	15.0.0	agreed	R4
CR to TS 38.113	15.0.0	agreed	R4
CR to TS 38.113	15.0.0	agreed	R4
Implementation of agreed draft CRs	15.0.0	agreed	R4
CR to TS38.133	15.0.0	agreed	R4
CR to 38.202 capturing the Jan18 ad-hoc and RAN1#92 meeting ag	15.0.0	agreed	R1
CR to 38.211 capturing the Jan18 ad-hoc and RAN1#92 meeting ag	15.0.0	agreed	R1
CR to 38.212 capturing the Jan18 ad-hoc and RAN1#92 meeting ag	15.0.0	agreed	R1
CR to 38.213 capturing the Jan18 ad-hoc and RAN1#92 meeting ag	15.0.0	agreed	R1
CR to 38.214 capturing the Jan18 ad-hoc and RAN1#92 meeting ag	15.0.0	agreed	R1
CR to 38.215 capturing the Jan18 ad-hoc and RAN1#92 meeting ag	15.0.0	agreed	R1
Miscellaneous Corrections & Additions	15.0.0	agreed	R2
Updates of UE capabilities	15.0.0	agreed	R2
General corrections on TS 38.321	15.0.0	agreed	R2
Introduction of MAC CEs for NR MIMO	15.0.0	agreed	R2
Corrections for RLC specification	15.0.0	agreed	R2
Corrections to PDCP specification	15.0.0	agreed	R2
Corrections for EN-DC	15.0.0	-	R2
Correction on intra-gNB-DU handover	15.0.0	agreed	R3
Rapporteur's update to TS38.425	15.0.0	agreed	R3
Corrections to NR UP protocol	15.0.0	agreed	R3
Data Retransmission Indication	15.0.0	agreed	R3
Avoiding exceeding the max size of the NR RAN Container	15.0.0	agreed	R3
clarification and correction on U-plane for EN-DC	15.0.0	agreed	R3
Correction of frame structure and Spare extension	15.0.0	agreed	R3
Triggering of DDDS delivery	15.0.0	agreed	R3
Correction to DL Discard	15.0.0	agreed	R3
Clarifications on UP IE presence	15.0.0	agreed	R3
UE Context Management Procedure Related with EN-DC Operation	15.0.0	agreed	R3
Correction of packet duplication	15.0.0	agreed	R3
SCell management	15.0.0	agreed	R3
Baseline CR for March version of TS 38.473 covering agreements o	15.0.0	agreed	R3
Introduction of EN-DC for NSA NR (baseline CR) plus making DRB	15.0.0	-	R3
Correction on DRB to be optional	15.0.0	-	R3
Security Enhancement for MTA in network configuration without LL	14.2.0	agreed	R6

Introduction of Restricted Use of Enhanced Coverage	14.2.0	agreed	R6
Miscellaneous corrections related to CC5 EC-RACH	14.4.0	agreed	R6
Miscellaneous corrections for EC-GSM-IoT	13.4.0	agreed	R6
Finalised performance requirements for Alternative Coverage Class	14.3.0	agreed	R6
Miscellaneous corrections for EC-GSM-IoT	14.3.0	agreed	R6
Introduction of Restricted Use of Enhanced Coverage	14.2.0	agreed	R6
Additional clarification to support cell selection to E_UTRAN bands	11.6.0	agreed	R6
Additional clarification to support cell selection to E_UTRAN bands	12.5.0	agreed	R6
Additional clarification to support cell selection to E_UTRAN bands	13.6.0	agreed	R6
Additional clarification to support cell selection to E_UTRAN bands	14.2.0	agreed	R6
EC-GSM-IoT Updates	13.5.0	agreed	R5
Correction to GPRS test case 44.2.1.2.7a	13.5.0	agreed	R5
Updates linked to EC-GSM-IoT	13.5.0	agreed	R5
Editorial updates	13.7.0	agreed	R5
Finalised performance requirements for Alternative Coverage Class	14.3.0	agreed	R6
Miscellaneous corrections for EC-GSM-IoT	13.4.0	agreed	R6

Workitem	Meeting-1st-Level
TEI11	RP-79
Ext_B12_LTE-Core	RP-79
LTE_TDD_3300_Africa-Core	RP-79
Ext_B12_LTE-Core	RP-79
LTE_TDD_3300_Africa-Core	RP-79
AASenh_BS_LTE_UTRA-Core	RP-79
Ext_B12_LTE-Perf	RP-79
LTE_TDD_3300_Africa-Core	RP-79
Ext_B12_LTE-Perf	RP-79
TEI13	RP-79
TEI13	RP-79
TEI13	RP-79
LTE_TDD_3300_Africa-Core	RP-79
Ext_B12_LTE-Perf	RP-79
LTE_TDD_3300_Africa-Perf	RP-79
TEI15	RP-79
TEI15	RP-79
TEI15	RP-79
Ext_B12_LTE-Core,	RP-79
LTE_TDD_3300_Africa-Core	RP-79
Ext_B12_LTE-Core,	RP-79
LTE_TDD_3300_Africa-Core	RP-79
TEI14_Test	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
UMTS_QMC_Streaming-UEConTest	RP-79
UMTS_QMC_Streaming-UEConTest	RP-79
TEI14_Test, eDECOR-UTRA_LTE-UEConTest	RP-79
UMTS_QMC_Streaming-UEConTest	RP-79
TEI10_Test	RP-79
TEI8_Test	RP-79
TEI13_Test, , LTE_MTCe2_L1-UEConTest	RP-79
TEI8_Test	RP-79
TEI8_Test	RP-79
TEI13_Test	RP-79
TEI8_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI8_Test	RP-79
TEI8_Test	RP-79
TEI9_Test	RP-79
TEI8_Test	RP-79
TEI8_Test, IMS_CONV_IP_Com-UEConTest	RP-79
TEI11_Test, IMS_CONV_IP_Com-UEConTest	RP-79
TEI9_Test	RP-79
TEI13_Test	RP-79
TEI8_Test	RP-79
TEI11_Test, MTSI_WLAN-UEConTest	RP-79
EIEI-UEConTest	RP-79
TEI11_Test, MTSI_WLAN-UEConTest	RP-79
TEI12_Test, MTSI_FIXED_ACCESS-UEConTest	RP-79
EIEI-UEConTest	RP-79
TEI11_Test, MTSI_WLAN-UEConTest	RP-79
TEI11_Test, MTSI_WLAN-UEConTest	RP-79
TEI9_Test	RP-79

TEI9_Test	RP-79
TEI13_Test	RP-79
EIEI-UEConTest	RP-79
TEI8_Test	RP-79
TEI8_Test	RP-79
TEI8_Test	RP-79
TEI11_Test, MTSI_WLAN-UEConTest	RP-79
TEI9_Test	RP-79
TEI8_Test	RP-79
TEI8_Test	RP-79
TEI13_Test	RP-79
TEI8_Test	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
EIEI-UEConTest	RP-79
TEI8_Test	RP-79
TEI11_Test, MTSI_WLAN-UEConTest	RP-79
TEI11_Test	RP-79
LTE_1024QAM_DL	RP-79
LTE_V2X-Core	RP-79
LTE_V2X-Core	RP-79
LTE_V2X-Core	RP-79
LTE_V2X-Core	RP-79
LTE_unlic-Core	RP-79
LTE_TDD_HPUE_R15	RP-79
LTE_CA_R15_xDL2UL-Core	RP-79
LTE_feMTC-Perf	RP-79
LTE_feMTC-Perf	RP-79
LTE_MTCe2_L1-Perf	RP-79
LTE_MTCe2_L1-Perf	RP-79
LTE_MTCe2_L1-Perf	RP-79
LTE_V2X_Perf	RP-79
LTE_V2X_Perf	RP-79
LTE_4Rx_AP_DL_CA	RP-79
LTE_4Rx_AP_DL_CA	RP-79
LTE_MTCe2_L1-Perf	RP-79
LTE_MTCe2_L1-Perf	RP-79
LTE_MTCe2_L1-Perf	RP-79
LTE_MTCe2_L1-Perf	RP-79
LTE_MTCe2_L1-Perf	RP-79
LTE_4Rx_AP_DL-Perf, TEI13	RP-79
LTE_4Rx_AP_DL-Perf, TEI13	RP-79
LTE_4Rx_AP_DL-Perf, TEI13	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79

LTE_LAA-Perf	RP-79
LTE_MTCe2_L1	RP-79
LTE_MTCe2_L1	RP-79
LTE_CA_4DL4UL_B41_B41_B42_B42-Core	RP-79
TEI13	RP-79
TEI13	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core	RP-79
TEI13	RP-79
TEI13	RP-79
TEI13	RP-79
LTE_CA_R15_3DL1UL-Core	RP-79
LTE_8Rx_AP_DL	RP-79
LTE_CA_R15_intra-Core	RP-79
LTE_CA_R15_4DL1UL-Core	RP-79
TEI12	RP-79
TEI12	RP-79
TEI12	RP-79
TEI12	RP-79
LTE_1RX_CRS_IM-Perf	RP-79
LTE_HPUE_B3_B20_B28-Core	RP-79
TEI13	RP-79
TEI13	RP-79
TEI13	RP-79
LTE_eFDMIMO-Perf	RP-79
LTE_eFDMIMO-Perf	RP-79
Ext_B12_LTE-Core	RP-79
LTE_CA_C_B41_PC2-core, TEI10	RP-79
LTE_CA_C_B41_PC2-core, TEI10	RP-79
LTE_CA_C_B41_PC2-core, TEI10	RP-79
LTE450_Europe_PPDR-Core	RP-79
LTE700_Europe_PPDR-Core, TEI13	RP-79
LTE700_Europe_PPDR-Core, TEI13	RP-79
LTE700_Europe_PPDR-Core, LTE600_US-Core, T	RP-79
LTE_CA_R15_2DL1UL-Core	RP-79
LTE_CA-Core, LTE_CA_R15_2DL1UL-Core, LTE_	RP-79
LTE_CA-Core, LTE_CA_R15_2DL1UL-Core, LTE_	RP-79
LTE_feMTC-Perf	RP-79
LTE_feMTC-Perf	RP-79
LTE_CA_C_B41_PC2-core, TEI10	RP-79
LTE_CA_C_B41_PC2-core, TEI10	RP-79
LTE_CA_C_B41_PC2-core, TEI10	RP-79
TEI12	RP-79
TEI12	RP-79
TEI12	RP-79
TEI12	RP-79
TEI14	RP-79
TEI14	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
TEI13	RP-79
TEI13	RP-79
TEI13	RP-79
LTE450_Europe_PPDR	RP-79

LTE_CA_R15_2DL1UL-Core	RP-79
LTE_eCRSIM_eSUMIMO	RP-79
LTE_eCRSIM_eSUMIMO	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
LTE_MTCe2_L1-Perf	RP-79
LTE_TDD_3300_Africa-Core	RP-79
LTE_CA_R15_5DL1UL-Core	RP-79
LTE_MTCe2_L1	RP-79
LTE_1024QAM_DL	RP-79
LTE_CA_R15_3DL1UL-Core	RP-79
LTE_CA_R15_4DL1UL-Core	RP-79
LTE_CA_R15_5DL1UL-Core	RP-79
TEI15	RP-79
Ext_B12_LTE-Core	RP-79
LTE_unlic-Core	RP-79
NB_IOT-Core	RP-79
NB_IOT-Core	RP-79
NB_IOT-Core	RP-79
NB_IOTenh2-Core	RP-79
LTE_CA_R15_2DL1UL-Core	RP-79
LTE_TDD_3300_Africa-Core	RP-79
Ext_B12_LTE-Core	RP-79
AASenh_BS_LTE_UTRA-Core	RP-79
LTE_TDD_3300_Africa-Core	RP-79
Ext_B12_LTE-Core	RP-79
LTE_TDD_3300_Africa-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT	RP-79
NR_newRAT	RP-79
NR_newRAT-Core	RP-79
LTE_UE_cat_1RX-Core, LTE_UE_cat_1RX-Perf	RP-79
LTE_UE_cat_1RX-Core, LTE_UE_cat_1RX-Perf	RP-79
LTE_LAA-Perf, TEI14	RP-79
LTE_LAA-Perf, TEI14	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79

LTE_LAA-Perf	RP-79
LTE_LAA-Perf	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
TEI14	RP-79
LTE_feMTC-Perf	RP-79
LTE_feMTC-Perf	RP-79
TEI13	RP-79
TEI14	RP-79
TEI15	RP-79
TEI13	RP-79
TEI13	RP-79
TEI13	RP-79
NR_newRAT-Core	RP-79
LTE_V2X-Perf	RP-79
LTE_V2X-Perf	RP-79
Ext_B12_LTE-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Perf	RP-79
LTE_feMTC-Perf	RP-79
LTE_feMTC-Perf	RP-79
LTE_feMTC-Perf	RP-79
NR_newRAT	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Perf	RP-79
LTE_feMTC-Perf	RP-79
LTE_meas_gap_enh	RP-79
LTE_meas_gap_enh	RP-79
NR_newRAT-Core	RP-79
LTE_SRS_switch-Perf	RP-79
LTE_SRS_switch-Perf	RP-79
LTE_SRS_switch-Perf	RP-79
LTE_SRS_switch-Perf	RP-79
NR_newRAT	RP-79
LTE_high_speed-Perf	RP-79
LTE_high_speed-Perf	RP-79
LTE_V2X-Perf	RP-79
LTE_V2X-Perf	RP-79
NB_IOT-Core	RP-79
NB_IOT-Core	RP-79
NB_IOT-Core	RP-79
NB_IOTenh-Perf	RP-79
NB_IOTenh-Perf	RP-79
NB_IOTenh-Perf	RP-79
NB_IOTenh-Perf	RP-79
NR_newRAT	RP-79

NR_newRAT	RP-79
NR_newRAT	RP-79
NR_newRAT	RP-79
NR_newRAT	RP-79
NR_newRAT	RP-79
TEI13	RP-79
TEI13	RP-79
TEI13	RP-79
NB_IOT-Core	RP-79
NB_IOT-Core	RP-79
NB_IOT-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Perf	RP-79
LTE_feMTC-Perf	RP-79
LTE_UE_cat_1RX-Core	RP-79
LTE_UE_cat_1RX-Core	RP-79
NB_IOTenh-Perf	RP-79
NB_IOTenh-Perf	RP-79
LTE_feMTC-Perf	RP-79
LTE_feMTC-Perf	RP-79
LTE_TDD_3300_Africa-Core	RP-79
LTE_CA_R15_3DL1UL-Perf	RP-79
LTE_CA_R15_4DL1UL-Perf	RP-79
LTE_CA_R15_5DL1UL-Perf	RP-79
TEI15	RP-79
Ext_B12_LTE-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOT-Perf	RP-79
NB_IOTenh2-Perf	RP-79
LTE_CA_R15_2DL1UL-Perf	RP-79
LTE_TDD_3300_Africa-Perf	RP-79
LTE_sTTIandPT-Core	RP-79
feCOMP_LTE-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
NB_IOT-Core	RP-79
NB_IOT-Core	RP-79
NB_IOT-Core	RP-79
LTE_eFDMIMO-Core	RP-79
LTE_eFDMIMO-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
NB_IOT-Core, TEI14	RP-79
NB_IOT-Core, TEI14	RP-79
LTE_UL_CAP_enh-Core	RP-79
LTE_UL_CAP_enh-Core	RP-79
NB_IoT-Core	RP-79
NB_IoT-Core	RP-79

NB_IoT-Core	RP-79
feCOMP_LTE-Core	RP-79
NR_newRAT-Core	RP-79
feCOMP_LTE-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
LTE_EBF_FDMIMO-Core	RP-79
LTE_EBF_FDMIMO-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
NB_IoT-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core	RP-79
NB_IOTenh-Core	RP-79
LTE_UL_CAP_enh-Core	RP-79
LTE_VoLTE_ViLTE_enh-Core	RP-79
LTE_CA_TDD_FDD-Core	RP-79
LTE_CA_TDD_FDD-Core	RP-79
LTE_EBF_FDMIMO-Core	RP-79
LTE_EBF_FDMIMO-Core	RP-79
LTE_EBF_FDMIMO-Core	RP-79
NB_IoT-Core	RP-79
NB_IoT-Core	RP-79
LTE_CA_enh_b5C-Core	RP-79
LTE_CA_enh_b5C-Core	RP-79
LTE_CA_enh_b5C-Core	RP-79
LTE_EBF_FDMIMO-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_UL_CAP_enh-Core	RP-79
LTE_VoLTE_ViLTE_enh-Core	RP-79
LTE_CA_TDD_FDD-Core	RP-79
NB_IOTenh-Core	RP-79
NB_IOT-Core, TEI14	RP-79
NB_IOT-Core, TEI14	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
NR_newRAT-Core	RP-79
NB_IOTenh-Core	RP-79
MBMS_LTE_enh2-Core	RP-79
LTE_V2X-Core	RP-79
LTE_V2X-Core	RP-79
LTE_V2X-Core	RP-79
NB_IOTenh-Core	RP-79
NB_IOTenh-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
LTE_MTCe2_L1-Core	RP-79
NR_NewRAT-Core	RP-79
LTE_LAA-Core	RP-79
LTE_LAA-Core	RP-79
LTE_LAA-Core	RP-79

LTE_V2X-Core	RP-79
MBMS_LTE_enh2-Core	RP-79
	RP-79
NB_IoT-Core	RP-79
TEI15, MBMS_MCservices	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
TEI13	RP-79
TEI13	RP-79
TEI13	RP-79
NR_newRAT-Core	RP-79
NB_IOTenh-Core	RP-79
LTE_feMTC-Core, TEI14	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core, TEI14	RP-79
TEI14	RP-79
NR_newRAT-Core	RP-79
TEI14	RP-79
TEI14	RP-79
LTE_SRS_switch-Core	RP-79
LTE_SRS_switch-Core	RP-79
LTE_CA_4DL4UL_B41_B41_B42_B42-Perf, TEI11	RP-79
TEI10	RP-79
TEI10	RP-79
TEI10	RP-79
TEI10	RP-79
TEI10	RP-79
TEI10	RP-79
LTE_CA_4DL4UL_B41_B41_B42_B42-Perf, TEI11	RP-79
LTE_CA_4DL4UL_B41_B41_B42_B42-Perf, TEI11	RP-79
LTE_CA_4DL4UL_B41_B41_B42_B42-Perf, TEI11	RP-79
LTE_CA_4DL4UL_B41_B41_B42_B42-Perf, TEI11	RP-79
TEI15	RP-79
TEI15	RP-79
MBMS_LTE_enh2-Core	RP-79
MBMS_LTE_enh2-Core	RP-79
NB_IoTenh-Core	RP-79
NB_IoTenh-Core	RP-79
LTE_V2X-Core	RP-79
LTE_V2X-Core	RP-79
LTE_SRS_switch-Core	RP-79
LTE_SRS_switch-Core	RP-79
NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13	RP-79
NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13	RP-79
NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13	RP-79
NR_newRAT-Core	RP-79
LTE_SRS_switch-Core	RP-79
LTE_SRS_switch-Core	RP-79
LTE_feMTC-Core	RP-79
LTE_feMTC-Core	RP-79
NB_IOTenh-Core	RP-79
NB_IOTenh-Core	RP-79
LTE_feMTC-Core, TEI14	RP-79
TEI14	RP-79

TEI14	RP-79
TEI13	RP-79
TEI13	RP-79
TEI13	RP-79
NB_IOTenh-Core	RP-79
TEI14	RP-79
TEI14	RP-79
TEI13	RP-79
TEI13	RP-79
TEI13	RP-79
LTE_V2X-Core	RP-79
LTE_V2X-Core	RP-79
TEI14	RP-79
TEI14	RP-79
LTE_CA_enh_b5C-Core	RP-79
LTE_CA_enh_b5C-Core	RP-79
LTE_CA_enh_b5C-Core	RP-79
TEI14	RP-79
TEI14	RP-79
LTE_eLAA-Core	RP-79
LTE_eLAA-Core	RP-79
LTE_V2X-Core	RP-79
NB_IOT-Core	RP-79
NB_IOT-Core	RP-79
LTE_feMTC-Core, TEI14	RP-79
LTE_V2X-Core	RP-79
NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13	RP-79
NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13	RP-79
NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13	RP-79
NB_IOTenh-Core	RP-79
TEI14	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
TEI14, CIoT_Ext	RP-79
TEI14, CIoT_Ext	RP-79
TEI-15, USOS	RP-79
CIoT_Ext	RP-79
CIoT_Ext	RP-79
TEI14, NB_IOTenh-Core, CIoT_Ext	RP-79
TEI14, NB_IOTenh-Core, CIoT_Ext	RP-79
TEI15, eMDT_UMTSLTE-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
TEI 14	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core,	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core,	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79

NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
TEI15	RP-79
TEI 14	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
TEI15,	RP-79
TEI15,	RP-79
TEI14_Test	RP-79
NB_IOTenh-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
TEI12_Test, LC_MTC_LTE-UEConTest	RP-79
TEI8_Test	RP-79
LTE_SRS_switch-UEConTest	RP-79
LTE_SRS_switch-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
EIEI-UEConTest	RP-79
TEI11_Test, MTSI_WLAN-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_eLAA-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
EIEI-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_FDD_L_band-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
TEI13_Test	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
LTE_FDD_L_band-UEConTest	RP-79
TEI8_Test	RP-79
TEI8_Test	RP-79
TEI8_Test	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_MIMO_OTA-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
TEI14_Test	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79

LTE_SL_V2V-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_TDD_eIMTA-UEConTest	RP-79
LTE_TDD_eIMTA-UEConTest	RP-79
LTE_TDD_eIMTA-UEConTest	RP-79
LTE_TDD_eIMTA-UEConTest	RP-79
LTE_TDD_eIMTA-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE450_Europe_PPDR-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
LTE450_Europe_PPDR-UEConTest	RP-79
LTE450_Europe_PPDR-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79

LTE_eLAA-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_eLAA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
TEI15_Test, LTE_CA_Rel12_2UL-UEConTest	RP-79
TEI15_Test, LTE_CA_Rel12_2UL-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
TEI8_Test	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_UL_CAP_enh-UEConTest	RP-79
LTE_UL_CAP_enh-UEConTest	RP-79
LTE_UL_CAP_enh-UEConTest	RP-79
LTE_UL_CAP_enh-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
TEI10_Test, LTE_4Rx_AP_DL-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
TEI14_Test	RP-79
LTE_IM_DLCCH-UEConTest	RP-79
LTE_IM_DLCCH-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI12_Test, LTE_SC_enh_L1-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
TEI11_Test, LTE_CA_Rel12_2UL-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79

TEI14_Test, NB_IOT_R14_bands-UEConTest	RP-79
TEI10_Test	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI10_Test, LTE_4Rx_AP_DL-UEConTest	RP-79
TEI10_Test, LTE_4Rx_AP_DL-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_eLAA-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_eLAA-UEConTest	RP-79
TEI10_Test	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
LTE_FDD_L_band-UEConTest	RP-79
LTE_FDD_L_band-UEConTest	RP-79
LTE_FDD_L_band-UEConTest	RP-79
LTE_bands_R15_M2_NB2-UEConTest	RP-79
TEI10_Test, LTE_4Rx_AP_DL-UEConTest	RP-79
TEI10_Test, LTE_4Rx_AP_DL-UEConTest	RP-79
TEI10_Test, LTE_4Rx_AP_DL-UEConTest	RP-79
TEI10_Test, LTE_4Rx_AP_DL-UEConTest	RP-79
TEI11_TEST	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_EBF_FDMIMO-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest, TEI15_Test	RP-79
LTE_CA_Rel13-UEConTest	RP-79
TEI14_Test	RP-79
LTE450_Europe_PPDR-UEConTest	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
LTE_SRS_switch-UEConTest	RP-79
LTE_TDD_eIMTA-UEConTest	RP-79
TEI9_Test	RP-79
NB_IOTenh-UEConTest	RP-79
LTE_high_speed-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_UL_CAP_enh-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_IM_DLCCH-UEConTest	RP-79
TEI10_Test	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI11_Test, TEI12_Test	RP-79
LTE_CA_R14-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79

LTE_WLAN_radio-UEConTest	RP-79
LTE_high_speed-UEConTest	RP-79
LTE_UTRA_IncMon-UEConTest	RP-79
LTE_FDD_L_band-UEConTest	RP-79
TEI12_Test, LTE_4Rx_AP_DL-UEConTest	RP-79
LTE_4Rx_AP_DL_CA-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_eLAA-UEConTest	RP-79
LTE450_Europe_PPDR-UEConTest	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
LTE_SRS_switch-UEConTest	RP-79
LTE_SRS_switch-UEConTest	RP-79
LTE_SRS_switch-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_high_speed-UEConTest	RP-79
LTE_high_speed-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI8_Test	RP-79
LTE_CA_Rel13-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI10_Test	RP-79
TEI10_Test	RP-79
TEI10_Test	RP-79
TEI10_Test	RP-79
TEI12_Test	RP-79
TEI12_Test	RP-79
TEI12_Test	RP-79
TEI12_Test	RP-79
TEI12_Test	RP-79
TEI12_Test	RP-79
TEI12_Test	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_eLAA-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
TEI10_Test, LTE_4Rx_AP_DL-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79

TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_FDD_L_band-UEConTest	RP-79
LTE_UTRA_IncMon-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
TEI12_Test, SCM_LTE-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
TEI14_Test	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
TEI9_Test	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
TEI9_Test	RP-79
TEI12_Test, LTE_SC_enh_dualC-UEConTest	RP-79
TEI8_Test	RP-79
TEI12_Test, MTCe-UEPCOP-UEConTest	RP-79
LTE_eLAA-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_eLAA-UEConTest	RP-79
TEI11_Test	RP-79
TEI11_Test	RP-79
EIEI-UEConTest	RP-79
EIEI-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
EIEI-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI9_Test	RP-79
LTE_WLAN_radio-UEConTest	RP-79

LTE_WLAN_radio-UEConTest	RP-79
TEI11_Test	RP-79
TEI10_Test	RP-79
TEI14_Test, eDECOR-UTRA_LTE-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
LTE_SL_V2V-UEConTest	RP-79
TEI8_Test	RP-79
TEI8_Test	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
TEI8_Test	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
TEI9_Test	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
TEI9_Test	RP-79
TEI14_Test	RP-79
TEI8_Test	RP-79
TEI10_Test	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
LTE_LATRED_L2-UEConTest	RP-79
LTE_LATRED_L2-UEConTest	RP-79
LTE_LATRED_L2-UEConTest	RP-79
LTE_LATRED_L2-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
EIEI-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
TEI14_Test	RP-79
LTE450_Europe_PPDR-UEConTest	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
LTE_high_speed-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
MCPTT-ConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_eLAA-UEConTest	RP-79
EIEI-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
LTE_CA_R15-UEConTest	RP-79
LTE_FDD_L_band-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79

TEI14_Test	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
LTE_WLAN_radio-UEConTest	RP-79
LTE_LATRED_L2-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
LTE_MTCe2_L1-UEConTest	RP-79
TEI10_Test	RP-79
TEI13_Test, LTE_eMDT2-UEConTest	RP-79
TEI8_Test	RP-79
TEI10_Test	RP-79
TEI8_Test	RP-79
TEI13_Test, LTE_LAA-UEConTest	RP-79
TEI8_Test	RP-79
TEI13_Test, , LTE_extDRX-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
TEI9_Test	RP-79
TEI8_Test	RP-79
TEI13_Test, , LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, , LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, , LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, , LTE_MTCe2_L1-UEConTest	RP-79
TE13_Test, , LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, , LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, , LTE_LAA-UEConTest	RP-79
TEI11_Test	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
TEI10_Test	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
NB_IOT-UEConTest	RP-79

TEI8_Test	RP-79
TEI8_Test	RP-79
TEI8_Test	RP-79
TEI11_Test	RP-79
TEI9_Test	RP-79
TEI10_Test	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI12_Test, SCM_LTE-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
TEI13_Test, LTE_extDRX-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
NB_IOT-UEConTest	RP-79
TEI13_Test, LTE_eMDT2-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI8_Test	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, LTE_MTCe2_L1-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
MCPTT-ConTest	RP-79
TEI8_Test	RP-79
TEI12_Test, MTCe-UEPCOP-UEConTest	RP-79
TEI12_Test, MTCe-UEPCOP-UEConTest	RP-79
LTE_V2X-UEConTest	RP-79
TEI13_Test	RP-79
TEI13_Test , LTE_LAA-UEConTest	RP-79
TEI9_Test	RP-79
TEI8_Test	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test	RP-79
LTE_SRS_switch-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
TEI13_Test, NB_IOT-UEConTest	RP-79
LTE_high_speed-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
TEI15_Test, LTE_CA_Rel12_2UL-UEConTest	RP-79
TEI14_Test	RP-79
TEI11_Test, LTE_CA_Rel12_2UL-UEConTest	RP-79
LTE_CA_Rel13-UEConTest	RP-79
LTE_CA_R14-UEConTest	RP-79
Ext_B12_LTE-Core	RP-79
TEI15	RP-79
NB_IOTenh2-Core	RP-79
LTE_TDD_3300_Africa-Core	RP-79
AASenh_BS_LTE_UTRA-Core	RP-79
Ext_B12_LTE-Core	RP-79
AASenh_BS_LTE_UTRA-Core	RP-79

LTE_TDD_3300_Africa-Core	RP-79
AASenh_BS_LTE_UTRA-Core	RP-79
Ext_B12_LTE-Perf	RP-79
RInImp9-RFmulti, TEI13	RP-79
RInImp9-RFmulti, TEI13	RP-79
RInImp9-RFmulti, TEI13	RP-79
NB_IOTenh2-Perf	RP-79
TEI15	RP-79
LTE_TDD_3300_Africa-Perf	RP-79
LTE_MIMO_OTA-Core	RP-79
AASenh_BS_LTE_UTRA-Perf, TEI13	RP-79
AASenh_BS_LTE_UTRA-Perf, TEI13	RP-79
UTRA_LTE_iPos_enh2-Perf	RP-79
UTRA_LTE_iPos_enh2-Perf	RP-79
UTRA_LTE_iPos_enh2-Perf	RP-79
UTRA_LTE_iPos_enh2-Perf	RP-79
UTRA_LTE_iPos_enh2-Perf	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
LTE_MIMO_OTA-UEConTest	RP-79
LTE_MIMO_OTA-UEConTest	RP-79
LTE_MIMO_OTA-UEConTest	RP-79
TEI14_Test	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
LTE700_Europe_PPDR-UEConTest	RP-79
TEI14_Test, LTE_iPos_enh2_RI-UEConTest	RP-79
LTE_feMTC-UEConTest	RP-79
TEI10_Test	RP-79
TEI12_Test	RP-79
TEI14_Test, LTE_iPos_enh2_RI-UEConTest	RP-79
LTE_FDD_L_band-UEConTest	RP-79
TEI14_Test	RP-79
TEI14_Test, LTE_iPos_enh2_RI-UEConTest	RP-79
TEI14_Test, LTE_iPos_enh2_RI-UEConTest	RP-79
TEI14_Test, LTE_iPos_enh2_RI-UEConTest	RP-79
TEI14_Test	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79

LTE_feMTC-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
TEI10_Test	RP-79
TEI12_Test	RP-79
TEI14_Test, LTE_iPos_enh2_RI-UEConTest	RP-79
TEI14_Test, LTE_iPos_enh2_RI-UEConTest	RP-79
TEI9_Test	RP-79
TEI12_Test	RP-79
TEI12_Test	RP-79
TEI12_Test	RP-79
TEI13_Test	RP-79
TEI9_Test	RP-79
TEI14_Test	RP-79
LTE_UE_cat_1RX-UEConTest	RP-79
NB_IOTenh-UEConTest	RP-79
TEI14_Test, LTE_iPos_enh2_RI-UEConTest	RP-79
FS_UE_App_Data_Perf_CA	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT	RP-79
NR_newRAT_Core	RP-79
NR_newRAT_Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core,	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
NR_newRAT-Core	RP-79
TEI15	RP-79

TEI14	RP-79
CIoT_EC_GSM_radio_enh-Core	RP-79
CIoT_EC_GSM-Perf	RP-79
CIoT_EC_GSM_radio_enh-Perf	RP-79
CIoT_EC_GSM-Perf	RP-79
TEI14	RP-79
TEI11	RP-79
TEI11	RP-79
TEI11	RP-79
TEI11	RP-79
TEI13_Test	RP-79
TEI10_Test	RP-79
TEI13_Test	RP-79
TEI13_Test	RP-79
CIoT_EC_GSM_radio_enh-Perf	RP-79
CIoT_EC_GSM-Perf	RP-79

comments

wrong CR number on CR cover

wrong rev number - on CR cover

wrong CR number 5662 on CR cover

wrong spec version on CR cover

3GU correction: from v14.5.0 to v14.5.1

wrong spec version on CR cover

wrong Tdoc number on CR cover

3GU correction: from cat.B to cat.F

wrong rev - on CR cover

3GU correction: rev number from 1 to 2

wrong rev number - on CR cover

wrong rev number - on CR cover

wrong rev number 3 on CR cover

wrong rev number 2 on CR cover

wrong rev number - on CR cover

wrong rev number - on CR cover

wrong rev number - on CR cover

wrong rev number - on CR cover

wrong rev number - on CR cover
wrong rev number - on CR cover
wrong rev number - on CR cover

wrong rev number 2 on CR cover

wrong Tdoc and rev number - on CR cover

APPENDIX 25

www.3gpp.org / ftp / Specs / archive / 38_series / 38.213

	sort by name/desc	sort by date/desc	sort by size/desc
38213-001.zip	2017/08/12 19:45	62,2 KB
38213-002.zip	2017/08/15 10:38	67,8 KB
38213-003.zip	2017/08/18 17:42	68,7 KB
38213-010.zip	2017/08/28 19:54	56,6 KB
38213-011.zip	2017/08/29 16:38	99,9 KB
38213-012.zip	2017/09/07 7:53	85,5 KB
38213-100.zip	2017/09/07 8:00	85,4 KB
38213-101.zip	2017/12/12 9:34	175,7 KB
38213-102.zip	2017/12/12 9:36	112,8 KB
38213-110.zip	2017/12/12 9:37	109,6 KB
38213-111.zip	2017/12/12 9:38	384 KB
38213-112.zip	2017/12/12 9:29	467,8 KB
38213-120.zip	2017/11/21 9:14	302,2 KB
38213-130.zip	2017/12/15 7:46	1117,8 KB
38213-200.zip	2017/12/15 14:48	501,8 KB
38213-f00.zip	2018/01/03 17:30	480,9 KB
38213-f10.zip	2018/04/08 20:02	651,6 KB
38213-f20.zip	2018/06/29 11:50	811 KB
38213-f30.zip	2018/10/01 17:58	884,7 KB
38213-f40.zip	2019/01/16 7:38	939,3 KB
38213-f50.zip	2019/03/27 21:55	953,1 KB
38213-f60.zip	2019/06/24 9:18	970,4 KB
38213-f70.zip	2019/09/28 20:00	968,4 KB
38213-f80.zip	2020/01/11 9:27	973,9 KB
38213-f90.zip	2020/04/03 9:38	972,1 KB
38213-fa0.zip	2020/07/17 11:03	975 KB
38213-fb0.zip	2020/10/01 14:58	975,4 KB
38213-fc0.zip	2021/01/08 8:01	981,3 KB
38213-fd0.zip	2021/03/30 21:30	1053,8 KB
38213-fe0.zip	2021/06/30 15:42	1047,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
38213-ff0.zip	2022/06/23 6:53	1054,4 KB
38213-g00.zip	2020/01/14 20:35	849,8 KB
38213-g10.zip	2020/04/03 9:39	890 KB
38213-g20.zip	2020/07/20 6:50	934 KB
38213-g30.zip	2020/10/02 13:44	923,3 KB
38213-g40.zip	2021/01/08 8:03	927 KB
38213-g50.zip	2021/03/30 21:32	954,7 KB
38213-g60.zip	2021/06/30 15:43	973,1 KB
38213-g70.zip	2021/09/28 7:29	983,3 KB
38213-g80.zip	2022/01/05 19:10	987 KB
38213-g90.zip	2022/04/01 20:59	989,1 KB
38213-ga0.zip	2022/06/23 6:55	990,5 KB
38213-gb0.zip	2022/09/21 9:54	992,5 KB
38213-gc0.zip	2023/01/04 15:24	997,3 KB
38213-gd0.zip	2023/03/30 8:10	1001,9 KB
38213-ge0.zip	2023/06/26 19:26	1020,2 KB
38213-gf0.zip	2023/09/28 12:21	1005,8 KB
38213-gg0.zip	2024/01/10 6:57	1002,6 KB
38213-gh0.zip	2024/03/29 18:15	1000,3 KB
38213-h00.zip	2022/01/05 19:10	945,9 KB
38213-h10.zip	2022/04/08 6:15	988,6 KB
38213-h20.zip	2022/06/23 6:56	993,5 KB
38213-h30.zip	2022/09/21 9:56	1010 KB
38213-h40.zip	2023/01/04 15:25	1035,3 KB
38213-h50.zip	2023/03/30 8:11	1051,8 KB
38213-h60.zip	2023/06/26 19:28	1054,7 KB
38213-h70.zip	2023/09/28 12:22	1063,6 KB
38213-h80.zip	2024/01/18 8:17	1090,5 KB
38213-h90.zip	2024/03/29 18:16	1095,7 KB
38213-i00.zip	2023/09/28 12:23	1147 KB
38213-i10.zip	2024/01/18 8:18	1188,9 KB
38213-i20.zip	2024/03/29 18:17	1196,9 KB

62 items.

APPENDIX 26

www.3gpp.org / ftp / Specs / archive / 38_series / 38.321

	sort by name/desc	sort by date/desc	sort by size/desc
	38321-003.zip	2017/05/04 10:41	482,6 KB
	38321-004.zip	2017/06/16 6:39	619,9 KB
	38321-010.zip	2017/08/15 15:02	264,4 KB
	38321-020.zip	2017/07/28 9:07	599,9 KB
	38321-030.zip	2017/09/04 8:53	804,7 KB
	38321-100.zip	2017/09/04 8:55	387,5 KB
	38321-110.zip	2017/11/16 8:42	1424,5 KB
	38321-120.zip	2017/12/11 11:01	1494,2 KB
	38321-200.zip	2017/12/11 13:01	681 KB
	38321-f00.zip	2018/01/04 11:14	680,6 KB
	38321-f10.zip	2018/04/02 12:18	939,9 KB
	38321-f20.zip	2018/06/20 2:18	913,9 KB
	38321-f30.zip	2018/09/25 1:51	923,8 KB
	38321-f40.zip	2019/01/11 0:54	924,7 KB
	38321-f50.zip	2019/04/09 16:08	762,1 KB
	38321-f60.zip	2019/06/29 23:51	762,8 KB
	38321-f70.zip	2019/09/27 8:01	738,1 KB
	38321-f80.zip	2020/01/07 14:47	738,5 KB
	38321-f90.zip	2020/07/24 21:23	740,4 KB
	38321-fa0.zip	2020/10/05 0:17	741,2 KB
	38321-fb0.zip	2021/01/06 1:30	744 KB
	38321-fc0.zip	2021/03/29 16:41	779,8 KB
	38321-fd0.zip	2022/04/14 22:57	780,2 KB
	38321-g00.zip	2020/04/09 2:44	1406,8 KB
	38321-g10.zip	2020/07/24 11:57	1455,9 KB
	38321-g20.zip	2020/10/05 0:17	1546,4 KB
	38321-g21.zip	2020/10/05 17:41	1548,2 KB
	38321-g30.zip	2021/01/06 1:30	1562,1 KB
	38321-g40.zip	2021/03/29 16:41	1624,2 KB
	38321-g50.zip	2021/07/07 22:16	1629,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
38321-g60.zip	2021/09/27 17:13	1635 KB
38321-g70.zip	2021/12/23 15:44	1637,9 KB
38321-g80.zip	2022/04/14 22:57	1640,5 KB
38321-g90.zip	2022/07/17 21:30	1642 KB
38321-ga0.zip	2022/09/30 21:26	1643,8 KB
38321-gb0.zip	2023/01/13 21:14	1643,6 KB
38321-gc0.zip	2023/06/30 18:19	1645,4 KB
38321-gd0.zip	2023/09/27 19:31	1645,6 KB
38321-ge0.zip	2024/01/12 23:58	1645,9 KB
38321-gf0.zip	2024/04/04 21:22	1647,1 KB
38321-h00.zip	2022/04/14 22:57	2139,7 KB
38321-h10.zip	2022/07/20 11:55	2386,3 KB
38321-h20.zip	2022/10/01 21:12	2395 KB
38321-h30.zip	2023/01/13 19:48	2404,8 KB
38321-h40.zip	2023/03/29 22:19	2411,4 KB
38321-h50.zip	2023/06/30 18:19	2420,6 KB
38321-h60.zip	2023/09/27 19:31	2417,1 KB
38321-h70.zip	2024/01/12 23:59	2422 KB
38321-h80.zip	2024/04/04 8:52	2423 KB
38321-i00.zip	2024/01/12 23:59	2756,6 KB
38321-i10.zip	2024/04/04 5:45	2867,4 KB

51 items.

APPENDIX 27

www.3gpp.org / ftp / Specs / archive / 38_series / 38.202

sort by name/desc	sort by date/desc	sort by size/desc
38202-000.zip	2017/05/23 19:05	28,9 KB
38202-001.zip	2017/08/12 19:40	33,2 KB
38202-002.zip	2017/09/29 14:37	1245,2 KB
38202-010.zip	2017/08/28 19:42	1226,3 KB
38202-011.zip	2017/09/29 14:42	2476,7 KB
38202-100.zip	2017/09/07 7:34	1225,8 KB
38202-101.zip	2017/12/12 8:45	660,9 KB
38202-110.zip	2017/11/23 7:33	673,8 KB
38202-120.zip	2017/12/15 7:47	1581,8 KB
38202-200.zip	2017/12/14 20:51	795,5 KB
38202-f00.zip	2018/01/03 15:38	782,2 KB
38202-f10.zip	2018/04/02 14:17	547,5 KB
38202-f20.zip	2018/06/29 11:44	666,1 KB
38202-f30.zip	2018/09/27 8:08	665,4 KB
38202-f40.zip	2019/01/11 14:03	550,1 KB
38202-f50.zip	2019/06/24 9:22	551 KB
38202-f60.zip	2020/01/11 8:35	552,1 KB
38202-g00.zip	2020/01/11 8:36	945,8 KB
38202-g10.zip	2020/07/14 10:00	945,9 KB
38202-g20.zip	2020/10/01 15:05	946,5 KB
38202-g30.zip	2022/01/05 18:59	954,9 KB
38202-g40.zip	2024/01/09 9:28	958,6 KB
38202-h00.zip	2022/01/05 19:00	957,1 KB
38202-h10.zip	2022/04/01 20:52	959,2 KB
38202-h20.zip	2022/06/23 7:00	963,3 KB
38202-h30.zip	2023/01/04 15:18	964,1 KB
38202-h40.zip	2023/09/28 9:42	964,7 KB
38202-h50.zip	2024/01/09 9:29	965,7 KB
38202-i00.zip	2023/09/28 9:43	1000,8 KB
38202-i10.zip	2024/01/09 9:30	1003,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
38202-i20.zip	2024/03/29 18:04	1002,9 KB
38202-i30.zip	2024/07/03 7:20	1003,7 KB

32 items.

APPENDIX 28

www.3gpp.org / ftp / Specs / archive / 38_series / 38.331

	sort by name/desc	sort by date/desc	sort by size/desc
38331-001.zip	2017/04/16 20:55	734,3 KB
38331-002.zip	2017/04/16 20:55	734 KB
38331-003.zip	2017/05/10 8:55	1527,8 KB
38331-004.zip	2017/06/16 23:51	1579,1 KB
38331-005.zip	2017/08/11 13:17	1612,8 KB
38331-010.zip	2017/09/28 10:09	810,3 KB
38331-020.zip	2017/11/21 21:15	798,8 KB
38331-030.zip	2018/01/01 11:29	330 KB
38331-040.zip	2017/12/13 20:17	969,4 KB
38331-100.zip	2017/12/14 14:15	470,4 KB
38331-f00.zip	2018/01/04 11:16	299,2 KB
38331-f10.zip	2018/04/02 0:08	416,5 KB
38331-f20.zip	2018/06/20 2:20	488,5 KB
38331-f21.zip	2018/06/21 0:20	491,1 KB
38331-f30.zip	2018/09/26 20:12	853,3 KB
38331-f40.zip	2019/01/14 21:23	936,9 KB
38331-f50.zip	2019/04/04 13:42	1591,2 KB
38331-f51.zip	2019/04/16 13:12	1591,6 KB
38331-f60.zip	2019/06/29 14:30	1645,9 KB
38331-f70.zip	2019/09/27 14:00	1699,1 KB
38331-f80.zip	2020/01/08 13:55	1729,3 KB
38331-f90.zip	2020/03/31 10:40	1761,3 KB
38331-fa0.zip	2020/07/24 11:24	1763,5 KB
38331-fb0.zip	2020/10/02 9:06	1775,6 KB
38331-fc0.zip	2021/01/06 22:33	1819,5 KB
38331-fd0.zip	2021/03/29 16:43	1794,2 KB
38331-fe0.zip	2021/07/06 23:10	1833,8 KB
38331-ff0.zip	2021/09/28 20:13	1837,6 KB
38331-fg0.zip	2021/12/23 15:45	1808 KB
38331-fh0.zip	2022/04/14 12:17	1812,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
38331-fi0.zip	2022/07/18 22:00	1848 KB
38331-fj0.zip	2022/10/02 20:00	1850,3 KB
38331-fk0.zip	2023/01/13 23:04	1821,7 KB
38331-fk1.zip	2023/01/16 19:19	1851,1 KB
38331-fl0.zip	2023/03/29 22:20	1852,9 KB
38331-fm0.zip	2023/06/30 18:20	1862,5 KB
38331-fn0.zip	2023/09/27 19:33	1863,8 KB
38331-fo0.zip	2024/01/12 8:37	1831,1 KB
38331-fo1.zip	2024/01/15 8:55	1863,6 KB
38331-fp0.zip	2024/04/05 10:25	1861,1 KB
38331-g00.zip	2020/04/06 10:21	2207,1 KB
38331-g10.zip	2020/07/24 11:24	2251,2 KB
38331-g20.zip	2020/10/07 22:01	2353,1 KB
38331-g30.zip	2021/01/06 22:34	2232,1 KB
38331-g31.zip	2021/01/07 16:20	2233,7 KB
38331-g40.zip	2021/03/30 14:43	2301,7 KB
38331-g41.zip	2021/03/30 16:16	2298,8 KB
38331-g50.zip	2021/07/06 23:10	2334,7 KB
38331-g60.zip	2021/09/28 20:13	2345,9 KB
38331-g70.zip	2021/12/23 15:45	2309,8 KB
38331-g80.zip	2022/04/14 20:18	2335,9 KB
38331-g90.zip	2022/07/18 22:01	2343 KB
38331-ga0.zip	2022/10/02 20:00	2409,2 KB
38331-gb0.zip	2023/01/16 17:53	2416,9 KB
38331-gc0.zip	2023/03/30 5:18	2422,6 KB
38331-gd0.zip	2023/06/30 18:21	2427,1 KB
38331-ge0.zip	2023/09/28 6:58	2437,4 KB
38331-gf0.zip	2024/01/12 8:39	2384,8 KB
38331-gf1.zip	2024/01/15 8:56	2441,7 KB
38331-gg0.zip	2024/04/05 10:25	2510,7 KB
38331-h00.zip	2022/04/19 10:21	2937,7 KB
38331-h10.zip	2022/07/19 14:08	3027 KB
38331-h20.zip	2022/10/02 20:01	3122,6 KB
38331-h30.zip	2023/01/16 17:53	3171,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
38331-h40.zip	2023/03/30 12:40	3202,5 KB
38331-h50.zip	2023/07/01 20:50	3217,1 KB
38331-h60.zip	2023/09/28 9:10	3241,7 KB
38331-h70.zip	2024/01/15 8:44	3259,5 KB
38331-h80.zip	2024/04/04 10:16	3270,8 KB
38331-i00.zip	2024/01/15 8:44	3743 KB
38331-i10.zip	2024/04/01 23:20	3851,1 KB

71 items.

APPENDIX 29

www.3gpp.org / ftp / tsg_ran / WG1_RL1 / TSGR1_92b / Docs

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803570.zip	2018/04/01 19:42	98,3 KB
R1-1803571.zip	2018/04/14 16:43	1872,9 KB
R1-1803572.zip	2018/04/12 7:25	85,4 KB
R1-1803573.zip	2018/04/01 19:42	11,3 KB
R1-1803574.zip	2018/04/01 19:42	38,6 KB
R1-1803575.zip	2018/04/01 19:42	21,9 KB
R1-1803576.zip	2018/04/01 19:42	13,2 KB
R1-1803577.zip	2018/04/01 19:42	26,5 KB
R1-1803578.zip	2018/04/01 19:42	56,3 KB
R1-1803579.zip	2018/04/01 19:42	34,2 KB
R1-1803580.zip	2018/04/04 13:53	15,5 KB
R1-1803581.zip	2018/04/04 13:53	9,7 KB
R1-1803582.zip	2018/04/04 13:53	16,1 KB
R1-1803583.zip	2018/04/04 13:53	23,6 KB
R1-1803584.zip	2018/04/04 13:53	11,6 KB
R1-1803585.zip	2018/04/04 13:53	32,6 KB
R1-1803586.zip	2018/04/04 13:53	49,8 KB
R1-1803587.zip	2018/04/04 13:53	11,3 KB
R1-1803588.zip	2018/04/04 13:53	15 KB
R1-1803589.zip	2018/04/04 13:53	39,8 KB
R1-1803590.zip	2018/04/04 13:53	55,2 KB
R1-1803591.zip	2018/04/04 13:53	17,6 KB
R1-1803592.zip	2018/04/04 13:53	15,4 KB
R1-1803593.zip	2018/04/04 13:53	13,5 KB
R1-1803594.zip	2018/04/04 13:53	27,8 KB
R1-1803595.zip	2018/04/04 13:53	16,3 KB
R1-1803596.zip	2018/04/01 19:42	182 KB
R1-1803597.zip	2018/04/01 19:42	4769,1 KB
R1-1803598.zip	2018/04/04 13:53	14,3 KB
R1-1803599.zip	2018/04/04 13:53	19,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803600.zip	2018/04/04 13:53	22 KB
R1-1803601.zip	2018/04/04 13:53	10,4 KB
R1-1803602.zip	2018/04/04 13:53	27,4 KB
R1-1803603.zip	2018/04/04 13:53	45,4 KB
R1-1803604.zip	2018/04/04 13:53	50,5 KB
R1-1803605.zip	2018/04/04 13:53	24,1 KB
R1-1803606.zip	2018/04/06 15:26	46 KB
R1-1803607.zip	2018/04/06 15:26	25,1 KB
R1-1803608.zip	2018/04/06 15:27	120,3 KB
R1-1803609.zip	2018/04/06 15:27	277,7 KB
R1-1803610.zip	2018/04/06 15:27	85,2 KB
R1-1803611.zip	2018/04/06 15:27	40,4 KB
R1-1803612.zip	2018/04/06 15:27	191,7 KB
R1-1803613.zip	2018/04/07 5:59	58,3 KB
R1-1803614.zip	2018/04/07 5:59	50,2 KB
R1-1803615.zip	2018/04/07 5:59	1650,7 KB
R1-1803616.zip	2018/04/07 6:00	2626,1 KB
R1-1803617.zip	2018/04/07 6:01	82,4 KB
R1-1803618.zip	2018/04/07 6:01	163,4 KB
R1-1803619.zip	2018/04/07 6:01	81,4 KB
R1-1803620.zip	2018/04/07 6:01	1178,3 KB
R1-1803621.zip	2018/04/07 6:01	65,9 KB
R1-1803622.zip	2018/04/05 22:22	57,8 KB
R1-1803623.zip	2018/04/05 22:22	45,6 KB
R1-1803624.zip	2018/04/05 22:22	197,9 KB
R1-1803625.zip	2018/04/07 2:52	299,9 KB
R1-1803626.zip	2018/04/07 2:52	92,8 KB
R1-1803627.zip	2018/04/07 2:52	146,6 KB
R1-1803628.zip	2018/04/07 2:52	179,7 KB
R1-1803629.zip	2018/04/07 2:52	96 KB
R1-1803630.zip	2018/04/07 2:52	62,9 KB
R1-1803631.zip	2018/04/07 2:52	61,9 KB
R1-1803632.zip	2018/04/06 18:22	117,8 KB
R1-1803633.zip	2018/04/06 18:22	52,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803634.zip	2018/04/06 18:22	44,2 KB
R1-1803635.zip	2018/04/06 18:22	162,3 KB
R1-1803636.zip	2018/04/06 18:22	63,6 KB
R1-1803637.zip	2018/04/06 18:22	146 KB
R1-1803638.zip	2018/04/06 18:22	54,4 KB
R1-1803639.zip	2018/04/06 18:22	77,1 KB
R1-1803640.zip	2018/04/06 18:22	39,2 KB
R1-1803641.zip	2018/04/06 18:22	143 KB
R1-1803642.zip	2018/04/06 18:03	173,5 KB
R1-1803643.zip	2018/04/06 18:03	55,5 KB
R1-1803644.zip	2018/04/06 18:03	60,1 KB
R1-1803645.zip	2018/04/06 18:03	72,3 KB
R1-1803646.zip	2018/04/06 18:03	54,1 KB
R1-1803647.zip	2018/04/06 18:03	96,5 KB
R1-1803648.zip	2018/04/06 18:03	82,4 KB
R1-1803649.zip	2018/04/06 18:03	76,8 KB
R1-1803650.zip	2018/04/07 2:53	77,3 KB
R1-1803651.zip	2018/04/07 2:53	165,3 KB
R1-1803652.zip	2018/04/07 2:53	172 KB
R1-1803653.zip	2018/04/07 2:53	226,8 KB
R1-1803654.zip	2018/04/07 2:53	170 KB
R1-1803655.zip	2018/04/07 2:53	147,7 KB
R1-1803656.zip	2018/04/07 2:53	102,8 KB
R1-1803657.zip	2018/04/07 2:50	285,2 KB
R1-1803658.zip	2018/04/07 2:50	220,1 KB
R1-1803659.zip	2018/04/07 2:50	148,1 KB
R1-1803660.zip	2018/04/07 2:50	292,8 KB
R1-1803661.zip	2018/04/07 2:50	288,3 KB
R1-1803662.zip	2018/04/07 2:50	60,9 KB
R1-1803663.zip	2018/04/07 3:49	242 KB
R1-1803664.zip	2018/04/07 5:19	316,5 KB
R1-1803665.zip	2018/04/07 3:49	1521,1 KB
R1-1803666.zip	2018/04/07 3:49	1474,2 KB
R1-1803667.zip	2018/04/07 3:49	757,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803668.zip	2018/04/07 3:49	221,8 KB
R1-1803669.zip	2018/04/07 3:49	85 KB
R1-1803670.zip	2018/04/06 18:03	216,7 KB
R1-1803671.zip	2018/04/06 18:03	406,1 KB
R1-1803672.zip	2018/04/06 18:03	570,8 KB
R1-1803673.zip	2018/04/06 18:03	650,7 KB
R1-1803674.zip	2018/04/06 18:03	121,9 KB
R1-1803675.zip	2018/04/06 18:03	135,3 KB
R1-1803676.zip	2018/04/06 18:03	35,6 KB
R1-1803677.zip	2018/04/06 18:03	179,3 KB
R1-1803678.zip	2018/04/06 18:03	473,2 KB
R1-1803679.zip	2018/04/06 18:03	246,1 KB
R1-1803680.zip	2018/04/06 18:03	70,6 KB
R1-1803681.zip	2018/04/06 18:03	1465,6 KB
R1-1803682.zip	2018/04/06 18:03	100,1 KB
R1-1803683.zip	2018/04/07 2:50	100 KB
R1-1803684.zip	2018/04/07 2:50	54,8 KB
R1-1803685.zip	2018/04/07 2:50	88 KB
R1-1803686.zip	2018/04/07 2:50	39,4 KB
R1-1803687.zip	2018/04/07 2:50	183,6 KB
R1-1803688.zip	2018/04/07 2:50	81,2 KB
R1-1803689.zip	2018/04/07 2:50	299,1 KB
R1-1803690.zip	2018/04/07 2:50	125,9 KB
R1-1803691.zip	2018/04/07 2:50	35,1 KB
R1-1803692.zip	2018/04/07 2:50	47,7 KB
R1-1803693.zip	2018/04/07 2:51	71,9 KB
R1-1803694.zip	2018/04/06 18:03	96,1 KB
R1-1803695.zip	2018/04/06 18:03	254,1 KB
R1-1803696.zip	2018/04/06 18:03	1618,4 KB
R1-1803697.zip	2018/04/06 18:03	143,5 KB
R1-1803698.zip	2018/04/07 2:51	83,2 KB
R1-1803699.zip	2018/04/06 18:03	167,4 KB
R1-1803700.zip	2018/04/06 18:22	67,1 KB
R1-1803701.zip	2018/04/06 18:22	79,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803702.zip	2018/04/07 2:53	28,3 KB
R1-1803703.zip	2018/04/07 2:52	116 KB
R1-1803704.zip	2018/04/06 18:22	40,9 KB
R1-1803705.zip	2018/04/06 18:22	84,2 KB
R1-1803706.zip	2018/04/06 18:22	85,9 KB
R1-1803707.zip	2018/04/06 18:04	142 KB
R1-1803708.zip	2018/04/07 2:53	46,3 KB
R1-1803709.zip	2018/04/07 2:53	162,3 KB
R1-1803710.zip	2018/04/07 2:51	62,8 KB
R1-1803711.zip	2018/04/05 22:51	115,2 KB
R1-1803712.zip	2018/04/05 22:51	85,9 KB
R1-1803713.zip	2018/04/05 22:51	30,4 KB
R1-1803714.zip	2018/04/05 22:51	47,6 KB
R1-1803715.zip	2018/04/05 22:51	95,2 KB
R1-1803716.zip	2018/04/05 22:51	30,9 KB
R1-1803717.zip	2018/04/05 22:51	56,6 KB
R1-1803718.zip	2018/04/05 22:51	82,7 KB
R1-1803719.zip	2018/04/05 22:51	69,4 KB
R1-1803720.zip	2018/04/05 22:51	84,7 KB
R1-1803721.zip	2018/04/05 22:51	43,8 KB
R1-1803722.zip	2018/04/07 5:53	11,3 KB
R1-1803723.zip	2018/04/07 5:53	105,8 KB
R1-1803724.zip	2018/04/07 5:53	73,5 KB
R1-1803725.zip	2018/04/07 5:53	187,3 KB
R1-1803726.zip	2018/04/07 5:53	29,7 KB
R1-1803727.zip	2018/04/07 5:53	55,5 KB
R1-1803728.zip	2018/04/07 5:53	51,9 KB
R1-1803729.zip	2018/04/07 5:53	64,6 KB
R1-1803730.zip	2018/04/07 5:53	145,5 KB
R1-1803731.zip	2018/04/18 0:04	162,2 KB
R1-1803732.zip	2018/04/07 5:53	187,1 KB
R1-1803733.zip	2018/04/07 5:53	64,7 KB
R1-1803734.zip	2018/04/07 5:53	30,8 KB
R1-1803735.zip	2018/04/07 5:53	69,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803736.zip	2018/04/07 5:53	234,1 KB
R1-1803738.zip	2018/04/07 5:53	130 KB
R1-1803739.zip	2018/04/07 5:53	136,1 KB
R1-1803740.zip	2018/04/07 5:53	52,3 KB
R1-1803741.zip	2018/04/07 5:53	34,5 KB
R1-1803742.zip	2018/04/07 5:53	81,6 KB
R1-1803743.zip	2018/04/07 5:53	84,6 KB
R1-1803744.zip	2018/04/07 5:53	31,7 KB
R1-1803745.zip	2018/04/07 5:53	36,5 KB
R1-1803746.zip	2018/04/07 5:53	153,3 KB
R1-1803747.zip	2018/04/07 5:53	54,4 KB
R1-1803748.zip	2018/04/07 5:53	206,1 KB
R1-1803749.zip	2018/04/07 5:54	151,1 KB
R1-1803750.zip	2018/04/07 5:54	61,8 KB
R1-1803751.zip	2018/04/07 6:01	1128,9 KB
R1-1803752.zip	2018/04/07 5:54	56,4 KB
R1-1803753.zip	2018/04/07 5:54	70,1 KB
R1-1803754.zip	2018/04/07 5:54	111 KB
R1-1803755.zip	2018/04/07 5:54	177,3 KB
R1-1803756.zip	2018/04/07 5:54	231 KB
R1-1803757.zip	2018/04/07 5:54	302,1 KB
R1-1803758.zip	2018/04/07 5:54	353,8 KB
R1-1803759.zip	2018/04/07 5:54	59,9 KB
R1-1803760.zip	2018/04/07 5:54	113,6 KB
R1-1803761.zip	2018/04/07 5:54	46,8 KB
R1-1803762.zip	2018/04/07 5:54	143,5 KB
R1-1803763.zip	2018/04/07 5:54	922,8 KB
R1-1803764.zip	2018/04/07 5:54	80,9 KB
R1-1803765.zip	2018/04/07 5:54	99,9 KB
R1-1803766.zip	2018/04/07 5:54	45,4 KB
R1-1803767.zip	2018/04/07 5:54	116,4 KB
R1-1803768.zip	2018/04/07 5:54	105,9 KB
R1-1803769.zip	2018/04/07 5:54	77,3 KB
R1-1803770.zip	2018/04/07 5:54	256,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803771.zip	2018/04/07 5:54	257,6 KB
R1-1803772.zip	2018/04/07 5:54	78,1 KB
R1-1803773.zip	2018/04/07 5:54	84,7 KB
R1-1803774.zip	2018/04/07 5:54	293,5 KB
R1-1803775.zip	2018/04/07 5:54	68,9 KB
R1-1803776.zip	2018/04/07 5:54	65,7 KB
R1-1803777.zip	2018/04/07 5:54	79,4 KB
R1-1803778.zip	2018/04/07 5:54	46,4 KB
R1-1803779.zip	2018/04/07 5:54	32,1 KB
R1-1803780.zip	2018/04/07 5:54	333,2 KB
R1-1803781.zip	2018/04/07 5:54	33,6 KB
R1-1803782.zip	2018/04/07 5:54	75,4 KB
R1-1803783.zip	2018/04/07 5:54	99,2 KB
R1-1803784.zip	2018/04/07 5:54	86,4 KB
R1-1803785.zip	2018/04/07 5:54	112,6 KB
R1-1803786.zip	2018/04/07 5:54	116,1 KB
R1-1803787.zip	2018/04/07 5:54	122,9 KB
R1-1803788.zip	2018/04/07 5:54	102,5 KB
R1-1803789.zip	2018/04/07 5:54	107,9 KB
R1-1803790.zip	2018/04/06 14:21	50,4 KB
R1-1803791.zip	2018/04/06 14:21	476,3 KB
R1-1803792.zip	2018/04/06 14:21	149,7 KB
R1-1803793.zip	2018/04/06 14:21	70,5 KB
R1-1803794.zip	2018/04/06 14:21	155,8 KB
R1-1803795.zip	2018/04/06 14:21	79,8 KB
R1-1803796.zip	2018/04/06 14:21	202,4 KB
R1-1803797.zip	2018/04/06 14:21	408,5 KB
R1-1803798.zip	2018/04/06 14:21	33,5 KB
R1-1803799.zip	2018/04/06 14:21	45 KB
R1-1803800.zip	2018/04/06 14:21	219,4 KB
R1-1803801.zip	2018/04/06 14:21	294,7 KB
R1-1803802.zip	2018/04/06 14:21	130,6 KB
R1-1803803.zip	2018/04/06 14:21	242,9 KB
R1-1803804.zip	2018/04/06 7:18	138,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803805.zip	2018/04/06 7:18	127,5 KB
R1-1803806.zip	2018/04/06 7:18	558,8 KB
R1-1803807.zip	2018/04/06 7:18	59,4 KB
R1-1803808.zip	2018/04/06 7:18	94,3 KB
R1-1803809.zip	2018/04/06 7:18	68,1 KB
R1-1803810.zip	2018/04/06 7:18	39,2 KB
R1-1803811.zip	2018/04/06 7:18	39,5 KB
R1-1803812.zip	2018/04/06 7:18	33,1 KB
R1-1803813.zip	2018/04/06 7:19	34 KB
R1-1803814.zip	2018/04/06 7:19	36,8 KB
R1-1803815.zip	2018/04/06 7:19	68,1 KB
R1-1803816.zip	2018/04/06 7:19	207,5 KB
R1-1803817.zip	2018/04/06 7:19	43,2 KB
R1-1803818.zip	2018/04/06 7:19	46,2 KB
R1-1803819.zip	2018/04/06 7:19	47,7 KB
R1-1803820.zip	2018/04/06 7:19	41,9 KB
R1-1803821.zip	2018/04/06 7:19	71,1 KB
R1-1803822.zip	2018/04/06 7:19	119,8 KB
R1-1803823.zip	2018/04/06 7:19	162,5 KB
R1-1803824.zip	2018/04/06 7:19	133,6 KB
R1-1803825.zip	2018/04/06 7:19	42,5 KB
R1-1803826.zip	2018/04/06 7:19	83,3 KB
R1-1803827.zip	2018/04/06 7:19	37,8 KB
R1-1803828.zip	2018/04/06 7:19	85,6 KB
R1-1803829.zip	2018/04/06 7:19	75,8 KB
R1-1803830.zip	2018/04/06 7:19	122,3 KB
R1-1803831.zip	2018/04/06 7:19	70,1 KB
R1-1803832.zip	2018/04/06 7:19	233 KB
R1-1803833.zip	2018/04/06 7:19	42,9 KB
R1-1803834.zip	2018/04/06 7:19	61 KB
R1-1803835.zip	2018/04/06 7:19	120,7 KB
R1-1803836.zip	2018/04/06 7:19	97,6 KB
R1-1803837.zip	2018/04/06 7:19	62,6 KB
R1-1803838.zip	2018/04/06 7:19	76,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803839.zip	2018/04/06 7:19	36,5 KB
R1-1803840.zip	2018/04/06 7:19	88,5 KB
R1-1803841.zip	2018/04/06 7:19	80,3 KB
R1-1803842.zip	2018/04/06 7:19	74,6 KB
R1-1803843.zip	2018/04/06 7:19	38 KB
R1-1803844.zip	2018/04/06 7:19	149,9 KB
R1-1803845.zip	2018/04/06 7:19	86,3 KB
R1-1803846.zip	2018/04/06 7:19	164,2 KB
R1-1803847.zip	2018/04/06 7:19	140,1 KB
R1-1803848.zip	2018/04/06 7:19	168,1 KB
R1-1803849.zip	2018/04/06 7:19	57,8 KB
R1-1803850.zip	2018/04/06 7:19	99,9 KB
R1-1803851.zip	2018/04/06 7:19	123,9 KB
R1-1803852.zip	2018/04/06 7:19	56,5 KB
R1-1803853.zip	2018/04/06 7:19	63,6 KB
R1-1803854.zip	2018/04/06 7:19	47,6 KB
R1-1803855.zip	2018/04/06 7:19	51,6 KB
R1-1803856.zip	2018/04/06 7:19	83,2 KB
R1-1803857.zip	2018/04/06 7:19	313,5 KB
R1-1803858.zip	2018/04/06 7:19	112 KB
R1-1803859.zip	2018/04/06 7:19	252,3 KB
R1-1803860.zip	2018/04/06 7:19	65 KB
R1-1803861.zip	2018/04/02 7:03	2735,8 KB
R1-1803862.zip	2018/04/02 7:16	285,4 KB
R1-1803863.zip	2018/04/02 7:20	829,7 KB
R1-1803864.zip	2018/04/02 7:28	76 KB
R1-1803865.zip	2018/04/15 9:05	1035,6 KB
R1-1803866.zip	2018/04/06 22:37	102,1 KB
R1-1803867.zip	2018/04/06 22:37	94,4 KB
R1-1803868.zip	2018/04/06 22:37	795,5 KB
R1-1803869.zip	2018/04/06 22:37	88,8 KB
R1-1803870.zip	2018/04/06 22:37	44,9 KB
R1-1803871.zip	2018/04/06 22:37	78,5 KB
R1-1803872.zip	2018/04/06 22:37	55,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803873.zip	2018/04/06 22:37	54,1 KB
R1-1803874.zip	2018/04/06 22:37	174,7 KB
R1-1803875.zip	2018/04/06 22:37	28,7 KB
R1-1803876.zip	2018/04/06 22:37	48,1 KB
R1-1803877.zip	2018/04/06 22:37	639,7 KB
R1-1803878.zip	2018/04/06 22:37	172,6 KB
R1-1803879.zip	2018/04/06 22:37	127,3 KB
R1-1803880.zip	2018/04/06 22:37	104,1 KB
R1-1803881.zip	2018/04/06 22:37	97,9 KB
R1-1803882.zip	2018/04/06 22:37	25,3 KB
R1-1803883.zip	2018/04/06 22:37	85 KB
R1-1803884.zip	2018/04/06 22:37	71,1 KB
R1-1803885.zip	2018/04/06 22:37	114,6 KB
R1-1803886.zip	2018/04/06 22:37	121,7 KB
R1-1803887.zip	2018/04/06 22:37	179,6 KB
R1-1803888.zip	2018/04/06 22:37	165,5 KB
R1-1803889.zip	2018/04/06 22:37	158 KB
R1-1803890.zip	2018/04/06 22:27	64,4 KB
R1-1803891.zip	2018/04/06 22:27	64,6 KB
R1-1803892.zip	2018/04/06 22:27	124,8 KB
R1-1803893.zip	2018/04/06 22:27	102,5 KB
R1-1803894.zip	2018/04/06 22:27	43,8 KB
R1-1803895.zip	2018/04/06 22:27	37,1 KB
R1-1803896.zip	2018/04/06 22:27	101,9 KB
R1-1803897.zip	2018/04/06 22:27	307,4 KB
R1-1803898.zip	2018/04/06 22:27	41,5 KB
R1-1803899.zip	2018/04/06 22:27	32,9 KB
R1-1803900.zip	2018/04/06 17:17	132,2 KB
R1-1803901.zip	2018/04/02 22:39	469,3 KB
R1-1803902.zip	2018/04/02 22:39	1894,7 KB
R1-1803903.zip	2018/04/02 22:40	768,9 KB
R1-1803904.zip	2018/04/02 22:40	620,7 KB
R1-1803905.zip	2018/04/07 5:18	36,2 KB
R1-1803906.zip	2018/04/07 5:18	101,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803907.zip	2018/04/07 5:18	44,3 KB
R1-1803908.zip	2018/04/07 5:18	176,2 KB
R1-1803909.zip	2018/04/07 5:18	101,1 KB
R1-1803910.zip	2018/04/07 5:18	42,9 KB
R1-1803911.zip	2018/04/07 5:18	120,1 KB
R1-1803912.zip	2018/04/07 5:18	98,5 KB
R1-1803913.zip	2018/04/07 5:18	91,5 KB
R1-1803914.zip	2018/04/07 5:18	92 KB
R1-1803915.zip	2018/04/07 5:18	210,3 KB
R1-1803916.zip	2018/04/07 5:18	188 KB
R1-1803917.zip	2018/04/07 5:18	98,5 KB
R1-1803918.zip	2018/04/06 20:01	54,2 KB
R1-1803919.zip	2018/04/07 6:40	278,4 KB
R1-1803920.zip	2018/04/07 6:40	582,6 KB
R1-1803921.zip	2018/04/07 6:40	311,1 KB
R1-1803922.zip	2018/04/07 6:40	55,1 KB
R1-1803923.zip	2018/04/07 6:40	221,4 KB
R1-1803924.zip	2018/04/07 6:40	32,5 KB
R1-1803925.zip	2018/04/07 6:40	434 KB
R1-1803926.zip	2018/04/07 6:40	382,1 KB
R1-1803927.zip	2018/04/07 6:40	33,8 KB
R1-1803928.zip	2018/04/07 6:40	526,7 KB
R1-1803929.zip	2018/04/07 6:40	76,9 KB
R1-1803930.zip	2018/04/07 6:40	33,9 KB
R1-1803931.zip	2018/04/07 6:40	36,6 KB
R1-1803932.zip	2018/04/07 6:40	215,1 KB
R1-1803933.zip	2018/04/07 6:40	87 KB
R1-1803936.zip	2018/04/07 6:40	37,9 KB
R1-1803937.zip	2018/04/07 5:20	176,5 KB
R1-1803938.zip	2018/04/07 5:20	35,6 KB
R1-1803939.zip	2018/04/06 17:20	124,5 KB
R1-1803940.zip	2018/04/06 17:20	120,8 KB
R1-1803941.zip	2018/04/06 17:20	191,5 KB
R1-1803943.zip	2018/04/06 17:20	162 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803944.zip	2018/04/06 17:21	121,7 KB
R1-1803945.zip	2018/04/06 17:21	265,6 KB
R1-1803946.zip	2018/04/06 17:21	98 KB
R1-1803947.zip	2018/04/06 17:20	92,9 KB
R1-1803948.zip	2018/04/07 1:22	209 KB
R1-1803949.zip	2018/04/07 1:22	166 KB
R1-1803951.zip	2018/04/07 1:22	253 KB
R1-1803952.zip	2018/04/07 1:22	158,3 KB
R1-1803953.zip	2018/04/06 5:01	54,8 KB
R1-1803954.zip	2018/04/03 4:02	262,3 KB
R1-1803955.zip	2018/04/05 22:51	84,6 KB
R1-1803956.zip	2018/04/05 22:51	57,6 KB
R1-1803957.zip	2018/04/05 22:51	125,9 KB
R1-1803958.zip	2018/04/05 22:51	78,7 KB
R1-1803959.zip	2018/04/05 22:51	46,3 KB
R1-1803960.zip	2018/04/18 0:16	367 KB
R1-1803961.zip	2018/04/05 0:22	74 KB
R1-1803962.zip	2018/04/06 13:28	74,7 KB
R1-1803963.zip	2018/04/06 13:28	143,2 KB
R1-1803964.zip	2018/04/03 9:16	167,6 KB
R1-1803965.zip	2018/04/03 9:16	245,4 KB
R1-1803966.zip	2018/04/03 9:16	39,9 KB
R1-1803967.zip	2018/04/06 14:10	85,7 KB
R1-1803968.zip	2018/04/06 14:10	81 KB
R1-1803969.zip	2018/04/06 14:10	26,3 KB
R1-1803970.zip	2018/04/06 14:10	71,6 KB
R1-1803971.zip	2018/04/06 14:10	31,6 KB
R1-1803972.zip	2018/04/06 14:10	59,5 KB
R1-1803973.zip	2018/04/06 14:10	100,3 KB
R1-1803974.zip	2018/04/06 14:10	61,7 KB
R1-1803975.zip	2018/04/06 14:10	76,8 KB
R1-1803976.zip	2018/04/06 14:10	22,5 KB
R1-1803977.zip	2018/04/06 14:10	114 KB
R1-1803978.zip	2018/04/06 14:10	108,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1803979.zip	2018/04/06 14:26	95,3 KB
R1-1803980.zip	2018/04/06 14:10	171,3 KB
R1-1803981.zip	2018/04/06 14:10	34,8 KB
R1-1803982.zip	2018/04/06 14:10	142,6 KB
R1-1803983.zip	2018/04/06 14:10	19,9 KB
R1-1803984.zip	2018/04/06 14:10	103,2 KB
R1-1803985.zip	2018/04/06 14:10	18,1 KB
R1-1803986.zip	2018/04/06 14:10	60,4 KB
R1-1803987.zip	2018/04/06 14:10	57,9 KB
R1-1803988.zip	2018/04/06 14:10	102,2 KB
R1-1803989.zip	2018/04/06 14:10	112,5 KB
R1-1803990.zip	2018/04/06 14:10	349,1 KB
R1-1803991.zip	2018/04/06 14:26	38 KB
R1-1803992.zip	2018/04/06 14:26	36,4 KB
R1-1803993.zip	2018/04/06 14:26	36,6 KB
R1-1803994.zip	2018/04/06 14:26	99,6 KB
R1-1803995.zip	2018/04/06 14:26	15,3 KB
R1-1803996.zip	2018/04/06 14:26	22,2 KB
R1-1803997.zip	2018/04/06 14:10	37,4 KB
R1-1803998.zip	2018/04/06 14:10	28,1 KB
R1-1803999.zip	2018/04/06 14:10	51,5 KB
R1-1804000.zip	2018/04/06 14:10	46,9 KB
R1-1804001.zip	2018/04/06 14:10	45,2 KB
R1-1804002.zip	2018/04/06 14:10	32,4 KB
R1-1804003.zip	2018/04/06 14:10	40,5 KB
R1-1804004.zip	2018/04/06 14:10	39,3 KB
R1-1804005.zip	2018/04/06 14:11	285,5 KB
R1-1804006.zip	2018/04/06 14:11	128,7 KB
R1-1804007.zip	2018/04/06 14:11	132,2 KB
R1-1804008.zip	2018/04/06 14:11	159,7 KB
R1-1804009.zip	2018/04/06 14:11	36,3 KB
R1-1804010.zip	2018/04/06 14:11	21,5 KB
R1-1804011.zip	2018/04/06 14:11	17,5 KB
R1-1804012.zip	2018/04/06 14:11	138,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804013.zip	2018/04/06 14:11	386,1 KB
R1-1804014.zip	2018/04/06 14:11	90,8 KB
R1-1804015.zip	2018/04/06 14:11	28,6 KB
R1-1804016.zip	2018/04/06 14:11	17,5 KB
R1-1804017.zip	2018/04/06 14:11	129 KB
R1-1804018.zip	2018/04/03 9:59	98 KB
R1-1804019.zip	2018/04/03 9:59	50,6 KB
R1-1804020.zip	2018/04/03 9:59	43,6 KB
R1-1804021.zip	2018/04/03 9:59	345 KB
R1-1804022.zip	2018/04/06 14:11	20,5 KB
R1-1804023.zip	2018/04/06 14:11	37,6 KB
R1-1804024.zip	2018/04/06 17:21	82,7 KB
R1-1804025.zip	2018/04/06 17:21	202,7 KB
R1-1804026.zip	2018/04/06 17:21	703,5 KB
R1-1804027.zip	2018/04/06 17:21	367,2 KB
R1-1804028.zip	2018/04/06 17:21	200,4 KB
R1-1804029.zip	2018/04/06 17:21	399,2 KB
R1-1804030.zip	2018/04/06 17:21	327,3 KB
R1-1804031.zip	2018/04/03 10:20	36,8 KB
R1-1804032.zip	2018/04/03 10:20	135,1 KB
R1-1804033.zip	2018/04/03 10:20	33,3 KB
R1-1804034.zip	2018/04/03 10:20	88,5 KB
R1-1804035.zip	2018/04/03 11:28	27,2 KB
R1-1804036.zip	2018/04/03 11:28	28 KB
R1-1804037.zip	2018/04/03 11:28	22,2 KB
R1-1804038.zip	2018/04/06 19:40	277,1 KB
R1-1804039.zip	2018/04/06 0:55	29,4 KB
R1-1804040.zip	2018/04/06 19:40	146,8 KB
R1-1804041.zip	2018/04/07 6:12	119,9 KB
R1-1804042.zip	2018/04/07 6:12	58,3 KB
R1-1804043.zip	2018/04/07 6:12	177,2 KB
R1-1804044.zip	2018/04/07 6:12	118,6 KB
R1-1804045.zip	2018/04/07 6:12	154 KB
R1-1804046.zip	2018/04/07 6:12	538,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804047.zip	2018/04/07 6:12	185,8 KB
R1-1804048.zip	2018/04/07 6:12	145,2 KB
R1-1804049.zip	2018/04/07 6:12	88,9 KB
R1-1804050.zip	2018/04/07 6:12	26,3 KB
R1-1804051.zip	2018/04/07 6:12	27,8 KB
R1-1804052.zip	2018/04/07 6:12	35,8 KB
R1-1804053.zip	2018/04/07 6:12	42,2 KB
R1-1804054.zip	2018/04/07 6:12	48,9 KB
R1-1804055.zip	2018/04/07 6:13	149,5 KB
R1-1804056.zip	2018/04/07 6:13	239,7 KB
R1-1804057.zip	2018/04/07 6:13	93,8 KB
R1-1804058.zip	2018/04/07 6:13	185,4 KB
R1-1804059.zip	2018/04/07 6:13	36,5 KB
R1-1804060.zip	2018/04/07 6:13	26,7 KB
R1-1804061.zip	2018/04/07 6:13	48,1 KB
R1-1804062.zip	2018/04/07 6:13	74,9 KB
R1-1804063.zip	2018/04/07 6:13	34,9 KB
R1-1804064.zip	2018/04/07 6:13	136,4 KB
R1-1804065.zip	2018/04/07 6:13	158 KB
R1-1804066.zip	2018/04/07 6:13	809,8 KB
R1-1804067.zip	2018/04/07 6:13	137,1 KB
R1-1804068.zip	2018/04/07 6:13	225,2 KB
R1-1804069.zip	2018/04/07 6:13	217,2 KB
R1-1804070.zip	2018/04/07 6:13	355,2 KB
R1-1804071.zip	2018/04/07 6:13	341,6 KB
R1-1804072.zip	2018/04/07 6:13	59,7 KB
R1-1804073.zip	2018/04/07 6:13	58,7 KB
R1-1804074.zip	2018/04/07 6:13	319,5 KB
R1-1804075.zip	2018/04/07 6:14	96,3 KB
R1-1804076.zip	2018/04/07 6:14	526,9 KB
R1-1804077.zip	2018/04/07 6:14	70,6 KB
R1-1804078.zip	2018/04/07 6:14	122,6 KB
R1-1804079.zip	2018/04/07 6:14	353,1 KB
R1-1804080.zip	2018/04/07 6:14	174,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804081.zip	2018/04/07 6:14	161,1 KB
R1-1804082.zip	2018/04/07 6:14	56,2 KB
R1-1804083.zip	2018/04/07 6:14	417,1 KB
R1-1804084.zip	2018/04/03 11:54	23,6 KB
R1-1804085.zip	2018/04/03 11:17	25 KB
R1-1804086.zip	2018/04/03 11:54	25,7 KB
R1-1804087.zip	2018/04/07 2:42	41,7 KB
R1-1804088.zip	2018/04/07 2:42	845,6 KB
R1-1804089.zip	2018/04/07 2:42	31,7 KB
R1-1804090.zip	2018/04/07 2:42	111 KB
R1-1804091.zip	2018/04/07 2:42	70,5 KB
R1-1804092.zip	2018/04/07 2:43	93,5 KB
R1-1804093.zip	2018/04/07 2:43	42,9 KB
R1-1804094.zip	2018/04/07 2:43	25,8 KB
R1-1804095.zip	2018/04/07 2:43	54 KB
R1-1804096.zip	2018/04/07 2:43	50,1 KB
R1-1804097.zip	2018/04/07 2:43	67,8 KB
R1-1804098.zip	2018/04/07 2:43	93,3 KB
R1-1804099.zip	2018/04/07 2:43	135,9 KB
R1-1804100.zip	2018/04/07 2:43	216,6 KB
R1-1804101.zip	2018/04/07 2:43	123,8 KB
R1-1804102.zip	2018/04/07 2:43	63,5 KB
R1-1804103.zip	2018/04/07 2:43	207,2 KB
R1-1804104.zip	2018/04/07 2:43	54,9 KB
R1-1804105.zip	2018/04/07 2:43	56,4 KB
R1-1804106.zip	2018/04/07 2:43	76,3 KB
R1-1804107.zip	2018/04/07 2:43	60,4 KB
R1-1804108.zip	2018/04/07 2:43	171,9 KB
R1-1804109.zip	2018/04/07 2:43	57,4 KB
R1-1804110.zip	2018/04/07 2:43	34,6 KB
R1-1804111.zip	2018/04/07 2:43	609,2 KB
R1-1804112.zip	2018/04/07 2:43	464,8 KB
R1-1804113.zip	2018/04/07 2:43	288,2 KB
R1-1804114.zip	2018/04/07 2:43	74,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804115.zip	2018/04/06 14:56	92,4 KB
R1-1804116.zip	2018/04/06 14:56	83 KB
R1-1804117.zip	2018/04/06 14:56	107,7 KB
R1-1804118.zip	2018/04/07 3:10	25,9 KB
R1-1804119.zip	2018/04/07 5:31	13,3 KB
R1-1804120.zip	2018/04/07 5:31	109 KB
R1-1804121.zip	2018/04/07 5:31	91,2 KB
R1-1804122.zip	2018/04/07 5:31	45,4 KB
R1-1804123.zip	2018/04/07 5:31	58,1 KB
R1-1804124.zip	2018/04/07 5:31	1005 KB
R1-1804125.zip	2018/04/07 5:31	593,2 KB
R1-1804126.zip	2018/04/07 5:31	32,2 KB
R1-1804127.zip	2018/04/06 14:39	53,7 KB
R1-1804128.zip	2018/04/06 14:39	117,2 KB
R1-1804129.zip	2018/04/06 14:39	36,1 KB
R1-1804130.zip	2018/04/06 14:39	53,4 KB
R1-1804131.zip	2018/04/06 14:39	295,4 KB
R1-1804132.zip	2018/04/06 14:39	41 KB
R1-1804133.zip	2018/04/06 14:39	35,4 KB
R1-1804134.zip	2018/04/03 18:56	27 KB
R1-1804135.zip	2018/04/03 18:59	63 KB
R1-1804136.zip	2018/04/03 19:59	489 KB
R1-1804137.zip	2018/04/06 14:38	348,6 KB
R1-1804138.zip	2018/04/04 13:48	100,7 KB
R1-1804139.zip	2018/04/05 8:32	361,8 KB
R1-1804140.zip	2018/04/06 23:12	177,4 KB
R1-1804141.zip	2018/04/04 14:18	40,6 KB
R1-1804142.zip	2018/04/04 14:19	21,7 KB
R1-1804143.zip	2018/04/03 19:36	49,3 KB
R1-1804144.zip	2018/04/03 19:01	43 KB
R1-1804145.zip	2018/04/03 22:36	115,8 KB
R1-1804146.zip	2018/04/06 22:37	45,6 KB
R1-1804147.zip	2018/04/06 22:37	586,4 KB
R1-1804148.zip	2018/04/06 22:37	21,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804149.zip	2018/04/06 22:38	62,8 KB
R1-1804150.zip	2018/04/06 22:38	35 KB
R1-1804151.zip	2018/04/06 22:37	44,5 KB
R1-1804152.zip	2018/04/06 21:11	46 KB
R1-1804153.zip	2018/04/06 21:11	70,7 KB
R1-1804154.zip	2018/04/06 21:11	74,3 KB
R1-1804155.zip	2018/04/06 21:11	80,7 KB
R1-1804156.zip	2018/04/06 21:11	94,8 KB
R1-1804157.zip	2018/04/06 21:11	64,6 KB
R1-1804158.zip	2018/04/06 21:11	29 KB
R1-1804159.zip	2018/04/06 21:11	265,9 KB
R1-1804160.zip	2018/04/06 21:11	87,7 KB
R1-1804161.zip	2018/04/06 21:11	48,5 KB
R1-1804162.zip	2018/04/06 21:11	231 KB
R1-1804163.zip	2018/04/06 21:11	81,4 KB
R1-1804164.zip	2018/04/06 21:11	121,5 KB
R1-1804165.zip	2018/04/06 21:11	247,3 KB
R1-1804166.zip	2018/04/06 21:11	154,9 KB
R1-1804167.zip	2018/04/06 21:11	116,7 KB
R1-1804168.zip	2018/04/06 21:11	121,4 KB
R1-1804169.zip	2018/04/06 18:11	276,4 KB
R1-1804170.zip	2018/04/06 18:12	136,2 KB
R1-1804171.zip	2018/04/06 18:12	130,6 KB
R1-1804172.zip	2018/04/07 3:54	68,7 KB
R1-1804173.zip	2018/04/06 14:21	83,9 KB
R1-1804174.zip	2018/04/06 19:57	90,4 KB
R1-1804175.zip	2018/04/06 19:57	99 KB
R1-1804176.zip	2018/04/06 19:57	67,2 KB
R1-1804177.zip	2018/04/06 19:57	283,9 KB
R1-1804178.zip	2018/04/06 19:57	59,4 KB
R1-1804179.zip	2018/04/06 19:57	60,5 KB
R1-1804180.zip	2018/04/06 19:58	55,6 KB
R1-1804181.zip	2018/04/06 19:58	63,1 KB
R1-1804182.zip	2018/04/06 19:58	323,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804183.zip	2018/04/06 20:30	302,6 KB
R1-1804184.zip	2018/04/06 19:58	204,9 KB
R1-1804185.zip	2018/04/06 19:58	57,1 KB
R1-1804186.zip	2018/04/06 20:30	127,5 KB
R1-1804187.zip	2018/04/06 20:30	70,8 KB
R1-1804188.zip	2018/04/06 20:30	71,8 KB
R1-1804189.zip	2018/04/06 20:30	114,9 KB
R1-1804190.zip	2018/04/06 20:30	61,8 KB
R1-1804191.zip	2018/04/06 20:30	91,5 KB
R1-1804192.zip	2018/04/06 20:30	67,3 KB
R1-1804193.zip	2018/04/06 20:30	85 KB
R1-1804194.zip	2018/04/06 20:30	96,3 KB
R1-1804195.zip	2018/04/06 20:30	57,2 KB
R1-1804196.zip	2018/04/06 19:58	32,3 KB
R1-1804197.zip	2018/04/06 15:13	73,1 KB
R1-1804198.zip	2018/04/06 15:13	61,1 KB
R1-1804199.zip	2018/04/06 15:13	68,9 KB
R1-1804200.zip	2018/04/06 15:13	201,9 KB
R1-1804201.zip	2018/04/06 15:13	324,3 KB
R1-1804202.zip	2018/04/06 15:13	59,9 KB
R1-1804203.zip	2018/04/06 15:13	64,1 KB
R1-1804204.zip	2018/04/06 15:13	84,1 KB
R1-1804205.zip	2018/04/06 15:13	69,3 KB
R1-1804206.zip	2018/04/06 15:13	86,3 KB
R1-1804207.zip	2018/04/06 15:13	46,7 KB
R1-1804208.zip	2018/04/06 15:13	101,5 KB
R1-1804209.zip	2018/04/06 15:13	44,7 KB
R1-1804210.zip	2018/04/06 15:13	71,9 KB
R1-1804211.zip	2018/04/06 15:13	71,2 KB
R1-1804212.zip	2018/04/06 15:13	77,7 KB
R1-1804213.zip	2018/04/06 15:13	74,9 KB
R1-1804214.zip	2018/04/06 11:27	56,2 KB
R1-1804215.zip	2018/04/06 11:27	98,6 KB
R1-1804216.zip	2018/04/06 11:27	117,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804217.zip	2018/04/06 11:27	69,8 KB
R1-1804218.zip	2018/04/06 11:27	79,6 KB
R1-1804219.zip	2018/04/06 11:28	74,1 KB
R1-1804220.zip	2018/04/06 11:28	70 KB
R1-1804221.zip	2018/04/06 11:28	112,3 KB
R1-1804222.zip	2018/04/06 11:28	102,9 KB
R1-1804223.zip	2018/04/06 11:28	72,2 KB
R1-1804224.zip	2018/04/06 11:28	126 KB
R1-1804225.zip	2018/04/06 11:29	79,6 KB
R1-1804226.zip	2018/04/06 11:29	180,2 KB
R1-1804227.zip	2018/04/06 11:29	105,9 KB
R1-1804228.zip	2018/04/06 11:29	130,2 KB
R1-1804229.zip	2018/04/06 11:29	55,2 KB
R1-1804230.zip	2018/04/06 11:29	30,2 KB
R1-1804231.zip	2018/04/06 11:30	71,2 KB
R1-1804232.zip	2018/04/06 11:30	154,2 KB
R1-1804233.zip	2018/04/06 5:29	28,8 KB
R1-1804234.zip	2018/04/06 5:29	30,7 KB
R1-1804235.zip	2018/04/06 7:58	309,1 KB
R1-1804236.zip	2018/04/06 7:58	63,3 KB
R1-1804237.zip	2018/04/06 7:58	39 KB
R1-1804238.zip	2018/04/06 15:06	43,2 KB
R1-1804239.zip	2018/04/06 15:07	47,1 KB
R1-1804240.zip	2018/04/04 9:01	26,3 KB
R1-1804241.zip	2018/04/04 9:01	54,2 KB
R1-1804242.zip	2018/04/04 9:01	74 KB
R1-1804243.zip	2018/04/06 15:06	135,3 KB
R1-1804244.zip	2018/04/06 15:06	33,4 KB
R1-1804245.zip	2018/04/06 15:07	46,1 KB
R1-1804246.zip	2018/04/06 15:07	37,9 KB
R1-1804247.zip	2018/04/06 15:06	31,7 KB
R1-1804248.zip	2018/04/06 15:06	36,6 KB
R1-1804249.zip	2018/04/06 15:06	57,6 KB
R1-1804250.zip	2018/04/06 15:06	119,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804251.zip	2018/04/06 15:07	67,5 KB
R1-1804252.zip	2018/04/06 15:07	42,4 KB
R1-1804253.zip	2018/04/06 15:07	37,2 KB
R1-1804254.zip	2018/04/06 15:06	39,3 KB
R1-1804255.zip	2018/04/06 15:06	68,4 KB
R1-1804256.zip	2018/04/07 4:32	69,8 KB
R1-1804257.zip	2018/04/07 4:32	33,9 KB
R1-1804258.zip	2018/04/07 4:32	89,7 KB
R1-1804259.zip	2018/04/07 4:32	70,5 KB
R1-1804260.zip	2018/04/07 4:32	70,3 KB
R1-1804261.zip	2018/04/07 4:32	136,6 KB
R1-1804262.zip	2018/04/07 4:32	56,2 KB
R1-1804263.zip	2018/04/07 4:32	31,2 KB
R1-1804264.zip	2018/04/06 15:07	37,2 KB
R1-1804265.zip	2018/04/06 15:06	224,4 KB
R1-1804266.zip	2018/04/06 15:07	36,7 KB
R1-1804267.zip	2018/04/06 7:19	43,8 KB
R1-1804268.zip	2018/04/06 15:07	35,5 KB
R1-1804269.zip	2018/04/06 15:05	142,9 KB
R1-1804270.zip	2018/04/06 15:05	106,1 KB
R1-1804271.zip	2018/04/06 15:05	65,7 KB
R1-1804272.zip	2018/04/06 15:07	50,6 KB
R1-1804273.zip	2018/04/06 8:31	59,3 KB
R1-1804274.zip	2018/04/06 16:43	92 KB
R1-1804275.zip	2018/04/06 16:43	72,6 KB
R1-1804276.zip	2018/04/06 16:43	242,3 KB
R1-1804277.zip	2018/04/06 16:43	109,3 KB
R1-1804278.zip	2018/04/06 18:22	81,9 KB
R1-1804279.zip	2018/04/06 18:03	58 KB
R1-1804280.zip	2018/04/07 2:53	47,9 KB
R1-1804281.zip	2018/04/07 2:53	54,9 KB
R1-1804282.zip	2018/04/07 2:53	18,9 KB
R1-1804283.zip	2018/04/07 2:53	155,8 KB
R1-1804284.zip	2018/04/07 2:53	67,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804285.zip	2018/04/07 2:53	93,5 KB
R1-1804286.zip	2018/04/07 2:53	100,7 KB
R1-1804287.zip	2018/04/07 2:53	96,2 KB
R1-1804288.zip	2018/04/07 2:53	99,8 KB
R1-1804289.zip	2018/04/07 2:51	90,2 KB
R1-1804290.zip	2018/04/07 2:51	142,9 KB
R1-1804291.zip	2018/04/07 2:51	73,9 KB
R1-1804292.zip	2018/04/07 3:55	680,6 KB
R1-1804293.zip	2018/04/07 2:51	82 KB
R1-1804294.zip	2018/04/07 2:51	95,5 KB
R1-1804295.zip	2018/04/07 2:51	98,7 KB
R1-1804296.zip	2018/04/07 2:51	158,1 KB
R1-1804297.zip	2018/04/07 2:51	71,5 KB
R1-1804298.zip	2018/04/06 18:03	2177,7 KB
R1-1804299.zip	2018/04/06 18:04	145 KB
R1-1804300.zip	2018/04/07 4:25	374,5 KB
R1-1804301.zip	2018/04/07 2:51	65,2 KB
R1-1804302.zip	2018/04/07 2:51	70,6 KB
R1-1804303.zip	2018/04/06 18:04	425,2 KB
R1-1804304.zip	2018/04/06 18:04	181,7 KB
R1-1804305.zip	2018/04/07 5:29	159,4 KB
R1-1804307.zip	2018/04/07 2:53	46,5 KB
R1-1804308.zip	2018/04/07 2:53	198,8 KB
R1-1804309.zip	2018/04/07 2:53	82,6 KB
R1-1804311.zip	2018/04/07 2:53	33,7 KB
R1-1804312.zip	2018/04/07 2:51	26,8 KB
R1-1804313.zip	2018/04/06 16:43	111,1 KB
R1-1804314.zip	2018/04/06 16:43	91,1 KB
R1-1804315.zip	2018/04/07 3:52	26 KB
R1-1804316.zip	2018/04/07 3:52	52,7 KB
R1-1804317.zip	2018/04/07 3:52	51,4 KB
R1-1804318.zip	2018/04/06 9:30	187 KB
R1-1804319.zip	2018/04/06 9:30	58 KB
R1-1804320.zip	2018/04/06 9:30	62,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804321.zip	2018/04/06 18:15	42,6 KB
R1-1804322.zip	2018/04/06 9:30	533,5 KB
R1-1804323.zip	2018/04/06 9:30	113,1 KB
R1-1804324.zip	2018/04/06 19:53	79,3 KB
R1-1804325.zip	2018/04/07 3:52	95,1 KB
R1-1804326.zip	2018/04/06 19:53	98 KB
R1-1804327.zip	2018/04/07 3:52	319,6 KB
R1-1804328.zip	2018/04/07 3:52	150,1 KB
R1-1804329.zip	2018/04/07 3:52	212,1 KB
R1-1804330.zip	2018/04/07 3:52	70,9 KB
R1-1804331.zip	2018/04/06 19:53	73,6 KB
R1-1804332.zip	2018/04/07 3:52	79,2 KB
R1-1804333.zip	2018/04/07 3:52	163,8 KB
R1-1804334.zip	2018/04/07 3:52	90,8 KB
R1-1804335.zip	2018/04/07 3:52	39,7 KB
R1-1804336.zip	2018/04/07 3:52	371,6 KB
R1-1804337.zip	2018/04/07 3:52	154,9 KB
R1-1804338.zip	2018/04/07 3:53	231 KB
R1-1804339.zip	2018/04/07 3:53	68,1 KB
R1-1804340.zip	2018/04/07 3:53	90,7 KB
R1-1804341.zip	2018/04/07 3:53	158,4 KB
R1-1804342.zip	2018/04/07 3:53	286 KB
R1-1804343.zip	2018/04/06 16:34	69,8 KB
R1-1804344.zip	2018/04/06 16:34	124,3 KB
R1-1804345.zip	2018/04/06 16:34	92 KB
R1-1804346.zip	2018/04/06 8:14	52,9 KB
R1-1804347.zip	2018/04/06 16:34	89,3 KB
R1-1804348.zip	2018/04/07 3:53	81,2 KB
R1-1804349.zip	2018/04/07 3:53	93,8 KB
R1-1804350.zip	2018/04/06 8:14	47,1 KB
R1-1804351.zip	2018/04/06 8:14	44,9 KB
R1-1804352.zip	2018/04/07 3:53	132,7 KB
R1-1804353.zip	2018/04/06 19:47	35,5 KB
R1-1804354.zip	2018/04/18 0:06	49 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804355.zip	2018/04/06 19:53	37,6 KB
R1-1804356.zip	2018/04/06 19:47	42,1 KB
R1-1804357.zip	2018/04/06 19:53	57,2 KB
R1-1804358.zip	2018/04/06 18:15	66,6 KB
R1-1804359.zip	2018/04/06 18:15	76,3 KB
R1-1804360.zip	2018/04/06 7:54	31,9 KB
R1-1804361.zip	2018/04/06 19:53	86,3 KB
R1-1804362.zip	2018/04/06 18:15	61,4 KB
R1-1804363.zip	2018/04/06 7:54	34,6 KB
R1-1804364.zip	2018/04/06 7:34	40 KB
R1-1804365.zip	2018/04/06 7:34	51,9 KB
R1-1804366.zip	2018/04/06 7:44	88,1 KB
R1-1804367.zip	2018/04/06 15:08	138,9 KB
R1-1804368.zip	2018/04/06 7:43	61,2 KB
R1-1804369.zip	2018/04/06 7:34	49,7 KB
R1-1804370.zip	2018/04/06 8:05	125,4 KB
R1-1804371.zip	2018/04/07 2:28	57,1 KB
R1-1804372.zip	2018/04/06 8:05	94 KB
R1-1804373.zip	2018/04/07 0:09	43,7 KB
R1-1804374.zip	2018/04/07 2:28	61 KB
R1-1804375.zip	2018/04/07 2:28	64 KB
R1-1804376.zip	2018/04/07 0:08	55,2 KB
R1-1804377.zip	2018/04/06 15:08	55 KB
R1-1804378.zip	2018/04/07 0:08	51,9 KB
R1-1804379.zip	2018/04/07 0:08	70,6 KB
R1-1804380.zip	2018/04/06 8:05	108 KB
R1-1804381.zip	2018/04/07 0:08	342,5 KB
R1-1804382.zip	2018/04/06 8:05	90,2 KB
R1-1804383.zip	2018/04/06 6:43	97,9 KB
R1-1804384.zip	2018/04/06 8:00	59,3 KB
R1-1804385.zip	2018/04/07 0:10	1569,8 KB
R1-1804386.zip	2018/04/07 2:28	58 KB
R1-1804387.zip	2018/04/07 3:53	42,8 KB
R1-1804388.zip	2018/04/06 8:14	56 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804389.zip	2018/04/06 7:29	216,9 KB
R1-1804390.zip	2018/04/06 7:29	1129,8 KB
R1-1804391.zip	2018/04/06 7:29	1280,1 KB
R1-1804392.zip	2018/04/06 7:29	71,4 KB
R1-1804393.zip	2018/04/06 15:08	35,1 KB
R1-1804394.zip	2018/04/06 15:09	84 KB
R1-1804395.zip	2018/04/06 15:09	139,3 KB
R1-1804396.zip	2018/04/07 3:53	223,6 KB
R1-1804397.zip	2018/04/07 4:53	160,5 KB
R1-1804398.zip	2018/04/07 3:53	64,8 KB
R1-1804399.zip	2018/04/07 4:53	317,4 KB
R1-1804400.zip	2018/04/07 0:08	66,2 KB
R1-1804401.zip	2018/04/06 7:29	66,8 KB
R1-1804402.zip	2018/04/06 18:17	116,2 KB
R1-1804403.zip	2018/04/06 18:17	50,6 KB
R1-1804404.zip	2018/04/06 18:17	52 KB
R1-1804405.zip	2018/04/06 18:17	250,5 KB
R1-1804406.zip	2018/04/06 15:09	85,2 KB
R1-1804407.zip	2018/04/06 14:10	127,8 KB
R1-1804408.zip	2018/04/06 7:29	1121 KB
R1-1804409.zip	2018/04/06 16:43	33,3 KB
R1-1804410.zip	2018/04/05 22:51	123,6 KB
R1-1804411.zip	2018/04/05 22:51	170,4 KB
R1-1804412.zip	2018/04/05 22:51	60,1 KB
R1-1804413.zip	2018/04/05 22:51	187,3 KB
R1-1804414.zip	2018/04/05 22:51	32,9 KB
R1-1804415.zip	2018/04/05 22:51	70,7 KB
R1-1804416.zip	2018/04/05 22:51	24,7 KB
R1-1804417.zip	2018/04/05 22:51	26 KB
R1-1804418.zip	2018/04/05 22:51	56,8 KB
R1-1804419.zip	2018/04/05 22:51	49,8 KB
R1-1804420.zip	2018/04/05 22:51	78 KB
R1-1804421.zip	2018/04/05 22:51	81,1 KB
R1-1804422.zip	2018/04/05 22:51	66 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804426.zip	2018/04/06 18:04	50,3 KB
R1-1804427.zip	2018/04/06 18:04	135,6 KB
R1-1804428.zip	2018/04/07 2:51	39,4 KB
R1-1804429.zip	2018/04/07 2:51	678 KB
R1-1804430.zip	2018/04/06 18:04	68,3 KB
R1-1804431.zip	2018/04/07 2:51	352,7 KB
R1-1804432.zip	2018/04/06 18:04	81,1 KB
R1-1804433.zip	2018/04/06 18:04	371,5 KB
R1-1804434.zip	2018/04/06 18:04	43,5 KB
R1-1804436.zip	2018/04/06 17:10	69 KB
R1-1804437.zip	2018/04/06 17:10	51,9 KB
R1-1804438.zip	2018/04/06 17:10	45,9 KB
R1-1804439.zip	2018/04/05 22:51	23,9 KB
R1-1804440.zip	2018/04/05 22:51	51,9 KB
R1-1804441.zip	2018/04/05 22:51	31,2 KB
R1-1804442.zip	2018/04/05 22:51	32 KB
R1-1804443.zip	2018/04/07 2:44	136,4 KB
R1-1804444.zip	2018/04/06 18:22	34,8 KB
R1-1804445.zip	2018/04/06 18:22	87,7 KB
R1-1804446.zip	2018/04/06 18:22	14,1 KB
R1-1804447.zip	2018/04/06 18:22	159 KB
R1-1804448.zip	2018/04/06 18:23	45,3 KB
R1-1804449.zip	2018/04/06 18:23	82,5 KB
R1-1804450.zip	2018/04/04 12:21	28,1 KB
R1-1804451.zip	2018/04/06 18:04	45,6 KB
R1-1804452.zip	2018/04/07 2:51	73,9 KB
R1-1804453.zip	2018/04/09 16:55	158,1 KB
R1-1804454.zip	2018/04/06 16:43	78,9 KB
R1-1804455.zip	2018/04/07 5:52	80,1 KB
R1-1804456.zip	2018/04/06 23:29	1738,3 KB
R1-1804457.zip	2018/04/06 23:29	72,6 KB
R1-1804458.zip	2018/04/06 23:29	55,9 KB
R1-1804459.zip	2018/04/06 23:29	148,1 KB
R1-1804460.zip	2018/04/06 23:29	82,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804461.zip	2018/04/06 23:29	95,6 KB
R1-1804462.zip	2018/04/06 23:30	115,3 KB
R1-1804463.zip	2018/04/06 23:30	287 KB
R1-1804464.zip	2018/04/06 23:30	72,8 KB
R1-1804465.zip	2018/04/06 23:30	65,1 KB
R1-1804466.zip	2018/04/06 23:30	57,8 KB
R1-1804467.zip	2018/04/06 18:10	16,4 KB
R1-1804468.zip	2018/04/06 23:30	212,3 KB
R1-1804469.zip	2018/04/06 19:40	59,8 KB
R1-1804470.zip	2018/04/06 20:39	1286,6 KB
R1-1804471.zip	2018/04/07 1:54	273,4 KB
R1-1804472.zip	2018/04/06 23:56	222,6 KB
R1-1804473.zip	2018/04/06 13:58	22 KB
R1-1804474.zip	2018/04/06 23:56	39,5 KB
R1-1804475.zip	2018/04/06 23:56	34,1 KB
R1-1804476.zip	2018/04/06 13:58	69,4 KB
R1-1804477.zip	2018/04/05 3:25	419,8 KB
R1-1804478.zip	2018/04/11 20:41	411,3 KB
R1-1804479.zip	2018/04/07 3:41	468,7 KB
R1-1804480.zip	2018/04/07 3:41	108,8 KB
R1-1804481.zip	2018/04/06 8:15	52,4 KB
R1-1804482.zip	2018/04/06 8:15	54,5 KB
R1-1804483.zip	2018/04/06 8:15	76,9 KB
R1-1804484.zip	2018/04/12 7:26	313,1 KB
R1-1804485.zip	2018/04/12 7:26	436,5 KB
R1-1804486.zip	2018/04/12 7:26	651,9 KB
R1-1804487.zip	2018/04/05 3:03	33,9 KB
R1-1804488.zip	2018/04/12 7:26	388,5 KB
R1-1804489.zip	2018/04/24 11:40	347,2 KB
R1-1804490.zip	2018/04/24 11:40	465,3 KB
R1-1804492.zip	2018/04/24 11:40	536,5 KB
R1-1804493.zip	2018/04/07 3:13	105 KB
R1-1804494.zip	2018/04/07 3:13	50,4 KB
R1-1804495.zip	2018/04/07 3:13	66,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804496.zip	2018/04/07 4:21	28,3 KB
R1-1804497.zip	2018/04/06 8:15	121,5 KB
R1-1804498.zip	2018/04/07 4:21	33,1 KB
R1-1804499.zip	2018/04/06 5:52	435,3 KB
R1-1804500.zip	2018/04/06 1:21	41,6 KB
R1-1804501.zip	2018/04/06 1:21	39,6 KB
R1-1804502.zip	2018/04/06 1:21	70,8 KB
R1-1804503.zip	2018/04/06 1:21	44,2 KB
R1-1804504.zip	2018/04/07 3:54	163,3 KB
R1-1804505.zip	2018/04/07 3:54	286 KB
R1-1804506.zip	2018/04/07 5:43	16,5 KB
R1-1804507.zip	2018/04/07 5:43	85 KB
R1-1804508.zip	2018/04/07 5:43	42,5 KB
R1-1804509.zip	2018/04/07 5:43	81,2 KB
R1-1804510.zip	2018/04/07 5:43	64,1 KB
R1-1804511.zip	2018/04/07 5:43	78,7 KB
R1-1804512.zip	2018/04/07 5:43	227,5 KB
R1-1804513.zip	2018/04/07 5:43	60,6 KB
R1-1804514.zip	2018/04/07 5:43	39,9 KB
R1-1804515.zip	2018/04/07 5:43	42,7 KB
R1-1804516.zip	2018/04/07 5:43	43,8 KB
R1-1804517.zip	2018/04/07 5:43	77,5 KB
R1-1804518.zip	2018/04/07 5:43	38,9 KB
R1-1804519.zip	2018/04/07 5:43	40,6 KB
R1-1804520.zip	2018/04/07 5:43	101 KB
R1-1804521.zip	2018/04/07 5:43	363,1 KB
R1-1804522.zip	2018/04/07 5:43	159,5 KB
R1-1804523.zip	2018/04/07 5:43	40,2 KB
R1-1804524.zip	2018/04/07 5:43	41,2 KB
R1-1804525.zip	2018/04/07 5:43	38,4 KB
R1-1804526.zip	2018/04/07 5:43	41,3 KB
R1-1804527.zip	2018/04/10 7:49	39,1 KB
R1-1804528.zip	2018/04/07 5:43	223,2 KB
R1-1804529.zip	2018/04/07 5:44	252,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804530.zip	2018/04/07 5:44	119,7 KB
R1-1804531.zip	2018/04/07 5:44	97,6 KB
R1-1804532.zip	2018/04/07 5:44	55,1 KB
R1-1804533.zip	2018/04/07 5:44	50,9 KB
R1-1804534.zip	2018/04/07 5:44	67,4 KB
R1-1804535.zip	2018/04/07 5:44	94 KB
R1-1804536.zip	2018/04/07 5:44	43,7 KB
R1-1804537.zip	2018/04/07 5:44	82,1 KB
R1-1804538.zip	2018/04/07 5:44	133,3 KB
R1-1804539.zip	2018/04/07 5:44	62,6 KB
R1-1804540.zip	2018/04/07 5:44	56,4 KB
R1-1804541.zip	2018/04/07 5:46	49,7 KB
R1-1804542.zip	2018/04/07 5:46	41,8 KB
R1-1804543.zip	2018/04/07 5:46	284,6 KB
R1-1804544.zip	2018/04/07 5:46	43,6 KB
R1-1804545.zip	2018/04/07 5:46	24,2 KB
R1-1804546.zip	2018/04/07 5:46	46,2 KB
R1-1804547.zip	2018/04/07 5:46	49,8 KB
R1-1804548.zip	2018/04/07 5:46	116 KB
R1-1804549.zip	2018/04/07 5:46	41 KB
R1-1804550.zip	2018/04/07 5:46	76,2 KB
R1-1804551.zip	2018/04/07 5:46	71,7 KB
R1-1804552.zip	2018/04/07 5:46	107,7 KB
R1-1804553.zip	2018/04/07 5:46	60,8 KB
R1-1804554.zip	2018/04/07 5:46	85,3 KB
R1-1804555.zip	2018/04/07 5:46	33,5 KB
R1-1804556.zip	2018/04/07 5:46	48,3 KB
R1-1804557.zip	2018/04/07 5:46	32,8 KB
R1-1804558.zip	2018/04/07 5:46	49,9 KB
R1-1804559.zip	2018/04/07 5:46	161,9 KB
R1-1804560.zip	2018/04/07 5:46	73,9 KB
R1-1804561.zip	2018/04/07 5:46	61,5 KB
R1-1804562.zip	2018/04/07 5:46	42,2 KB
R1-1804563.zip	2018/04/07 5:46	49,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804564.zip	2018/04/07 5:46	68,5 KB
R1-1804565.zip	2018/04/07 5:46	68,4 KB
R1-1804566.zip	2018/04/07 5:46	60,4 KB
R1-1804567.zip	2018/04/07 5:46	45,5 KB
R1-1804568.zip	2018/04/07 5:46	46,8 KB
R1-1804569.zip	2018/04/07 5:46	261,9 KB
R1-1804570.zip	2018/04/07 5:46	53,4 KB
R1-1804571.zip	2018/04/07 5:46	52 KB
R1-1804572.zip	2018/04/07 5:46	197,7 KB
R1-1804573.zip	2018/04/07 5:46	462,8 KB
R1-1804574.zip	2018/04/07 5:46	31,2 KB
R1-1804575.zip	2018/04/07 5:46	29,7 KB
R1-1804576.zip	2018/04/12 7:25	131,7 KB
R1-1804577.zip	2018/04/07 5:46	128,1 KB
R1-1804578.zip	2018/04/07 5:46	296,6 KB
R1-1804579.zip	2018/04/07 5:46	311,7 KB
R1-1804580.zip	2018/04/07 5:46	38,3 KB
R1-1804581.zip	2018/04/07 5:46	96,8 KB
R1-1804582.zip	2018/04/07 5:46	94,5 KB
R1-1804583.zip	2018/04/07 5:47	1422,1 KB
R1-1804584.zip	2018/04/07 5:47	98,6 KB
R1-1804585.zip	2018/04/07 5:47	44,9 KB
R1-1804586.zip	2018/04/07 5:47	1360,8 KB
R1-1804587.zip	2018/04/06 14:57	243,9 KB
R1-1804588.zip	2018/04/06 14:57	24,4 KB
R1-1804589.zip	2018/04/06 6:00	145,7 KB
R1-1804590.zip	2018/04/06 6:50	72,5 KB
R1-1804591.zip	2018/04/06 6:50	74,8 KB
R1-1804592.zip	2018/04/06 6:50	63 KB
R1-1804593.zip	2018/04/06 23:19	680,6 KB
R1-1804594.zip	2018/04/06 23:19	46,8 KB
R1-1804595.zip	2018/04/06 23:19	23,2 KB
R1-1804596.zip	2018/04/06 23:19	44,9 KB
R1-1804597.zip	2018/04/06 23:19	78 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804598.zip	2018/04/06 23:19	67,8 KB
R1-1804599.zip	2018/04/06 23:19	376,9 KB
R1-1804600.zip	2018/04/06 23:20	113 KB
R1-1804601.zip	2018/04/06 23:20	43,3 KB
R1-1804602.zip	2018/04/06 23:20	62,1 KB
R1-1804603.zip	2018/04/06 23:20	42,7 KB
R1-1804604.zip	2018/04/06 23:18	57,6 KB
R1-1804605.zip	2018/04/06 23:18	119,8 KB
R1-1804606.zip	2018/04/06 23:18	73,6 KB
R1-1804607.zip	2018/04/06 23:18	182,8 KB
R1-1804608.zip	2018/04/06 23:18	41,2 KB
R1-1804609.zip	2018/04/06 23:19	395,2 KB
R1-1804610.zip	2018/04/06 23:19	45,3 KB
R1-1804611.zip	2018/04/06 23:19	45,1 KB
R1-1804612.zip	2018/04/06 13:41	107 KB
R1-1804613.zip	2018/04/07 3:27	77 KB
R1-1804614.zip	2018/04/07 3:27	95,2 KB
R1-1804615.zip	2018/04/07 3:16	278,3 KB
R1-1804616.zip	2018/04/07 5:21	188,2 KB
R1-1804617.zip	2018/04/07 3:16	216,6 KB
R1-1804618.zip	2018/04/07 3:16	120 KB
R1-1804619.zip	2018/04/07 3:16	87,8 KB
R1-1804620.zip	2018/04/07 3:05	58,3 KB
R1-1804621.zip	2018/04/07 3:05	1946,4 KB
R1-1804622.zip	2018/04/07 3:05	565,7 KB
R1-1804623.zip	2018/04/07 3:05	245,5 KB
R1-1804624.zip	2018/04/07 3:05	144,5 KB
R1-1804625.zip	2018/04/07 3:05	28,8 KB
R1-1804626.zip	2018/04/07 3:05	294,7 KB
R1-1804627.zip	2018/04/05 13:23	91,2 KB
R1-1804628.zip	2018/04/05 13:23	109,6 KB
R1-1804629.zip	2018/04/06 13:13	41,2 KB
R1-1804630.zip	2018/04/06 13:15	43,8 KB
R1-1804631.zip	2018/04/06 13:15	31,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804632.zip	2018/04/06 13:14	78,1 KB
R1-1804633.zip	2018/04/06 13:15	120 KB
R1-1804634.zip	2018/04/06 13:15	249,4 KB
R1-1804635.zip	2018/04/06 13:15	182,3 KB
R1-1804636.zip	2018/04/06 13:15	66,4 KB
R1-1804637.zip	2018/04/06 13:15	82,9 KB
R1-1804638.zip	2018/04/06 13:16	52,8 KB
R1-1804639.zip	2018/04/06 13:16	1417,1 KB
R1-1804640.zip	2018/04/06 19:40	54,4 KB
R1-1804641.zip	2018/04/06 9:37	62,7 KB
R1-1804642.zip	2018/04/06 9:37	333,4 KB
R1-1804643.zip	2018/04/06 9:37	54,2 KB
R1-1804644.zip	2018/04/06 16:18	142,1 KB
R1-1804646.zip	2018/04/06 10:03	29,3 KB
R1-1804647.zip	2018/04/06 15:09	190,9 KB
R1-1804648.zip	2018/04/06 2:20	67,3 KB
R1-1804649.zip	2018/04/06 2:35	67,7 KB
R1-1804650.zip	2018/04/07 1:27	524,9 KB
R1-1804651.zip	2018/04/07 1:27	27,4 KB
R1-1804652.zip	2018/04/07 1:27	18,5 KB
R1-1804653.zip	2018/04/07 1:27	228,5 KB
R1-1804654.zip	2018/04/07 1:27	50,6 KB
R1-1804655.zip	2018/04/07 1:27	94,3 KB
R1-1804656.zip	2018/04/07 1:27	52,1 KB
R1-1804657.zip	2018/04/07 1:27	27,1 KB
R1-1804658.zip	2018/04/07 1:27	48,6 KB
R1-1804659.zip	2018/04/07 1:27	53,9 KB
R1-1804660.zip	2018/04/07 1:27	24,7 KB
R1-1804661.zip	2018/04/07 1:27	864,5 KB
R1-1804662.zip	2018/04/07 1:27	401 KB
R1-1804663.zip	2018/04/07 4:27	60,4 KB
R1-1804664.zip	2018/04/07 1:27	226 KB
R1-1804665.zip	2018/04/07 1:27	345,9 KB
R1-1804666.zip	2018/04/07 1:27	115,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804667.zip	2018/04/07 1:27	36,6 KB
R1-1804668.zip	2018/04/07 1:27	99,7 KB
R1-1804670.zip	2018/04/07 1:27	36,1 KB
R1-1804671.zip	2018/04/07 1:27	85,1 KB
R1-1804672.zip	2018/04/07 1:27	24,4 KB
R1-1804673.zip	2018/04/07 1:27	367 KB
R1-1804674.zip	2018/04/06 21:29	260,4 KB
R1-1804675.zip	2018/04/06 21:29	37,5 KB
R1-1804676.zip	2018/04/06 21:29	43,5 KB
R1-1804677.zip	2018/04/06 21:29	38,6 KB
R1-1804678.zip	2018/04/06 21:29	37,6 KB
R1-1804679.zip	2018/04/06 18:41	31,7 KB
R1-1804680.zip	2018/04/06 21:29	155,2 KB
R1-1804681.zip	2018/04/07 6:57	13,6 KB
R1-1804682.zip	2018/04/07 6:57	79 KB
R1-1804683.zip	2018/04/07 6:02	177,3 KB
R1-1804684.zip	2018/04/07 6:02	107,3 KB
R1-1804685.zip	2018/04/07 6:02	82,9 KB
R1-1804686.zip	2018/04/07 6:02	60,5 KB
R1-1804687.zip	2018/04/07 6:02	62 KB
R1-1804688.zip	2018/04/07 5:59	337,6 KB
R1-1804689.zip	2018/04/07 5:59	55,9 KB
R1-1804690.zip	2018/04/07 5:59	415,7 KB
R1-1804691.zip	2018/04/07 6:00	210,2 KB
R1-1804692.zip	2018/04/07 6:09	81 KB
R1-1804693.zip	2018/04/07 6:09	96 KB
R1-1804694.zip	2018/04/07 6:09	104,2 KB
R1-1804695.zip	2018/04/07 6:09	60,2 KB
R1-1804696.zip	2018/04/07 6:09	72,6 KB
R1-1804697.zip	2018/04/07 6:22	48,8 KB
R1-1804698.zip	2018/04/07 6:09	37,8 KB
R1-1804699.zip	2018/04/07 6:09	64,1 KB
R1-1804700.zip	2018/04/07 6:09	56,5 KB
R1-1804701.zip	2018/04/07 6:00	96,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804702.zip	2018/04/07 6:00	168,1 KB
R1-1804703.zip	2018/04/07 7:03	289,5 KB
R1-1804704.zip	2018/04/07 7:03	72,7 KB
R1-1804705.zip	2018/04/07 7:03	74,2 KB
R1-1804706.zip	2018/04/07 6:00	119,2 KB
R1-1804707.zip	2018/04/07 6:00	72,3 KB
R1-1804708.zip	2018/04/07 6:57	78,6 KB
R1-1804709.zip	2018/04/07 6:57	74 KB
R1-1804710.zip	2018/04/07 6:00	107,8 KB
R1-1804711.zip	2018/04/07 6:00	68,9 KB
R1-1804712.zip	2018/04/07 6:00	99,9 KB
R1-1804713.zip	2018/04/07 6:00	75,1 KB
R1-1804714.zip	2018/04/07 6:00	125,5 KB
R1-1804715.zip	2018/04/07 6:00	135,6 KB
R1-1804716.zip	2018/04/07 6:00	47 KB
R1-1804717.zip	2018/04/07 6:00	59,1 KB
R1-1804718.zip	2018/04/07 6:00	75,8 KB
R1-1804719.zip	2018/04/07 6:00	85,7 KB
R1-1804720.zip	2018/04/07 6:00	85,1 KB
R1-1804721.zip	2018/04/07 6:00	121,8 KB
R1-1804722.zip	2018/04/07 6:00	75,5 KB
R1-1804723.zip	2018/04/07 6:00	78,6 KB
R1-1804724.zip	2018/04/07 6:00	47,7 KB
R1-1804725.zip	2018/04/07 6:57	208,6 KB
R1-1804726.zip	2018/04/07 6:57	66,7 KB
R1-1804727.zip	2018/04/07 6:00	89,9 KB
R1-1804728.zip	2018/04/07 6:01	142,4 KB
R1-1804729.zip	2018/04/07 6:01	144,9 KB
R1-1804730.zip	2018/04/07 6:01	89,2 KB
R1-1804731.zip	2018/04/07 6:01	64,9 KB
R1-1804732.zip	2018/04/07 6:09	73,4 KB
R1-1804733.zip	2018/04/07 6:09	68,7 KB
R1-1804734.zip	2018/04/07 6:01	55,4 KB
R1-1804735.zip	2018/04/07 6:01	197,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804736.zip	2018/04/07 6:01	81,1 KB
R1-1804737.zip	2018/04/07 6:01	55,9 KB
R1-1804738.zip	2018/04/07 6:01	148,1 KB
R1-1804739.zip	2018/04/07 6:01	296,1 KB
R1-1804740.zip	2018/04/07 6:01	88,4 KB
R1-1804741.zip	2018/04/07 6:01	133,6 KB
R1-1804742.zip	2018/04/07 6:01	581,5 KB
R1-1804743.zip	2018/04/07 6:01	138,8 KB
R1-1804744.zip	2018/04/07 6:01	355,2 KB
R1-1804745.zip	2018/04/07 6:01	189,6 KB
R1-1804746.zip	2018/04/07 6:01	2498,7 KB
R1-1804747.zip	2018/04/07 6:01	659,1 KB
R1-1804748.zip	2018/04/07 6:01	1807,8 KB
R1-1804749.zip	2018/04/07 6:02	320,2 KB
R1-1804750.zip	2018/04/07 6:02	57,5 KB
R1-1804751.zip	2018/04/07 6:02	103 KB
R1-1804752.zip	2018/04/07 6:02	225,3 KB
R1-1804753.zip	2018/04/07 6:02	156,3 KB
R1-1804754.zip	2018/04/07 6:02	100,2 KB
R1-1804755.zip	2018/04/07 6:02	2123,4 KB
R1-1804756.zip	2018/04/07 6:02	210,5 KB
R1-1804757.zip	2018/04/07 6:02	149,9 KB
R1-1804758.zip	2018/04/07 6:02	153,8 KB
R1-1804759.zip	2018/04/06 20:15	138 KB
R1-1804760.zip	2018/04/06 20:15	201,6 KB
R1-1804761.zip	2018/04/06 20:16	186,5 KB
R1-1804762.zip	2018/04/06 20:16	331,4 KB
R1-1804763.zip	2018/04/06 20:16	88,4 KB
R1-1804764.zip	2018/04/06 20:16	86,9 KB
R1-1804765.zip	2018/04/07 6:41	56,9 KB
R1-1804766.zip	2018/04/06 22:58	25,5 KB
R1-1804767.zip	2018/04/06 22:58	26,6 KB
R1-1804768.zip	2018/04/07 1:03	393,1 KB
R1-1804769.zip	2018/04/07 1:03	91,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804770.zip	2018/04/07 1:03	865,1 KB
R1-1804771.zip	2018/04/07 1:03	1235,7 KB
R1-1804772.zip	2018/04/07 1:03	364,8 KB
R1-1804773.zip	2018/04/07 1:03	159,8 KB
R1-1804774.zip	2018/04/07 5:43	190 KB
R1-1804775.zip	2018/04/07 5:43	42,4 KB
R1-1804776.zip	2018/04/07 5:43	212,1 KB
R1-1804777.zip	2018/04/07 5:43	32 KB
R1-1804778.zip	2018/04/07 5:43	110 KB
R1-1804779.zip	2018/04/07 5:43	126,4 KB
R1-1804780.zip	2018/04/07 5:43	53,7 KB
R1-1804781.zip	2018/04/07 5:43	89,6 KB
R1-1804782.zip	2018/04/07 5:43	28 KB
R1-1804783.zip	2018/04/07 5:43	76,7 KB
R1-1804784.zip	2018/04/07 5:44	75,9 KB
R1-1804785.zip	2018/04/07 5:44	172,5 KB
R1-1804786.zip	2018/04/07 5:44	272,1 KB
R1-1804787.zip	2018/04/07 5:44	41,2 KB
R1-1804788.zip	2018/04/07 5:44	64 KB
R1-1804789.zip	2018/04/07 5:44	81,6 KB
R1-1804790.zip	2018/04/07 5:44	72 KB
R1-1804791.zip	2018/04/07 5:44	105,4 KB
R1-1804792.zip	2018/04/07 5:44	86 KB
R1-1804793.zip	2018/04/07 5:44	427,5 KB
R1-1804794.zip	2018/04/07 5:45	85,8 KB
R1-1804795.zip	2018/04/07 5:45	74,3 KB
R1-1804796.zip	2018/04/07 5:45	348,5 KB
R1-1804797.zip	2018/04/07 5:45	99 KB
R1-1804798.zip	2018/04/07 5:45	138,4 KB
R1-1804799.zip	2018/04/07 5:45	241,3 KB
R1-1804800.zip	2018/04/07 5:45	82,5 KB
R1-1804801.zip	2018/04/07 5:45	122,9 KB
R1-1804802.zip	2018/04/07 5:45	93,5 KB
R1-1804803.zip	2018/04/07 5:45	158,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804804.zip	2018/04/07 5:46	395,4 KB
R1-1804805.zip	2018/04/07 5:46	122,7 KB
R1-1804806.zip	2018/04/07 5:46	434,5 KB
R1-1804807.zip	2018/04/07 5:46	374,4 KB
R1-1804808.zip	2018/04/07 5:46	72 KB
R1-1804809.zip	2018/04/07 5:46	429,4 KB
R1-1804810.zip	2018/04/07 5:46	909 KB
R1-1804811.zip	2018/04/07 5:46	67,6 KB
R1-1804812.zip	2018/04/07 5:46	98,8 KB
R1-1804813.zip	2018/04/07 5:46	90 KB
R1-1804814.zip	2018/04/07 10:07	49 KB
R1-1804815.zip	2018/04/07 5:47	90,9 KB
R1-1804817.zip	2018/04/07 5:47	1250,5 KB
R1-1804818.zip	2018/04/07 5:47	325,7 KB
R1-1804819.zip	2018/04/07 5:47	203,6 KB
R1-1804820.zip	2018/04/07 5:47	147,1 KB
R1-1804821.zip	2018/04/07 5:47	136,8 KB
R1-1804822.zip	2018/04/07 5:47	141,3 KB
R1-1804823.zip	2018/04/07 5:47	620,5 KB
R1-1804824.zip	2018/04/07 5:48	132,9 KB
R1-1804825.zip	2018/04/07 5:48	407,6 KB
R1-1804826.zip	2018/04/07 5:48	540,2 KB
R1-1804827.zip	2018/04/07 5:48	44,5 KB
R1-1804828.zip	2018/04/07 5:48	1030,6 KB
R1-1804829.zip	2018/04/07 5:48	608,7 KB
R1-1804830.zip	2018/04/07 5:48	509,1 KB
R1-1804831.zip	2018/04/07 5:48	476,8 KB
R1-1804832.zip	2018/04/07 5:48	478 KB
R1-1804833.zip	2018/04/07 5:48	204,6 KB
R1-1804834.zip	2018/04/07 5:48	2117,1 KB
R1-1804835.zip	2018/04/07 5:48	357 KB
R1-1804836.zip	2018/04/07 5:48	520 KB
R1-1804840.zip	2018/04/07 2:40	106,7 KB
R1-1804841.zip	2018/04/07 2:40	194,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804842.zip	2018/04/07 2:40	128 KB
R1-1804843.zip	2018/04/07 2:40	146,5 KB
R1-1804844.zip	2018/04/07 2:40	90,2 KB
R1-1804845.zip	2018/04/07 2:40	85,4 KB
R1-1804846.zip	2018/04/07 2:40	52,7 KB
R1-1804847.zip	2018/04/07 2:40	53,8 KB
R1-1804848.zip	2018/04/07 2:40	150,4 KB
R1-1804849.zip	2018/04/07 2:40	179,9 KB
R1-1804850.zip	2018/04/07 2:41	140,5 KB
R1-1804851.zip	2018/04/07 2:41	50,4 KB
R1-1804852.zip	2018/04/07 2:41	925,2 KB
R1-1804853.zip	2018/04/07 3:50	1230,1 KB
R1-1804854.zip	2018/04/07 2:41	107,5 KB
R1-1804855.zip	2018/04/07 2:41	50,9 KB
R1-1804856.zip	2018/04/07 2:41	676,6 KB
R1-1804857.zip	2018/04/07 2:41	56,2 KB
R1-1804858.zip	2018/04/07 2:41	150,2 KB
R1-1804859.zip	2018/04/07 2:41	298,3 KB
R1-1804860.zip	2018/04/07 2:42	208 KB
R1-1804861.zip	2018/04/07 2:42	56,1 KB
R1-1804862.zip	2018/04/07 2:42	1078,5 KB
R1-1804863.zip	2018/04/07 2:42	85 KB
R1-1804864.zip	2018/04/07 2:42	100,9 KB
R1-1804865.zip	2018/04/07 2:42	49 KB
R1-1804866.zip	2018/04/07 2:42	48,4 KB
R1-1804867.zip	2018/04/07 2:42	433,9 KB
R1-1804868.zip	2018/04/07 2:42	150,3 KB
R1-1804869.zip	2018/04/07 2:42	356,8 KB
R1-1804870.zip	2018/04/07 2:42	180,5 KB
R1-1804871.zip	2018/04/06 21:55	99 KB
R1-1804872.zip	2018/04/06 21:55	50,6 KB
R1-1804873.zip	2018/04/06 21:55	58,2 KB
R1-1804874.zip	2018/04/06 21:55	263,4 KB
R1-1804875.zip	2018/04/06 21:55	48,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804876.zip	2018/04/06 21:55	131,3 KB
R1-1804877.zip	2018/04/06 21:55	54 KB
R1-1804878.zip	2018/04/06 21:55	59,5 KB
R1-1804879.zip	2018/04/06 21:55	63,3 KB
R1-1804880.zip	2018/04/06 21:55	55,9 KB
R1-1804881.zip	2018/04/06 21:55	81,8 KB
R1-1804882.zip	2018/04/06 21:55	99,3 KB
R1-1804883.zip	2018/04/06 21:55	59 KB
R1-1804884.zip	2018/04/07 2:42	183,1 KB
R1-1804885.zip	2018/04/07 2:42	138,5 KB
R1-1804886.zip	2018/04/07 2:42	56 KB
R1-1804887.zip	2018/04/07 2:42	178,5 KB
R1-1804888.zip	2018/04/07 2:42	52,5 KB
R1-1804889.zip	2018/04/07 1:22	339,6 KB
R1-1804890.zip	2018/04/06 4:29	746,4 KB
R1-1804891.zip	2018/04/07 3:37	42,8 KB
R1-1804892.zip	2018/04/07 3:37	66,2 KB
R1-1804893.zip	2018/04/07 3:37	41 KB
R1-1804894.zip	2018/04/07 3:37	29,5 KB
R1-1804895.zip	2018/04/07 3:37	41 KB
R1-1804896.zip	2018/04/07 3:37	633,6 KB
R1-1804897.zip	2018/04/07 3:37	111,4 KB
R1-1804898.zip	2018/04/07 3:37	68,8 KB
R1-1804899.zip	2018/04/07 3:37	78,8 KB
R1-1804900.zip	2018/04/07 3:37	124 KB
R1-1804901.zip	2018/04/07 3:37	80,6 KB
R1-1804902.zip	2018/04/07 3:37	97,5 KB
R1-1804903.zip	2018/04/07 3:37	49,4 KB
R1-1804904.zip	2018/04/07 3:37	778,2 KB
R1-1804905.zip	2018/04/07 3:37	84,6 KB
R1-1804906.zip	2018/04/07 3:37	65,5 KB
R1-1804907.zip	2018/04/07 3:37	44 KB
R1-1804908.zip	2018/04/07 3:37	45,6 KB
R1-1804909.zip	2018/04/07 3:37	89,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804910.zip	2018/04/07 3:37	44,7 KB
R1-1804911.zip	2018/04/07 3:37	52,5 KB
R1-1804912.zip	2018/04/07 3:37	1289,8 KB
R1-1804913.zip	2018/04/07 3:37	46,3 KB
R1-1804914.zip	2018/04/07 3:37	230,1 KB
R1-1804915.zip	2018/04/07 3:37	53,9 KB
R1-1804916.zip	2018/04/07 3:37	131,7 KB
R1-1804917.zip	2018/04/07 3:37	187,4 KB
R1-1804918.zip	2018/04/07 3:37	184 KB
R1-1804919.zip	2018/04/07 3:37	159 KB
R1-1804920.zip	2018/04/07 3:37	914,1 KB
R1-1804921.zip	2018/04/07 3:37	131,9 KB
R1-1804922.zip	2018/04/07 3:37	121,6 KB
R1-1804923.zip	2018/04/07 3:37	171,9 KB
R1-1804924.zip	2018/04/07 3:37	65,3 KB
R1-1804925.zip	2018/04/07 3:37	66 KB
R1-1804926.zip	2018/04/07 3:37	75,2 KB
R1-1804927.zip	2018/04/07 3:37	199,4 KB
R1-1804928.zip	2018/04/07 3:37	1254,9 KB
R1-1804929.zip	2018/04/07 3:37	102 KB
R1-1804930.zip	2018/04/07 3:37	103,3 KB
R1-1804931.zip	2018/04/07 3:37	89,4 KB
R1-1804932.zip	2018/04/07 3:37	144,1 KB
R1-1804933.zip	2018/04/07 3:37	137,7 KB
R1-1804934.zip	2018/04/07 3:37	141,5 KB
R1-1804935.zip	2018/04/07 3:37	49,2 KB
R1-1804936.zip	2018/04/07 3:37	33 KB
R1-1804937.zip	2018/04/07 3:37	167,5 KB
R1-1804938.zip	2018/04/07 3:37	204,2 KB
R1-1804939.zip	2018/04/07 3:37	65,6 KB
R1-1804940.zip	2018/04/07 1:54	21,1 KB
R1-1804941.zip	2018/04/06 9:09	263,9 KB
R1-1804942.zip	2018/04/06 9:10	427,2 KB
R1-1804943.zip	2018/04/06 15:56	87,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804944.zip	2018/04/06 15:56	157,5 KB
R1-1804945.zip	2018/04/06 12:46	90,9 KB
R1-1804946.zip	2018/04/06 10:51	212,4 KB
R1-1804947.zip	2018/04/06 10:51	76,8 KB
R1-1804948.zip	2018/04/06 10:51	91,7 KB
R1-1804949.zip	2018/04/06 12:25	79 KB
R1-1804950.zip	2018/04/06 9:17	71,7 KB
R1-1804951.zip	2018/04/06 9:15	110,9 KB
R1-1804952.zip	2018/04/06 9:16	54,7 KB
R1-1804953.zip	2018/04/07 5:58	30,6 KB
R1-1804954.zip	2018/04/07 5:58	163,9 KB
R1-1804955.zip	2018/04/07 5:58	37 KB
R1-1804956.zip	2018/04/07 5:58	33,1 KB
R1-1804957.zip	2018/04/07 6:17	42,4 KB
R1-1804958.zip	2018/04/07 5:58	19,4 KB
R1-1804959.zip	2018/04/07 6:07	59,5 KB
R1-1804960.zip	2018/04/07 7:57	28,8 KB
R1-1804961.zip	2018/04/07 1:32	24,8 KB
R1-1804962.zip	2018/04/06 3:47	27,3 KB
R1-1804963.zip	2018/04/07 2:11	64,9 KB
R1-1804964.zip	2018/04/07 3:37	33,6 KB
R1-1804965.zip	2018/04/07 2:43	36,8 KB
R1-1804966.zip	2018/04/07 6:04	133,4 KB
R1-1804967.zip	2018/04/07 2:43	62,5 KB
R1-1804968.zip	2018/04/07 6:04	82,6 KB
R1-1804969.zip	2018/04/07 6:04	43,2 KB
R1-1804970.zip	2018/04/07 2:43	53,1 KB
R1-1804971.zip	2018/04/07 2:43	94,8 KB
R1-1804972.zip	2018/04/07 2:43	40 KB
R1-1804973.zip	2018/04/07 2:43	102,8 KB
R1-1804974.zip	2018/04/07 2:43	50,5 KB
R1-1804975.zip	2018/04/07 2:43	51,9 KB
R1-1804976.zip	2018/04/07 2:43	188,2 KB
R1-1804977.zip	2018/04/07 2:43	46,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1804978.zip	2018/04/07 2:43	33,4 KB
R1-1804979.zip	2018/04/07 2:43	42,8 KB
R1-1804980.zip	2018/04/07 2:43	50,6 KB
R1-1804981.zip	2018/04/07 2:43	38 KB
R1-1804982.zip	2018/04/07 2:43	59,3 KB
R1-1804983.zip	2018/04/07 2:43	111,4 KB
R1-1804984.zip	2018/04/07 2:43	53,6 KB
R1-1804985.zip	2018/04/07 2:43	50 KB
R1-1804986.zip	2018/04/07 2:43	224,5 KB
R1-1804987.zip	2018/04/07 2:43	33,7 KB
R1-1804988.zip	2018/04/07 2:43	57,7 KB
R1-1804989.zip	2018/04/07 2:43	177,7 KB
R1-1804990.zip	2018/04/07 2:43	307,3 KB
R1-1804991.zip	2018/04/07 2:43	34,2 KB
R1-1804992.zip	2018/04/07 2:43	105,9 KB
R1-1804993.zip	2018/04/07 2:43	1835,2 KB
R1-1804994.zip	2018/04/07 2:43	39,6 KB
R1-1804995.zip	2018/04/07 2:43	67,4 KB
R1-1804996.zip	2018/04/07 2:43	101,5 KB
R1-1804997.zip	2018/04/07 2:43	76,8 KB
R1-1804998.zip	2018/04/07 2:43	73,7 KB
R1-1804999.zip	2018/04/07 2:43	32,1 KB
R1-1805000.zip	2018/04/07 6:15	70,7 KB
R1-1805001.zip	2018/04/07 6:15	58,8 KB
R1-1805002.zip	2018/04/07 6:26	117,9 KB
R1-1805003.zip	2018/04/07 6:21	153,9 KB
R1-1805004.zip	2018/04/07 6:21	96,3 KB
R1-1805005.zip	2018/04/07 6:21	468,9 KB
R1-1805006.zip	2018/04/07 6:21	166,6 KB
R1-1805007.zip	2018/04/07 6:21	360 KB
R1-1805008.zip	2018/04/07 2:43	157,2 KB
R1-1805009.zip	2018/04/07 2:43	112,9 KB
R1-1805010.zip	2018/04/07 2:43	32,7 KB
R1-1805011.zip	2018/04/07 2:43	31 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805012.zip	2018/04/07 2:43	42,1 KB
R1-1805013.zip	2018/04/07 2:43	65,5 KB
R1-1805014.zip	2018/04/07 2:43	172,8 KB
R1-1805015.zip	2018/04/07 2:43	71,4 KB
R1-1805016.zip	2018/04/07 2:43	69,1 KB
R1-1805017.zip	2018/04/07 2:43	41,4 KB
R1-1805018.zip	2018/04/07 2:43	39 KB
R1-1805019.zip	2018/04/07 5:36	61,8 KB
R1-1805020.zip	2018/04/07 6:15	59,9 KB
R1-1805021.zip	2018/04/07 5:36	36,9 KB
R1-1805022.zip	2018/04/06 6:16	35,5 KB
R1-1805023.zip	2018/04/06 6:16	33,7 KB
R1-1805024.zip	2018/04/06 6:16	36,7 KB
R1-1805025.zip	2018/04/06 6:16	42,1 KB
R1-1805026.zip	2018/04/06 7:14	61,9 KB
R1-1805027.zip	2018/04/06 7:14	55,1 KB
R1-1805028.zip	2018/04/06 7:14	52,5 KB
R1-1805029.zip	2018/04/07 5:35	17,4 KB
R1-1805030.zip	2018/04/07 5:35	1321,6 KB
R1-1805031.zip	2018/04/06 10:43	120 KB
R1-1805032.zip	2018/04/06 10:43	1121 KB
R1-1805033.zip	2018/04/06 10:43	169,5 KB
R1-1805034.zip	2018/04/06 10:43	31 KB
R1-1805035.zip	2018/04/06 10:43	182,5 KB
R1-1805036.zip	2018/04/06 10:43	74,1 KB
R1-1805037.zip	2018/04/06 10:43	40,6 KB
R1-1805038.zip	2018/04/06 10:43	30,6 KB
R1-1805039.zip	2018/04/07 5:57	68,9 KB
R1-1805040.zip	2018/04/07 5:57	155,5 KB
R1-1805041.zip	2018/04/07 5:57	65,3 KB
R1-1805042.zip	2018/04/07 5:57	53,1 KB
R1-1805043.zip	2018/04/07 5:57	86,7 KB
R1-1805044.zip	2018/04/07 5:57	84,8 KB
R1-1805045.zip	2018/04/07 5:57	171,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805046.zip	2018/04/07 5:57	120,6 KB
R1-1805047.zip	2018/04/07 5:57	59 KB
R1-1805048.zip	2018/04/07 5:35	187,6 KB
R1-1805049.zip	2018/04/07 5:35	99,4 KB
R1-1805050.zip	2018/04/07 5:35	136 KB
R1-1805051.zip	2018/04/07 6:00	88,6 KB
R1-1805052.zip	2018/04/07 5:59	110,5 KB
R1-1805053.zip	2018/04/07 5:59	74,5 KB
R1-1805054.zip	2018/04/07 5:59	99,4 KB
R1-1805055.zip	2018/04/07 5:59	317,6 KB
R1-1805056.zip	2018/04/07 5:35	286,9 KB
R1-1805057.zip	2018/04/07 5:35	89,8 KB
R1-1805058.zip	2018/04/07 5:35	135,7 KB
R1-1805059.zip	2018/04/07 5:35	252,4 KB
R1-1805060.zip	2018/04/06 6:16	69,7 KB
R1-1805061.zip	2018/04/06 17:26	109,6 KB
R1-1805062.zip	2018/04/07 5:35	1142,2 KB
R1-1805063.zip	2018/04/07 5:35	1031,2 KB
R1-1805064.zip	2018/04/07 5:35	92,4 KB
R1-1805065.zip	2018/04/06 10:43	969,8 KB
R1-1805066.zip	2018/04/06 10:43	507 KB
R1-1805067.zip	2018/04/06 10:43	99,3 KB
R1-1805068.zip	2018/04/06 10:43	217,7 KB
R1-1805069.zip	2018/04/06 6:16	71,2 KB
R1-1805070.zip	2018/04/06 6:16	59,9 KB
R1-1805071.zip	2018/04/06 10:43	30,1 KB
R1-1805072.zip	2018/04/06 10:43	156,4 KB
R1-1805073.zip	2018/04/06 17:26	427,8 KB
R1-1805074.zip	2018/04/06 17:26	62,6 KB
R1-1805075.zip	2018/04/06 17:26	64,1 KB
R1-1805076.zip	2018/04/06 17:26	60,2 KB
R1-1805077.zip	2018/04/06 22:23	59,2 KB
R1-1805078.zip	2018/04/06 12:47	128,3 KB
R1-1805079.zip	2018/04/06 13:05	50,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805080.zip	2018/04/06 12:27	60 KB
R1-1805082.zip	2018/04/06 15:32	170,8 KB
R1-1805083.zip	2018/04/06 15:40	431,6 KB
R1-1805084.zip	2018/04/06 15:40	112,6 KB
R1-1805085.zip	2018/04/06 20:03	145 KB
R1-1805086.zip	2018/04/06 20:03	335,1 KB
R1-1805087.zip	2018/04/06 14:38	93,8 KB
R1-1805088.zip	2018/04/06 14:39	35,3 KB
R1-1805089.zip	2018/04/06 9:20	95,9 KB
R1-1805090.zip	2018/04/06 13:28	33,9 KB
R1-1805091.zip	2018/04/07 5:59	32,5 KB
R1-1805092.zip	2018/04/06 21:04	235,6 KB
R1-1805093.zip	2018/04/07 4:19	1062,9 KB
R1-1805094.zip	2018/04/06 9:20	81,4 KB
R1-1805095.zip	2018/04/06 9:21	151,7 KB
R1-1805096.zip	2018/04/06 9:07	52,5 KB
R1-1805097.zip	2018/04/06 9:07	242,6 KB
R1-1805098.zip	2018/04/06 13:26	118,3 KB
R1-1805099.zip	2018/04/07 4:06	25,4 KB
R1-1805100.zip	2018/04/07 4:06	57,8 KB
R1-1805101.zip	2018/04/07 4:06	54,6 KB
R1-1805102.zip	2018/04/18 0:04	54 KB
R1-1805103.zip	2018/04/07 4:06	45,8 KB
R1-1805104.zip	2018/04/07 4:06	95,7 KB
R1-1805105.zip	2018/04/07 4:06	56,4 KB
R1-1805106.zip	2018/04/07 4:06	118,8 KB
R1-1805107.zip	2018/04/07 4:06	51,2 KB
R1-1805108.zip	2018/04/07 4:06	166 KB
R1-1805109.zip	2018/04/07 4:07	91 KB
R1-1805110.zip	2018/04/07 4:07	211 KB
R1-1805111.zip	2018/04/07 4:07	56,9 KB
R1-1805112.zip	2018/04/07 4:07	51,3 KB
R1-1805113.zip	2018/04/06 9:33	139,4 KB
R1-1805114.zip	2018/04/06 16:42	66,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805115.zip	2018/04/06 16:42	55,6 KB
R1-1805116.zip	2018/04/06 19:08	177,4 KB
R1-1805117.zip	2018/04/06 14:57	29,5 KB
R1-1805118.zip	2018/04/06 14:57	35,1 KB
R1-1805119.zip	2018/04/06 14:57	31,9 KB
R1-1805120.zip	2018/04/06 14:57	33,4 KB
R1-1805121.zip	2018/04/06 14:57	33 KB
R1-1805122.zip	2018/04/06 14:57	33,5 KB
R1-1805123.zip	2018/04/06 14:57	28,3 KB
R1-1805124.zip	2018/04/06 14:57	36,7 KB
R1-1805125.zip	2018/04/06 14:57	83,3 KB
R1-1805126.zip	2018/04/06 14:57	895,2 KB
R1-1805127.zip	2018/04/06 14:57	196,2 KB
R1-1805128.zip	2018/04/06 14:57	31,6 KB
R1-1805129.zip	2018/04/06 14:57	16,9 KB
R1-1805130.zip	2018/04/06 15:39	285,5 KB
R1-1805131.zip	2018/04/07 0:47	22,3 KB
R1-1805132.zip	2018/04/07 0:47	35,7 KB
R1-1805133.zip	2018/04/07 0:47	20,9 KB
R1-1805134.zip	2018/04/06 14:57	46,4 KB
R1-1805135.zip	2018/04/06 14:57	43,3 KB
R1-1805136.zip	2018/04/06 14:57	99,9 KB
R1-1805137.zip	2018/04/06 14:57	57 KB
R1-1805138.zip	2018/04/06 14:57	75,9 KB
R1-1805139.zip	2018/04/06 14:57	97,3 KB
R1-1805140.zip	2018/04/06 14:57	39,7 KB
R1-1805141.zip	2018/04/06 19:16	183,7 KB
R1-1805142.zip	2018/04/06 19:16	72,3 KB
R1-1805143.zip	2018/04/06 19:16	92,6 KB
R1-1805144.zip	2018/04/06 19:16	134,9 KB
R1-1805145.zip	2018/04/06 19:16	58,5 KB
R1-1805146.zip	2018/04/06 13:00	42,6 KB
R1-1805147.zip	2018/04/06 13:00	66,1 KB
R1-1805148.zip	2018/04/06 13:00	82,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805149.zip	2018/04/06 13:00	37,3 KB
R1-1805150.zip	2018/04/06 13:00	68,3 KB
R1-1805151.zip	2018/04/06 11:09	67,8 KB
R1-1805152.zip	2018/04/06 11:09	727 KB
R1-1805153.zip	2018/04/06 13:29	21,7 KB
R1-1805154.zip	2018/04/06 13:38	222 KB
R1-1805155.zip	2018/04/06 11:36	25,7 KB
R1-1805156.zip	2018/04/06 11:44	192,5 KB
R1-1805157.zip	2018/04/06 13:32	168,6 KB
R1-1805158.zip	2018/04/06 13:32	253,2 KB
R1-1805159.zip	2018/04/06 16:43	54,3 KB
R1-1805160.zip	2018/04/06 19:01	16,5 KB
R1-1805161.zip	2018/04/06 19:01	42,9 KB
R1-1805162.zip	2018/04/06 18:59	314,4 KB
R1-1805163.zip	2018/04/06 18:59	106,1 KB
R1-1805164.zip	2018/04/06 18:59	97,6 KB
R1-1805165.zip	2018/04/06 18:59	131 KB
R1-1805166.zip	2018/04/06 18:59	25,5 KB
R1-1805167.zip	2018/04/06 18:59	27,1 KB
R1-1805168.zip	2018/04/06 18:59	276,6 KB
R1-1805169.zip	2018/04/06 23:19	51,8 KB
R1-1805171.zip	2018/04/15 9:57	2209,3 KB
R1-1805172.zip	2018/04/15 9:57	74,1 KB
R1-1805173.zip	2018/04/15 9:57	350,3 KB
R1-1805174.zip	2018/04/15 9:57	707,9 KB
R1-1805176.zip	2018/04/07 5:55	112,4 KB
R1-1805177.zip	2018/04/07 5:55	40,2 KB
R1-1805178.zip	2018/04/07 5:55	139,7 KB
R1-1805179.zip	2018/04/07 5:55	40 KB
R1-1805180.zip	2018/04/07 5:55	76,4 KB
R1-1805181.zip	2018/04/07 5:55	37,2 KB
R1-1805182.zip	2018/04/07 5:55	46,8 KB
R1-1805183.zip	2018/04/07 5:55	247,5 KB
R1-1805184.zip	2018/04/07 5:55	66,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805185.zip	2018/04/07 5:55	378,4 KB
R1-1805186.zip	2018/04/07 5:55	276,1 KB
R1-1805187.zip	2018/04/07 5:55	204,4 KB
R1-1805188.zip	2018/04/07 5:55	111,1 KB
R1-1805189.zip	2018/04/07 5:55	45,8 KB
R1-1805190.zip	2018/04/07 5:55	35,7 KB
R1-1805191.zip	2018/04/07 5:55	63,4 KB
R1-1805192.zip	2018/04/07 5:55	43,4 KB
R1-1805193.zip	2018/04/07 5:55	9,6 KB
R1-1805194.zip	2018/04/07 5:55	42,2 KB
R1-1805195.zip	2018/04/07 5:55	48,5 KB
R1-1805196.zip	2018/04/07 5:55	44,5 KB
R1-1805197.zip	2018/04/07 5:55	43,8 KB
R1-1805198.zip	2018/04/07 5:55	22,3 KB
R1-1805199.zip	2018/04/07 5:55	152,2 KB
R1-1805200.zip	2018/04/07 5:55	63,2 KB
R1-1805201.zip	2018/04/07 5:55	158,2 KB
R1-1805202.zip	2018/04/07 5:55	48,3 KB
R1-1805203.zip	2018/04/07 5:55	57,4 KB
R1-1805204.zip	2018/04/07 5:55	58,3 KB
R1-1805205.zip	2018/04/07 5:55	63,9 KB
R1-1805206.zip	2018/04/07 5:55	144,3 KB
R1-1805207.zip	2018/04/07 5:55	368,8 KB
R1-1805208.zip	2018/04/07 5:55	64,1 KB
R1-1805209.zip	2018/04/06 23:09	29,7 KB
R1-1805210.zip	2018/04/06 19:01	30,9 KB
R1-1805211.zip	2018/04/06 19:01	46,8 KB
R1-1805212.zip	2018/04/06 19:01	11 KB
R1-1805213.zip	2018/04/07 0:42	28,6 KB
R1-1805214.zip	2018/04/07 0:42	29,6 KB
R1-1805215.zip	2018/04/07 0:42	85 KB
R1-1805216.zip	2018/04/07 0:42	58,4 KB
R1-1805217.zip	2018/04/07 0:42	35,7 KB
R1-1805218.zip	2018/04/07 0:42	53,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805219.zip	2018/04/07 0:42	57,5 KB
R1-1805220.zip	2018/04/07 0:42	452,6 KB
R1-1805221.zip	2018/04/07 0:42	201,7 KB
R1-1805222.zip	2018/04/07 0:42	123,5 KB
R1-1805223.zip	2018/04/07 0:42	196,5 KB
R1-1805224.zip	2018/04/07 0:42	74 KB
R1-1805225.zip	2018/04/07 0:42	140,1 KB
R1-1805226.zip	2018/04/06 23:18	54 KB
R1-1805227.zip	2018/04/06 23:18	43,1 KB
R1-1805228.zip	2018/04/06 23:18	49,3 KB
R1-1805229.zip	2018/04/06 23:18	41,7 KB
R1-1805230.zip	2018/04/06 23:18	41,5 KB
R1-1805231.zip	2018/04/06 23:18	146,8 KB
R1-1805232.zip	2018/04/06 23:18	130,8 KB
R1-1805233.zip	2018/04/06 23:18	1169,1 KB
R1-1805234.zip	2018/04/06 23:18	45,7 KB
R1-1805235.zip	2018/04/06 23:18	356,7 KB
R1-1805236.zip	2018/04/06 23:18	67,4 KB
R1-1805237.zip	2018/04/06 23:18	98,5 KB
R1-1805238.zip	2018/04/06 23:18	219,2 KB
R1-1805239.zip	2018/04/07 6:09	234,7 KB
R1-1805240.zip	2018/04/07 6:09	64,2 KB
R1-1805241.zip	2018/04/07 6:09	170,4 KB
R1-1805242.zip	2018/04/07 6:09	114,5 KB
R1-1805244.zip	2018/04/07 6:09	112,3 KB
R1-1805245.zip	2018/04/07 6:09	176 KB
R1-1805246.zip	2018/04/07 6:09	62,1 KB
R1-1805247.zip	2018/04/07 4:19	22,6 KB
R1-1805248.zip	2018/04/06 14:58	126,1 KB
R1-1805249.zip	2018/04/06 20:31	55,6 KB
R1-1805250.zip	2018/04/07 5:48	70,2 KB
R1-1805251.zip	2018/04/07 6:06	90,1 KB
R1-1805252.zip	2018/04/07 15:10	23,3 KB
R1-1805253.zip	2018/04/07 15:10	18,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805254.zip	2018/04/07 15:10	18,5 KB
R1-1805255.zip	2018/04/07 15:10	235,4 KB
R1-1805256.zip	2018/04/07 15:10	188,7 KB
R1-1805257.zip	2018/04/18 0:16	589,8 KB
R1-1805258.zip	2018/04/18 0:16	1623,2 KB
R1-1805259.zip	2018/04/18 0:16	4171,2 KB
R1-1805260.zip	2018/04/10 7:08	46,6 KB
R1-1805261.zip	2018/04/10 7:07	298 KB
R1-1805262.zip	2018/04/18 0:16	96,9 KB
R1-1805263.zip	2018/04/18 0:16	552,3 KB
R1-1805264.zip	2018/04/09 10:10	40,4 KB
R1-1805265.zip	2018/04/09 16:55	817 KB
R1-1805266.zip	2018/04/11 12:50	159,2 KB
R1-1805267.zip	2018/04/18 0:04	42,7 KB
R1-1805268.zip	2018/04/18 0:06	164,7 KB
R1-1805269.zip	2018/04/11 7:45	778,6 KB
R1-1805270.zip	2018/04/11 7:45	84,8 KB
R1-1805271.zip	2018/04/11 19:19	137,1 KB
R1-1805272.zip	2018/04/19 10:19	114,5 KB
R1-1805273.zip	2018/04/12 7:25	30,5 KB
R1-1805274.zip	2018/04/18 0:16	312,1 KB
R1-1805275.zip	2018/04/18 0:16	22,4 KB
R1-1805276.zip	2018/04/12 7:25	139,3 KB
R1-1805277.zip	2018/04/18 0:06	40,8 KB
R1-1805278.zip	2018/04/18 0:16	231,7 KB
R1-1805279.zip	2018/04/19 10:19	41,2 KB
R1-1805280.zip	2018/04/18 0:04	59,2 KB
R1-1805281.zip	2018/04/18 0:04	58,6 KB
R1-1805282.zip	2018/04/18 0:04	62,7 KB
R1-1805283.zip	2018/04/18 0:06	49,9 KB
R1-1805284.zip	2018/04/18 0:04	588,4 KB
R1-1805286.zip	2018/04/18 0:06	348 KB
R1-1805287.zip	2018/04/19 10:19	54,1 KB
R1-1805288.zip	2018/04/18 0:06	58 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805289.zip	2018/04/18 0:06	123,5 KB
R1-1805290.zip	2018/04/18 0:06	130,9 KB
R1-1805291.zip	2018/04/18 0:06	60,6 KB
R1-1805292.zip	2018/04/24 11:40	74,9 KB
R1-1805293.zip	2018/04/24 11:40	46,4 KB
R1-1805294.zip	2018/04/18 0:04	54,2 KB
R1-1805295.zip	2018/04/18 0:04	42,2 KB
R1-1805296.zip	2018/04/18 0:04	42,6 KB
R1-1805297.zip	2018/04/18 0:06	1609 KB
R1-1805298.zip	2018/04/24 11:40	42,7 KB
R1-1805299.zip	2018/04/24 11:40	43 KB
R1-1805300.zip	2018/04/24 11:40	42,8 KB
R1-1805301.zip	2018/04/24 11:40	33,6 KB
R1-1805302.zip	2018/04/24 11:40	33,7 KB
R1-1805303.zip	2018/04/24 11:40	33,7 KB
R1-1805304.zip	2018/04/24 11:40	32,5 KB
R1-1805305.zip	2018/04/18 0:06	50,8 KB
R1-1805306.zip	2018/04/18 0:06	34,5 KB
R1-1805307.zip	2018/04/19 10:19	157 KB
R1-1805308.zip	2018/04/18 0:06	47,5 KB
R1-1805309.zip	2018/04/18 0:06	57,5 KB
R1-1805310.zip	2018/04/18 0:04	49,9 KB
R1-1805311.zip	2018/04/18 0:06	81,5 KB
R1-1805312.zip	2018/04/18 0:06	134,3 KB
R1-1805313.zip	2018/04/18 0:06	57,3 KB
R1-1805314.zip	2018/04/18 0:06	73,3 KB
R1-1805315.zip	2018/04/18 0:04	83,1 KB
R1-1805316.zip	2018/04/18 0:04	28,6 KB
R1-1805317.zip	2018/04/18 0:04	30,3 KB
R1-1805318.zip	2018/04/18 0:06	50,8 KB
R1-1805319.zip	2018/04/18 0:05	56,6 KB
R1-1805320.zip	2018/04/18 0:05	55,2 KB
R1-1805321.zip	2018/04/18 0:05	11 KB
R1-1805322.zip	2018/04/18 0:04	117,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805323.zip	2018/04/24 11:40	98,6 KB
R1-1805324.zip	2018/04/19 10:19	34,6 KB
R1-1805325.zip	2018/04/18 0:05	31,2 KB
R1-1805326.zip	2018/04/18 0:05	34,2 KB
R1-1805327.zip	2018/04/18 0:05	30,2 KB
R1-1805328.zip	2018/04/18 0:05	84 KB
R1-1805329.zip	2018/04/24 11:40	34,3 KB
R1-1805330.zip	2018/04/24 11:40	34,3 KB
R1-1805331.zip	2018/04/18 0:05	32,4 KB
R1-1805332.zip	2018/04/19 10:19	32,4 KB
R1-1805333.zip	2018/04/19 10:19	32,4 KB
R1-1805334.zip	2018/04/24 11:40	11,4 KB
R1-1805335.zip	2018/04/24 11:40	33,7 KB
R1-1805336.zip	2018/04/24 11:40	148,8 KB
R1-1805337.zip	2018/04/19 10:19	540,1 KB
R1-1805338.zip	2018/04/19 10:19	42,4 KB
R1-1805339.zip	2018/04/19 10:19	42,3 KB
R1-1805341.zip	2018/04/18 0:05	33,3 KB
R1-1805342.zip	2018/04/18 0:05	804,7 KB
R1-1805343.zip	2018/04/18 0:05	238,9 KB
R1-1805344.zip	2018/04/19 10:19	53,2 KB
R1-1805345.zip	2018/04/24 11:40	46,5 KB
R1-1805346.zip	2018/04/24 11:40	41,1 KB
R1-1805347.zip	2018/04/18 0:05	11 KB
R1-1805348.zip	2018/04/18 0:05	73,9 KB
R1-1805349.zip	2018/04/24 11:40	58,1 KB
R1-1805350.zip	2018/04/24 11:39	47,4 KB
R1-1805351.zip	2018/04/18 0:05	159,3 KB
R1-1805352.zip	2018/04/18 0:05	159,3 KB
R1-1805353.zip	2018/04/19 10:19	41,3 KB
R1-1805354.zip	2018/04/24 11:39	50,5 KB
R1-1805355.zip	2018/04/19 10:19	27,7 KB
R1-1805356.zip	2018/04/18 0:16	35,8 KB
R1-1805357.zip	2018/04/19 10:19	79,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805358.zip	2018/04/19 10:19	19,2 KB
R1-1805359.zip	2018/04/24 11:39	41,2 KB
R1-1805360.zip	2018/04/24 11:39	41,3 KB
R1-1805361.zip	2018/04/24 11:39	30,6 KB
R1-1805362.zip	2018/04/24 11:39	30,7 KB
R1-1805363.zip	2018/04/19 10:19	29,2 KB
R1-1805364.zip	2018/04/24 11:39	43,3 KB
R1-1805365.zip	2018/04/24 11:39	43,2 KB
R1-1805366.zip	2018/04/19 10:19	37,6 KB
R1-1805367.zip	2018/04/24 11:39	41,1 KB
R1-1805368.zip	2018/04/24 11:39	41,2 KB
R1-1805369.zip	2018/04/24 11:39	28,5 KB
R1-1805370.zip	2018/04/24 11:39	28,6 KB
R1-1805371.zip	2018/04/24 11:39	42,5 KB
R1-1805372.zip	2018/04/24 11:39	42,5 KB
R1-1805373.zip	2018/04/24 11:39	30 KB
R1-1805374.zip	2018/04/24 11:39	30,1 KB
R1-1805375.zip	2018/04/19 10:19	58,3 KB
R1-1805376.zip	2018/04/24 11:39	156,3 KB
R1-1805377.zip	2018/04/24 11:39	79,9 KB
R1-1805378.zip	2018/04/19 10:19	48,8 KB
R1-1805379.zip	2018/04/19 10:19	19,8 KB
R1-1805380.zip	2018/04/19 10:19	51,4 KB
R1-1805382.zip	2018/04/24 11:39	41,5 KB
R1-1805383.zip	2018/04/19 10:19	19,6 KB
R1-1805384.zip	2018/04/19 10:19	51,4 KB
R1-1805385.zip	2018/04/24 11:39	30,1 KB
R1-1805386.zip	2018/04/19 10:19	25,9 KB
R1-1805387.zip	2018/04/24 11:39	29,1 KB
R1-1805388.zip	2018/04/19 10:19	19,6 KB
R1-1805389.zip	2018/04/19 10:19	354,4 KB
R1-1805390.zip	2018/04/24 11:39	29,3 KB
R1-1805391.zip	2018/04/24 11:39	28,1 KB
R1-1805392.zip	2018/04/24 11:39	32,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805393.zip	2018/04/24 11:39	79,2 KB
R1-1805394.zip	2018/04/24 11:39	2209 KB
R1-1805395.zip	2018/04/24 11:39	53,6 KB
R1-1805396.zip	2018/04/24 11:39	31,1 KB
R1-1805397.zip	2018/04/24 11:39	28,3 KB
R1-1805398.zip	2018/04/24 11:39	17,1 KB
R1-1805399 .zip	2018/04/24 11:39	42,4 KB
R1-1805400.zip	2018/04/24 11:39	60,9 KB
R1-1805401.zip	2018/04/24 11:39	32,7 KB
R1-1805402.zip	2018/04/24 11:39	32,4 KB
R1-1805403.zip	2018/04/24 11:39	17,1 KB
R1-1805404.zip	2018/04/24 11:39	17,2 KB
R1-1805405.zip	2018/04/24 11:39	11,2 KB
R1-1805406.zip	2018/04/24 11:39	48,8 KB
R1-1805407.zip	2018/04/24 11:39	11,1 KB
R1-1805408.zip	2018/04/24 11:39	31,2 KB
R1-1805409.zip	2018/04/24 11:39	62,2 KB
R1-1805410.zip	2018/04/24 11:39	26,5 KB
R1-1805411.zip	2018/04/24 11:39	150,7 KB
R1-1805412.zip	2018/04/24 11:39	81,6 KB
R1-1805413.zip	2018/04/24 11:39	50,1 KB
R1-1805414.zip	2018/04/24 11:39	141,1 KB
R1-1805415.zip	2018/04/24 11:39	141,9 KB
R1-1805416.zip	2018/04/24 11:39	157,5 KB
R1-1805417.zip	2018/04/24 11:39	42,3 KB
R1-1805418.zip	2018/04/24 11:39	203,2 KB
R1-1805419.zip	2018/04/24 11:39	11,4 KB
R1-1805420.zip	2018/04/24 11:39	13 KB
R1-1805421.zip	2018/04/24 11:39	123,7 KB
R1-1805422.zip	2018/04/24 11:39	128,7 KB
R1-1805423.zip	2018/04/24 11:39	144 KB
R1-1805424.zip	2018/04/24 11:39	142,6 KB
R1-1805425.zip	2018/04/24 11:39	138,8 KB
R1-1805426.zip	2018/04/24 11:39	210,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805427.zip	2018/04/24 11:39	152 KB
R1-1805428.zip	2018/04/24 11:39	181,8 KB
R1-1805429.zip	2018/04/24 11:38	144,1 KB
R1-1805430.zip	2018/04/24 11:38	141,1 KB
R1-1805431.zip	2018/04/24 11:38	139,5 KB
R1-1805432.zip	2018/04/24 11:38	296,1 KB
R1-1805433.zip	2018/04/24 11:38	11,9 KB
R1-1805434.zip	2018/04/24 11:38	11,4 KB
R1-1805435.zip	2018/04/24 11:38	12,6 KB
R1-1805436.zip	2018/05/09 10:42	161,7 KB
R1-1805437.zip	2018/05/08 19:58	162,9 KB
R1-1805438.zip	2018/05/14 19:52	37,6 KB
R1-1805439.zip	2018/05/14 19:53	27,7 KB
R1-1805440.zip	2018/05/14 19:52	41,3 KB
R1-1805441.zip	2018/05/14 19:52	59,2 KB
R1-1805495.zip	2018/05/09 10:40	370,7 KB
R1-1805496.zip	2018/05/09 10:40	1415,6 KB
R1-1805497.zip	2018/05/09 10:40	626,1 KB
R1-1805498.zip	2018/05/09 10:41	374,2 KB
R1-1805499.zip	2018/05/09 10:41	446,3 KB
R1-1805500.zip	2018/04/18 0:04	99,8 KB
R1-1805501.zip	2018/04/18 0:04	60,9 KB
R1-1805502.zip	2018/04/18 0:03	56,6 KB
R1-1805503.zip	2018/04/18 0:03	68,2 KB
R1-1805504.zip	2018/04/18 0:03	53,7 KB
R1-1805505.zip	2018/04/18 0:03	136,1 KB
R1-1805506.zip	2018/04/18 0:16	166,9 KB
R1-1805507.zip	2018/04/18 0:16	89,6 KB
R1-1805508.zip	2018/04/18 0:03	69,8 KB
R1-1805509.zip	2018/04/18 0:03	96,5 KB
R1-1805510.zip	2018/04/18 0:16	71,2 KB
R1-1805511.zip	2018/04/18 0:05	1470,5 KB
R1-1805512.zip	2018/04/18 0:03	89,7 KB
R1-1805513.zip	2018/04/18 0:03	80,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805514.zip	2018/04/18 0:03	131,7 KB
R1-1805515.zip	2018/04/18 0:03	401,9 KB
R1-1805516.zip	2018/04/18 0:03	59,4 KB
R1-1805517.zip	2018/04/18 0:16	187,9 KB
R1-1805518.zip	2018/04/24 11:38	92,6 KB
R1-1805519.zip	2018/04/18 0:03	216,7 KB
R1-1805520.zip	2018/04/18 0:16	175,1 KB
R1-1805521.zip	2018/04/18 0:03	173,7 KB
R1-1805522.zip	2018/04/19 10:19	300,3 KB
R1-1805523.zip	2018/04/18 0:15	13,3 KB
R1-1805524.zip	2018/04/18 0:03	354,4 KB
R1-1805525.zip	2018/04/18 0:03	205,8 KB
R1-1805527.zip	2018/04/18 0:15	142 KB
R1-1805528.zip	2018/04/18 0:03	1794,3 KB
R1-1805529.zip	2018/04/18 0:05	41,9 KB
R1-1805530.zip	2018/04/18 0:03	240,5 KB
R1-1805531.zip	2018/04/18 0:03	112,9 KB
R1-1805532.zip	2018/04/18 0:03	70,2 KB
R1-1805533.zip	2018/04/18 0:03	335,4 KB
R1-1805535.zip	2018/04/18 0:03	1041,9 KB
R1-1805536.zip	2018/04/18 0:03	241,4 KB
R1-1805537.zip	2018/04/18 0:03	104,2 KB
R1-1805538.zip	2018/04/24 11:38	548,7 KB
R1-1805539.zip	2018/04/18 0:05	104,6 KB
R1-1805540.zip	2018/04/18 0:05	459,6 KB
R1-1805541.zip	2018/04/18 0:05	73,9 KB
R1-1805542.zip	2018/04/19 10:19	72,2 KB
R1-1805543.zip	2018/04/18 0:05	75,6 KB
R1-1805544.zip	2018/04/18 0:05	227,2 KB
R1-1805545.zip	2018/04/18 0:03	53,4 KB
R1-1805546.zip	2018/04/18 0:03	152,3 KB
R1-1805547.zip	2018/04/18 0:03	32,9 KB
R1-1805548.zip	2018/04/18 0:03	34,2 KB
R1-1805549.zip	2018/04/24 11:38	89,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805550.zip	2018/04/19 10:19	234 KB
R1-1805551.zip	2018/04/18 0:03	119,1 KB
R1-1805552.zip	2018/04/18 0:03	36 KB
R1-1805553.zip	2018/04/18 0:05	257,4 KB
R1-1805554.zip	2018/04/18 0:03	109,1 KB
R1-1805555.zip	2018/04/18 0:05	1087,2 KB
R1-1805556.zip	2018/04/18 0:03	29,2 KB
R1-1805557.zip	2018/04/18 0:05	170,8 KB
R1-1805558.zip	2018/04/18 0:03	202,3 KB
R1-1805559.zip	2018/04/18 0:03	241,1 KB
R1-1805560.zip	2018/04/18 0:03	66,7 KB
R1-1805561.zip	2018/04/18 0:03	117 KB
R1-1805562.zip	2018/04/18 0:03	96,5 KB
R1-1805563.zip	2018/04/18 0:03	64,7 KB
R1-1805564.zip	2018/04/24 11:38	109,6 KB
R1-1805565.zip	2018/04/18 0:05	90,2 KB
R1-1805566.zip	2018/04/18 0:03	137,1 KB
R1-1805567.zip	2018/04/18 0:05	224,7 KB
R1-1805568.zip	2018/04/18 0:03	32 KB
R1-1805569.zip	2018/04/18 0:03	132,8 KB
R1-1805570.zip	2018/04/18 0:05	40,4 KB
R1-1805571.zip	2018/04/19 10:18	39,8 KB
R1-1805572.zip	2018/04/18 0:05	66,6 KB
R1-1805573.zip	2018/04/18 0:05	90,3 KB
R1-1805574.zip	2018/04/24 11:29	139,6 KB
R1-1805575.zip	2018/04/24 11:29	86,9 KB
R1-1805576.zip	2018/04/18 0:05	12,9 KB
R1-1805577.zip	2018/04/18 0:05	357,7 KB
R1-1805578.zip	2018/04/18 0:05	81,9 KB
R1-1805579.zip	2018/04/18 0:15	31,5 KB
R1-1805580.zip	2018/04/18 0:05	514,1 KB
R1-1805581.zip	2018/04/19 10:18	91,2 KB
R1-1805582.zip	2018/04/19 10:18	38,6 KB
R1-1805583.zip	2018/04/18 0:05	71,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805584.zip	2018/04/19 10:18	28,1 KB
R1-1805585.zip	2018/04/18 0:05	458 KB
R1-1805586.zip	2018/04/18 0:05	166,5 KB
R1-1805587.zip	2018/04/18 0:05	32,2 KB
R1-1805588.zip	2018/04/18 0:05	242,3 KB
R1-1805589.zip	2018/04/18 0:05	48,8 KB
R1-1805590.zip	2018/04/18 0:05	45,1 KB
R1-1805591.zip	2018/04/18 0:05	224,1 KB
R1-1805593.zip	2018/04/19 10:18	99,5 KB
R1-1805594.zip	2018/04/18 0:05	119,5 KB
R1-1805595.zip	2018/04/24 10:30	60,9 KB
R1-1805596.zip	2018/04/24 10:30	57,4 KB
R1-1805597.zip	2018/04/18 0:05	29,3 KB
R1-1805598.zip	2018/04/18 0:05	61,2 KB
R1-1805599.zip	2018/04/18 0:05	110,1 KB
R1-1805600.zip	2018/04/24 10:19	238,2 KB
R1-1805601.zip	2018/04/18 0:04	31,7 KB
R1-1805602.zip	2018/04/18 0:04	32,5 KB
R1-1805603.zip	2018/04/24 10:12	34,8 KB
R1-1805604.zip	2018/04/18 0:04	33 KB
R1-1805605.zip	2018/04/19 10:18	73,1 KB
R1-1805606.zip	2018/04/24 10:06	35,9 KB
R1-1805607.zip	2018/04/24 10:06	62,6 KB
R1-1805608.zip	2018/04/19 10:18	81,9 KB
R1-1805609.zip	2018/04/19 10:18	93,3 KB
R1-1805610.zip	2018/04/18 0:04	96,4 KB
R1-1805611.zip	2018/04/18 0:04	177,2 KB
R1-1805612.zip	2018/04/19 10:18	87,3 KB
R1-1805613.zip	2018/04/19 10:18	48,2 KB
R1-1805614.zip	2018/04/18 0:04	149,1 KB
R1-1805615.zip	2018/04/19 10:18	107,2 KB
R1-1805616.zip	2018/04/24 9:33	84,1 KB
R1-1805617.zip	2018/04/19 10:18	29,4 KB
R1-1805618.zip	2018/04/24 9:33	60 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805619.zip	2018/04/24 9:33	11,4 KB
R1-1805620.zip	2018/04/24 9:33	28,2 KB
R1-1805621.zip	2018/04/24 9:33	22,2 KB
R1-1805622.zip	2018/04/24 9:33	24 KB
R1-1805623.zip	2018/04/24 9:33	17,1 KB
R1-1805625.zip	2018/04/24 9:33	11,1 KB
R1-1805626.zip	2018/04/24 9:33	12,6 KB
R1-1805627.zip	2018/04/24 9:33	31,1 KB
R1-1805629.zip	2018/04/19 10:18	453,1 KB
R1-1805630.zip	2018/04/19 10:18	132 KB
R1-1805631.zip	2018/04/19 10:18	17,8 KB
R1-1805632.zip	2018/04/19 10:18	94 KB
R1-1805633.zip	2018/04/19 10:18	78,5 KB
R1-1805634.zip	2018/04/19 10:18	36,6 KB
R1-1805635.zip	2018/04/19 10:18	104,7 KB
R1-1805636.zip	2018/04/19 10:18	38,3 KB
R1-1805637.zip	2018/04/24 9:07	285,1 KB
R1-1805638.zip	2018/04/19 10:18	34,6 KB
R1-1805639.zip	2018/04/24 9:01	40,7 KB
R1-1805640.zip	2018/04/24 9:01	82,7 KB
R1-1805641.zip	2018/04/24 9:01	49,1 KB
R1-1805642.zip	2018/04/24 9:01	52,2 KB
R1-1805643.zip	2018/04/24 9:01	91,3 KB
R1-1805644.zip	2018/04/24 9:01	107,3 KB
R1-1805645.zip	2018/04/19 10:18	165,7 KB
R1-1805646.zip	2018/04/19 10:18	31,6 KB
R1-1805647.zip	2018/04/19 10:18	17,8 KB
R1-1805648.zip	2018/04/24 8:54	397,5 KB
R1-1805649.zip	2018/04/24 8:54	12,1 KB
R1-1805650.zip	2018/04/19 10:18	149,2 KB
R1-1805651.zip	2018/04/24 8:48	12 KB
R1-1805652.zip	2018/04/24 8:48	32,9 KB
R1-1805653.zip	2018/04/24 8:48	29,3 KB
R1-1805654.zip	2018/04/19 10:18	40,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805655.zip	2018/04/19 10:18	40 KB
R1-1805656.zip	2018/04/19 10:18	241,7 KB
R1-1805657.zip	2018/04/19 10:18	17,9 KB
R1-1805658.zip	2018/04/19 10:18	82,4 KB
R1-1805659.zip	2018/04/24 8:35	41,7 KB
R1-1805660.zip	2018/04/19 10:18	100,5 KB
R1-1805661.zip	2018/04/24 8:28	22,3 KB
R1-1805662.zip	2018/04/24 8:28	32 KB
R1-1805663.zip	2018/04/19 10:18	37,5 KB
R1-1805664.zip	2018/04/19 10:18	23 KB
R1-1805665.zip	2018/04/24 8:22	73,1 KB
R1-1805666.zip	2018/04/19 10:18	111,1 KB
R1-1805667.zip	2018/04/24 8:22	91,4 KB
R1-1805668.zip	2018/04/24 8:22	58,6 KB
R1-1805669.zip	2018/04/24 8:22	184,5 KB
R1-1805670.zip	2018/04/24 8:22	182,9 KB
R1-1805671.zip	2018/04/24 8:22	75,7 KB
R1-1805672.zip	2018/04/24 8:22	440,9 KB
R1-1805673.zip	2018/04/24 8:21	285,1 KB
R1-1805674.zip	2018/04/24 8:22	1048,1 KB
R1-1805675.zip	2018/04/24 8:21	344 KB
R1-1805676.zip	2018/04/24 8:21	27,8 KB
R1-1805677.zip	2018/04/24 8:21	62,1 KB
R1-1805678.zip	2018/04/24 8:21	309,1 KB
R1-1805679.zip	2018/04/24 8:21	72 KB
R1-1805680.zip	2018/04/24 8:21	136,3 KB
R1-1805681.zip	2018/04/24 8:21	67,2 KB
R1-1805682.zip	2018/04/24 8:21	140,1 KB
R1-1805683.zip	2018/04/24 8:21	17,9 KB
R1-1805684.zip	2018/04/24 8:21	17,6 KB
R1-1805685.zip	2018/04/24 8:21	124,2 KB
R1-1805686.zip	2018/04/24 8:21	76,1 KB
R1-1805687.zip	2018/04/24 8:21	325 KB
R1-1805688.zip	2018/04/24 8:21	93,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805689.zip	2018/04/24 8:21	75 KB
R1-1805690.zip	2018/04/24 8:21	90 KB
R1-1805691.zip	2018/04/24 8:21	106,2 KB
R1-1805692.zip	2018/04/24 8:21	130,4 KB
R1-1805693.zip	2018/04/24 8:21	72,6 KB
R1-1805694.zip	2018/04/24 8:21	50,2 KB
R1-1805695.zip	2018/04/24 8:21	313,3 KB
R1-1805696.zip	2018/04/24 8:21	97,6 KB
R1-1805697.zip	2018/04/24 8:21	83,6 KB
R1-1805698.zip	2018/04/24 8:21	48,4 KB
R1-1805699.zip	2018/04/24 8:21	34,6 KB
R1-1805700.zip	2018/04/24 8:21	11 KB
R1-1805701.zip	2018/04/24 8:21	227,3 KB
R1-1805702.zip	2018/04/24 8:21	33,2 KB
R1-1805703.zip	2018/04/24 8:21	31,1 KB
R1-1805704.zip	2018/04/24 8:21	224,9 KB
R1-1805705.zip	2018/04/24 8:21	153,2 KB
R1-1805706.zip	2018/04/24 8:21	320,8 KB
R1-1805707.zip	2018/04/24 8:21	136,7 KB
R1-1805708.zip	2018/04/24 8:21	144,7 KB
R1-1805709.zip	2018/04/24 8:20	140,3 KB
R1-1805710.zip	2018/04/24 8:20	17,4 KB
R1-1805711.zip	2018/04/24 8:21	676,7 KB
R1-1805712.zip	2018/04/24 8:20	27,7 KB
R1-1805713.zip	2018/04/24 8:20	16,6 KB
R1-1805714.zip	2018/04/24 8:20	17,1 KB
R1-1805715.zip	2018/04/24 8:20	12,6 KB
R1-1805716.zip	2018/04/24 8:20	24,1 KB
R1-1805717.zip	2018/04/24 8:20	12 KB
R1-1805718.zip	2018/04/24 8:20	12,2 KB
R1-1805719.zip	2018/04/24 8:20	41,2 KB
R1-1805720.zip	2018/04/24 8:20	243,9 KB
R1-1805721.zip	2018/04/24 8:20	40,8 KB
R1-1805722.zip	2018/04/24 8:20	33,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805723.zip	2018/04/24 8:20	29,7 KB
R1-1805724.zip	2018/04/24 8:20	30,1 KB
R1-1805725.zip	2018/04/24 8:20	245,7 KB
R1-1805726.zip	2018/04/24 8:20	30,8 KB
R1-1805727.zip	2018/04/24 8:20	27,2 KB
R1-1805728.zip	2018/04/24 8:20	111,6 KB
R1-1805729.zip	2018/04/24 8:20	14,4 KB
R1-1805730.zip	2018/04/24 8:20	79 KB
R1-1805731.zip	2018/04/24 8:20	63,3 KB
R1-1805732.zip	2018/04/24 8:20	526,3 KB
R1-1805733.zip	2018/04/24 8:20	206,1 KB
R1-1805735.zip	2018/04/24 8:20	35,3 KB
R1-1805736.zip	2018/04/24 8:20	98 KB
R1-1805737.zip	2018/04/24 8:20	85,1 KB
R1-1805738.zip	2018/04/24 8:20	393,2 KB
R1-1805739.zip	2018/04/24 8:20	30,8 KB
R1-1805740.zip	2018/04/24 8:20	12,7 KB
R1-1805741.zip	2018/04/24 8:20	230,9 KB
R1-1805742.zip	2018/04/24 8:20	91,9 KB
R1-1805743.zip	2018/04/24 8:20	43 KB
R1-1805744.zip	2018/04/24 8:20	12,6 KB
R1-1805745.zip	2018/04/24 8:20	80 KB
R1-1805746.zip	2018/04/24 8:20	84,9 KB
R1-1805747.zip	2018/04/24 8:20	54,9 KB
R1-1805748.zip	2018/04/24 8:20	61,8 KB
R1-1805750.zip	2018/04/24 8:20	67,7 KB
R1-1805751.zip	2018/04/24 8:20	21,8 KB
R1-1805752.zip	2018/04/24 8:20	126 KB
R1-1805753.zip	2018/04/24 8:20	151,5 KB
R1-1805754.zip	2018/04/24 8:20	228,3 KB
R1-1805755.zip	2018/04/24 8:20	27,1 KB
R1-1805756.zip	2018/04/24 8:20	30,5 KB
R1-1805757.zip	2018/04/24 8:20	80,1 KB
R1-1805758.zip	2018/04/24 8:20	14,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805759.zip	2018/04/25 20:25	15,9 KB
R1-1805760.zip	2018/04/24 8:20	12 KB
R1-1805761.zip	2018/04/24 8:20	12,1 KB
R1-1805762.zip	2018/04/24 8:20	30,5 KB
R1-1805763.zip	2018/04/24 8:20	14,1 KB
R1-1805764.zip	2018/04/24 8:20	35,9 KB
R1-1805765.zip	2018/04/24 8:20	202,3 KB
R1-1805766.zip	2018/04/24 8:20	19,2 KB
R1-1805767.zip	2018/05/04 11:42	95,7 KB
R1-1805768.zip	2018/05/04 11:42	29 KB
R1-1805769.zip	2018/05/04 6:43	149,6 KB
R1-1805770.zip	2018/05/04 7:49	225,9 KB
R1-1805771.zip	2018/05/14 14:09	21,7 KB
R1-1805772.zip	2018/05/14 14:09	65,8 KB
R1-1805773.zip	2018/05/14 14:09	43,3 KB
R1-1805774.zip	2018/05/01 15:25	1132,3 KB
R1-1805775.zip	2018/05/01 15:25	825,3 KB
R1-1805776.zip	2018/05/01 15:24	991,8 KB
R1-1805777.zip	2018/05/01 15:24	1327,5 KB
R1-1805778.zip	2018/05/01 15:24	26,4 KB
R1-1805779.zip	2018/05/02 9:18	583,9 KB
R1-1805780.zip	2018/05/04 11:38	4868,9 KB
R1-1805781.zip	2018/05/04 11:38	873,5 KB
R1-1805782.zip	2018/05/01 15:24	18,5 KB
R1-1805783.zip	2018/05/02 8:34	11,3 KB
R1-1805784.zip	2018/05/02 8:34	22 KB
R1-1805785.zip	2018/05/02 9:18	41,2 KB
R1-1805786.zip	2018/05/02 9:18	27 KB
R1-1805787.zip	2018/05/04 11:40	14,8 KB
R1-1805788.zip	2018/05/04 12:43	185,9 KB
R1-1805789.zip	2018/05/04 11:40	65,6 KB
R1-1805790.zip	2018/05/07 9:45	182,3 KB
R1-1805791.zip	2018/05/04 12:44	44 KB
R1-1805792.zip	2018/05/08 20:26	31 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1805793.zip	2018/05/04 20:01	1159,4 KB
R1-1805794.zip	2018/05/05 14:04	1418 KB
R1-1805795.zip	2018/05/04 20:01	1050,7 KB
R1-1805796.zip	2018/05/04 20:01	1329,9 KB
R1-1805797.zip	2018/05/04 20:00	26,4 KB
R1-1805798.zip	2018/05/08 19:58	439,8 KB
R1-1805799.zip	2018/05/08 19:58	612,9 KB
TDoc_List_Meeting_RAN1#92-Bis.xlsx	2022/01/10 17:18	521 KB

2146 items.

APPENDIX 30

3GPP_TSG_RAN_WG1 Archives

April 2018, Week 4

3GPP_TSG_RAN_WG1@LIST.ETSI.ORG

Options: Use Monospaced Font
Show Text Part by Default
Show All Mail Headers

Message: [<< First] [< Prev] [Next >] [Last >>]
Topic: [<< First] [< Prev] [Next >] [Last >>]
Author: [<< First] [< Prev] [Next >] [Last >>]

Subject: [RAN1#92bis]: Draft report from Sanya
From: Patrick Merias <[log in to unmask]>
Reply To: Patrick Merias <[log in to unmask]>
Date: Thu, 26 Apr 2018 09:23:36 +0000
Content-Type: multipart/alternative
Parts/Attachments: text/plain (984 bytes) , text/html (4 kB)

Dear all,

Preliminary version is now available @ ftp.3gpp.org/tsg_ran/WG1_RL1/TSGR1_92b/Report
Should be further updated once we've reached some progress regarding the on-going email discussions
All contributions are uploaded (inc. the missing ones that I finally got from you ☺)
3GU Tdoc list is "almost"up to date (I still need reviewing the details of the MIMO session – 7.1.2)
BR,
P

Patrick Merias– Mobile Competence Center Technical Officer
ETSI • www.etsi.org • [log in to unmask]
Phone: +33 (0)4 92 94 42 06 • Mobile: +33 (0)6 07 59 08 47
This email may contain confidential information and is intended for the use of the addressee only. Any unauthorized use may be unlawful. If you receive this email by mistake, please advise the sender immediately by using the reply facility in your email software. Thank you for your co-operation.

ATOM RSS1 RSS2

APPENDIX 31

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

Source: **MCC Support**

Title: **Draft Report of 3GPP TSG RAN WG1 #92bis v0.1.0 (Sanya, China, 16th – 20th April 2018)**

Document for: **Comments**



Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1243 of 1750

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

Table of contents

1 OPENING OF THE MEETING 7
1.1 Call for IPR 7
1.2 Competition law statement 7
1.3 Network usage conditions 7
1.4 Check-in for Registered Delegates 8
1.5 Aspects related to RAN1 Meeting Management 8
2 APPROVAL OF AGENDA 8
3 HIGHLIGHTS FROM RAN PLENARY 8
4 APPROVAL OF MINUTES FROM PREVIOUS MEETING 8
5 INCOMING LIAISON STATEMENTS 8
6 E-UTRA 12
6.1 Maintenance of E-UTRA Releases 8 – 14 12
6.1.1 Maintenance of E-UTRA Release 8 – 13 12
6.1.2 Maintenance of Release 14 Enhanced Licensed-Assisted Access to Unlicensed Spectrum 12
6.1.3 Maintenance of Release 14 V2V/V2X services based on LTE sidelink 12
6.1.4 Maintenance of Release 14 Full-Dimension MIMO for LTE 12
6.1.5 Maintenance of Release 14 Further Enhanced MTC for LTE 13
6.1.6 Maintenance of Release 14 Enhancements of NB-IoT for LTE 13
6.1.7 Other 14
6.2 LTE Release 15 15
6.2.1 Maintenance of Release 15 Shortened TTI and processing time for LTE 15
6.2.1.1 Maintenance for shortened processing time for 1ms TTI 15
6.2.1.2 Maintenance for shortened TTI with shortened processing time 16
6.2.1.2.1 Aspects related to interaction between different TTI lengths 16
6.2.1.2.2 Aspects related to DL control channel 16
6.2.1.2.3 Aspects related to UL control channel 17
6.2.1.2.4 Aspects related to DL data channel 17
6.2.1.2.5 Aspects related to UL data channel 19
6.2.1.2.6 Aspects related to FS2 19
6.2.1.2.7 Other 19
6.2.1.3 Other 20
6.2.2 Maintenance of Release 15 Enhancements to LTE operation in unlicensed spectrum 20
6.2.2.1 TPs for Multiple starting and ending positions in a subframe for UL 21
6.2.2.2 TPs for Autonomous uplink access with Frame Structure type 3 21
6.2.2.3 Other 21
6.2.3 Maintenance of Release 15 Enhancements for high capacity stationary wireless link and introduction of 1024 QAM for LTE 21
6.2.3.1 Text Proposals 22
6.2.3.2 Other 22
6.2.4 Maintenance of Release 15 Further enhancements to Coordinated Multi-Point (CoMP) Operation for LTE 22
6.2.4.1 Text Proposals 22
6.2.5 3GPP V2X Phase 2 - WID in RP-171740 22
6.2.5.1 Carrier Aggregation (up to 8 PC5 carriers) 22
6.2.5.1.1 Mode-4 support 22
6.2.5.1.2 Synchronization 23
6.2.5.1.3 Other 24
6.2.5.2 Support for 64-QAM 24
6.2.5.3 Feasibility and gain of PC5 operation with Transmit Diversity 24
6.2.5.3.1 Transmit diversity solutions 25
6.2.5.3.2 Evaluation results 25
6.2.5.3.3 Other 25
6.2.5.4 Resource pool sharing between mode-3 and mode-4 users 25
6.2.5.5 Maximum time reduction between packet arrival at layer 1 and resource selection for transmission 26
6.2.5.6 Other 26
6.2.6 Even further enhanced MTC for LTE - WID in RP-172811 26
6.2.6.1 Reduced system acquisition time 26

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1244 of 1750

6.2.6.2 Early data transmission 27
6.2.6.3 Downlink channel power efficiency 28
6.2.6.4 Uplink HARQ-ACK feedback 29
6.2.6.5 PUSCH sub-PRB allocation 29
6.2.6.6 Flexible PDSCH/PUSCH starting PRB 31
6.2.6.7 Other 31
6.2.7 Further enhancements of NB-IoT - WID in RP-172063 31
6.2.7.1 Latency and power consumption reduction 31
6.2.7.1.1 Power consumption reduction for paging and connected-mode DRX 31
6.2.7.1.2 Data transmission during the random access procedure 33
6.2.7.1.3 Physical layer scheduling request 34
6.2.7.1.4 Semi-persistent scheduling 35
6.2.7.2 Reduced system acquisition time 35
6.2.7.2.1 Cell search 35
6.2.7.2.2 System Information 35
6.2.7.3 Narrowband measurement accuracy improvements 35
6.2.7.4 NB-IoT small cell support 36
6.2.7.5 NPRACH reliability and range enhancements 36
6.2.7.5.1 Reliability enhancements for NPRACH 36
6.2.7.5.2 Range enhancements for NPRACH 36
6.2.7.6 TDD 37
6.2.7.6.1 Downlink aspects 37
6.2.7.6.2 Uplink aspects 38
6.2.7.6.3 Common aspects 39
6.2.7.7 Other 40
6.2.8 Ultra Reliable Low Latency Communication for LTE - WID in RP-172845 40
6.2.8.1 Blind/HARQ-less Repetition for Scheduled DL-SCH Operation 40
6.2.8.2 Repetition Enhancements for UL SPS Operation 41
6.2.8.3 Other 41
6.2.9 Enhanced LTE Support for Aerial Vehicles - WID in RP-172826 42
6.2.9.1 UL power control enhancements 42
6.2.9.2 Other 42
6.2.10 Enhancing CA Utilization - WID in RP-180561 42
6.2.11 Other 43

7 NR 43

7.1 MAINTENANCE OF NR - WID IN RP-172834 43
7.1.1 Initial access and mobility 44
7.1.1.1 Synchronization signal 44
7.1.1.2 Broadcast signal/channel 46
7.1.1.2.1 NR-PBCH 46
7.1.1.2.2 Remaining minimum system information 47
7.1.1.2.3 Other system information delivery 50
7.1.1.3 Paging design 50
7.1.1.4 Physical random access channel and random access procedure 50
7.1.1.4.1 PRACH formats 50
7.1.1.4.2 RACH procedure 57
7.1.1.5 Mobility procedure 61
7.1.1.5.1 Measurement for mobility management 61
7.1.1.5.2 Radio link monitoring for mobility management 64
7.1.1.6 Other 65
7.1.2 MIMO 66
7.1.2.1 Multi-antenna scheme 66
7.1.2.1.1 Codeword mapping 66
7.1.2.1.2 Codebook based transmission for UL 67
7.1.2.1.3 Non-codebook based transmission for UL 68
7.1.2.1.4 PRB bundling for DL 69
7.1.2.1.5 Other 70
7.1.2.2 CSI acquisition and beam management 70
7.1.2.2.1 CSI measurement 71
7.1.2.2.2 CSI reporting 71
7.1.2.2.3 Beam measurement and reporting 74
7.1.2.2.4 Mechanism to recover from beam failure 75
7.1.2.2.5 CQI and MCS 76

7.1.2.2.6 Other 78
7.1.2.3 Reference signals and QCL 79
7.1.2.3.1 Multiplexing of different types of RSs 79
7.1.2.3.2 CSI-RS 80
7.1.2.3.3 DMRS 82
7.1.2.3.4 PT-RS 87
7.1.2.3.5 SRS 88
7.1.2.3.6 TRS 91
7.1.2.3.7 QCL 92
7.1.2.3.8 Other 92
7.1.2.4 Other 92
7.1.3 Scheduling/HARQ aspects 93
7.1.3.1 Physical downlink control channel 93
7.1.3.1.1 PDCCH structure 93
7.1.3.1.2 Search space 93
7.1.3.1.3 Group-common PDCCH 95
7.1.3.1.4 DCI contents and formats 97
7.1.3.1.5 Other 100
7.1.3.2 Physical uplink control channel 100
7.1.3.2.1 PUCCH structure in short-duration 100
7.1.3.2.2 PUCCH structure in long-duration 102
7.1.3.2.3 UCI multiplexing 104
7.1.3.2.4 Resource allocation for PUCCH 106
7.1.3.2.5 Other 109
7.1.3.3 DL/UL data scheduling and HARQ procedure 109
7.1.3.3.1 DL/UL resource allocation 109
7.1.3.3.2 DL/UL scheduling and HARQ management 112
7.1.3.3.3 CBG-based (re)transmission 115
7.1.3.3.4 UL data transmission procedure 115
7.1.3.3.5 Soft-buffer management for NR 116
7.1.3.3.6 Multiplexing data with different transmission durations 117
7.1.3.3.7 Other 117
7.1.3.4 Other aspects on carrier aggregation and bandwidth parts 118
7.1.3.4.1 Other aspects on bandwidth Parts 118
7.1.3.4.2 Other aspects on carrier aggregation 120
7.1.3.5 Rate matching aspects for NR DL and UL 121
7.1.3.6 Other 122
7.1.4 Channel coding 122
7.1.5 NR-LTE co-existence 122
7.1.6 UL power control 123
7.1.6.1 NR UL power control - non-CA aspects 123
7.1.6.2 NR UL power control – CA aspects 124
7.1.6.3 Other 125
7.1.7 UE features 125
7.1.8 Other 126
7.2 NR URLLC IN RELEASE 15 126
7.2.1 Support of separate CQI and MCS table(s) for URLLC 126
7.2.2 Study of necessity of a new DCI format 129
7.2.3 Study of necessity of PDCCH repetition 130
7.2.4 Study of handling UL multiplexing of transmissions with different reliability requirements 132
7.2.5 Other 135
7.3 STUDY ON ENHANCED NR TO SUPPORT NON-TERRESTRIAL NETWORKS - SID IN RP-171450 135
7.3.1 Channel Model 136
7.3.2 Other 150
7.4 STUDY ON NON-ORTHOGONAL MULTIPLE ACCESS FOR NR - SID IN RP-171043 150
7.4.1 Transmitter side signal processing schemes for NOMA 150
7.4.2 Receivers for NOMA 152
7.4.3 Procedures related to NOMA 153
7.4.4 Link and system level performance evaluation for NOMA 155
7.4.5 Other 159
7.5 STUDY ON EVALUATION METHODOLOGY OF NEW V2X USE CASES - SID IN RP-170837 159
7.5.1 Evaluation scenarios 160
7.5.2 Channel Model 162

7.5.3 Other 166
7.6 Study on NR-based Access to Unlicensed Spectrum - SID in RP-172021 166
7.6.1 Simulation Methodology for NR-U operation 166
7.6.2 Frame structure for NR-U operation 168
7.6.3 Potential physical layer channel design 168
7.6.4 Potential physical layer procedures 169
7.6.5 Other 170
7.7 Study on Integrated Access and Backhaul for NR - SID in RP-172290 170
7.7.1 Enhancements to support NR backhaul links 170
7.7.2 Evaluation methodology for NR IAB 172
7.7.3 Other 175
7.8 Study on Self Evaluation towards IMT-2020 Submission 175
7.8.1 Evaluation methodology 175
7.8.2 Other 175
7.9 Other 176
8 CLOSING OF THE MEETING 176
ANNEX A: LIST OF TDOCS AT RAN1 #92BIS 177
ANNEX B: LIST OF CRS AGREED AT RAN1 #92BIS 178
ANNEX C-1: LIST OF OUTGOING LSS FROM RAN1 #92BIS 179
ANNEX C-2: LIST OF INCOMING LSS FROM RAN1 #92BIS 180
ANNEX D: LIST OF APPROVED UPDATED WIDS 181
ANNEX E: LIST OF DRAFT TSS/TRS AGREED AT RAN1 #92BIS 182
ANNEX F: LIST OF ACTIONS 183
ANNEX G: LIST OF PARTICIPANTS AT RAN1 #92BIS 186
ANNEX H: TSG RAN WG1 MEETINGS IN 2018 – 2019 187

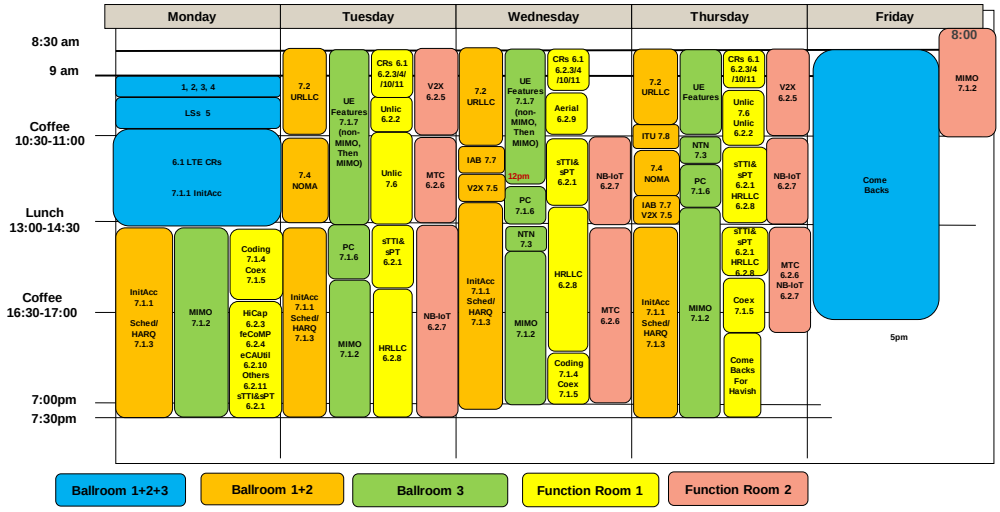
Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1247 of 1750

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

Main facts summary

The 3GPP TSG WG RAN1#92bis meeting, hosted by Chinese Friends of 3GPP, was held at the Westin Sanya Haitang Bay Resort, Sanya, China.
The meeting started at 9:00 on Monday 16th April and finished at 16:31 on Friday 20th April 2018.
The number of attending delegates, having confirmed their participation through the electronic check-in application, was 418**.**
Note that the number of registered was 554.

The schedule of the week was as follows:



The list of action points that required RAN1 close follow-up is listed in Annex F (end of document).

The number of contributions for this meeting was **xxxx**.

Note: The amount of documents includes those discussed during the email discussion session post meeting.

	Contribution is agreed/approved
	Contribution is not pursued (no consensus)
	Further discussion is required – come-back needed
	Working assumption
	Specific action needed from MCC
	Contribution is for email discussion/approval

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1248 of 1750

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

1 Opening of the meeting

Mr Wanshi Chen (RAN1 Chairman) welcomed the participants of the RAN WG1 #92 bis meeting and opened the meeting at 09:00.

Mr Xueming Pan from vivo on behalf of the Chinese Friends of 3GPP, Apple Computer Trading Co., Ltd., BEIJING SAMSUNG TELECOM R&D CENTER, China Academy of Information and Communications Technology, China Academy of Telecommunication Technology, China Information Technology Design & Consulting Institute Co., Ltd., China Mobile Communications Corporation, China Telecommunications Corporation, China Unicom, Guangdong OPPO Mobile Telecommunications Corp., Ltd., Huawei Technologies Co.,Ltd., Intel China Ltd., Nanjing Ericsson Panda Com Ltd., Qualcomm Wireless Communication Technologies (China) Ltd., vivo Mobile Communication Co., Ltd., ZTE Corporation, welcomed the delegates, and detailed the domestic arrangements for the full week.

Before any other duties, RAN1 paid a tribute to Gabriel Lin who passed away on April 6th. Gabriel was MediaTek's 3GPP lead, and has been a great person to work with in the past years.

1.1 Call for IPR

The attention of the members of this Technical Specification Group was drawn to the fact ***that 3GPP Individual Members have the obligation*** *under the IPR Policies of their respective Organizational Partners to* ***inform their respective*** *Organizational Partners* ***of Essential IPRs they become aware of****.*
The members take note that they are hereby invited:

- *to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.*
- *to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Information Statement and the Licensing declaration forms (e.g. see the ETSI IPR forms http://webapp.etsi.org/Ipr/).*

1.2 Competition law statement

The Chairman also drew Member's attention to the fact that 3GPP activities are subject to antitrust and competition laws and that compliance with said laws is therefore required of any participant of this WG meeting including the Chairman and Vice Chairmen. In case of question, please contact your legal counsel.
The present meeting will be conducted with strict impartiality and in the interests of 3GPP.
Furthermore, the Chairman reminded Members that timely submission of work items/contributions in advance of WG meetings is important to allow for full and fair consideration of such matters.

1.3 Network usage conditions

The PCG has laid down the following network usage conditions:

Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws.

Users shall not engage in non-work related activities that consume excessive bandwidth or cause significant degradation of the performance of the network.
Since the **network is a shared resource**, users should exercise some basic etiquette when using the 3GPP network at a meeting. It is understood that high bandwidth applications such as downloading large files or video streaming might be required for business purposes, but delegates should be strongly discouraged in performing these activities for personal use. Downloading a movie or doing something in an interactive environment for personal use essentially wastes bandwidth that others need to make the meeting effective. The meeting chairman should remind end users that the network is a shared resource; the more one user grabs, the less there is for another. Email and its attachments already take up significant bandwidth (certain email programs are not very bandwidth efficient). In case of need the chair can ask the delegates to restrict IT usage to things that are essential for the meeting itself.

1. DON'T place your WiFi device in ad-hoc mode
2. DON'T set up a personal hotspot in the meeting room
3. DO try 802.11a if your WiFi device supports it
4. DON'T manually allocate an IP address
5. DON'T be a bandwidth hog by streaming video, playing online games, or downloading huge files

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1249 of 1750

6. DON'T use packet probing software which clogs the local network (e.g., packet sniffers or port scanners)

1.4 Check-in for Registered Delegates

The attention of the delegates to this meeting was drawn to the fact that it is not permitted to check in other delegates on their behalf. In the event of technical difficulties preventing check-in, delegates should present themselves in person to the Secretary.

1.5 Aspects related to RAN1 Meeting Management

Delegates are encouraged to check R1-1718766 for some thoughts on RAN1 meeting management.

2 Approval of Agenda

R1-1803570 Draft Agenda of RAN1#92bis meeting RAN1 Chair
Wanshi Chen (RAN1 Chair) proposed the agenda for the meeting, as well the schedule of the week.
Discussion: No comments.
Decision: The agenda is approved.

3 Highlights from RAN plenary

R1-1803572 Highlights from RAN#79RAN1 Chair
The document was presented by Wanshi Chen (RAN1 Chair) and provides the highlights relevant to RAN1 from the last plenary.
Discussion: All LTE CRs were approved, except "Early contention resolution CRs – 36.213 CR 1044/1045", which were postponed due to incompletion in RAN2. MCC will re-submit the two CRs to RAN#80
Decision: The document is noted.

4 Approval of Minutes from previous meeting

R1-1803571 Report of RAN1#92 meeting ETSI
The document was presented by Patrick Merias from MCC (ETSI Mobile Competence Center) and provides the report from last RAN1#92 meeting in Athens.
Discussion: MCC recalled the decision to use .docx format for RAN1 specs – ahead of all other WGs – with the intention to solving the equation editor issue in Word.
CR0273 to 36.212 on deriving number of available symbols for PUSCH – implemented in Rel-14 but not properly reflected in Rel-15 - MCC will take the necessary corrective action to solve the issue – no need for a new CR.
Decision: The document is approved.

5 Incoming Liaison Statements

LTE

R1-1803580 Reply LS on HARQ-ACK feedback for efeMTC RAN2, Qualcomm

- RAN2 assumes that with "*early termination of MPDCCH monitoring"* in the below sentence, RAN1 refers to "*early termination of MPDCCH monitoring and early termination of any ongoing PUSCH transmission*".
  - "*For early termination of MPDCCH monitoring, RAN1 assumed that this may be used in the following cases:*"
- For case 1; RAN2 thinks that uplink explicit HARQ-ACK for early termination of MPDCCH monitoring and early termination of any ongoing PUSCH transmission can be used to acknowledge the receipt of the *RRCConnectionRelease* message. RAN2 assumes no changes in RAN2 specification to capture this agreement.
- For case 2; RAN2 thinks that using an explicit HARQ-ACK feedback to acknowledge all pending UL HARQ processes is not efficient with respect to UE power consumption. RAN2 agreed that this use case is not supported.

Decision: The document is noted. Details to be handled 6.2.6

R1-1803573 Reply LS to RAN1 on wake-up signal RAN2, Huawei
From RAN2 perspective, it is feasible to apply one wake-up signal to multiple POs in a PTW. The number of POs mapped to one WUS should be configurable by the eNB.
Decision: The document is noted. Details to be handled 6.2.6 & 6.2.7

R1-1803598 LS on NSSS based NRSRP measurement definition RAN4, Nokia
Decision: The document is noted. Details to be handed under 6.2.7

R1-1803585 LS on RAN2 agreements for LTE URLLC RAN2, Ericsson
Decision: The document is noted. Details to be handled 6.2.8

R1-1803589 LS on RAN2 agreements for euCA RAN2, Nokia

RAN2 requests RAN1 to take the enclosed agreements into consideration when defining the CQI feedback for the Dormant Scell state.

Decision: The document is noted. Details to be handled under 6.2.10

NR
(*Including EN-DC*)

R1-1803584 **LS on Frequency Band list** **RAN2, Huawei**

RAN2 agreed to add a list of frequency band indicators in both *FrequencyInfoDL* and *FrequencyInfoUL* IEs. When the IEs are used in dedicated signalling the list will have only a single entry; when used in SIB1 it may have multiple entries and the UE applies the first band in the list that it supports.

Decision: The document is noted.

R1-1803603 **Reply LS on NR SS Raster Shift for Frequency Range 0-2700MHz** **RAN4, ZTE**

RAN4 has discussed the NR SS raster shift for the frequency range of 0-2700MHz, and has made the following working agreements:

- Large shift is used for the SS raster in re-farming bands in the range of 70 - 100 kHz.
- No RMSI signaling is defined for the shift.
- Detailed decision on the exact shift is made at RAN4#86bis.

Note: The large shift may impact on the GSCN values

Decision: The document is noted. Details to be handled under 7.1.1.1

R1-1803586 **Response LS on Maximum TBS for PDSCH containing RMSI/OSI/Paging** **RAN2, Huawei**

RAN2 asks RAN1 to provide feedback on:

1. Whether NR can support approximately 1700 bits RMSI in one TB in all cases.
2. If necessary, whether L1 parameters size in RMSI can be reduced.

Decision: The document is noted.

Details to be handled under 7.1.1.2.2/7.1.1.2.3/7.1.1.3. Reply LS is necessary

R1-1803575 **LS on messagePowerOffsetGroupB** **RAN2, Ericsson**

RAN2 asks RAN1 to confirm the values for parameter *messagePowerOffsetGroupB*.

Decision: The document is noted. Detailed to be handled under 7.1.1.4.2. Reply LS is necessary.

Friday: Unfortunetaly no time to prepare a reply → such reply postponed to next meeting.

R1-1803579 **LS to RAN1 on handling parallel RA procedure and SR procedure** **RAN2, AsusTek**

- In the current RAN2 specs, a UE could perform random access procedure and scheduling request procedure in parallel for single cell, CA, and DC. The UE may need to perform PRACH transmission and SR transmission in the same slot.
- RAN2 doesn't expect any changes in RAN2 specification and would like to inform RAN1 of this possible situation.

Decision: The document is noted. Details to be handled under 7.1.1.4.2. Reply LS is necessary

R1-1803582 **LS on Message 3 size for NR** **RAN2, NTT DOCOMO**

RAN2 asks RAN1 to provide the possible transport block size of CCCH SDU + MAC header (2 octets) delivered as message 3 for NR.

Decision: The document is noted. Details to be handled under 7.1.1.4.2. Reply LS is necessary.

R1-1805029 Draft reply LS on Message 3 size for NR NTT DOCOMO, INC.
R1-1805030 Discussion for NR Message 3 size NTT DOCOMO, INC.
R1-1805214 Draft LS reponse to RAN2 on Message 3 size for NR Ericsson

R1-1803590 **LS on UE measurements for demodulation test setup in FR2** **RAN4, Intel**

Decision: The document is noted.

R1-1805264 **LS on RAN2 agreements on RRM** **RAN2, Huawei**

Decision: The document is noted.

Details to be handled under 7.1.1.5.1

R1-1803577 **LS to RAN1 on Beam- and Cell- Radio-Link-Monitoring** **RAN2, Nokia**

RAN2 requests RAN1 to provide feedback on two aspects:

- Based on the information provided by RAN1 previously, RAN2 understands that up to 8 RLM-RS(s) can be configured for the UE. However, there is no maximum number of BFD RS resources provided yet.

Question 1: Should the maximum number be applicable per RS resource purpose (i.e. separate maximum number for RLM and for BFD) or should the maximum cover both purposes (i.e. a single maximum number value of RLM+BFD RS(s))? What is the maximum number of BFD-RS(s) in the first case or the maximum number of sum of BFD and RLM RS(s) in the second case?

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1251 of 1750

- RAN2 understanding is that it is up to the network configuration how to configure RLM-RS and BFD-RS resources, i.e. they can overlap entirely (i.e. the same RS resources are used for both purposes), overlap partially (i.e. some of RS(s) configured for RLM and for BFD are the same) or they can be completely orthogonal (i.e. all of the resources configured for RLM are different from the ones configured for BFD). However, RAN2 was not sure whether the last option is possible.

Question 2: Can the RS resources for BFD and RLM be completely orthogonal?

Decision: The document is noted. Details to be handled under 7.1.1.5.2 (to lead to the discussion) & 7.1.2.2.3. Reply LS is necessary.

R1-1803722 Draft reply LS to RAN2 on beam- and cell- radio link monitoring CATT
R1-1804446 [Draft] Reply LS on Beam- and Cell- Radio-Link-Monitoring Huawei, HiSilicon
R1-1805099 Draft LS Response to RAN2 on Beam- and Cell- Radio-Link-Monitoring Nokia, Nokia Shanghai Bell
R1-1805213 Draft LS reponse to RAN2 on Beam- and Cell- Radio-Link-Monitoring Ericsson

R1-1803576 LS response to RAN1 on NR MIMO MAC CE RAN2, Huawei

From RAN2 perspective there is no additional latency introduced and this issue regarding latency of MAC CE message application for NR MIMO should be finally decided by RAN1 and/or RAN4.

Decision: The document is noted. Details to be handled under 7.1.2

R1-1803601 LS on PA EVM for pi/2 BPSK and DMRS RAN4, Qualcomm

- Observation 1: For un-shaped waveforms, when ZC DMRS accompanies pi/2 BPSK, PA output may be backed off compared to the PA's capability with pure pi/2 BPSK.
- Observation 2: For shaped waveforms, when ZC DMRS accompanies pi/2 BPSK, PA output may have to be backed off further compared to non-shaped waveforms. Reader is referred to [1] for details. RAN4 believes alternative shaping filter implementations are possible.

Decision: The document is noted. Details to be handed under 7.1.2.3.3

R1-1803574 LS on LTE peak data-rate calculation for EN-DC RAN2, Intel

RAN2 asks RAN1 on the validity of the provided formula for the calculation of the LTE peak data-rate in EN-DC and if needed, requests a corrected formula for RAN2 to use.

Decision: The document is noted.

Detailed to be handled under 7.1.3.3.1 (along with R1-1801324). Reply LS is necessary

R1-1803648 Discussion on UE peak data rate Huawei, HiSilicon
R1-1803649 Draft reply LS on NR UE peak data rate Huawei, HiSilicon
R1-1803699 Draft reply LS on LTE peak data rate calculation for EN-DC Huawei, HiSilicon
R1-1804681 Discussion on L1 data rate Intel Corporation
R1-1804682 DRAFT Reply LS on formula or table for L1 data rate Intel Corporation

R1-1803581 LS on maximum number of CCs for NR CA RAN2, NTT DOCOMO

RAN2 respectfully asks RAN1 to check if RAN1 specs support 32 CCs for NR CA.

Decision: The document is noted. Details to be handled under 7.1.3.4.2. Reply LS is necessary.

R1-1803702 LS reply on maximum number of CCs for NR CA Huawei, HiSilicon

Proposed conclusion:

- From RAN1 perspective, the previous agreements of supporting up to 16 DL carriers in CA and up to 16 UL carriers in CA still hold
- RAN1 does not intend to change the above agreements in Rel-15
- Note: whether or not there is any RAN1 spec update if increasing from 16 to 32 CCs in CA is a separate issue

Friday conclusion:

- From RAN1 perspective, the previous agreements of supporting up to 16 DL carriers in CA and up to 16 UL carriers in CA still hold
- RAN1 does not intend to change the above agreements in Rel-15
- Email discussion/approval of reply LS to R1-1803581 till 4/27 – Fred (NTT DOCOMO)

R1-1803588 Reply LS on SI reception in BWP RAN2, LG Electronics

Question 1: Can SI be broadcast in UE's active BWP if the subcarrier spacing of UE's active BWP is different than the subcarrier spacing of initial BWP?

Question 2: What is the subcarrier spacing (i.e. the subcarrier spacing of UE's active BWP or the subcarrier spacing of initial BWP) used for broadcasting SI in UE's active BWP, if the answer to the Question 1 is YES?

Question 3: Can UE support reception of broadcast SI within UE's active BWP if the answer to question 1 is YES?

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1252 of 1750

In a different scenario, a BWP where paging and SI are broadcast may be overlapped (in frequency) with a UE's active BWP, and both BWPs use the same subcarrier spacing. In this case, if UE's active BWP does not provide paging and broadcast SI, the UE may be able to receive paging and SI from the overlapping BWP that provides paging and SI broadcast, while staying in UE's active BWP.
Question 4: Can UE support reception of broadcast SI from non-active BWP while staying in UE's active BWP, when SI is provided in a non-active BWP part overlapping with UE's active BWP?
Question 5: If the answer to Question 4 is yes, RAN2 would like to also know whether reception of broadcast SI from a non-active BWP while staying in UE's active BWP is mandatory for the UE to support for the case where the BWPs are overlapping
Decision: The document is noted.
Details to be handled under 7.1.3.4.1 (related to also 7.1.1.2/7.1.1.3). Reply LS is necessary
R1-1804506 [draft] Reply LS on SI reception in BWP LG Electronics
R1-1804953 Discussion and draft LS response to SI reception in BWP Motorola Mobility, Lenovo
R1-1804962 [Draft] Reply LS on SI Reception in BWP MediaTek Inc.

R1-1803602 LS on BWP switching delay RAN4, Intel
Decision: The document is noted. Details to be handled under 7.1.3.4.1

R1-1803600 LS on SFTD measurement before EN-DC RAN4, Huawei
Decision: The document is noted. Details to be handled under 7.1.5

R1-1803595 LS reply to RAN1 on P_0 ranges on UL power control RAN4, Huawei
Decision: The document is noted. Details to be handled under 7.1.6

R1-1803596 LS on NR UE feature list RAN, NTT DOCOMO
Decision: The document is noted.
R1-1803604 LS on UE feature list RAN4, NTT DOCOMO, Intel
Decision: The document is noted.
Details to be handled under 7.1.7

R1-1803578 Reply to LS on eV2X evaluation methodology 5GAA WG4, Intel
Decision: The document is noted. Details to be handled under 7.5

R1-1805523 LS on the transmission of video over PC5 interface SA4, Samsung
RAN1 chair: unclear whether these issues relates to LTE only, NR only or both?
Decision: The document is noted. Details to be handled under 7.5. Reply LS is necessary
Friday: No reply available → such reply postponed to next meeting.

R1-1803597 LS on Summary of email discussion "[ITU-R AH 01] Calibration for self-evaluation" ITU-R Ad-Hoc, Huawei
Decision: The document is noted. Details to be handled under 7.8

The following LSs are noted (not to be handled online unless requested)
R1-1803583 Reply LS on required information for NSA on X2 RAN2, Nokia Shanghai Bell
R1-1803587 LS on UL timing difference in EN-DC RAN2, Qualcomm
R1-1803591 Reply LS on clarification in MAC RAN4, Huawei
R1-1803592 LS reply on UE RF related parameters, capabilities and features for NR standalone RAN4, NTT DOCOMO
R1-1803593 LS reply on UE baseband processing capability RAN4, Intel
R1-1803594 Reply LS on NR Idle Mode Measurements RAN4, CMCC
R1-1803599 LS on EARFCN provisioning for Release 15 MTC and Release 15 NB-IOT UE RAN4, Qualcomm
R1-1803605 Acquisition of N_(TA_Offset) for Uplink Transmission RAN4, Ericsson
R1-1805520 LS on L2 measurement specification for NR in R15 SA5, Ericsson

LS received during the week:
R1-1805744 Reply LS on eV2X evaluation methodology SAE C-V2X TC Advanced Application Task-Force, AT&T
Decision: The document is noted.

R1-1805579 Reply LS on handling of multiple numerologies in FeMBMS RAN2, Qualcomm (see 6.1.7)
R1-1805576 LS on NPRS design enhancement for colliding NPRS RAN4, Qualcomm (see 6.1.6)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1253 of 1750

6 E-UTRA

6.1 Maintenance of E-UTRA Releases 8 – 14

R1-1805421 **Chairman's notes of AI 6.1 Maintenance of E-UTRA Releases 8 - 14** **Ad-hoc chair (Ericsson)**
Decision: The document is endorsed, content incorporated below.

6.1.1 Maintenance of E-UTRA Release 8 – 13

36.212
R1-1804500 **Clarification on CRC attachment for DL-SCH and PCH transport channels** **NEC Corporation**
Decision: The intention of the CR is agreed in principle. Offline discussion whether a CR is necessary or not (particularly the need to fine-tuning "reasons for change") and if so, which release the CR will start to apply.
R1-1805327 **Clarification on CRC attachment for DL-SCH and PCH transport channels in NB-IoT**
Decision: CR0285 to 36.212 (Rel-15, F) is agreed.

R1-1804891 **Ordering of P-CSI plus SR in eCA** **Qualcomm Incorporated**
Decision: The draft is CR is endorsed. Final CRs are agreed in R1-1805298 (Rel-13, CR0281), R1-1805299 (Rel-14, CR0282), R1-1805300 (Rel-15, CR0283).

36.213
R1-1804964 **Correction on number of subframes for semistatic codebook determination and transmission over PUSCH Qualcomm Incorporated**
Decision: The draft is CR is endorsed by updating "a PUSCH transmission" to "on PUSCH". Final CR is agreed in R1-1805301 (Rel-13, CR1058), R1-1805302 (Rel-14, CR1059), R1-1805303 (Rel-15, CR1060).

6.1.2 Maintenance of Release 14 Enhanced Licensed-Assisted Access to Unlicensed Spectrum

None.

6.1.3 Maintenance of Release 14 V2V/V2X services based on LTE sidelink

None

6.1.4 Maintenance of Release 14 Full-Dimension MIMO for LTE

36.211
R1-1805280 **Correction on DMRS scrambling ID for semi-open loop transmission** **Huawei, HiSilicon**
(Revision of R1-1803955)
Decision: CR0429r1 to 36.211 Rel-14, F is agreed.
R1-1805281 **Correction on DMRS scrambling ID for semi-open loop transmission** **Huawei, HiSilicon**
(Revision of R1-1803956)
Decision: CR0430r1 to 36.211 Rel-15, A is agreed.

R1-1804892 **On support of advanced CSI** **Qualcomm Incorporated**
Decision: The document is noted.

Agreements:

- Introduce a new UE capability *csi-ReportingAdvancedMaxPorts-r14* that indicates the maximum number of CSI-RS ports supported for advanced CSI.
  - The range of this capability is ENUMERATED {[4], [8], 12, 16, 20, 24, 28}
    - Further offline discussion to finalize the ones in brackets
  - Introduce this capability per BoBC.
  - To keep backward compatibility with current Rel-14 ASN.1:
    - if the UE does not include this capability and indicates csi-ReportingAdvanced-r14 as supported for a BoBC, then the UE supports advanced CSI with 32 ports in that BoBC
    - if the UE includes this capability for a BoBC, then the UE does not indicate csi-ReportingAdvanced-r14 for a BoBC
- Send an LS to RAN2 in R1-1805304 – (after the set of values are finalized)

From maintenance session, the above agreement is modified as:
  - The range of this capability is ENUMERATED {[8], 12, 16, 20, 24, 28}
    - RAN1 will confirm whether the value 8 is included in RAN1#93.

R1-1805304 **Draft LS on Capabilities for advanced CSI in FD-MIMO** **Qualcomm Incorporated**
Decision: Final LS is approved in R1-1805402.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1254 of 1750

6.1.5 Maintenance of Release 14 Further Enhanced MTC for LTE

R1-1804893 **Clarification on CSS monitoring for 5MHz operation Qualcomm Incorporated**
R1-1805273 **Correction on TBS determination for msg 3 retransmission and CSS for fallback Samsung**
Late submission
Decision: Further discussion offline (including the issues in x5273).
Decision: Agreed in principle. Final CR to be prepared in R1-1805361 (36.213 CR1062, Rel-14) and R1-1805362 (36.213 CR1063, Rel-15)
R1-1805353 **Fallback DCI for eMTC Qualcomm**
Decision: Agreed. Final CR in R1-1805359 (36.212 CR 0287, Rel-14) and R1-1805360 (36.212 CR 0288, Rel-15)

R1-1804894 **Correction to timing advance Qualcomm Incorporated**
Decision: Further discussion offline. Revisit in RAN1#93

R1-1804150 **Correction on TPC field in DCI format 6-1A Huawei, HiSilicon**
Decision: Further discussion offline
Decision: Agreed. Final CR in R1-1805329 (36.212 CR 0289, Rel-14) and R1-1805330 (36.212 CR 0286, Rel-15)

6.1.6 Maintenance of Release 14 Enhancements of NB-IoT for LTE

UCG with 2 HARQ processes
R1-1803881 **On NPUSCH uplink compensation gaps for 2 HARQ processes Huawei, HiSilicon**
R1-1804145 **NPUSCH UL gap for 2 HARQ processes MediaTek Inc.**
R1-1804899 **UL Compensation gaps for multiple HARQ Qualcomm Incorporated**
Decision: Further discussion offline
R1-1805358 Clarification of NPUSCH uplink compensation gaps for 2 HARQ processes Huawei, HiSilicon
R1-1805398 Clarification of NPUSCH uplink compensation gaps for 2 HARQ processes Huawei, HiSilicon
Decision: Agreed. Final CRs in R1-1805403 (TS36.213, CR1071, Rel-14, F) and R1-1805404 (TS36.213, CR1072, Rel-15, A)

DL Channel Quality Reporting in Msg 3
R1-1804087 **Discussion on remaining issues for DL CE Level determination in NB-IoT CMCC**
R1-1804144 **CSI Report in Msg3 in Random Acces Procedure in NB-IoT MediaTek Inc.**
R1-1804146 **On downlink channel quality measurement and report in Msg3 Huawei, HiSilicon**
R1-1804168 **Remaining issues on DL measurement reporting in NB-IoT Ericsson**
R1-1804315 **Discussion on measurement report for NB-IoT Samsung**
R1-1804897 **Considerations for DL quality reporting in msg3 for NB-IoT Qualcomm Incorporated**
Decision: Further discussion offline

R1-1805401 **WF on channel quality report in Msg3 for NB-IoT CMCC, ZTE, Sanechips, Samsung, MediaTek**

Agreement:
For the downlink channel quality reporting in msg3:
- RAN1 assumes that the UE is not required to measure additional subframes for this feature (e.g., the measured subframes used for cell reselection before random access can be reused).
  - RAN1 does not intend to define the subframes used for measurement for DL channel quality reporting.
- In Rel-14, this feature is only supported for the anchor carrier on which the UE received msg2.
- RAN1 will not define a reference resource for NPDCCH (i.e., the location in time of the "virtual PDCCH")
- RAN1 considers that the indicated hypothetical NPDCCH repetition number (R) should be derived based on averaging the DL quality during a period of time (to average fading out) without incurring in additional wake-ups for measurement.
- RAN1 leaves the decision on the number and value of candidates of R to be decided by RAN2 and RAN4.

R1-1805405 **Draft LS on downlink channel quality report in Msg3 for NB-IoT CMCC**
Decision: The document is noted. Final LS is approved in R1-1805407 with the following modification:
Change the Action to "RAN1 kindly requests RAN2 and RAN4 to determine the number and value of candidates of R"

NPRS
R1-1805284 **On NPRS for OTDOA Huawei, HiSilicon** (Revision of R1-1804147)
R1-1804167 **On NPRS performance Ericsson**
R1-1804896 **On NPRS performance Qualcomm Incorporated**
Decision: Further discussion offline
R1-1805576 LS on NPRS design enhancement for colliding NPRS RAN4
Decision: The document is noted.

Agreement: A new NPRS sequence should be designed

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1255 of 1750

- Working assumption: The new NPRS sequence can operate in a backward compatible manner with the Rel-14 NPRS by configuration

Others

R1-1804151 Correction on Msg3 power control for NB-IoT Huawei, HiSilicon
Decision: The intention of the CR is agreed in principle. Offline discussion whether a RAN1 CR is necessary or not including refining the wording/parameter name of the change
Decision: Final CR in R1-1805364 (36.213 CR1064, Rel-14, F) and R1-1805365 (36.213 CR1065, Rel-15, A)

R1-1804195 Clarification on NPUSCH postponement ZTE, SaneChips
Conclusion:
- The two proposals in R1-1804195 are aligned with RAN1 understanding
  - No RAN1 spec change is necessary

R1-1804895 Collision with NPRACH in non-anchor carriers Qualcomm Incorporated
Decision: Further discussion offline especially related to parameter *multiCarrier-NPRACH*
R1-1805279 Collision with NPRACH in non-anchor carriers Qualcomm Incorporated
Decision: Agreed. Final CRs in R1-1805367 (36.211 CR0436, Rel-14, F) and R1-1805368 (36.211 CR0437, Rel-15, A)

R1-1804898 On NRS presence in non-anchor carriers Qualcomm Incorporated
Conclusion:
- RAN1 to clarify that the UE can assume that the eNB always transmits NRS in the Type-2 CSS configured by higher layers, as well as 10 NB-IoT DL subframes before and 4 NB-IoT DL subframes after each Type-2 CSS, regardless of whether the eNB detected an NPRACH transmission or not
  - Further discussion offline on the corresponding necessary spec changes

Decision: The text proposal in R1-1804898 is endorsed. Final CRs in R1-1805369 (36.211 CR0438, Rel-14, F) and R1-1805370 (36.211 CR0439, Rel-15, A).

6.1.7 Other

R1-1804196 Correction on PUSCH hopping parameter for eVoLTE ZTE, CMCC
Decision: The draft CR is endorsed in principle. Further check offline the exact parameter name in 36.331 for alignment
R1-1805331 Correction on PUSCH hopping parameter for eVoLTE ZTE, CMCC
Decision: Agreed. Final CRs to be prepared and agreed in R1-1805332 (36.211 CR 0433, Rel-14, F) and R1-1805333 (36.211 CR 0434, Rel-15, A)

R1-1805294 Discussion on the configuration of UL 256QAM Huawei, HiSilicon (Revision of R1-1804440)
R1-1805295 On the configuration of UL 256QAM Huawei, HiSilicon (Revision of R1-1804441)
Decision: The draft CR in x5295 is endorsed in principle. Further check offline on the detaild wording
R1-1805296 On the configuration of UL 256QAM Huawei, HiSilicon (Revision of R1-1804442)
Decision: Discuss further offline for the Rel-15 CR in x5296 especially for the sTTI related aspects
R1-1805338 On the configuration of UL 256QAM Huawei, HiSilicon
Decision: Agreed. Final CRs in R1-1805371 (36.213, CR1066, Rel-14, F) and R1-1805372 (36.213, CR1067, Rel-15, A)

R1-1804900 Issues for SRS Carrier switching Qualcomm Incorporated
Decision: The document is noted.

Agreements:
- For the issue identified as in proposal "In case an SRS transmission in subframe N in a CC without PUSCH/PUCCH is dropped due to collision with a higher priority transmission in subframe N+1, and SRS would have been otherwise transmitted (in case the higher priority transmission in subframe N+1 had not occurred), the UE is not required to transmit any physical signal or channel in subframe N", RAN1 acknowledges the issue
  - Furhter discussion offline to refine the wording of the proposal
    - Note: this may or may not have RAN1 spec impact
- Introduce new UE capability for support of 6-symbol SRS in UpPTS.
- Add a UE capability (per band combination) on the number of simultaneously configurable target CC for SRS switching.
- LS to send to RAN2 for the above two bullets (R1-1805307)

R1-1805307 Draft LS on Capabilities for SRS carrier switching Qualcomm Incorporated
Decision: The document is endorsed and final LS is approved in R1-1805376.

The text proposal in R1-1804900 is endorsed.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1256 of 1750

Final CR in R1-1805373 (36.213, CR1068, Rel-14, F) and R1-1805374 (36.213, CR1069, Rel-15, A)

R1-1805579 **Reply LS on handling of multiple numerologies in FeMBMS** **RAN2**
Email discussion on candidate values for Maximum supported bandwidth T and scaling factors until May 3, 2018 (Alberto, Qualcomm).

6.2 LTE Release 15

6.2.1 Maintenance of Release 15 Shortened TTI and processing time for LTE

- No individual CRs are allowed. Only text proposals are allowed.
  - Later on editors will aggregate all endorsed text proposals for a jumbo CR per spec

R1-1805422 **Chairman's notes of AI 6.2.1 Maintenance of Release 15 Shortened TTI and processing time for LTE Ad-hoc chair (Ericsson)**
Decision: The document is endorsed, content incorporated below.

Friday
Editors to prepare CRs capturing the agreements till April 27th, for comments and endorsement by May 3rd.

R1-1805420 **[DRAFT] LS on additional agreements for shortened TTI and processing time for LTE** **Ericsson**
Decision: The document is endorsed and final LS is approved in R1-1805435.

R1-1803901 Corrections for shortened processing time and shortened TTI in 36.213, s00-s05 Motorola Mobility Germany GmbH
R1-1803902 Corrections for shortened processing time and shortened TTI in 36.213, s06-s09 Motorola Mobility Germany GmbH
R1-1803903 Corrections for shortened processing time and shortened TTI in 36.213, s10-s13 Motorola Mobility Germany GmbH
R1-1803904 Corrections for shortened processing time and shortened TTI in 36.213, s14-xx Motorola Mobility Germany GmbH
Decision: Above CRs to 36.213 were endorsed post#92 over email. They were based on previous version of the spec as v15.1.0 was not available. CR needs to be revised in RAN1#93.

R1-1803954 **Corrections on shortened processing time and shortened TTI in 36 212** **Huawei**
Decision: CR0280 to 36.212 (Rel-15, F) is agreed (was endorsed post#92 over email agreement).

R1-1805146 **Missing agreements from agreed text proposals at RAN1#92** **Ericsson, LG Electronics**
The proposed agreements in section 2 of R1-1805146 except proposal 8 and 11 reflect agreed text proposals

Agreement:
Different UL sTTI lengths can be configured for the serving cells across different PUCCH groups for which sTTI operation is configured.

R1-1803861 Corrections to sTTI and SPT implementation Ericsson
CR based on previous version of the spec as v15.1.0 was not available. CR needs to be revised.
R1-1805171 **Corrections to sTTI and SPT implementation** **Ericsson**
R1-1805394 **Corrections to sTTI and SPT implementation** **Ericsson**
Decision: CR0428r2 to 36.211 (Rel-15, F) is agreed.

6.2.1.1 Maintenance for shortened processing time for 1ms TTI

R1-1804507 **TDD HARQ-ACK resource determination for SPT (36.213)** **LG Electronics, Ericsson, Nokia, Nokia Shanghai Bell**
The text proposal in R1-1804507 is endorsed.

R1-1804871 **Correction on shortened processing time for 1ms TTI** **Sharp**
Text proposal 2 in R1-1804871 is endorsed

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1257 of 1750

R1-1805118 **HARQ ID definition to TDD UL index based PUSCH scheduling for SPT in 36.213 - TP#15 Nokia, Nokia Shanghai Bell, Ericsson**
The text proposals in R1-1805118 are endorsed.

Agreement:
In case shortProcessingTime is configured in a cell when multiple PUSCHs are transmitted by one UL grant in FS2, consecutive HARQ process IDs are used for PUSCH transmission.

R1-1805119 **Retaining UL index based scheduling flexibility for SPT without UpPTS PUSCH (36.213) - TP#16 Nokia, Nokia Shanghai Bell, Ericsson**
Endorse the text proposals in R1-1805119.

Agreement:
Retain the legacy flexibility for TDD Configuration 0 without PUSCH on UpPTS with SPT to schedule PUSCH in subframes 2 and 7 with UL index LSB=1.

Agreement:
Enable uplink index based scheduling for TDD Configuration 6 and SSC 10 with SPT in subframes 5, 6 and 9.
R1-1805387 **UL index based scheduling flexibility for SPT for UL/DL configuration #6 and SSC#10 ZTE, Sanechips**
Endorse the text proposal in R1-1805387

R1-1805120 **Needed correction in 36.213 of applicability of TDD UL PUSCH timing for SPT - TP#17 Nokia, Nokia Shanghai Bell, Qualcomm**
The text proposals in R1-1805120 are endorsed.

R1-1805121 **Support for RRC configurable DM-RS CS for 1ms TTI UL SPS - TP#19 Nokia, Nokia Shanghai Bell, Ericsson**

Agreement:
For 1ms TTI UL SPS operation, different Cyclic shift for DM RS can be configured by RRC (3-bit CS).
- No changes to the SPS activation / release DCI (i.e. DM-RS CS field set to '000').
- Independent UE capability signaling (36.331 impact)
- Independent RRC configuration (i.e. independent from shortProcessingTime or shortTTI configuration, 36.331 impact)

R1-1805150 **Clarification on HARQ sequence for sPT, FS1 and fixed codebook size (36.212) Ericsson, Qualcomm**

6.2.1.2 Maintenance for shortened TTI with shortened processing time

R1-1805415 **Notes from the offline session on LTE sTTI Ericsson**

6.2.1.2.1 Aspects related to interaction between different TTI lengths

R1-1803718 **Handling of collision between PRACH and sTTI Huawei, HiSilicon**
R1-1804901 **Aspects related to interaction between different TTI lengths Qualcomm Incorporated**
Revisit text proposals in sections other than section 5 in R1-1804901 prioritizing the TP in section 4 in RAN1#93.

R1-1805406 **Corrections for supporting two TBs in case of sTTI-to-TTI dynamic switching (TP#57) Qualcomm**
The text proposal in R1-1805406 is endorsed.

R1-1805147 **Text proposal on 1ms HARQ bits inclusion in UL sTTI in case of SPS and HARQ process sharing Ericsson**
Endorse the text proposal in section 2 of R1-1805147
R1-1805354 **Text proposal on 1ms HARQ bits inclusion in UL sTTI in case of SPS and HARQ process Ericsson**
The text proposals in R1-1805354 are endorsed.

R1-1805260 Corrections related to interaction between different TTI lengths LG Electronics, Ericsson
Late submission

6.2.1.2.2 Aspects related to DL control channel

R1-1803714 **Aspects related to DL control channel Huawei, HiSilicon**

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1258 of 1750

R1-1804137 **Clarification on sREG to sCCE mapping for sTTI MediaTek Inc.**
The text proposal in R1-1804137 is endorsed.

R1-1804683 **RE mapping of sPDCCH Intel Corporation, Ericsson, Nokia, Qualcomm**
The text proposal in R1-1804683 is endorsed.

R1-1804902 **Aspects related to DL control channel** **Qualcomm Incorporated**

Agreement:
Support for monitoring sPDCCH on RB sets with different RS types within a TTI is a UE capability.

R1-1805087 Clarification for sPDSCH rate matching behavior with two SPDCCH PRB set MediaTek Inc.
Withdrawn
R1-1805088 **Clarification for assumption in SPT with CSS and USS overlap** **MediaTek Inc.**
R1-1805129 **EPDCCH monitoring restrictions for shorter TTI operation (36.213) - TP#45** **Nokia, Nokia Shanghai Bell, Huawei, LG Electronics, Mediatek, Intel**

Agreement:
The following text proposal for section 9.1.4 of TS 36.213 is endorsed.
--- Start of TP ---
9.1.4 EPDCCH assignment procedure
For each serving cell, higher layer signalling can configure a UE with one or two EPDCCH-PRB-sets for EPDCCH monitoring.
The PRB-pairs corresponding to an EPDCCH-PRB-set are indicated by higher layers as described in Subclause 9.1.4.4. Each EPDCCH-PRB-set consists of set of ECCEs numbered from 0 to $N_{\mathrm{ECCE},p,k}-1$ where $N_{\mathrm{ECCE},p,k}$ is the number of ECCEs in EPDCCH-PRB-set p of subframe k. Each EPDCCH-PRB-set can be configured for either localized EPDCCH transmission or distributed EPDCCH transmission.
The UE shall monitor a set of EPDCCH candidates on one or more activated serving cells as configured by higher layer signalling for control information, where monitoring implies attempting to decode each of the EPDCCHs in the set according to the monitored DCI formats.
A BL/CE UE is not required to monitor EPDCCH.
~~For a serving cell, a~~ A UE configured with higher layer parameters *shortProcessingTime* and/or *shortTTI* for a serving cell, is not required to monitor EPDCCH for that serving cell or on that serving cell.
A UE is not required to monitor EPDCCH in an MBSFN subframe with zero-size non-MBSFN region.
The set of EPDCCH candidates to monitor are defined in terms of EPDCCH UE-specific search spaces.
For each serving cell, the subframes in which the UE monitors EPDCCH UE-specific search spaces are configured by higher layers.
--- End of TP ---

Agreement:
UE can indicate its capability to support the following separately
- EPDCCH and sTTI on different serving cells
- EPDCCH and Shortened processing time on different serving cells

R1-1805149 **TP to 36.211 Excluding TDM support for subslot CRS-based SPDCCH and DMRS-based PDSCH Ericsson, Nokia, Nokia Shanghai Bell, Intel, Huawei, HiSilicon, Qualcomm, LG Electronics**
The text proposals in R1-1805149 are endorsed.

6.2.1.2.3 Aspects related to UL control channel

R1-1803720 **Aspects related to UL control channel** **Huawei, HiSilicon**
R1-1804903 **Aspects related to UL control channel** **Qualcomm Incorporated**
R1-1805310 (revision of R1-1805161) **Correction to UE sounding procedures (36.213)** **Ericsson**
The text proposals in sections 2 and 3 of R1-1805310 are endorsed.

6.2.1.2.4 Aspects related to DL data channel

R1-1803716 Aspects related to DL data channel Huawei, HiSilicon
R1-1804508 Corrections related to DL data channel for sTTI operation LG Electronics, Ericsson, Nokia, Nokia Shanghai Bell, Intel Corporation
R1-1805399 **Corrections related to DL data channel for sTTI operation LG Electronics, Ericsson, Nokia, Nokia Shanghai Bell, Intel Corporation**

Agreement:

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1259 of 1750

The following modifications to Section 7.1 of TS36.213 are agreed.
--- Start of TP ---
7.1 UE procedure for receiving the physical downlink shared channel

<Unchanged parts are omitted>

For a UE configured with higher layer parameter *shortTTI,* the UE is not expected to receive
- PDSCH data transmissions signalled via PDCCH/SPDCCH with CRC scrambled by the C-RNTI/SPS C-RNTI and DCI format 7-1A/7-1B/7-1C/7-1D/7-1E/7-1F/7-1G for a transport block corresponding to a HARQ process with NDI not toggled if the previous PDSCH transmission of the transport block was signalled via PDCCH/EPDCCH with CRC scrambled by the C-RNTI/SPS C-RNTI with DCI format other than DCI format 7-1A/7-1B/7-1C/7-1D/7-1E/7-1F/7-1G when the number of codewords for the previous PDSCH transmissions is two or the transport block size is more than the maximum transport block size supported for slot/subslot-PDSCH transmission.
- PDSCH data transmissions signalled via PDCCH/SPDCCH with CRC scrambled by the C-RNTI/SPS C-RNTI and DCI format 7-1F/7-1G in subslot *n*, if the PDCCH/SPDCCH indicates the absence of the UE-specific reference signal in subslot *n* and if the UE has not received a PDCCH/SPDCCH with CRC scrambled by the C-RNTI/SPS C-RNTI and DCI format 7-1F/7-1G in subslot *n*-1. The UE shall provide the HARQ-ACK response associated with the PDCCH/SPDCCH received in subslot *n*.

For a UE configured with higher layer parameter *shortTTI,* and for PDSCH data transmissions in subslot *n* signalled via PDCCH/SPDCCH of a serving cell with DCI format 7-1F/7-1G, the UE is not expected to decode the PDSCH
- If the DCI associated with subslot-PDSCH indicates the absence of the UE-specific reference signal in subslot *n*-1, and if the DCI associated with subslot-PDSCH indicates the absence of the UE-specific reference signal in subslot *n*, or
- If the DCI in subslot n-1 indicates the presence of DMRS and the DCI in subslot n indicates the absence of DMRS for a subslot-PDSCH received on PRGs other than PRGs on which the subslot-PDSCH was received in subslot n-1, or
- If the DCI associated with subslot-PDSCH indicates the presence of the UE-specific reference signal in subslot *n*-1, and if the DCI associated with subslot-PDSCH indicates the absence of the UE-specific reference signal in subslot *n* with greater number of antenna ports than those indicated in subslot *n*-1.

--- End of TP ---

R1-1805269 **Aspects related to DL data channel** **Qualcomm Incorporated** (Revision of R1-1804904)

Agreement:
The determination of the shifted DMRS pattern is based on the collision between the number of configured layers for the UE and other RS types.

Agreement:
The Text proposal affecting clause 6.4 of TS36.211 in Section 4 “Corrections to Mapping of Symbols to REs for SFBC-based PDSCH (TP#55)”) of R1-1805269 is endorsed.

Agreement:
The Text proposal affecting clause 5.3.1 of TS36.211 in Section 4 “Corrections for DL and UL Scrambling Sequence (TP#56)” of R1-1805269 is endorsed.

R1-1805122 Enabling transmit diversity fallback for DL TM 6 for shorter TTI (36.212, 36.213) - TP#20 Nokia, Nokia Shanghai Bell, Ericsson, LG Electronics, Intel, Qualcomm
R1-1805123 Enabling transmit diversity fallback for DL TM 8 for shorter TTI (36.212, 36.213) - TP#21 Nokia, Nokia Shanghai Bell, Ericsson, LG Electronics
R1-1805124 **Enabling transmit diversity fallback for DL TM 9 and 10 for shorter TTI (36.212, 36.213) - TP#22 Nokia, Nokia Shanghai Bell, LG Electronics**

Agreement:
Define a UE capability for the support of TX diversity transmission using ports 7 and 8 for TM9/10 separately for slot and subslot PDSCH.

Agreement:
Support dynamic TX diversity fallback for TM9 & 10 (through DCI Format 7-1F/7-1G) for up to 2-layer SPDSCH MIMO operation. The alternative Antenna port(s), scrambling identity and number of layers indication table for TX fallback & SU-MIMO up to 2 layers is configured by higher layers.

Agreement:

Support dynamic TX diversity fallback for TM9 & 10 (through DCI Format 7-1F/7-1G) for up to 4-layer SPDSCH MIMO operation. The alternative Antenna port(s), scrambling identity and number of layers indication table for TX fallback & SU-MIMO up to 4 layers is configured by higher layers.

R1-1805126 Corrections on DM-RS for slot PDSCH (36.211) - TP#24 Nokia, Nokia Shanghai Bell, Ericsson, LG Electronics
R1-1805160 Correction to UE behavior in case simultaneous subslot/slot and subframe PDSCH decoding is not supported (36.213) Ericsson, Nokia, Huawei
The text proposal in R1-1805160 is endorsed.

R1-1805412 On modulation for sTTI operation Huawei, HiSilicon

6.2.1.2.5 Aspects related to UL data channel

R1-1803715 Additional DMRS position pattern for subslot #5 Huawei, HiSilicon, Ericsson
R1-1805363 Text proposal on TBS determination for uplink DMRS position pattern DDD Huawei, HiSilicon

R1-1804509 Corrections related to UL data channel for sTTI operation LG Electronics
R1-1805270 Aspects related to UL data channel Qualcomm Incorporated (Revision of R1-1804905)
R1-1805117 Correction of number of UL HARQ processes for shorter TTI and shortened processing time (36.213) - TP#14 Nokia, Nokia Shanghai Bell, Ericsson, Intel
R1-1805148 Text proposal on TPC timing with DCI format 3/3A and short TTI operation Ericsson, LG Electronics, Nokia, Nokia Shanghai Bell, Qualcomm
R1-1805417 On UL TPC initialization after UL shorter TTI configuration Nokia, Nokia Shanghai Bell (Revision of R1-1805317)

6.2.1.2.6 Aspects related to FS2

R1-1803717 Aspects related to FS2 Huawei, HiSilicon
R1-1805125 Changes to FS2 SRS triggering for shorter TTI (36.212, 36.213) - TP#23 Nokia, Nokia Shanghai Bell, Ericsson, Huawei, LG Electronics
R1-1805127 Corrections and simplifications of K_PUSCH for FS2 slot-PUSCH in 36.213 - TP#25 Nokia, Nokia Shanghai Bell, Ericsson
R1-1805128 Correction in 36.213 to TDD UL index based slot PUSCH scheduling - TP#26 Nokia, Nokia Shanghai Bell
R1-1805375 Correcting wrong entry in K_PUSCH Table for FS2 slot-PUSCH in 36.213 Nokia, Nokia Shanghai Bell, Ericsson (Revision of R1-1805127)

6.2.1.2.7 Other

R1-1804410 Correction on mapping to physical resources for slot-SPUCCH format 1/1a/1b with frequency hopping Huawei, HiSilicon, Ericsson, LG Electronics
Text proposal in R1-1804410 is endorsed.

R1-1804411 Discussion on subslot-SPUCCH repetition Huawei, HiSilicon
R1-1804412 Corrections on timing from sPDSCH to HARQ-ACK for SSC3,4,8 Huawei, HiSilicon, Ericsson, LG Electronics
R1-1804413 Corrections on HARQ-ACK reporting procedure for FS2 with sTTI Huawei, HiSilicon, Ericsson
R1-1804414 Corrections on TBS determination for more than 1 layer Huawei, HiSilicon, Ericsson, Nokia, Nokia Shanghai Bell
R1-1804415 Corrections on DAI in 36.212 Huawei, HiSilicon, Ericsson, LG Electronics, Qualcomm
R1-1804416 Correction on antenna ports quasi co-location for DMRS based SPDCCH Huawei, HiSilicon, Nokia
Endorse the text proposal in R1-1804416

R1-1804417 Correction on DCI format 7-1E in 36.212 Huawei, HiSilicon, Ericsson, Nokia
Endorse the text proposal in R1-1804417

R1-1804418 TP on VRB assignment of DL resource allocation type 2 Huawei, HiSilicon, Nokia, Mediatek, Qualcomm
Agreement:
The text proposal in R1-1804418 is endorsed.

Agreement:
A slot/subslot-based PDSCH only support localized VRB assignment in Resource Allocation Type 2.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1261 of 1750

R1-1804419 **Correction on sequence generation for UE-specific reference signals associated with slotsubslot based PDSCH Huawei, HiSilicon, Nokia**

Agreement:
The text proposal in R1-1804419 is endorsed.

R1-1804420 **Correction on UCI on PUSCH in 36212 Huawei, HiSilicon, LG Electronics, Qualcomm, Ericsson**
Endorse the text proposal in R1-1804420

R1-1804421 Discussion and text proposal on UL resource allocation Huawei, HiSilicon
R1-1804422 Correction on DL subslot pattern determination Huawei, HiSilicon
R1-1805366 Text proposal on TBS determination for downlink pattern DDD Huawei, HiSilicon
R1-1805411 Corrections on DAI in 36.212 Huawei, HiSilicon

6.2.1.3 Other

Including aspects related to maximum TA and processing time, if any

R1-1803719 Remaining issues on SPS Huawei, HiSilicon

6.2.2 Maintenance of Release 15 Enhancements to LTE operation in unlicensed spectrum

- No individual CRs are allowed. Only text proposals are allowed.
  - Later on editors will aggregate all endorsed text proposals for a jumbo CR per spec

R1-1805423 **Chairman's notes of AI 6.2.2 Maintenance of Release 15 Enhancements to LTE operation in unlicensed spectrum Ad-hoc chair (Ericsson)**
Decision: The document is endorsed, content incorporated below.

Friday
Editors to prepare CRs capturing the agreements till April 27th, for comments and endorsement by May 3rd.

R1-1803960 **Introduction of FeLAA into 36.212 Huawei**
Decision: The document is endorsed. Final CR is agreed in R1-1805418 (TS36.212, CR0290, Rel-15, B).

R1-1804409 **Introduction of Enhancements to LTE operation in unlicensed spectrum into 36.201 Nokia, Nokia Shanghai Bell**
Endorsed in principle with the following suggested modifications to the editor:

- Change "A downlink transmission may or may not start at the subframe boundary, and may or may not end at the subframe boundary" to "A downlink or uplink transmission may start at the subframe boundary or later, and may end at the subframe boundary or earlier.
- Delete "An uplink transmission may or may not start at the subframe boundary, and may or may not end at the subframe boundary."

Decision: Final CR is agreed in **R1-1805335** (36.201 CR0024r1, Rel-15, B).

R1-1804453 **3GPP TS 37.213 Physical layer procedures for shared spectrum channel Ericsson**
Ericsson to prepare the following document for discussion:
R1-1805336 Additions to TS 36.213 (Rel-14) to capture agreements for Rel-15 FeLAA
R1-1805351 **3GPP TS 37.213 v0.0.2 Physical layer procedures for shared spectrum channel Ericsson**
R1-1805352 **3GPP TS 37.213 v0.0.3 Physical layer procedures for shared spectrum channel Ericsson**
Decision: The document is endorsed as V0.1.0 in R1-1805416. Further modifications reflecting comments received will be made using R1-1805416 as a reference.

R1-1804484 **Introduction of Enhancements to LTE operation in unlicensed spectrum into 36.213 s00-s05 Motorola Mobility Germany GmbH**
Decision: The document is endorsed in principle with the following suggested modifications.

- Align terminology between all the specifications by using "Autonomous Uplink" or similar consistently.

R1-1805389 **Introduction of Enhancements to LTE operation in unlicensed spectrum into 36.213 s00-s05 Motorola Mobility**
Decision: The document is endorsed and final CR is agreed in R1-1804489 (36.213 CR1054, Rel-15, B)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1262 of 1750

R1-1804485 **Introduction of Enhancements to LTE operation in unlicensed spectrum into 36.213 s06-s09 Motorola Mobility Germany GmbH**
R1-1805337 **Introduction of Enhancements to LTE operation in unlicensed spectrum into 36.213 s06-s09 Motorola Mobility Germany GmbH**
Decision: The document is endorsed and final CR is agreed in R1-1804490 (36.213 CR1055, Rel-15, B)

R1-1804486 **Introduction of Enhancements to LTE operation in unlicensed spectrum into 36.213 s10-s13 Motorola Mobility Germany GmbH**
Decision: The CR (CR1056) is withdrawn as there is no changes for the sections covered by R1-1804491 (Tdoc# is withdrawn).

R1-1804488 **Introduction of Enhancements to LTE operation in unlicensed spectrum into 36.213 s14-xx Motorola Mobility Germany GmbH**
Decision: The document is endorsed with an update to remove section 15. Final CR is agreed in R1-1804492 (36.213 CR1057, Rel-15, B)

R1-1805265 **Introduction of enhancements to operation in unlicensed spectrum Ericsson**
Decision: Editor to submit an update to RAN1#93. R1-1805340 (CR 0435, Rel-15) is withdrawn.

6.2.2.1 TPs for Multiple starting and ending positions in a subframe for UL

R1-1804316 **Discussion on UCI transmission without UL-SCH for PUSCH mode 1 Samsung**
R1-1805239 **Remaining issues on channel access for UL partial subframe on LAA Scell WILUS Inc.**

6.2.2.2 TPs for Autonomous uplink access with Frame Structure type 3

R1-1804317 Discussion on UCI transmission on AUL PUSCH Samsung

6.2.2.3 Other

R1-1805153 **TBS determination for partial UL subframes Lenovo, Motorola Mobility**
R1-1805154 Collision of AUL and granted transmissions Lenovo, Motorola Mobility
R1-1805159 **On UE Capabilities for LTE_unlic Nokia, Nokia Shanghai Bell**
Email discussion until May 3, 2018 on UE capabilities for FeLAA and associated LS to RAN2 (Timo, Nokia)

6.2.3 Maintenance of Release 15 Enhancements for high capacity stationary wireless link and introduction of 1024 QAM for LTE

- No individual CRs are allowed. Only text proposals are allowed.
  - Later on editors will aggregate all endorsed text proposals for a jumbo CR per spec

R1-1805424 **Chairman's notes of AI 6.2.3 Maintenance of Release 15 Enhancements for high capacity stationary wireless link and introduction of 1024 QAM for LTE Ad-hoc chair (Ericsson)**
Decision: The document is endorsed, content incorporated below.

R1-1803864 **Introduction of enhancements for high capacity stationary wireless link and introduction of 1024 QAM for LTEEricsson**
R1-1805172 **Introduction of enhancements for high capacity stationary wireless link and introduction of 1024 QAM for LTEEricsson**
Decision: The draft CR to 36.211 is endorsed. Final CR is agreed in R1-1805314 (CR 0431, Rel-15, B).

R1-1803961 **Introduction of high capacity stationary wireless link and 1024QAM into 36.212 Huawei**
Decision: The draft CR to 36.212 is endorsed. Final CR is agreed in R1-1805315 (CR 0284, Rel-15, B).

R1-1804477 **Introduction of enhancements for high capacity stationary wireless link and introduction of 1024 QAM for LTE to 36.213 Motorola Mobility Germany GmbH**
R1-1804478 **Introduction of enhancements for high capacity stationary wireless link and introduction of 1024 QAM for LTE to 36.213 Motorola Mobility Germany GmbH**
Decision: CR1053 to 36.213 (Rel-15, B) is agreed.

R1-1804496 **Introduction of Downlink 1024QAM into 36.201 Nokia, Nokia Shanghai Bell**
Decision: The draft CR to 36.201 is endorsed. Final CR is agreed in R1-1805316 (CR 0025 rev 1, Rel-15, B).

6.2.3.1 Text Proposals

R1-1804685 **Corrections to 1024QAM support in LTE Intel Corporation**

6.2.3.2 Other

R1-1804906 UE Categories for 1024QAM Qualcomm Incorporated

R1-1805355 **WF on DL Categories Intel, Qualcomm**
Decision: Email discussion on DL categories until May 3, 2018 (Qualcomm)

6.2.4 Maintenance of Release 15 Further enhancements to Coordinated Multi-Point (CoMP) Operation for LTE

- No individual CRs are allowed. Only text proposals are allowed.
  - Later on editors will aggregate all endorsed text proposals for a jumbo CR per spec

R1-1805425 **Chairman's notes of AI 6.2.4 Maintenance of Release 15 Further enhancements to Coordinated Multi-Point (CoMP) Operation for LTEAd-hoc chair (Ericsson)**
Decision: The document is endorsed, content incorporated below.

6.2.4.1 Text Proposals

R1-1803721 **Corrections on feCoMP Huawei, HiSilicon**
Decision: Text proposals are endorsed. Final CRs are agreed in R1-1805318 (TS36.211, CR0432, Rel-15, F) and R1-1805319 (TS36.213, CR1061, Rel-15, F).

6.2.5 3GPP V2X Phase 2 - *WID in RP-171740*

R1-1805426 **Chairman's notes of AI 6.2.5 3 GPP V2X Phase 2 Ad-Hoc chair (Samsung)**
Decision: The document is endorsed, content incorporated below.

Friday
Rapporteur to prepare the list of agreements by April 23rd
Editors to prepare CRs incorporating all the agreements by 5/4, to be commented and endorsed by 5/11

R1-1805380 **Reply LS on PC5 transmission mechanism selection SA2**
Reply LS to be handled in RAN1#93

R1-1805397 **[DRAFT] LS on RRC parameters for V2X Phase 2 Huawei**

Agreement
The LS to RAN2 is endorsed with the following changes:

- T2min_Set should be changed from 'carrier specific' to resource 'pool specific'
- For SL_V2X_Carriers_RX and SL_V2X_Carriers_TX, it is up to RAN2 to make it 'UE specific' or 'UE specific / cell specific'
- For SLSS_MultiCarrierTx and SL_V2X_Carriers_PotentialSync, 'UE specific' should be changed to 'UE specific / cell specific'
- For rows 3 through 7, the RRC parameters are applicable only for carrier aggregation only

Decision: The final LS is approved in R1-1805620.

6.2.5.1 Carrier Aggregation (up to 8 PC5 carriers)

6.2.5.1.1 Mode-4 support

Agreement:

- If there is overlap in one TTI and UE is not able to transmit simultaneously on multiple carrier due to limitation in available power, then UE should prioritise transmission on higher priority packets.
- If there is overlap in one TTI of same priority packets in different carriers then it should be left to UE implementation to perform transmission if it is constrained in terms of available power.
- In case of conflict with uplink transmission, Rel-14 rules are used with respect to uplink transmissions

R1-1803723 Remaining details on carrier aggregation for mode 4 in V2X phase 2 CATT
R1-1803890 Remaining issues for resource selection in mode 4 CA ZTE, Sanechips

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1264 of 1750

R1-1803983 Carrier and resource selection in eV2X carrier aggregation OPPO
R1-1804018 V2X Sidelink CA Scheduling issues in Mode 4 ITRI
R1-1804130 Power sharing for UE with limited TX capability Huawei, HiSilicon
R1-1804204 Discussion on Mode 4 support for V2X carrier aggregation Lenovo, Motorola Mobility
R1-1804256 Remaining Details for Mode 4 support for V2X carrier aggregation Nokia, Nokia Shanghai Bell
R1-1804318 mode-4 support in V2X CA Samsung
R1-1804510 Discussion on carrier aggregation in sidelink mode 4 operation LG Electronics
R1-1804629 On Mode-4 resource selection for PC5 CA Ericsson
R1-1804686 Remaining physical layer aspects of sidelink carrier aggregation for mode-4 LTE V2V communication Intel Corporation
R1-1804907 Mode 4 support with V2X PC5 Carrier Aggregation Qualcomm Incorporated
R1-1805022 On carrier aggregation using mode 4 resource selection NTT DOCOMO, INC.
R1-1805393 Summary of Mode 4 CA LG Electronics

6.2.5.1.2 Synchronization

R1-1805382 Summary of offline discussion on PC5 CA synchronization Ericsson

Agreement
- For UEs operating with CA
  - RAN1 assumes a UE may be configured a non-synchronization carrier by defining the location of the SLSS resources and by configuring the UE to not transmit SLSS on that carrier.
    - Rel. 14 RRC signalling is not sufficient.
    - Include an RRC parameter to introduce such mechanism.
      - A Rel.15 UE using the carrier without CA does not apply this parameter.
      - It is up to RAN2 to design the signalling to support this feature

Agreement
The working assumption from RAN1#92 is confirmed with following corrections
- The UE is configured one of the following options based on UE capability:
  - SLSS is transmitted (based on Rel-14 procedure) on selected sync carrier from Set-B
  - SLSS is transmitted on all carriers from Set-B
    - ~~FFS until RAN1#92bis~~**~~: how to handle limited TX capabilities~~** ~~(within the constraint that SLSS must at least be transmitted on the selected sync carrier), and details such as SLSS id, PSBCH contents, etc.~~
- Each option is an independent UE capability
- On top of this, Release-14 configuration applies to each carrier individually

~~After conclusion on the above FFS point, consider whether it is possible to downselect between the two options.~~

Agreement
- For the case of limited TX capabilities, for UE SLSS transmission, it is up to UE implementation on which synchronization carrier(s) from Set B UE transmits SLSS
  - The above applies for the case when SLSS is transmitted on all carriers from Set-B

Agreement
- PSBCH content other than bandwidth, TDD configuration, reserved bits are generated following the Rel. 14 procedure following the selected synchronization reference.
  - Note if there is an issue with reserved bits, it will be addressed in RAN1#93
- SLSS ID is derived from the selected synchronization source.

Agreement
- When synchronization is lost, synchronization carrier reselection is up to UE implementation.

R1-1803724 Remaining details on synchronization for carrier aggregation in V2X Phase 2 CATT
R1-1803891 Remaining issues for synchronization in Sidelink CA ZTE, Sanechips
R1-1803984 Synchronization in eV2X carrier aggregation OPPO
R1-1804019 Synchronization for Sidelink Carrier Aggregation in V2X Phase 2 ITRI
R1-1804133 Remaining details for synchronization for carrier aggregation on sidelink Huawei, HiSilicon
R1-1804257 Remaining details of SL CA synchronization Nokia, Nokia Shanghai Bell
R1-1804319 Synchronization in V2X CA Samsung

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1265 of 1750

R1-1804511 Discussion on synchronization for sidelink CA operation LG Electronics
R1-1804630 On Synchronization Aspects for PC5 CA Ericsson
R1-1804687 Remaining synchronization details for LTE V2V sidelink carrier aggregation Intel Corporation
R1-1804908 Synchronization for V2X PC5 Carrier Aggregation Qualcomm Incorporated
R1-1805091 Remaining issues on synchronization for CA in V2X Phase 2 ITL

6.2.5.1.3 Other

R1-1804631 Spectrum considerations for PC5 carrier aggregation Ericsson

6.2.5.2 Support for 64-QAM

R1-1805328 Summary of offline discussion on support of 64-QAM for LTE V2V communication Intel

Agreement
The following working assumption is confirmed
- Single TBS scaling factor value is applied (i.e. independently of I_{TBS}/I_{MCS} values) to all numbers in the table.

Working Assumption
- Scaling factor is applied to the number of PRBs derived from SCI
  - Actual TBS value is derived by using scaled number of PRBs defined by the following equation

$$N_{PRB} = \max\left\{\left\lfloor N'_{PRB} \cdot \alpha_{TBS} \right\rfloor, 1\right\},$$

  - where N'_{PRB} is the original total number of allocated PRBs according to 7.1.6 from 3GPP 36.213 LTE R14.
- No new TBS values are introduced.

Agreement
- TBS scaling factor value is equal to α_{TBS} =0.8

Agreement
- Agree to use reserved bit(s) in SCI format to indicate R15 PSSCH transmission format/features
- Further discuss whether it is needed to separately indicate specific features (e.g. rate-matching, 64-QAM support) or transmission format

R1-1803725 Discussion on 64QAM support in V2X phase 2 CATT
R1-1803894 Support for 64 QAM ZTE, Sanechips
R1-1804129 Remaining details for supporting 64-QAM Huawei, HiSilicon
R1-1804258 Discussions on support of 64QAM for LTE V2X sidelink Nokia, Nokia Shanghai Bell
R1-1804320 High order modulation in V2X Samsung
R1-1804512 Discussion on 64QAM support LG Electronics
R1-1804632 Supporting 64QAM on PC5 Ericsson
R1-1804688 On demodulation enhancements for LTE V2V sidelink communication Intel Corporation

6.2.5.3 Feasibility and gain of PC5 operation with Transmit Diversity

R1-1804259 Transmit diversity schemes and evaluations for V2X sidelink Nokia, Nokia Shanghai Bell
R1-1804689 On support of transmit diversity schemes for LTE V2V sidelink communication Intel Corporation

Agreement:
- Transmit diversity is not specified in RAN1 specifications
  - Inform RAN4 that RAN1 assumes the use of SD-CDD when >1 antenna. It is up to RAN4 to discuss and/or specify any performance related requirements (including bounds for the delay)

Note: it is assumed that there is a UE capability to indicate the support of SD-CDD
Send LS to RAN4, (and cc RAN2)
R1-1805334 [DRAFT] LS on small-delay CDD for V2X Phase 2 Ericsson
Decision: The document is endorsed and final LS is approved in R1-1805619.

Agreement:
The following working assumption is reverted

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1266 of 1750

- *Assuming the previous WA of introducing non-transparent transmit diversity is confirmed, for two-port non-transparent transmit diversity for PSSCH, downselect option 1 as WA among the following candidate schemes*
  - *Working assumption: Option 1: SFBC-based scheme (including PAPR preserving)*
    - *FFS whether to apply slot-level PVS*
  - *Option 2: STBC-based (including half symbol)*

6.2.5.3.1 Transmit diversity solutions

For both PSSCH and PSCCH

R1-1803726 Discussion on Tx diversity schemes in PC5 CATT
R1-1803892 Discussion on transmit diversity for PC5 ZTE, Sanechips
R1-1803985 Transmit diversity scheme in eV2X OPPO
R1-1804038 Low PAPR SFBC for V2X transmit diversity Mitsubishi Electric RCE
R1-1804132 Transmit diversity solutions for PSSCH and PSCCH Huawei, HiSilicon
R1-1804321 Transmit diversity schemes for PSSCH Samsung
R1-1804513 Discussion on transparent transmit diversity LG Electronics
R1-1804633 Transmit diversity solutions for Rel-15 PSCCH and PSSCH transmissions Ericsson
R1-1804909 Transmit Diversity for V2X Phase 2 Qualcomm Incorporated
R1-1805023 Transmission diversity solutions NTT DOCOMO, INC.

6.2.5.3.2 Evaluation results

For both PSSCH and PSCCH

R1-1803893 Evaluation results of TxD ZTE, Sanechips
R1-1804040 Low PAPR SFBC evaluations for PSSCH Mitsubishi Electric RCE
R1-1804131 Performance evaluation of transmit diversity for eV2X Huawei, HiSilicon
R1-1804634 Evaluation of transmit diversity for V2X Ericsson

6.2.5.3.3 Other

R1-1804635 DMRS design for two-port PSSCH transmission Ericsson

6.2.5.4 Resource pool sharing between mode-3 and mode-4 users

R1-1805326 Summary of offline discussion for resource pool sharing between Mode-3 UE and Mode-4 UE NTT DOCOMO

R1-1805392 Summary of offline discussion for resource pool sharing between Mode-3 UE and Mode-4 UE NTT DOCOMO

R1-1805391 WF on Reporting Mechanism for Resource Pool Sharing by Mode-3/Mode-4 UEs ZTE, Sanechips, Fraunhofer HHI, InterDigital, ITRI

R1-1805390 Resource Pool Sharing (Option 1-4) OPPO

R1-1803727 Discussion on resource pool sharing between mode 3 and mode 4 CATT
R1-1803895 Resource pool sharing between mode 3 and mode 4 ZTE , Sanechips
R1-1803986 Discussion of resource pool sharing between mode 3 and mode 4 OPPO
R1-1804020 Discussion on Resource Pool Sharing between Mode 3 and Mode 4 in V2X commuincation ITRI
R1-1804127 Solutions for Rel-14 and Rel-15 UE Pool sharing Huawei, HiSilicon
R1-1804205 Discussion on Pool sharing for V2X Phase 2 Lenovo, Motorola Mobility
R1-1804233 Sharing Mode 3 and Mode 4 resource pools NEC
R1-1804260 On Resource pool sharing between mode-3 and mode-4 Nokia, Nokia Shanghai Bell
R1-1804322 Resource pool sharing between mode 3 and mode 4 Ues Samsung
R1-1804514 Discussion on resource pool sharing between UEs using mode 3 and 4 LG Electronics
R1-1804628 Discussion on resource pool sharing between UEs in mode 3 and UEs in mode 4 Panasonic
R1-1804636 Resource pool sharing between mode 3 and mode 4 UEs Ericsson
R1-1804679 Open Issues on Mode 3 and Mode 4 Pool Sharing InterDigital, Inc.
R1-1804690 Sidelink resource pool sharing for eNB-controlled and UE-autonomous V2V transmission modes Intel Corporation
R1-1804910 Resource pool sharing between Mode 3 and Mode 4 Qualcomm Incorporated
R1-1805024 Resource pool sharing between Mode-3 UE and Mode-4 UE NTT DOCOMO, INC.
R1-1805248 Resource Pool Sharing between V2X Mode 3 and Mode 4 UEs Fraunhofer HHI

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1267 of 1750

6.2.5.5 Maximum time reduction between packet arrival at layer 1 and resource selection for transmission

R1-1805283 Summary on Maximum time reduction between packet arrival at layer 1 and resource selection for transmission CATT
Further revised in R1-1805395.

Agreement
- The minimum (pre-)configurable T_{2min} is [10]ms.
- The maximum (pre-)configurable T_{2min} is 20ms.
- The determination of T_{2min}
  - For each PPPP, the T_{2min} is (pre-)configured by RRC.

Note: The actual value of T2 (>=T_{2min}) is left to UE implementation.

R1-1803728 Discussion on latency reduction between packet arrival and resource selection CATT
R1-1803896 Consideration for maximum time reduction between packet arrival at layer 1 and resource selection for transmission ZTE, Sanechips
R1-1803987 Latency reduction for eV2X OPPO
R1-1804021 Considerations of Latency Reduction between Packet Arrival and Resource Selection ITRI
R1-1804128 Discussion on latency reduction for eV2X Huawei, HiSilicon
R1-1804206 Discussion on Latency Reduction for V2X Phase 2 Lenovo, Motorola Mobility
R1-1804261 Discussion on latency reduction for eV2X Nokia, Nokia Shanghai Bell
R1-1804323 Support of shorter latency in V2X Samsung
R1-1804515 Discussion on maximum time reduction between packet arrival and selected transmission resource LG Electronics
R1-1804637 Reducing time-to-transmit for V2X Ericsson
R1-1804691 Resource selection latency reduction for LTE V2V sidelink communication Intel Corporation
R1-1804911 Reduction of time between packet arrival and transmission Qualcomm Incorporated
R1-1805025 Reducing the maximum time between packet arrival and selected resource for data transmission NTT DOCOMO, INC.

6.2.5.6 Other

R1-1804627 Introducing sTTI to V2X mode 3 Panasonic

6.2.6 Even further enhanced MTC for LTE - *WID in RP-172811*

R1-1805427 Chairman's notes of AI 6.2.6 Even further enhanced MTC for LTE Ad-hoc chair (NTT DOCOMO)
Decision: The document is endorsed, content incorporated below.

Friday
Rapporteur to prepare the list of agreements by April 23rd
Editors to prepare CRs incorporating all the agreements by 5/4 (for 211, based on x3862/x5173; for 212, based on x4149), to be commented and endorsed by 5/11

R1-1803862 Introduction of PUSCH sub-PRB allocation Ericsson
R1-1804119 Draft RRC parameter list for L1 configuration of Rel-15 LTE-MTC Ericsson
Email discussion including the agreements at RAN1#92bis meeting by 4/27(Fri)

R1-1804149 Introduction of FeMTC into 36.212 Huawei, HiSilicon
R1-1805173 Draft CR 36.211, Introduction of increased PUSCH spectral efficiency Ericsson

6.2.6.1 Reduced system acquisition time

Physical layer aspects of improved cell search and/or system information acquisition performance

R1-1805306 Feature summary for Reduced system acquisition time in MTC Ericsson

Agreements
- Resynchronization signal (RSS) configuration information is provided in SIB.
- The frequency location[s] of the RSS are configurable. Details are FFS.
- The UE can assume that the transmission of RSS in subframes (2n, 2n+1) is from the same antenna port at least when TxD is used.
  - FFS if TX diversity is signaled to UE.

- The periodicity of the first subframe of RSS is configurable to 160, 320, 640 and 1280 ms.
  - In addition, time offset is configurable
    - FFS: Details
- The RSS provides information about at least cell id.

Working assumption
- The RSS bandwidth is 2 PRBs.
  - FFS whether the 2PRB sequence is repetitions in the frequency domain of 1 PRB sequence.
  - Confirmed when analysis shows enough sequences with good cross correlation, without significantly increasing the time duration compared to 6 PRBs, can be found.

Agreement
- The RSS should be designed taking into account the correlation properties with other LTE signals.
- The RSS transmission length is configurable in SIB
- The RSS base sequence duration is down selected from 1 and 11 symbols.

R1-1805385 **WF on Reduced system acquisition time for MTC Ericsson, Nokia, NSB, Sony, Intel, Sierra Wireless**

R1-1803883 Cell search and system information acquisition improvements in eFeMTC Huawei, HiSilicon
R1-1804120 Reduced system acquisition time for MTC Ericsson
R1-1804174 Remaining issues on system acquisition time reduction for MTC ZTE, SaneChips
R1-1804238 Reducing system acquisition time for efeMTC Nokia, Nokia Shanghai Bell
R1-1804324 Discussion on enhanced synchronization signals and resynchronization signals Samsung
R1-1804471 Re-Sync Signal Design Considerations Sierra Wireless, S.A.
R1-1804602 Considerations on eSS for efeMTC Sony
R1-1804692 System acquisition time reduction for efeMTC Intel Corporation
R1-1804912 Reduced system acquisition time Qualcomm Incorporated

6.2.6.2 Early data transmission

Physical layer aspects of support for data transmission during the random access procedure

R1-1805287 **Feature lead summary of EDT in eMTC Huawei, HiSilicon**

Agreement
For EDT scheduled by RAR grant,
- For CE Mode A, 2–6 PRBs are supported with 4 bits resource allocation field.
  - Whether to support 1 PRB can be reconsidered if there is an available spare bit to expand resource allocation field.
- For CE Mode B, 1-2 PRBs are supported with at least 3 bits resource allocation field.
  - Resource allocation may or may not be modified, picking at least 8 resource allocations.
  - Whether to expand resource allocation can be reconsidered if there is an available spare bit to expand resource allocation field.

Agreement
- The 8 maximum TBS values in CE mode A (i.e. PRACH levels 0 and 1) are {328 408 504 600 712 808 936 1000}.
  - Only values of N_{PRB} and values of TBS in legacy Rel-13 PUSCH table can be used for EDT
- The 8 maximum TBS values in CE mode B (i.e. PRACH levels 2 and 3) are {328 408 456 504 600 712 808 936}.
  - Only values of N_{PRB} and values of TBS in legacy Rel-13 PUSCH table can be used for EDT
- For each of the 8 maximum TBS values
  - The number of repetitions changes depending on the actual TBS, potentially including numbers of repetitions which are not included in legacy PUSCH repetition numbers (FFS how)

Agreement
For EDT Msg. 3 transmission, 16QAM modulation is not supported.

Agreement
- The use of TBS smaller than the maximum configured is configured per CE level in SIB.
- Per cell, in the below, $T_i < T_{i+1}$, eNB can configure that the UE chooses from:
  - When there are 4 permitted actual transmitted TBS $\{T_1, T_2, T_3, T_4\}$

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1269 of 1750

- T_2 or T_4
- T_1, or T_2, or T_3, or T_4

- When there are 3 permitted actual transmitted TBS {T_1, T_2, T_3}
  - T_2 or T_3
  - T_1 or T_2 or T_3
- When there are 2 permitted actual transmitted TBS {T_1, T_2}
  - T_1 or T_2

Agreement
The possible smaller TBS values are predefined from the configured maximum TBS and the configured maximum number of blind decodes.

Email discussion to decide the exact table by 4/27 – Yuzheng (Huawei)

Agreement
Use the 'R' bit in RAR to differentiate EDT and non-EDT.

R1-1804121	**Early data transmission for MTC**	**Ericsson**
R1-1804191	On early data transmission for eMTC	ZTE, SaneChips
R1-1804239	Data transmission during random access procedure	Nokia, Nokia Shanghai Bell
R1-1804325	Early data transmission for eMTC	Samsung
R1-1804474	EDT Design Consideration	Sierra Wireless, S.A.
R1-1804516	Data transmission during random access procedure in MTC	LG Electronics
R1-1804603	On Early Data Transmission over Message 3	Sony
R1-1804693	Early data transmission for efeMTC	Intel Corporation
R1-1804872	Early data transmission for MTC	Sharp
R1-1804913	Physical layer aspects of early data transmission	Qualcomm Incorporated
R1-1803884	Early data transmission for eFeMTC	Huawei, HiSilicon

6.2.6.3 Downlink channel power efficiency

Physical signal/channel that can be efficiently decoded or detected prior to decoding MPDCCH/PDSCH

R1-1805384 **Remaining issues of 6.2.6.3 Downlink channel power efficiency** **Qualcomm**

Agreement
At least WUS/DTX is supported at least for paging for RRC_IDLE UEs

Agreement
Confirm Working assumption

- WUS transmission relative to associated PO of subgroup of UEs is aligned to the start of the configured maximum duration of WUS.
  - Note: the above applies to at least the case where the gap is large enough for scheduling UE
  - Note: the above does not imply that subgroup of UEs is introduced and that subgroup is TDM.

Agreement

- [2] bits are used to indicate the scaling factors between maximum duration of WUS and Rmax associated with type 1 CSS

Agreement

- WUS can be time-varying from subframe to subframe.
- WUS signal is designed based on the following information
  - [Full] Cell ID information
  - UE group ID (if introduced)
  - time information of the starting subframe of the WUS or PO (Paging Occasion)
  - FFS: (part of) the SFN information

Agreement

- WUS subframe is postponed
  - when colliding with SIB1-BR PRBs
  - in non-BL/CE subframes.
  - FFS: when colliding with the PRBs that carry SIs other than SIB1.
- Note: "Postpone" means the corresponding subframes are not counted as configured maximum WUS transmission duration and actual WUS transmission duration.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1270 of 1750

- Note: This does not imply that the minimum gap between the end of actual WUS duration and the first associated PO is reduced

Agreement
- The gap between the end of configured maximum WUS duration and the first associated PO is equal or larger than the minimum value, which is implicitly or explicitly configured and is an absolute number of subframes
  - Note: UE can assume CRS between the end of configured maximum WUS duration and the first associated PO
  - Note: The gap should be large enough to warm up tracking loops.

FFS: whether to define UE capability for wake-up time

R1-1803804	Remaining aspects on wake-up signals for efeMTC	vivo
R1-1803885	On 'wake-up signal' for eFeMTC	Huawei, HiSilicon
R1-1803995	On downlink channel power efficiency for efeMTC	OPPO
R1-1804122	Downlink channel power efficiency for MTC	Ericsson
R1-1804189	Power consumption reduction for physical channels for MTC	ZTE, SaneChips
R1-1804243	Wake-up signal for efeMTC	Nokia, Nokia Shanghai Bell
R1-1804326	DL power consumption reduction for eMTC	Samsung
R1-1804475	WUS Design Considerations	Sierra Wireless, S.A.
R1-1804517	Discussion on wake up signal in MTC	LG Electronics
R1-1804604	Considerations of using WUS in efeMTC	Sony
R1-1804694	Power saving signal for efeMTC	Intel Corporation
R1-1804914	Efficient monitoring of DL control channels	Qualcomm Incorporated
R1-1805308	Summary of 6.2.6.3 Downlink channel power efficiency	Qualcomm

6.2.6.4 Uplink HARQ-ACK feedback

Design of MPDCCH-based explicit HARQ-ACK feedback

R1-1805311 Summary of Uplink HARQ-ACK Feedback for MTC ZTE, SaneChips

Agreement
The working assumption from RAN1#91 is replaced by the following agreement
- One unused DCI state in each CE mode is used for indicating:
  - Early termination of any ongoing PUSCH transmission (without early termination of MPDCCH monitoring except for the case of acknowledging RRC Connection Release, for which MPDCCH monitoring is terminated)

Agreement
For the UE-specific UL HARQ-ACK feedback, ACK is indicated by DCI format 6-0A and 6-0B for CE mode A and CE mode B, respectively, by setting all fields except the ones below to default fixed value
- 'Flag for format 6-0A/6-1A differentiation' in CE mode A and 'Flag for format 6-0B/6-1B differentiation' in CE mode B
- 'DCI subframe repetition number' field
- 'Resource block assignment' field in DCI format 6-0A and 'MCS' field in DCI format 6-0B
  - Values; TBD

Note Exact default fixed value is up to specification editor

R1-1803886	Further considerations on HARQ-ACK feedback for PUSCH in eFeMTC	Huawei, HiSilicon
R1-1804123	Uplink HARQ-ACK feedback for MTC	Ericsson
R1-1804175	Remaining issues on UL HARQ-ACK feedback for MTC	ZTE, SaneChips
R1-1804200	Remaining issue for uplink HARQ-ACK feedback in efeMTC	Lenovo, Motorola Mobility
R1-1804244	Uplink HARQ-ACK feedback in efeMTC	Nokia, Nokia Shanghai Bell
R1-1804327	Group DCI for uplink HARQ-ACK feedback	Samsung
R1-1804518	Discussion on early termination of uplink repetitions for MTC	LG Electronics
R1-1804605	Remaining issues in explicit uplink HARQ-ACK feedback for efeMTC	Sony
R1-1804695	HARQ-ACK feedback for efeMTC UL transmission	Intel Corporation
R1-1804915	Uplink HARQ-ACK feedback	Qualcomm Incorporated
R1-1805026	Views on UL HARQ-ACK feedback design	NTT DOCOMO, INC.

6.2.6.5 PUSCH sub-PRB allocation

Design of PUSCH sub-PRB allocation

R1-1805305 **efeMTC Key Issue Summary for PUSCH Sub-PRB Allocation** **Sierra Wireless**

Agreement
Each DMRS symbol is length-2 BPSK with DFT-S-OFDM.

Agreement
- For CE Mode B, only 2 and 4 RUs can be allocated.
- For CE Mode A, 1, 2 and 4 RUs can be allocated.

Agreement
- For FDD, RU Size of 2 of 3 sub-carriers pi/2 BPSK option = 8 ms for CE Mode A and CE Mode B

Agreement
For sub-PRB transmissions in TDD, down-select between the following at RAN1#93
- Alt. 1: In TDD, the RU length depends on TDD UL/DL configuration.
- Alt. 2: In TDD, the same RU lengths supported in FDD mode are re-used.

Agreement
For subPRB allocation, the maximum transmission power is used in CE Mode B and for power control in CE Mode A, $M_{PUSCH,c}(i)$ ={1/6, 1/4, 1/2} for 2-subcarrier, 3-subcarrier and 6-subcarrrier allocation, respectively and for PRB level allocation, there are no changes to transmit power control.

Agreement
Cyclic repetition is not supported for sub-PRB allocation for CE Mode A
- FFS: For CE Mode B

Agreement
The Sub-PRB DCI design for Mode A and B should not increase the DCI size by more than 3 bits

R1-1805410 **PUSCH Sub-PRB DCI Possible Agreements** **Sierra Wireless, Nokia, NSB, Huawei, HiSilicon, Qualcomm, Sony, Sharp, Samsung, Sane Chips, ZTE**

Agreement
- For sub-PRB allocation in CE Mode B, the PRB location(s) within the [system bandwidth or narrowband] is configured by RRC.

Agreement
- For sub-PRB allocation in CE Mode A, there is no RRC configuration needed to indicate the
  - PRB location in the system bandwidth
  - Sub-PRB location within PRB
  - # of sub-carriers
  - # of RUs
  - MCS Index

Agreement
- The Sub-PRB DCI design will not limit scheduling options for Full-PRB legacy allocations for CE Mode A and B

R1-1803887	On Sub-RB resource allocation for MTC PUSCH	Huawei, HiSilicon
R1-1804124	PUSCH sub-PRB allocation for MTC	Ericsson
R1-1804176	Remaining issues on PUSCH sub-PRB allocation for MTC	ZTE, SaneChips
R1-1804245	Design of PUSCH Sub-PRB Allocation	Nokia, Nokia Shanghai Bell
R1-1804328	Discussion on sub-PRB allocation for eFeMTC	Samsung
R1-1804472	Sub-PRB Design Considerations	Sierra Wireless, S.A.
R1-1804606	Remaining issues in sub-PRB transmission	Sony
R1-1804696	Design of sub-PRB PUSCH for efeMTC	Intel Corporation
R1-1804873	Remaining issues for PUSCH sub-PRB allocation	Sharp
R1-1804916	Sub-PRB allocation for eFeMTC	Qualcomm Incorporated
R1-1805027	Views on PUSCH sub-PRB allocation for MTC	NTT DOCOMO, INC.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1272 of 1750

6.2.6.6 Flexible PDSCH/PUSCH starting PRB

Design of more flexible starting PRB for PDSCH/PUSCH resource allocation in connected mode

R1-1805272 **Summary on Flexible PDSCH/PUSCH starting PRB** **Samsung**

Agreement

- At least for BL/CE UE configured without other Rel-14/15 features, DCI size after padding is not increased in order to support flexible starting PRB.
  - Note: For PUSCH and PDSCH, the solution may or may not be the same
  - Note: The solution may or may not be the same for FDD and TDD

R1-1803888	On more flexible starting PRB for PDSCH/PUSCH resource allocation	Huawei, HiSilicon
R1-1804125	Flexible PDSCH/PUSCH starting PRB for MTC	Ericsson
R1-1804177	Discussion on Flexible starting PRB of PUSCH/PDSCH for MTC	ZTE, SaneChips
R1-1804246	Support for flexible PDSCH/PUSCH starting PRB	Nokia, Nokia Shanghai Bell
R1-1804329	Discussion on Flexible PDSCH/PUSCH starting PRB	Samsung
R1-1804607	Flexible PDSCH/PUSCH Resource Allocation for efeMTC	Sony
R1-1805286	On more flexible PDSCH/PUSCH resource allocation	Sharp (rev of R1-1804874)
R1-1804917	Flexible allocation for PDSCH and PUSCH	Qualcomm Incorporated

6.2.6.7 Other

Including any remaining details of PDSCH 64QAM support

R1-1805341 **Summary of section 6.2.6.7 on CQI for 64QAM for efeMTC** **Sony**

Agreement

- Confirm the RAN1 working assumption that eNodeB can optionally configure the UE to use the option B CQI table non-64QAM capable UE if the UE supports option B CQI table and that in this case only QPSK and 16QAM entries are reported by UE.

R1-1804126	Remaining details of PDSCH 64QAM support for MTC	Ericsson
R1-1804247	Remaining issue on supporting DL 64QAM for efeMTC	Nokia, Nokia Shanghai Bell
R1-1804608	Use of option B CQI table by non-64QAM capable UEs	Sony

6.2.7 Further enhancements of NB-IoT - *WID in RP-172063*.

R1-1805428 **Chairman's notes of AI 6.2.7 Further enhancements of NB-IoT** **Ad-hoc chair (NTT DOCOMO)**
Decision: The document is endorsed, content incorporated below.

Friday
Rapporteur to prepare the list of agreements by April 23rd
Editors to prepare CRs incorporating all the agreements by 5/4 (for 211, based on 3863; for 212, based on x4148), to be commented and endorsed by 5/11

R1-1803863	Introduction Rel-15 Further NB-IoT enhancements	Ericsson
R1-1803882	**List of L1 parameters for further enhancements of NB-IoT**	**Huawei, HiSilicon**

Email discussion including the agreements at RAN1#92bis meeting by 4/27(Fri)

R1-1804148	Introduction of further enhancements of NB-IoT	Huawei, HiSilicon
R1-1805174	Introduction Rel-15 Further NB-IoT enhancements	Ericsson

6.2.7.1 Latency and power consumption reduction

6.2.7.1.1 Power consumption reduction for paging and connected-mode DRX

R1-1804248	Functions of wake-up signal	Nokia, Nokia Shanghai Bell

6.2.7.1.1.1 Wake-up signal functions

R1-1805288 **Feature lead summary on functions of power saving signal** **Huawei, HiSilicon**

Agreement
At least WUS/DTX is supported at least for paging for RRC_IDLE UEs

R1-1803866	On functions of power saving signal	Huawei, HiSilicon
R1-1804138	Wake Up Signal Functionsfor NB-IoT	MediaTek Inc.
R1-1804152	Wake-up signal functions for NB-IoT	Ericsson
R1-1804186	Wake up signal function for NB-IoT	ZTE, SaneChips
R1-1804519	Discussion on wake up signal function in NB-IoT	LG Electronics
R1-1804697	The function scope of wake-up signal for feNB-IoT	Intel Corporation
R1-1804918	Wake-up signal functions	Qualcomm Incorporated

6.2.7.1.1.2 Wake-up signal configurations and procedures

R1-1805289 **Feature lead summary of Wake-up signal configurations and procedures in NB-IoT Huawei, HiSilicon**

Agreement
Confirm the following working assumption
- WUS transmission relative to associated PO of subgroup of UEs is aligned to the start of the configured maximum duration of WUS.
- Note: the above applies to at least the case where the gap is large enough for scheduling UE
- Note: the above does not imply that subgroup of UEs is introduced and that subgroup is TDM

Agreement
- 3 bits are used to indicate the scaling factors between maximum duration of WUS and Rmax associated with type 1 CSS

Note: Ericsson, Samsung, and Sony consider 3bits are waste.

Agreement
- The gap between the end of configured maximum WUS duration and the first associated PO is equal or larger than the minimum value which is implicitly or explicitly configured and is an absolute number of subfames
  - There are at least 10 valid subframes between the end of configured maximum WUS duration and the first associated PO.
- FFS: whether to define UE capability for wake-up time

Agreement
WUS is postponed in subframes that are not NB-IoT DL subframes and is not transmitted [FFS dropped/postponed] in the subframes that carries SIs other than SIB1.
- Note: “Postpone” means the corresponding subframes are not counted as configured maximum WUS transmission duration and actual WUS transmission duration.
- Note: This does not imply that the minimum gap between the end of actual WUS duration and the first associated PO is reduced

R1-1803805	Remaining aspects on wake-up signals for feNB-IoT	vivo
R1-1803867	On configurations and procedures of power saving signal	Huawei, HiSilicon
R1-1804139	Wake Up Signal Configuration for NB-IoT	MediaTek Inc.
R1-1804153	Wake-up signal configurations and procedures for NB-IoT	Ericsson
R1-1804187	Remaining issues on wake up signal configuration for NB-IoT	ZTE, SaneChips
R1-1804249	Wake-up signal configurations and procedures	Nokia, Nokia Shanghai Bell
R1-1804330	Discussion on Wake up signal configuraion	Samsung
R1-1804520	Discussion on wake up signal configurations and procedures in NB-IoT	LG Electronics
R1-1804698	Configurations of wake-up signal for feNB-IoT	Intel Corporation
R1-1804919	Wake-up signal configurations and procedures	Qualcomm Incorporated

6.2.7.1.1.3 Detailed design of wake-up signal

R1-1805290 **Feature lead summary on detailed design of Wake-up signal in NB-IoT Huawei, HiSilicon**

Agreement
- WUS can be time-varying from subframe to subframe.
- Besides information on cell ID, WUS signal is designed based on the following information:
  - UE group ID (if introduced)
  - time information of the starting subframe of the WUS or PO (Paging Occasion)

- FFS: (part of) the SFN information

Agreement

- When generating power saving signal in a subframe where NRS is assumed to be transmitted, the power saving signal in the subframes shall be generated and mapped in the same way as in other valid subframes where NRS is not assumed to be transmitted;
- WUS is punctured in RE-level by NRSs.

R1-1805320 WF on WUS Sequence Design Qualcomm, Samsung, LGE, ZTE, SaneChips, Ericsson, MediaTek

Agreement

WUS signal in a subframe is as follows,

$$d_{\mathrm{WUS}}(n) = c(m) \cdot e^{-j2\pi\theta n} \cdot e^{-j\pi u n'(n'+1)/LZC},$$

$n' = n \bmod Length\ of\ ZC$

$m = n \bmod$ (Length of RE-level cover codes/RE-level scrambling sequence c(m))

where LZC = 131 for inband mode (FFS for SA and GB modes)

- FFS RE-level cover codes/RE-level scrambling sequence $c(m)$ using
  - Hadamard codes
  - Gold sequences
  - M sequences
- FFS phase shift
- FFS detailed design for time-varying
- 11 symbols for inband mode and 14 symbols for SA and GB modes
  - Strive toward as much as possible commonality between SA/GB and inband

R1-1803868	On detailed design and evaluations of power saving signal	Huawei, HiSilicon
R1-1803996	On wake-up signal design	OPPO
R1-1804140	Wake Up Signal Design for NB-IoT	MediaTek Inc.
R1-1804154	Detailed design of wake-up signal for NB-IoT	Ericsson
R1-1804188	Details design of wake up signal for NB-IoT	ZTE, SaneChips
R1-1804331	Wake up signal Design	Samsung
R1-1804521	Wake up signal design in NB-IoT	LG Electronics
R1-1804920	Wake-up signal design	Qualcomm Incorporated
R1-1805343	Detailed design of wake-up signal for NB-IoT	Ericsson

6.2.7.1.2 Data transmission during the random access procedure

R1-1805291 Feature lead summary of EDT during RACH in feNB-IoT Huawei, HiSilicon

Agreement

- The 8 maximum TBS is {1000, 936, 808, 680, 584, 504, 408, 328}.
  - Only values of N_{RU} and values of TBS in legacy Rel-13 NPUSCH table can be used for EDT
  - For each of the 8 maximum TBS values
    - For each of the Rel-13 reserved 'MCS index' states there is one number of RUs
      - The number of repetitions changes depending on the actual TBS, potentially including numbers of repetitions which are not included in legacy NPUSCH repetition numbers (FFS how)
        - Potential new numbers of repetitions may include multiple of 4 or 8
- The 8 maximum TBS values are: 1000, 936, 808, 680, 584, 504, 408, 328 bits
  - For 1000 bits max TBS: I_RU = 3, 4, 5, 6, 7
  - For 936 bits max TBS: I_RU = 3, 4, 5, 6, 7
  - For 808 bits max TBS: I_RU = 3, 4, 5, 6, 7
  - For 680 bits max TBS: I_RU = 2, 3, 4, 6, 7
  - For 584 bits max TBS: I_RU = 2, 3, 4, 5, 6
  - For 504 bits max TBS: I_RU = 2, 3 4, 5, 6
  - For 408 bits max TBS: I_RU = 2, 3, 4, 5, 6
  - For 328 bits max TBS: I_RU = 2, 3, 4, 5, 6
- The 3 legacy MCS indices are used for fallback to non-EDT transmission;

Agreement

- The use of TBS smaller than the maximum configured is configured per CE level in SIB.

- Per cell, in the below, $T_i < T_{i+1}$, eNB can configure that the UE chooses from:
  - When there are 4 permitted actual transmitted TBS {T_1, T_2, T_3, T_4}
    - T_2 or T_4
    - T_1, or T_2, or T_3, or T_4
  - When there are 3 permitted actual transmitted TBS {T_1, T_2, T_3}
    - T_2 or T_3
    - T_1 or T_2 or T_3
  - When there are 2 permitted actual transmitted TBS {T_1, T_2}
    - T_1 or T_2

Agreement
- T_i with the maximum value of *i* is the maximum TBS in SIB.

Agreement
- Up to 4 TBS values are defined based on only the maximum broadcast TBS

R1-1805409 **Updated Feature lead summary of EDT during RACH in feNB-IoT Huawei, HiSilicon**

Agreement (including post RAN1#92b clarification over email)
- The following table is agreed: ~~taken as baseline for up to 4 TBS values for each maximum broadcast TBS when the use of smaller TBS is enabled, which can be approved by an email discussion.~~

	328	**408**	**504**	**584**	**680**	**808**	**936**	**1000**
T_1	328	328	328	328	328	328	328	328
T_2		408	408	408	456	504	504	536
T_3			504	504	584	680	712	776
T_4				584	680	808	936	1000

Conclusion
Further study aspects related to Msg. 3 retransmission until RAN1#93 meeting

R1-1803871 **Early data transmission in RACH for NB-IoT** **Huawei, HiSilicon**
R1-1804143 Early Data Transmission TBS Determination MediaTek Inc.
R1-1804155 Data transmission during random access procedure for NB-IoT Ericsson
R1-1804190 On early data transmission for NB-IoT ZTE, SaneChips
R1-1804251 Data transmission during random access procedure Nokia, Nokia Shanghai Bell
R1-1804332 Early data transmission for NB-IOT Samsung
R1-1804522 Data transmission during random access procedure in NB-IoT LG Electronics
R1-1804699 Early data transmission for feNB-IoT Intel Corporation
R1-1804875 Data transmission during random access procedure for NB-IoT Sharp
R1-1804921 Physical layer aspects of data transmission during random access procedure Qualcomm Incorporated
R1-1805132 TBS Determination for Early Data Transmission III

6.2.7.1.3 Physical layer scheduling request

R1-1805292 **Feature lead summary of physical layer SR in feNB-IoT** **Huawei, HiSilicon**

Agreement
- If the working assumption is confirmed and when *SR is transmitted without HARQ-ACK, it is transmitted in* NPRACH resource using NPRACH based signal.

Agreement
- If the working assumption is confirmed, UE transmits the physical layer SR at the first opportunity unless there is a collision with another physical layer transmission/reception:
  - Collision between SR without HARQ-ACK resource and NPDSCH - SR is not transmitted, and remains pending
    - FFS: Collision with NPDCCH search space

R1-1803869 Design for physical layer scheduling request Huawei, HiSilicon
R1-1804141 Physical Layer Scheduling Request MediaTek Inc.
R1-1804156 Physical layer scheduling request for NB-IoT Ericsson
R1-1804178 Details on physical layer SR without HARQ-ACK for NB-IoT ZTE, SaneChips
R1-1804250 Considerations for design of wake-up signal Nokia, Nokia Shanghai Bell
R1-1804252 Design of physical layer scheduling request Nokia, Nokia Shanghai Bell
R1-1804333 Discussion on scheduling request for NB IoT Samsung
R1-1804523 Discussion on Scheduling request in NB-IoTLG Electronics
R1-1804700 Scheduling request for feNB-IoT Intel Corporation
R1-1804922 Physical layer scheduling request Qualcomm Incorporated

6.2.7.1.4 Semi-persistent scheduling

R1-1805293 Feature lead summary of SPS in NB-IoT Huawei, HiSilicon
R1-1803870 On support of semi-persistent scheduling Huawei, HiSilicon
R1-1804142 L1 Scheduling Request by Semi Persistent Scheduling MediaTek Inc.
R1-1804157 Semi-persistent scheduling for NB-IoT Ericsson
R1-1804179 Considerations on physical layer aspects on SPS in NB-IoT ZTE, SaneChips
R1-1804253 Support for semi-persistent scheduling in NB-IoT Nokia, Nokia Shanghai Bell
R1-1804334 New SPS mechanism for power saving Samsung
R1-1804524 SPS support in NB-IoT LG Electronics
R1-1804923 Support of SPS Qualcomm Incorporated
R1-1805028 Views on SPS activation and deactivation mechanism NTT DOCOMO, INC.
R1-1805324 WF on SPS for NB-IoT in Rel-15 NTT DOCOMO

6.2.7.2 Reduced system acquisition time

R1-1805309 Summary of 6.2.7.2 Reduced system acquisition time Qualcomm

6.2.7.2.1 Cell search

R1-1803877 Reduction of NB-IoT synchronization time Huawei, HiSilicon
R1-1804158 Cell search time reduction for NB-IoT Ericsson
R1-1804180 Cell search enhancement for NB-IoT ZTE, SaneChips
R1-1804254 Reducing cell search time for feNB-IoT Nokia, Nokia Shanghai Bell
R1-1804924 Enhancements to cell search Qualcomm Incorporated

6.2.7.2.2 System Information

R1-1803878 Reduction of NB-IoT system information acquisition time Huawei, HiSilicon
R1-1804159 System information acquisition time reduction for NB-IoT Ericsson
R1-1804181 Remaining issues on system information acquisition improvement for NB-IoT ZTE, SaneChips
R1-1804255 Reducing system acquisition time for feNB-IoT Nokia, Nokia Shanghai Bell
R1-1804925 Enhancements to system information acquisiton Qualcomm Incorporated

6.2.7.3 Narrowband measurement accuracy improvements

R1-1805346 Feature lead summary Narrowband measurement accuracy improvements Ericsson

Agreement
The eNB signals the number of consecutive NSSS occasions, with possible values of 2, 4, [8], that use different precoders for NSSS transmission, and the UE may take such information into account when using NSSS for measurement. If eNB does not signal this, the UE makes no assumptions of the antenna port(s), i.e., “the UE shall not assume that the transmissions of the narrowband secondary synchronization signal in a given subframe use the same antenna port, or ports, as the narrowband secondary synchronization signal in any other subframe”. The signalling does not mandate how, when, and over how many subframes the UE should measure the NSSS, and the measurement accuracy should not assume the UE measures consecutive NSSS occasions. LS RAN4 about the agreements.

Agreement
LS RAN4 (CC RAN2) on whether and if so, how the update of NRSSI measurement in NRSRQ is needed when NSSS is used for NRSRQ measurements
Send LS related to the above agreement to RAN4 (CC: RAN2) – Yutao (Ericsson)
R1-1805419 Draft LS on Narrowband measurement accuracy improvements Ericsson
Decision: The LS is endorsed and final LS is approved in R1-1805434.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1277 of 1750

R1-1803875 Remaining details of NB-IoT measurements improvement Huawei, HiSilicon
R1-1804160 Narrowband measurement accuracy improvements for NB-IoTEricsson
R1-1804264 Measurement accuracy improvement in NB-IoT Nokia, Nokia Shanghai Bell
R1-1804926 Improvement of PHY measurements Qualcomm Incorporated

6.2.7.4 NB-IoT small cell support

R1-1805345 Feature lead summary NB-IoT small cell support Ericsson
R1-1803876 On the support of NB-IoT small cell Huawei, HiSilicon
R1-1804161 NB-IoT small cell support Ericsson
R1-1804192 On small cell support for NB-IoT ZTE, SaneChips
R1-1804265 Small cell support in NB-IoT Nokia, Nokia Shanghai Bell
R1-1804335 Power control for extended coverage UE Samsung
R1-1804525 UL power control enhancement for NB-IoT small cell LG Electronics

6.2.7.5 NPRACH reliability and range enhancements

R1-1805344 Feature lead summary NPRACH reliability and range enhancements Ericsson

6.2.7.5.1 Reliability enhancements for NPRACH

Agreement
Confirm the following working assumption made in RAN1#92 with the Note.

- Sharing the same NPRACH resources as Rel-13 NPRACH formats, with symbol or symbol-group level scrambling; maintaining feasibility of FFT processing and orthogonality of preambles on different tones.
- Down-select the following alternatives at RAN1#92bis:
  - Symbol level scrambling
  - Symbol group scrambling

Note: Qualcomm has storng concerns about the above agreement and thinks it is not based on technical merits.

R1-1803880 On NPRACH false alarm reduction due to inter-cell interference Huawei, HiSilicon
R1-1804162 NPRACH false alarm reduction for NB-IoT Ericsson
R1-1804194 NPRACH reliability enhancement for NB-IoT ZTE, SaneChips
R1-1804266 NPRACH reliability enhancement in NB-IoT Nokia, Nokia Shanghai Bell
R1-1804336 Reliability enhancements for NPRACH Samsung
R1-1804526 Remaining issues on reliability enhancements for NPRACH LG Electronics
R1-1805297 NPRACH Reliability Enhancement Qualcomm Incorporated (rev of R1-1804928)

6.2.7.5.2 Range enhancements for NPRACH

Agreement

- Configurable NPRACH bandwidth is integer multiple of 45 kHz.

Agreement

- For Rel-15 UEs, in case NPUSCH transmission collides with any configured NPRACH resources in the cell, the NPUSCH transmission is postponed.

Agreement

- For one NPRACH symbol group for subcarrier spacing of 1.25 kHz, one NPRACH symbol group consists of CP+3 Symbols
- FFS the number of symbol groups per NPRACH preamble repetition.

Agreement

- For frequency hopping within one NPRACH preamble, down-select the following alternatives at RAN1#93 meeting
  - Alt 1: 2-level -/+ 1.25 kHz -/+ 22.5 kHz
  - Alt. 2: 3-level -/+ 1.25 kHz -/+ 3.75 kHz 22.5 kHz

Agreement
Specification supports that the new NPRACH format resouces can be configured to overlap or not overlap with the NPRACH resources of Rel-13/Rel-14.

R1-1804193 NPRACH range enhancement ZTE, SaneChips
R1-1803879 NPRACH enhancement for cell radius extension Huawei, HiSilicon

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1278 of 1750

R1-1804163 NPRACH range enhancements for NB-IoT Ericsson
R1-1804268 NPRACH cell range enhancement in NB-IoT Nokia, Nokia Shanghai Bell
R1-1804527 Resource configuration for NPRACH range enhancement LG Electronics
Late submission
R1-1804927 NPRACH support for large cell access Qualcomm Incorporated

6.2.7.6 TDD

R1-1804932 Coexistence with NR Qualcomm Incorporated

6.2.7.6.1 Downlink aspects

R1-1805312 Summary of DL aspects for TDD NB-IoT ZTE, SaneChips

Agreement

- For SIB1-NB transmission in TDD on an anchor carrier, the subframe index and TBS are indicated by schedulingInfoSIB1 as follows:

Value of schedulingInfoSIB1	Number of NPDSCH repetitions	Subframe	TBS
0	4	0	208
1	8	0	208
2	16	0	208
3	4	0	328
4	8	0	328
5	16	0	328
6	4	0	440
7	8	0	440
8	16	0	440
9	4	0	680
10	8	0	680
11	16	0	680
12	16	4	208
13	16	4	328
14	16	4	440
15	16	4	680

Agreement

- For 16 and 8 repetitions of SIB1-NB on a non-anchor carrier, the starting radio frame is as follows:

Number of SIB1-NB repetitions	PCID	Starting radio frame number for SIB1-NB repetitions (n_f mod 256)
16	PCID mod 2 = 0	0
	PCID mod 2 = 1	1
8	PCID mod 2 = 0	0
	PCID mod 2 = 1	16

R1-1805348 WF on SIB1-NB transmission on a non-anchor carrier in TDD LG Electronics, Ericsson, Lenovo, Motorola mobility

Agreement

- When SIB-NB is transmitted on a non-anchor carrier, two subframes, i.e., subframe #0 and #5 in the same radio frame, are used for SIB1-NB transmission in every other radio frame
  - One transport block of SIB1-NB is transmitted over 16 SIB1-NB subframes
  - 16 SIB1-NB subframes carry encoded bits of SIB1-NB continuing reading them from circular buffer.

Agreement

For non-anchor carrier transmission of SIB1-NB

- MIB-NB has 3 bits to indicate the number of repetitions/TBS
- MIB-NB has 1 bit to indicate the frequency domain location of SIB1-NB non-anchor carrier

- For In-band anchor + in-band non-anchor, either the adjacent lower PRB relative to anchor PRB, or the adjacent higher PRB relative to anchor PRB
- FFS guard-band combinations
- For standalone+standalone, to indicate one of the 2 adjacent carriers relative to anchor carrier. FFS signaling of frequency offset of the carrier.

Agreement

- For normal subframes, NRS resource mapping is the same as FDD.
- For special subframe configurations #3, #4 and #8, NRS is mapped to the 3rd and 4th symbols of each slot
- For special subframe configurations #9 and #10, NRS is mapped to the 3rd and 4th symbols of the first slot.
- For special subframe configurations #1, #2, #6 and #7, NRS is mapped to
  - The 6th and 7th symbols of the first slot
- For special subframe configuration #0 and #5, NRS is not transmitted

R1-1803872	Common aspects for TDD NB-IoT	Huawei, HiSilicon
R1-1804164	DL aspects of TDD for NB-IoT	Ericsson
R1-1804182	Remaining issues on downlink aspects to support TDD NB-IoT	ZTE, SaneChips
R1-1804201	Views on TDD downlink aspect	Lenovo, Motorola Mobility
R1-1804269	Downlink aspects of TDD support in NB-IoT	Nokia, Nokia Shanghai Bell
R1-1804337	Discussion on DL common channel/signal for TDD NB-IoT	Samsung
R1-1804528	Discussion on DL aspects in TDD NB-IoT	LG Electronics
R1-1804929	Downlink aspects of TDD	Qualcomm Incorporated

6.2.7.6.2 Uplink aspects

R1-1805400 Summary of UL aspects for TDD NB-IoT ZTE, SaneChips

Agreement

Mapping table for TDD UL/DL configuration and TDD NPRACH formats is list in Table X

- FFS configuration 6 if it is supported
- Transmit Format 0 and Format 0-a in all NPRACH subframes, and aligned with subframe boundary

Table X Mapping table for UL/DL configuration and NPRACH format

UL/DL Configuration index	Format 0	Format 1	Format 2	Format 0-a	Format 1-a
1	√	√		√	√
2	√			√	
[3]	[√]		[√]	[√]	
4	√	√		√	√
5	√			√	

Agreement

- For G=2, P=4 (format 0, 1, 2)
  - when the repetition number =1
    - Tone index of the first and third symbol groups in the preamble repetition unit is chosen by [SFN and cell specific pseudo-random sequence (FFS details)]. The initial tone index to hopping pattern mapping is

Index of the tone used by the 1st symbol group	Deterministic hopping length for the 2nd within a repetition unit
0, 2, 4, 6, 8, 10	+3.75kHz
1, 3, 5, 7, 9, 11	-3.75kHz
Index of the tone used by the 3rd symbol group	**Deterministic hopping length for the 4th within a repetition unit**
0, 1, 2, 3, 4, 5	+22.5kHz
6, 7, 8, 9, 10, 11	-22.5kHz

Table 16

  - when repetition number >=2
    - The initial tone index to hopping pattern mapping follows table above.
    - Tone index of the first symbol groups in the odd preamble repetition unit is chosen by [SFN and cell specific pseudo-random sequence (FFS details)] .

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1280 of 1750

Aiming at cancelling phase errors, for an odd preamble that has been transmitted with a given tone index for its first and third symbol groups, the candidate tone index for the first and third symbol groups in the even preamble is chosen by [SFN and]cell specific pseudo-random sequence and will be confined to one of the tone indexes in the opposite half of the bandwidth as follows:

Odd Preamble Repetition Unit	Even Preamble Repetition Unit
Index of the tone used by the 1st symbol group	**Candidate Indexes for the tone to be used by the 1st symbol group**
0, 2, 4, 6, 8, 10	1, 3, 5, 7, 9, 11
1, 3, 5, 7, 9, 11	0, 2, 4, 6, 8, 10
Index of the tone used by the 3rd symbol group	**Candidate Indexes for the tone to be used by the 3rd symbol group**
0, 1, 2, 3, 4, 5	6, 7, 8, 9, 10, 11
6, 7, 8, 9, 10, 11	0, 1, 2, 3, 4, 5

Table 17

- For G=3, P=6 (format 0-a, format 1-a)
  - Tone index of the first and fourth symbol groups in the preamble repetition unit is chosen by [SFN and cell specific pseudo-random sequence (FFS details)]. The initial tone index of the first and fourth symbol groups to hopping pattern mapping is

Table 18 Hopping patterns for 2nd and 3rd symbol group within a repetition unit

Index of the tone used by the 1st symbol group	Hopping pattern for the 2nd and 3rd symbol group within a repetition unit
0, 2, 4,6, 8, 10	+3.75kHz，-3.75kHz
1, 3, 5,7, 9, 11	-3.75kHz，+3.75kHz

Table 19 Hopping patterns for 5th and 6th symbol group within a repetition unit

Index of the tone used by the 4th symbol group	Hopping pattern for the 5th and 6th symbol group within a repetition unit
0, 1, 2, 3, 4, 5	+22.5kHz，-22.5kHz
6, 7, 8,9, 10, 11	-22.5kHz，+22.5kHz，

Agreement
For NPUSCH transmission with 15 kHz subcarrier spacing, the number of subcarriers supported in TDD UL/DL configuration #3 is 1, 3, 6 and 12.

- RU length reuses FDD

Agreement

- For TDD NB-IoT with 15 kHz subcarrier spacing, the resource unit of NPUSCH format 2 is single tone with RU length 2 ms.
- The previous agreement above refers to NPUSCH format 1

Agreement
3.75kHz subcarrier spacing is not supported for TDD UL/DL configuration #3.

R1-1803873 On downlink TDD NB-IoT Huawei, HiSilicon
R1-1804165 UL aspects of TDD for NB-IoT Ericsson
R1-1804183 Remaining issues on uplink aspects to support TDD NB-IoT ZTE, SaneChips
R1-1804270 Uplink aspects of TDD support in NB-IoT Nokia, Nokia Shanghai Bell
R1-1804338 Discussion on UL channel for TDD NB-IoT Samsung
R1-1804529 Discussion on UL aspects in TDD NB-IoT LG Electronics
R1-1804876 Uplink aspects of TDD NB-IoT Sharp
R1-1804930 Uplink aspects of TDD Qualcomm Incorporated
R1-1805350 WF on NPUSCH transmission in UL/DL configuration #3 LG Electronics
R1-1805413 WF on NPUSCH transmission with 3.75kHz subcarrier spacing LG Electronics

6.2.7.6.3 Common aspects

E.g. Relaxations of MCL, latency, capacity targets; UL:DL configurations, special subframe, HARQ, etc.

R1-1805349 Summary of TDD Common aspects LG Electronics

Agreement
DwPTS can be used for NB-IoT transmission in CRS-less special subframe configuration #10 in TDD NB-IoT.

- FFS on how to use the blank REs corresponding to CRSs

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1281 of 1750

Agreement
Downlink scheduling delay is defined by 4 physical subframes + k0, and k0 is based on valid downlink subframes. The scheduling delay values in FDD NB-IoT are reused.

- FFS on whether valid special subframes which include DwPTS can be counted as a part of the scheduling delay k0

Email discussion to decide the details on DL/UL interlacing until 5/4 Changhwan (LGE)

R1-1803874	On uplink TDD NB-IoT	Huawei, HiSilicon
R1-1804166	DL/UL common aspects of TDD for NB-IoT	Ericsson
R1-1804184	Remaining issues on common aspects to support TDD NB-IoT	ZTE, SaneChips
R1-1804271	Common Aspects of NB-IoT TDD Operation	Nokia, Nokia Shanghai Bell
R1-1804339	Discussion on 2 HARQ processes and cross carrier scheduling	Samsung
R1-1804530	Discussion on common aspects in TDD NB-IoT	LG Electronics
R1-1804890	TDD NB-IoT coexistence with NR	SoftBank Corp.
R1-1804931	General considerations on TDD design	Qualcomm Incorporated
R1-1805133	Scheduling Aspects of TDD NB-IoT	III

6.2.7.7 Other

Including extended PHR related aspects.

R1-1804185	Considerations on extended Power Headroom report for NB-IoT	ZTE, SaneChips
R1-1804272	PHR Enhancement for NB-IoT	Nokia, Nokia Shanghai Bell
R1-1804340	Enhanced PHR for NB-IOT	Samsung

6.2.8 Ultra Reliable Low Latency Communication for LTE - *WID in RP-172845*

R1-1805429 Chairman's notes of AI 6.2.8 Ultra Reliable Low Latency Communication for LTE Ad-Hoc chair (Ericsson)
Decision: The document is endorsed, content incorporated below.

R1-1805414 Notes from the offline session on LTE URLLC Ericsson

Friday
R1-1805433 Draft LS on agreements for ultra reliable low latency communication for LTE Ericsson

Email discussion on the set of RRC parameters/UE capability for HRLLC based on the agreements so far by 4/27 – Laetitia (Ericsson)

6.2.8.1 Blind/HARQ-less Repetition for Scheduled DL-SCH Operation

- *Finalise details of RAN1 agreement to support blind/HARQ-less PDSCH repetition.*
- *Using legacy (S/E)PDCCH, (S)PUCCH formats (if applicable); any discussion of potential DCI modifications is limited to support of blind/HARQ-less repetition*
- *All four variants (as identified in RAN1#92) are valid for further discussion.*

R1-1805322 Blind/HARQ-less Repetition for Scheduled DL-SCH Operation Huawei, HiSilicon (rev of R1-1803711)

R1-1805342 Summary of simulation results regarding HARQ-less repetition for scheduled DL-SCH Huawei, HiSilicon

R1-1803962	**Discussion on PDSCH repetition for LTE URLLC**	**ZTE, Sanechips**
R1-1804136	**Blind/Harq-less repetitions for scheduled DL-SCH in LTE HRLLC**	**MediaTek Inc.**
R1-1804341	**Discussion on PDSCH repetition**	**Samsung**
R1-1804531	**Discussion on blind/HARQ-less repetition for scheduled DL-SCH operation**	**LG Electronics**
R1-1804587	**On blind/HARQ-less PDSCH repetition**	**Nokia, Nokia Shanghai Bell**
R1-1804701	**Repetitions for DL operation**	**Intel Corporation**
R1-1805271	**Downlink Enhancements for URLLC**	**Qualcomm Incorporated** (Revision of R1-1804933)
R1-1804958	**PDSCH aspects of LTE-URLLC**	**Motorola Mobility, Lenovo**
R1-1805162	**URLLC techniques for PDSCH**	**Ericsson**

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1282 of 1750

Agreement:
PDCCH indicates number of PDSCH transmissions associated with the PDCCH. PDCCH may or may not be transmitted with a PDSCH repetition. PDSCH transmissions can be soft combined after a PDCCH is successfully received

- The number of transmissions, k, is the number of PDSCH transmissions associated with the PDCCH starting with the current TTI
  - FFS: Values for k
- FFS: What the UE does with PDCCHs received for the TB after a successfully received PDCCH within the repetition window

Agreement:
Supporting repetition based PDSCH reception is a UE capability.

- FFS: Details of capabilities and how they are signalled.

Agreement:
The UE shall discard any PDSCH assignment for a (s)TTI in a serving cell with CRC scrambled with C-RNTI, if PDSCH by means of blind repetition is being received in that (s)TTI in the same serving cell.

Agreement:
Blind/HARQ-less PDSCH repetitions are enabled by RRC configuration. If configured, a single DCI format is used to schedule PDSCH with a given TTI length. There is a field in the DCI that indicates the number of PDSCH transmissions k associated with the DCI, where k >= 1.

- FFS on DCI content

Working assumption:
For HARQ for repeated PDSCH transmissions, the UE shall report HARQ feedback with the timing given by the last PDSCH repetition.

6.2.8.2 Repetition Enhancements for UL SPS Operation

Secondary priority (best effort only). Finalise details to support UL SPS repetition configuration (both sTTI and TTI)

R1-1803712	**Repetition Enhancements for UL SPS Operation**	**Huawei, HiSilicon**
R1-1803963	On UL SPS repetition for LTE URLLC	ZTE, Sanechips
R1-1804342	Discussion on Repetition for UL SPS	Samsung
R1-1804498	On UL SPS enhancements for URLLC	Nokia, Nokia Shanghai Bell
R1-1804532	Discussion on repetition enhancements for UL SPS operation	LG Electronics
R1-1804934	Uplink Enhancements for URLLC	Qualcomm Incorporated
R1-1805163	UL SPS PUSCH performance and HARQ ambiguity resolution	Ericsson

Proposal:
Any further discussion on UL SPS should focus on the following options:
Option 1: K repetitions, less or equal to the SPS periodicity P. Transmission starts at the beginning of the P windows. RV sequence is configurable.
Option 2: P=1, K repetitions are guaranteed and can start at any point.
Option 3: P configurable, UE can start at any point within P, but K transmission configured but Tx stops at P boundary (i.e. K tx are not garanteed).

6.2.8.3 Other

R1-1804436	Necessity for specifying UL SPS with repetition to support URLLC in Rel-15	Huawei, HiSilicon
R1-1804437	**Preliminary summary of specification impact for supporting UL SPS with repetition**	**Huawei, HiSilicon**
R1-1804588	**On higher layer configured PCFICH for URLLC**	**Nokia, Nokia Shanghai Bell**
R1-1804612	DL Control Techniques for LTE URLLC	Fraunhofer HHI
R1-1804935	**PCFICH Enhancements for URLLC**	**Qualcomm Incorporated**

Agreement:
Support an optional, CFI configuration per TTI length through UE and serving cell specific semi-static configuration.

- If CFI is semi-statically configured for TTIs of different lengths, the UE does not expect the configured CFI values to be different.
- The semi-static CFI value could be configured separately for MBSFN and non-MBSFN subframes over each cell.

R1-1805164 Latency for URLLC Ericsson

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1283 of 1750

R1-1805165 Reliability for URLLC Ericsson
R1-1805166 On Pre-emption in DL Ericsson
R1-1805167 On Pre-emption in UL Ericsson
R1-1805168 On PUCCH/SPUCCH reliability for URLLC Ericsson

6.2.9 Enhanced LTE Support for Aerial Vehicles - *WID in RP-172826*

R1-1805430 Chairman's notes of AI 6.2.9 Enhanced LTE Support for Aerial Vehicles Ad-Hoc chair (Ericsson)
Decision: The document is endorsed, content incorporated below.

6.2.9.1 *UL power control enhancements*

R1-1803889 Uplink Power control for aerial UEs Huawei, HiSilicon
R1-1804088 Discussion on UL power control for Aerial Vehicles CMCC
R1-1804237 Enhancements on power control for aerial vehicle ZTE, Sanechips
R1-1804609 Discussion on UL transmission for aerial vehicle Sony
R1-1804702 On UL power control enhancements for Aerial Vehicles Intel Corporation
R1-1804936 UL power control enhancements for aerial vehicles Qualcomm Incorporated
R1-1805019 Discussion on UL power control enhancements for aerial vehicles Ericsson

R1-1805356 WF on UL Power Control Enhancements for Aerials Ericsson, ZTE, Sanechips, Nokia, NSB, Sony, CMCC

Agreement:
If accumulation is enabled, the aerial UE shall reset the power control adjustment state for PUSCH when the value of alpha used by UE for PUSCH is changed

Agreement:
The range of UE-specific P0 parameter is extended to (-16,…,15)

Agreement:
- The aerial UE can be RRC configured with a single UE-specific alpha parameter for PUSCH
- The UE-specific alpha overrides the cell-specific alpha once it is configured.
- The support of UE-specific alpha and the extended range of UE-specific P0 are optional with capability signaling
  - Note: Whether the capability signaling is separate for the two aspects should be discussed in the LTE feature list discussion

R1-1805378 WF on altitude threshold for Aerials Sony, Ericsson, ZTE

Agreement:
- RAN1 has discussed whether it is useful to have multiple altitude thresholds from a power control perspective.
- Send an LS to RAN2 requesting them to introduce multiple altitude thresholds.

R1-1805379 LS on altitude threshold for Aerials Sony
R1-1805383 [Draft] LS on RAN1 Agreements from RAN1#92bis and on the introduction of multiple altitude thresholds Ericsson
Decision: The document is endorsed and final LS is approved in R1-1805388.

6.2.9.2 *Other*

R1-1805020 Evaluation results on extended range of UE specific P0 parameter Ericsson
R1-1805021 On positioning for aerial vehicles Ericsson
R1-1805169 Resource allocation for aerial vehicle Sony

6.2.10 Enhancing CA Utilization - *WID in RP-180561*

- Including draft CR, to be prepared by Rapporteur, capturing previous RAN1 agreements.
  - Note: no other CRs are allowed. Individual text proposals are allowed, which once approved, are to be consolidated into a single jumbo CR

R1-1805431 Chairman's notes of AI 6.2.10 Enhancing CA Utilization Ad-Hoc chair (Ericsson)
Decision: The document is endorsed, content incorporated below.

R1-1804438 Discussion on CSI feedback for CA SCell New State Huawei, HiSilicon
R1-1804454 Introduction of Enhancing CA Utilization into 36.213 Nokia, Nokia Shanghai Bell

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1284 of 1750

R1-1805357 **Introduction of Enhancing CA Utilization into 36.213** **Nokia, Nokia Shanghai Bell**
Decision: Endorsed. Final CR is agreed in R1-1805377 (36.213, CR1070, Rel-15, B).

6.2.11 Other

Including modulation enhancements, 2Tx/4Tx SRS switching, CBSR & CP latency reduction

R1-1805432 **Chairman's notes of AI 6.2.11 Other** **Ad-Hoc chair (Ericsson)**
Decision: The document is endorsed, content incorporated below.

CP Latency Reduction
R1-1803713 **Views on LTE Control Plane Latency Reduction** **Huawei, HiSilicon**

Proposal 1: CP latency of no more than 20ms needs to be supported in LTE in Rel-15.
Proposal 2: At least 4ms is supported for step 5 for 1ms TTI based CP latency reduction.

R1-1804134 Discussion on CP Latency MediaTek Inc.
R1-1804939 Control plane latency reduction Qualcomm Incorporated
R1-1805210 **Introduction of reduced control plane latency** **Ericsson**
R1-1805325 **Introduction of reduced control plane latency** **Ericsson**
R1-1805396 **Introduction of reduced control plane latency** **Ericsson**
Decision: Endorsed. Final CR is agreed in R1-1805408 (TS36.213, CR1073, Rel-15, B).

R1-1805211 Control Plane latency reduction Ericsson
R1-1805212 **[DRAFT] Reply LS on CP latency reduction** **Ericsson**
Decision: The document is endorsed and final LS is approved in **R1-1805321** with the following modification. Change "…3ms corresponding to a n+4 timing" to "4 ms corresponding to a n+5 timing".
Decision: The document is revised and approved in **R1-1805347** (to delete a duplicate sentence)

SRS Antenna Switching
R1-1803957 **On support of SRS antenna switching for 1T4R and 2T4R antenna configurations** **Huawei, HiSilicon**
R1-1803958 **On support of PUSCH antenna selection for 1T4R and 2T4R antenna configurations** **Huawei, HiSilicon**
R1-1803959 Introduction of SRS antenna switching for 4 ports in 36.213 Huawei, HiSilicon
R1-1805278 **SRS antenna switching for 1T4R and 2T4R** **Qualcomm Incorporated** (Revision of R1-1804937)

Agreement:
Support SRS antenna switching for 1T4R antenna configuration when frequency hopping is disabled as $a(n_{SRS}) = n_{SRS} \bmod 4$

R1-1805323 **Introduction of SRS antenna switching for 4 ports in TS36.213** **Huawei, HiSilicon, Qualcomm**
Decision: Email discussion until May 9, 2018 (Le, Qualcomm)

Modulation Enhancements
R1-1804135 **Modulation Enhancements** **MediaTek Inc.**
R1-1804439 Discussion on modulation enhancement for 256QAM Huawei, HiSilicon
R1-1804684 On TBS selection for LTE Intel Corporation
R1-1804938 **Discussion on modulation enhancements** **Qualcomm Incorporated**
Revisit this topic in RAN1#93

7 NR

R1-1805141 **Draft CR to 38.300 on functionality related to 38.21x** **Editor (Nokia)**
Decision: The document is endorsed. Send an LS to RAN2 – R1-1805558.

Friday
R1-1805558 [DRAFT] LS on time domain resource allocation Nokia
Discussion: Huawei fine with the content, title may require some update?
Decision: The document is endorsed and final LS is approved in R1-1805765, assuming fixing with a proper title.

7.1 Maintenance of NR - WID in RP-172834

Only essential corrections. Notes:
- No individual CRs are allowed. Only text proposals are allowed.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1285 of 1750

- Later on editors will aggregate all endorsed text proposals for a jumbo CR per spec
- Editors are encouraged to submit editor's CR before the meeting reflecting additional comments received after the endorsed & frozen NR specifications. If submitted, please submit under agenda 7.

R1-1803865 **Draft CR to 38.211** **Ericsson**
Discussion:
Ericsson: Intent is to raise issue that has not been correctly captured – suggests moving the table used for SFI signaling into the SFI section of 213
Huawei: draft CR was submitted very late
Ericsson: no intention to agree on it, for info moving forward
Decision: The document is noted. The change in 7.4.1.1.1 in R1-1803865 is endorsed (to be included in the next editor CR update)

Friday
R1-1805751 [DRAFT] LS on RRC parameters for NR Ericsson
Decision: The document is endorsed and final LS is approved in R1-1805766.

Editors to prepare CRs capturing the agreements till April 27th, for comments and endorsement by May 3rd.

7.1.1 Initial access and mobility

7.1.1.1 Synchronization signal

R1-1805501 **Summary of 7.1.1.1 Synchronization signal** **Ericsson**
Decision: The document is noted.

For the issue of potentially define an offset range between SSS and PDCCH, discuss further offline, aim to conclude at this meeting

Conclusion:
- For the discrepancy in carrier definition in 38.211 and 38.331, 38.211 editor will align the definition with 38.331

Proposed conclusion:
- Agree that k_0 signalling is no longer necessary
  - To inform RAN2 about the above
- In 38.211, define k_0 based on existing RRC parameters

Offline discussion to prepare how k_0 is to be defined in 38.211 if k_0 signalling is removed (note: k_0 is also used for PRACH)

Agreement:
- To adopt the following TP to 38.212, Section 7.1.1:

Generate the following additional timing related PBCH payload bits $\bar{a}_{\bar{A}}, \bar{a}_{\bar{A}+1}, \bar{a}_{\bar{A}+2}, \bar{a}_{\bar{A}+3}, \ldots, \bar{a}_{\bar{A}+7}$, where:

- $\bar{a}_{\bar{A}}, \bar{a}_{\bar{A}+1}, \bar{a}_{\bar{A}+2}, \bar{a}_{\bar{A}+3}$ are the 4th, 3rd, 2nd, and 1st LSB of SFN, respectively;
- $\bar{a}_{\bar{A}+4}$ is the half radio frame bit $\bar{a}_{\text{HRF}}$;
- if $L_{\text{SSB}} = 64$
  $\bar{a}_{\bar{A}+5}, \bar{a}_{\bar{A}+6}, \bar{a}_{\bar{A}+7}$ are the 6th, 5th, and 4th bits of SS/PBCH block index, respectively.
  else
  $\bar{a}_{\bar{A}+5}$ is the MSB of ~~k_0~~ k_{SSB} as defined in Subclause 7.4.3.1 of [4, TS 38.211].
  $\bar{a}_{\bar{A}+6}, \bar{a}_{\bar{A}+7}$ are reserved.
  end if

Agreement:
- The working assumption made in RAN1 AdHoc#1 on OFDM signal generation is confirmed.

Thursday
R1-1805595 **Summary of 7.1.1.1 Synchronization signal** **Ericsson**
Decision: The document is noted.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1286 of 1750

Agreement:

- Agree the text proposal below

For a half frame with SS/PBCH blocks, the first symbol indexes for candidate SS/PBCH blocks are determined according to the subcarrier spacing of SS/PBCH blocks as follows, where index 0 is the first symbol of the first slot in a half-frame.

Agreements:

- To adopt the following TP to 38.213, Section 4.1:

--- Start of TP ---

For a half frame with SS/PBCH blocks, the first symbol indexes for candidate SS/PBCH blocks are determined according to the subcarrier spacing of SS/PBCH blocks as follows.

- Case A - 15 kHz subcarrier spacing: the first symbols of the candidate SS/PBCH blocks have indexes of {2, 8} + 14*n. For carrier frequencies smaller than or equal to 3 GHz, n=0, 1. For carrier frequencies larger than 3 GHz and smaller than or equal to 6 GHz, n=0, 1, 2, 3.
- Case B - 30 kHz subcarrier spacing: the first symbols of the candidate SS/PBCH blocks have indexes {4, 8, 16, 20} + 28*n. For carrier frequencies smaller than or equal to 3 GHz, n=0. For carrier frequencies larger than 3 GHz and smaller than or equal to 6 GHz, n=0, 1.
- Case C - 30 kHz subcarrier spacing: the first symbols of the candidate SS/PBCH blocks have indexes {2, 8} + 14*n. For carrier frequencies smaller than or equal to 3 GHz, n=0, 1. For carrier frequencies larger than 3 GHz and smaller than or equal to 6 GHz, n=0, 1, 2, 3.
- Case D - 120 kHz subcarrier spacing: the first symbols of the candidate SS/PBCH blocks have indexes {4, 8, 16, 20} + 28*n. For carrier frequencies larger than 6 GHz, n=0, 1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 15, 16, 17, 18.
- Case E - 240 kHz subcarrier spacing: the first symbols of the candidate SS/PBCH blocks have indexes {8, 12, 16, 20, 32, 36, 40, 44} + 56*n. For carrier frequencies larger than 6 GHz, n=0, 1, 2, 3, 5, 6, 7, 8.

Which case(s) of Case A through E to be used on a carrier depends on frequency band(s) which is given by section of 5.4.3.3 of [8-1, TS 38.101-1] and [8-2, TS 38.101-2], and is the same case for all SS/PBCH blocks on a carrier.

--- End of TP ---

Proposal:

- The value of k_0^{μ} for any numerology μ is obtained using

$$k_0^{\mu} = N_{grid,x}^{start,\mu} N_{sc}^{RB} + \frac{N_{grid,x}^{size,\mu}}{2} \cdot N_{sc}^{RB} - \left(N_{grid,x}^{start,\mu_0} N_{sc}^{RB} + \frac{N_{grid,x}^{size,\mu_0}}{2} \cdot N_{sc}^{RB} - k_0^{\mu_0} \right) \times 2^{\mu_0 - \mu}$$

where μ_0 is the numerology with highest SCS supported in the carrier, and the value of $k_0^{\mu_0} \in \{-6, 0, +6\}$ is obtained by RRC signaling

FFS EPRE offset between SSS and PDCCH

Friday
R1-1805748 Summary of 7.1.1.1 Synchronization signal Ericsson
Decision: The document is noted.

Agreements:

- In initial cell selection and idle mode, the UE may assume that the EPRE offset between PDCCH DMRS and SSS in the QCL'ed SSB is in the range [X, Y]dB when PDDCH with CRC scrambled by SI-RNTI, P-RNTI and RA-RNTI
  - FFS: value of X and Y and dependence on numerology
    - |X| & Y are no more than 12

Conclusion:

- It is RAN1's understanding that the f_0 does not have to be on the channel raster nor the center of the RF filter.

R1-1803606	Remaining details of Synchronization Signal Design	ZTE, Sanechips
R1-1803625	Remaining details on synchronization signal	Huawei, HiSilicon
R1-1803729	Remaining Issues on Synchronization Signal	CATT
R1-1803806	Remaining issues on synchronization signal	vivo
R1-1803998	Power offset between SS/PBCH block and PDCCH	OPPO
R1-1804050	Remaining issues on synchronization signals	MediaTek Inc.
R1-1804343	Corrections on Synchronization Signaling	Samsung
R1-1804501	Symbol index definition for SSB time location	NEC Corporation
R1-1804533	Remaining Details on Synchronization signal	LG Electronics
R1-1804703	Remaining details of SS/PBCH block	Intel Corporation
R1-1804774	Remaining details on synchronization signal design	Qualcomm Incorporated
R1-1805031	Remaining issues on Synchronization signal	NTT DOCOMO, INC.
R1-1805134	Open issues related to Synchronisation Signal	Nokia, Nokia Shanghai Bell
R1-1805215	Remaining details on Synchronization signal	Ericsson
R1-1805723	Derivation of k0	Qualcomm

7.1.1.2 Broadcast signal/channel

7.1.1.2.1 NR-PBCH

R1-1805502 Summary of 7.1.1.2.1 NR-PBCH Ericsson
Decision: The document is noted.

Proposal:
- From RAN1 perspective, the signalling of M in RMSI is not necessary in Rel-15

Agreement**:**
- Confirm working assumption on signalling tables for indication of cell-defining SSB

Agreement**:**
- Confirm working assumption on step size X=1 (for cell-defining SSB)

Proposal:
- To adopt the following TP to 38.213, Section 13:

If a UE detects a first SS/PBCH block and determines that a control resource set for Type0-PDCCH common search space is not present, and for $24 \le k_{SSB} \le 29$ for FR1 or for $12 \le k_{SSB} \le 13$ for FR2, the UE determines the closest global synchronization channel number (GSCN) of a second SS/PBCH block having a control resource set for an associated Type0-PDCCH common search space as $N_{GSCN}^{Reference} + N_{GSCN}^{Offset}$. $N_{GSCN}^{Reference}$ is the GSCN of the first SS/PBCH block and N_{GSCN}^{Offset} is a GSCN offset provided by Table 13-16 for FR1 and Table 13-17 for FR2.

Thursday
R1-1805596 Summary of 7.1.1.2.1 NR-PBCH Ericsson
Decision: The document is noted.

Agreement: (RRC update)
- From RAN1 perspective, the signalling of M in RMSI with parameter `frequencyOffsetSSB` is not necessary in Rel-15

Agreement:
- To adopt the following TP to 38.213, Section 13:

If a UE detects a first SS/PBCH block and determines that a control resource set for Type0-PDCCH common search space is not present, and for $24 \le k_{SSB} \le 29$ for FR1 or for $12 \le k_{SSB} \le 13$ for FR2, the UE determines the nearest (in the corresponding frequency direction) global synchronization channel number (GSCN) of a second SS/PBCH block having a control resource set for an associated Type0-PDCCH common search space as $N_{GSCN}^{Reference} + N_{GSCN}^{Offset}$. $N_{GSCN}^{Reference}$ is the GSCN of the first SS/PBCH block and N_{GSCN}^{Offset} is a GSCN offset provided by Table 13-16 for FR1 and Table 13-17 for FR2.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1288 of 1750

Agreements:

- To adopt the following TP for 7.4.1.4.1 of 38.211

The UE shall assume the reference-signal sequence $r(m)$ for an SS/PBCH block is defined by

$$r(m)=\frac{1}{\sqrt{2}}(1-2\cdot c(2m))+j\frac{1}{\sqrt{2}}(1-2\cdot c(2m+1))$$

where $c(n)$ is given by clause 5.2. The scrambling sequence generator shall be initialized at the start of each SS/PBCH block occasion with

$$c_{\text{init}}=2^{11}(\bar{i}_{\text{SSB}}+1)\left(\lfloor N_{\text{ID}}^{\text{cell}}/4\rfloor+1\right)+2^{6}(\bar{i}_{\text{SSB}}+1)+(N_{\text{ID}}^{\text{cell}}\bmod 4)$$

~~$\bar{i}_{\text{SSB}}=i_{\text{SSB}}+4n_{\text{hf}}$~~

where

- for $L_{\max}=4$, $\bar{i}_{\text{SSB}}=i_{\text{SSB}}+4n_{\text{hf}}$, n_{hf} is the number of the half-frame in which the PBCH is transmitted in a frame with $n_{\text{hf}}=0$ for the first half-frame in the frame and $n_{\text{hf}}=1$ for the second half-frame in the frame, and i_{SSB} is the two least significant bits of the SS/PBCH block index as defined in [5, TS 38.213]
- for $L_{\max}=8$ or $L_{\max}=64$, $\bar{i}_{\text{SSB}}=i_{\text{SSB}}$ ~~$n_{\text{hf}}=0$~~ and i_{SSB} is the three least significant bits of the SS/PBCH block index as defined in [5, TS 38.213]

with $L_{\max}$ being the maximum number of SS/PBCH beams in an SS/PBCH period for a particular band as given by [38.104].

Friday: no further progress regarding the following issues:
Timing Alignment between Cells to Avoid Unnecessary Reading of PBCH?
Alignment of scrambling for FR1 vs. FR2?

R1-1803607	Remaining details of NR-PBCH Design	ZTE, Sanechips
R1-1803626	Remaining details of NR PBCH design	Huawei, HiSilicon
R1-1803807	Remaining aspects on NR-PBCH	vivo
R1-1803997	On synchronization raster indication	OPPO
R1-1804051	Remaining issues on NR-PBCH	MediaTek Inc.
R1-1804089	Discussion on power offset for PBCH and PDCCH	CMCC
R1-1804344	Corrections on NR-PBCH	Samsung
R1-1804534	Remaining Details on PBCH design and contents	LG Electronics
R1-1804648	Remaining detail on the indication of cell-defining SS/PBCH block	Xiaomi Communications
R1-1804704	Remaining details of NR-PBCH	Intel Corporation
R1-1804775	Remaining details on NR-PBCH	Qualcomm Incorporated
R1-1804840	Remaining Details for Physical Broadcast Channel	InterDigital, Inc.
R1-1805032	Remaining issues on NR-PBCH	NTT DOCOMO, INC.
R1-1805135	Remaining details related to SS/PBCH block	Nokia, Nokia Shanghai Bell
R1-1805216	Remaining details of PBCH	Ericsson

7.1.1.2.2 Remaining minimum system information

R1-1803731 **Summary of Offline Discussion on RMSI CATT**
Decision: The document is noted.

Agreements:

- To adopt the following TP of 38.213, Section 13:

---Start of TP---

Table 13-1: Set of resource blocks and slot symbols of control resource set for Type0-PDCCH search space when {SS/PBCH block, PDCCH} subcarrier spacing is {15, 15} kHz for frequency bands with minimum channel bandwidth 5 MHz
...
Table 13-2: Set of resource blocks and slot symbols of control resource set for Type0-PDCCH search space when {SS/PBCH block, PDCCH} subcarrier spacing is {15, 30} kHz for frequency bands with minimum channel bandwidth 5 MHz
...
Table 13-3: Set of resource blocks and slot symbols of control resource set for Type0-PDCCH search space when {SS/PBCH block, PDCCH} subcarrier spacing is {30, 15} kHz for frequency bands with minimum channel bandwidth 5 MHz or 10 MHz
...
Table 13-4: Set of resource blocks and slot symbols of control resource set for Type0-PDCCH search space when {SS/PBCH block, PDCCH} subcarrier spacing is {30, 30} kHz for frequency bands with minimum channel bandwidth 5 MHz or 10 MHz
...
Table 13-5: Set of resource blocks and slot symbols of control resource set for Type0-PDCCH search space when {SS/PBCH block, PDCCH} subcarrier spacing is {30, 15} kHz for frequency bands with minimum channel bandwidth 40MHz
...
Table 13-6: Set of resource blocks and slot symbols of control resource set for Type0-PDCCH search space when {SS/PBCH block, PDCCH} subcarrier spacing is {30, 30} kHz for frequency bands with minimum channel bandwidth 40MHz
---End of TP---

Tuesday's session
R1-1805598 Offline summary on Max TBS for broadcast PDSCH Huawei
Decision: The document is noted.

Agreements:

- Regarding the questions in LS R1-1803586:
  - 1st question: whether NR can support approximately 1700 bits RMSI in one TB in all cases.
    - Answer:
      - Yes, NR can support RMSI size of approximately 1700 bits in one TB for both FR1 and FR2 with an appropriate RMSI configuration. RAN1 agrees that max TBS of 2976 bits is supported for PDSCH by SI-RNTI from physical layer perspective.
  - 2nd question: If necessary, whether L1 parameters size in RMSI can be reduced.
    - Answer: Since the answer to the 1st question is yes, RAN1 sees no urgency to reduce L1 parameters size in RMSI. However, RAN1 is considering the possibility of doing so and will update RAN2 upon new progress.
- To send the reply LS

R1-1805597 Draft LS on Max TBS for PDSCH containing RMSI Huawei
Decision: The document is noted. To be revised in R1-1805617 to take into account above agreement
Wednesday
R1-1805617 Draft LS on Max TBS for PDSCH containing RMSI Huawei
Decision: The draft LS is endorsed and approved in R1-1805653.

Thursday session
R1-1805600 Summary of Offline Discussion on RMSI CATT
Decision: The document is noted.

Conclusion:

- Editor to make updates regarding the wording of "subcarrier k" in 38.211 when necessary and applicable.

Issues for {SSB SCS, PDCCH SCS} = {240, 120} kHz with 2 symbols

R1-1805676 [Draft] LS on RMSI CORESET configuration for a band with 15kHz SSB SCS and 10MHz minimum channel bandwidth CATT
Decision: The document is endorsed and final LS is approved in R1-1805712.

Friday
R1-1805741 Summary of Offline Discussion on RMSI CATT
Decision: The document is noted.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1290 of 1750

Agreements:

For {SSB SCS, PDCCH SCS} = {240, 120} kHz, remove the configurations with $N_{symb}^{CORESET}$=2 for Pattern 2 in Table 13-10 of TS 38.213.

---- Start of Test Proposal (TS 38.213) ----

Table 13-10: Set of resource blocks and slot symbols of control resource set for Type0-PDCCH search space when {SS/PBCH block, PDCCH} subcarrier spacing is {240, 120} kHz

Index	SS/PBCH block and control resource set multiplexing pattern	Number of RBs $N_{RB}^{CORESET}$	Number of Symbols $N_{symb}^{CORESET}$	Offset (RBs)
0	1	48	1	0
1	1	48	1	8
2	1	48	2	0
3	1	48	2	8
~~4~~	~~2~~	~~24~~	~~1~~	~~41 if condition A 42 if condition B~~
~~5~~	~~2~~	~~24~~	~~1~~	~~25~~
~~6~~	~~2~~	~~24~~	~~2~~	~~41 if condition A 42 if condition B~~
~~7~~	~~2~~	~~24~~	~~2~~	~~25~~
~~8~~	~~2~~	~~48~~	~~1~~	~~41 if condition A 42 if condition B~~
~~9~~	~~2~~	~~48~~	~~1~~	~~49~~
~~10~~	~~2~~	~~48~~	~~2~~	~~41 if condition A 42 if condition B~~
~~11~~	~~2~~	~~48~~	~~2~~	~~49~~
4	Reserved			
5	Reserved			
6	Reserved			
7	Reserved			
8	Reserved			
9	Reserved			
10	Reserved			
11	Reserved			
12	Reserved			
13	Reserved			
14	Reserved			
15	Reserved			

---- End of Test Proposal (TS 38.213) ----

R1-1803608	Remaining details of RMSI	ZTE, Sanechips
R1-1803627	Remaining on RMSI configurations	Huawei, HiSilicon
R1-1803730	Remaining Issues on RMSI	CATT
R1-1803808	Discussion on Remaining Minimum System Information	vivo
R1-1803991	Remaing issues on RMSI	OPPO
R1-1804052	Remaining issues on RMSI	MediaTek Inc.
R1-1804090	Discussion on remaining issues for RMSI	CMCC
R1-1804345	Corrections on Remaining Minimum System Information	Samsung
R1-1804535	RMSI delivery and CORESET configuration	LG Electronics
R1-1804705	Remaining details of RMSI	Intel Corporation
R1-1804776	Remaining system information delivery consideration	Qualcomm Incorporated
R1-1805033	Remaining issues on RMSI	NTT DOCOMO, INC.
R1-1805136	Remaining issues on RMSI	Nokia, Nokia Shanghai Bell
R1-1805217	Remaining minimum system information	Ericsson
R1-1805605	RMSI CORESET Configuration Tables for SS SCS = 15 kHz and min CH BW = 10 MHz	Samsung

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1291 of 1750

7.1.1.2.3 Other system information delivery

R1-1805516 **Summary of 7.1.1.2.3 Other system information delivery Samsung**
Decision: The document is noted.

R1-1804053 Remaining issues on OSI MediaTek Inc.
R1-1804346 Corrections on Other System Information Delivery Samsung
R1-1804536 Other system information delivery LG Electronics
R1-1805137 On BWP for Other System Information Delivery Nokia, Nokia Shanghai Bell
R1-1805218 On other system information delivery Ericsson

7.1.1.3 Paging design

R1-1805508 **Summary on Paging design Huawei**
Decision: The document is noted.

Thursday
R1-1805679 **Summary on Paging design Huawei**
Decision: The document is noted.

Continue further discussion on the following proposal (TP for 38.213, Section 12):
(For the case when initial DL BWP is defined to match to SSB+CORESET)

For SS/PBCH block and control resource set multiplexing pattern 1, ~~A~~an initial active DL BWP is defined by a location and number of contiguous PRBs, a subcarrier spacing, and a cyclic prefix, for the control resource set for Type0-PDCCH common search space. For SS/PBCH block and control resource set multiplexing pattern 2 and 3, number of contiguous PRBs, N_{RB}^{init}, for an initial active DL BWP is defined as $N_{RB}^{init} = \max((offset + N_{RB}^{SSB}), (N_{RB}^{CORESET} - offset))$, where *offset* is defined in defined in Tables 13-7 to 13-10 in Section 13 and N_{RB}^{SSB} is the SS/PBCH block bandwidth in number of RB assuming the subcarrier spacing for Type0-PDCCH common search space. For SS/PBCH block and control resource set multiplexing pattern 2 and 3, the start of the initial active DL BWP is defined with PRB offset with respect to the smallest RB index of the initial active DL BWP to the smallest RB index of the common RB overlapping with the first RB of the SS/PBCH block and is given as ~~the PRB offset of the initial active DL BWP is defined with respect to the smallest RB index of the initial active DL BWP to the smallest RB index of the common RB overlapping with the first RB of the SS/PBCH block and is given as~~ $\max(0, offset)$.
For operation on the primary cell, a UE is provided by higher layer parameter *initial-UL-BWP* an initial active UL BWP for a random access procedure. If the UE is configured with a secondary carrier on the primary cell, the UE can be configured with an initial BWP for random access procedure on the secondary carrier.

Formatted: English (United States)

R1-1803992 Remaining details on NR paging OPPO
R1-1804054 Remaining issue on Paging MediaTek Inc.
R1-1804347 Corrections on Paging Design Samsung
R1-1804537 Paging design in NR LG Electronics
R1-1804777 Paging design consideration Qualcomm Incorporated
R1-1804841 Remaining Details for Paging Channel InterDigital, Inc.
R1-1805034 Remaining issues on Paging design NTT DOCOMO, INC.
R1-1805138 BWP determination for paging message delivery Nokia, Nokia Shanghai Bell
R1-1805219 Remaining details on paging design Ericsson

7.1.1.4 Physical random access channel and random access procedure

7.1.1.4.1 PRACH formats

R1-1805533 **Summary of rmaining details on PRACH format Convida Wireless**
Decision: The document is noted.

Proposals:
- For FR2, the working assumption is updated as follows:
  - For the Semi-static UL/DL configuration in RMSI, only PRACH occasions within the UL part and X part in any RACH configuration period are valid as long as it does not precede or collide with an SSB in the RACH slot in any RACH configuration period
    - UE is not expected to receive DL signals during any valid RACH occasion
    - Note: In the UL/DL semi-static configuration, 0 UL slots and 0 UL symbols can be configured
    - FFS how to handle the gap necessary in between SS/PBCH block or DL part and PRACH tx

Proposal:

- To adopt the following TP to 5.3.2 of 38.211:

- n_t^{RA} is the PRACH transmission occasion within the PRACH slot, numbered in increasing order from 0 to $N_t^{RA,slot}-1$ within a RACH slot where $N_t^{RA,slot}$ is given Tables 6.3.3.2-2 to 6.3.3.2-4 for short sequences and fixed to 1 for long sequences;
- N_{dur}^{RA} is given by Tables 6.3.3.2-2 to 6.3.3.2-4 for short sequences; N_{dur}^{RA} is fixed to 0 for long sequences.

Tuesday session
R1-1805577 **Summary of remaining details on PRACH format Convida Wireless**

~~Agreements:~~

- ~~For FR2, the previous working assumption is replaced with the following working assumption (no change of the previous working assumption regarding FR1)~~
  - ~~For the Semi-static UL/DL configuration in RMSI, only PRACH occasions within the UL part and X part are valid as long as it does not precede or collide with an SSB in the RACH slot, and it is more than N symbols after DL part and/or the last symbol of an SSB.~~
    - ~~N = 2 for Msg1 SCS = 60kHz~~
    - ~~N = 3 for Msg1 SCS = 120kHz~~
      - ~~UE is not expected to receive DL signals during any valid RACH occasion~~
      - ~~The SSB to RO association pattern period shall repeat at most every 160 ms~~
        - ~~If there are leftover ROs after an integer number of SSB to RO association period(s) within the SSB to RO association pattern period. Those leftover ROs are invalid.~~
      - ~~Note: In the UL/DL semi-static configuration, 0 UL slots and 0 UL symbols can be configured~~
      - ~~FFS how to handle the gap necessary in between SS/PBCH block or DL part and PRACH tx~~

Thursday session
R1-1805648 **Summary of remaining details on PRACH format Convida Wireless**
Decision: The document is noted.

Agreements:

- Update the WA (remains as WA) on FR1 configuration Table 6.3.3.2-3 in 38.211 section 6.3.3.2, with the following update for configuration index 166 for format B4:

Table 6.3.3.2-3: Random access configurations for FR1 and unpaired spectrum.

PRACH Configuration Index	Preamble format	$n_{SFN} \bmod x = y$		Subframe number	Starting symbol	Number of PRACH slots within a subframe	$N_t^{RA,slot}$, number of time-domain PRACH occasions within a RACH slot	N_{dur}^{RA}, PRACH duration
		x	y					
166	B4	1	0	0,1,2,3,4,5,6,7,8,9 ~~3,4,8,9~~	0	2	1	12

Agreements:

- Replace the previous working assumption (remains WA) for FR2 RACH configuration table, with the following table.
  - The ones in yellow background are not final
  - Note: RACH configuration indexing will be up to editor to update.

--- Text proposal for 38.211, section 6.3.3 ---

Table 6.3.3.2-4: Random access configurations for FR2 and unpaired spectrum.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1294 of 1750

PRACH Config. Index	Preamble format	$n_{SFN} \bmod x = y$		Slot number	Starting symbol	Number of PRACH slots within a 60 kHz slot	$N_t^{RA,slot}$, number of time-domain PRACH occasions within a RACH slot	N_{dur}^{RA}, PRACH duration
		x	y					
0	A1	1	0	4,9,14,19,24,29,34,39	0	1	6	2
1	A1	1	0	4,9,14,19,24,29,34,39	7	1	3	2
2	A1	1	0	9,19,29,39	0	2	6	2
3	A1	1	0	24,29,34,39	7	1	3	2
4	A1	1	0	17,19,37,39	0	1	6	2
5	A1	1	0	19,39	7	1	3	2
6	A1	1	0	9,19,29,39	7	2	3	2
7	A1	1	0	0,1,2,…,39	7	1	3	2
8	A1	1	0	23,27,31,35,39	0	1	6	2
9	A1	1	0	23,27,31,35,39	7	1	3	2
10	A1	1	0	3,7,11,15,19,23,27,31,35,39	0	1	6	2
11	A1	1	0	3,7,11,15,19,23,27,31,35,39	7	1	3	2
12	A1	1	0	1,3,5,7,…,37,39	0	1	6	2
13	A1	1	0	3,5,7	0	1	6	2
14	A1	1	0	3,5,7,9,11,13	7	1	3	2
15	A1	16	1	4,9,14,19,24,29,34,39	0	2	6	2
16	A1	16	1	3,7,11,15,19,23,27,31,35,39	0	1	6	2
17	A1	8	1	4,9,14,19,24,29,34,39	0	2	6	2
18	A1	8	1	3,7,11,15,19,23,27,31,35,39	0	1	6	2
19	A1	4	1	4,9,14,19,24,29,34,39	0	2	6	2
20	A1	4	1	3,7,11,15,19,23,27,31,35,39	0	1	6	2
21	A1	2	1	4,9,14,19,24,29,34,39	0	2	6	2
22	A1	2	1	3,7,11,15,19,23,27,31,35,39	0	1	6	2
23	A1	1	0	7,15,23,31,39	0	1	6	2
24	A1	4	1	4,9,14,19,24,29,34,39	0	1	6	2
25	A1	2	1	4,9,14,19,24,29,34,39	0	1	6	2
26	A1	1	0	13,14,15, 29,30,31,37,38,39	7	2	3	2
27	A1	8	1,2	9,19,29,39	0	2	6	2
28	A1	2	1	7,15,23,31,39	0	2	6	2
0	A2	1	0	4,9,14,19,24,29,34,39	0	1	3	4
1	A2	1	0	4,9,14,19,24,29,34,39	5	1	2	4
2	A2	1	0	9,19,29,39	0	2	3	4
3	A2	1	0	24,29,34,39	5	1	2	4
4	A2	1	0	17,19,37,39	0	1	3	4
5	A2	1	0	19,39	5	1	2	4
6	A2	1	0	9,19,29,39	5	2	2	4
7	A2	1	0	0,1,2,…,39	5	1	2	4
8	A2	1	0	23,27,31,35,39	0	1	3	4
9	A2	1	0	23,27,31,35,39	5	1	2	4
10	A2	1	0	3,7,11,15,19,23,27,31,35,39	0	1	3	4
11	A2	1	0	3,7,11,15,19,23,27,31,35,39	5	1	2	4
12	A2	1	0	1,3,5,7,…,37,39	0	1	3	4
13	A2	1	0	3,5,7	0	1	3	4
14	A2	1	0	3,5,7,9,11,13	5	1	2	4
15	A2	16	1	4,9,14,19,24,29,34,39	0	2	3	4
16	A2	16	1	3,7,11,15,19,23,27,31,35,39	0	1	3	4
17	A2	8	1	4,9,14,19,24,29,34,39	0	2	3	4
18	A2	8	1	3,7,11,15,19,23,27,31,35,39	0	1	3	4
19	A2	4	1	4,9,14,19,24,29,34,39	0	2	3	4
20	A2	4	1	3,7,11,15,19,23,27,31,35,39	0	1	3	4
21	A2	2	1	4,9,14,19,24,29,34,39	0	2	3	4
22	A2	2	1	3,7,11,15,19,23,27,31,35,39	0	1	3	4
23	A2	1	0	7,15,23,31,39	0	1	3	4
24	A2	4	1	4,9,14,19,24,29,34,39	0	1	3	4
25	A2	2	1	4,9,14,19,24,29,34,39	0	1	3	4
26	A2	1	0	13,14,15, 29,30,31,37,38,39	5	2	2	4
27	A2	8	1,2	9,19,29,39	0	2	3	4
28	A2	2	1	7,15,23,31,39	0	2	3	4

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1295 of 1750

0	A3	1	0	4,9,14,19,24,29,34,39	0	1	2	6
1	A3	1	0	4,9,14,19,24,29,34,39	7	1	1	6
2	A3	1	0	9,19,29,39	0	2	2	6
3	A3	1	0	24,29,34,39	7	1	1	6
4	A3	1	0	17,19,37,39	0	1	2	6
5	A3	1	0	19,39	7	1	1	6
6	A3	1	0	9,19,29,39	7	2	1	6
7	A3	1	0	0,1,2,…,39	7	1	1	6
8	A3	1	0	23,27,31,35,39	0	1	2	6
9	A3	1	0	23,27,31,35,39	7	1	1	6
10	A3	1	0	3,7,11,15,19,23,27,31,35,39	0	1	2	6
11	A3	1	0	3,7,11,15,19,23,27,31,35,39	7	1	1	6
12	A3	1	0	1,3,5,7,…,37,39	0	1	2	6
13	A3	1	0	3,5,7	0	1	2	6
14	A3	1	0	3,5,7,9,11,13	7	1	1	6
15	A3	16	1	4,9,14,19,24,29,34,39	0	2	2	6
16	A3	16	1	3,7,11,15,19,23,27,31,35,39	0	1	2	6
17	A3	8	1	4,9,14,19,24,29,34,39	0	2	2	6
18	A3	8	1	3,7,11,15,19,23,27,31,35,39	0	1	2	6
19	A3	4	1	4,9,14,19,24,29,34,39	0	2	2	6
20	A3	4	1	3,7,11,15,19,23,27,31,35,39	0	1	2	6
21	A3	2	1	4,9,14,19,24,29,34,39	0	2	2	6
22	A3	2	1	3,7,11,15,19,23,27,31,35,39	0	1	2	6
23	A3	1	0	7,15,23,31,39	0	1	2	6
24	A3	4	1	4,9,14,19,24,29,34,39	0	1	2	6
25	A3	2	1	4,9,14,19,24,29,34,39	0	1	2	6
26	A3	1	0	13,14,15, 29,30,31,37,38,39	7	2	1	6
27	A3	8	1,2	9,19,29,39	0	2	2	6
CMCC	A3	1	0	7,15,23,31,39 or 9,11,13	2	1	2	6
0	B1	1	0	4,9,14,19,24,29,34,39	2	1	6	2
1	B1	1	0	4,9,14,19,24,29,34,39	8	1	3	2
2	B1	1	0	9,19,29,39	2	2	6	2
3	B1	1	0	24,29,34,39	8	1	3	2
4	B1	1	0	17,19,37,39	2	1	6	2
5	B1	1	0	19,39	8	1	3	2
6	B1	1	0	9,19,29,39	8	2	3	2
7	B1	1	0	0,1,2,…,39	8	1	3	2
8	B1	1	0	23,27,31,35,39	2	1	6	2
9	B1	1	0	23,27,31,35,39	8	1	3	2
10	B1	1	0	3,7,11,15,19,23,27,31,35,39	2	1	6	2
11	B1	1	0	3,7,11,15,19,23,27,31,35,39	8	1	3	2
12	B1	1	0	1,3,5,7,…,37,39	2	1	6	2
13	B1	1	0	3,5,7	2	1	6	2
14	B1	1	0	3,5,7,9,11,13	8	1	3	2
15	B1	16	1	4,9,14,19,24,29,34,39	2	2	6	2
16	B1	16	1	3,7,11,15,19,23,27,31,35,39	2	1	6	2
17	B1	8	1	4,9,14,19,24,29,34,39	2	2	6	2
18	B1	8	1	3,7,11,15,19,23,27,31,35,39	2	1	6	2
19	B1	4	1	4,9,14,19,24,29,34,39	2	2	6	2
20	B1	4	1	3,7,11,15,19,23,27,31,35,39	2	1	6	2
21	B1	2	1	4,9,14,19,24,29,34,39	2	2	6	2
22	B1	2	1	3,7,11,15,19,23,27,31,35,39	2	1	6	2
23	B1	1	0	7,15,23,31,39	2	1	6	2
24	B1	4	1	4,9,14,19,24,29,34,39	2	1	6	2
25	B1	2	1	4,9,14,19,24,29,34,39	2	1	6	2
26	B1	1	0	13,14,15, 29,30,31,37,38,39	8	2	3	2
27	B1	8	1,2	9,19,29,39	2	2	6	2
0	B4	1	0	4,9,14,19,24,29,34,39	0	1	1	12
1	B4	1	0	4,9,14,19,24,29,34,39	2	1 or 2	1	12
2	B4	1	0	9,19,29,39	0	2	1	12
3	B4	1	0	24,29,34,39	2	1	1	12
4	B4	1	0	17,19,37,39	0	1	1	12
5	B4	1	0	19,39	2	1 or 2	1	12
6	B4	1	0	9,19,29,39	2	2	1	12
7	B4	1	0	0,1,2,…,39	2	1	1	12

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1296 of 1750

8	B4	1	0	23,27,31,35,39	0	1	1	12
9	B4	1	0	23,27,31,35,39	2	1 or 2	1	12
10	B4	1	0	3,7,11,15,19,23,27,31,35,39	0	1	1	12
11	B4	1	0	3,7,11,15,19,23,27,31,35,39	2	1 or 2	1	12
12	B4	1	0	1,3,5,7,....,37,39	0	1	1	12
13	B4	1	0	3,5,7	0	1	1	12
14	B4	1	0	3,5,7,9,11,13	2	1	1	12
15	B4	16	1,2	4,9,14,19,24,29,34,39	0	2	1	12
FO	B4	16	1,2	3,7,11,15,19,23,27,31,35,39	0	1	1	12
17	B4	8	1,2	4,9,14,19,24,29,34,39	0	2	1	12
18	B4	8	1,2	3,7,11,15,19,23,27,31,35,39	0	1	1	12
19	B4	4	1	4,9,14,19,24,29,34,39	0	2	1	12
20	B4	4	1,2	3,7,11,15,19,23,27,31,35,39	0	1	1	12
21	B4	2	1	4,9,14,19,24,29,34,39	0	2	1	12
22	B4	2	1	3,7,11,15,19,23,27,31,35,39	0	1	1	12
23	B4	1	0	7,15,23,31,39	0	1 or 2	1	12
24	B4	4	1	4,9,14,19,24,29,34,39	0	1	1	12
25	B4	2	1	4,9,14,19,24,29,34,39	0	1	1	12
26	B4	1	0	13,14,15, 29,30,31,37,38,39	2	2	1	12
27	B4	8	1,2	9,19,29,39	0	2	1	12
28	B4	2	1	7,15,23,31,39	2	2	1	12
0	C0	1	0	4,9,14,19,24,29,34,39	0	1	7	2
1	C0	1	0	4,9,14,19,24,29,34,39	8	1	3	2
2	C0	1	0	9,19,29,39	0	2	7	2
3	C0	1	0	24,29,34,39	8	1	3	2
4	C0	1	0	17,19,37,39	0	1	7	2
5	C0	1	0	19,39	8	1	3	2
6	C0	1	0	9,19,29,39	8	2	3	2
7	C0	1	0	0,1,2,…,39	8	1	3	2
8	C0	1	0	23,27,31,35,39	0	1	7	2
9	C0	1	0	23,27,31,35,39	8	1	3	2
10	C0	1	0	3,7,11,15,19,23,27,31,35,39	0	1	7	2
11	C0	1	0	3,7,11,15,19,23,27,31,35,39	8	1	3	2
12	C0	1	0	1,3,5,7,…,37,39	0	1	7	2
13	C0	1	0	3,5,7	0	1	7	2
14	C0	1	0	3,5,7,9,11,13	8	1	3	2
15	C0	16	1	4,9,14,19,24,29,34,39	0	1 or 2	7	2
EF	C0	16	1	3,7,11,15,19,23,27,31,35,39	0	1	7	2
17	C0	8	1	4,9,14,19,24,29,34,39	0	1 or 2	7	2
18	C0	8	1	3,7,11,15,19,23,27,31,35,39	0	1	7	2
19	C0	4	1	4,9,14,19,24,29,34,39	0	2	7	2
20	C0	4	1	3,7,11,15,19,23,27,31,35,39	0	1	7	2
21	C0	2	1	4,9,14,19,24,29,34,39	0	2	7	2
22	C0	2	1	3,7,11,15,19,23,27,31,35,39	0	1	7	2
23	C0	1	0	7,15,23,31,39	0	1	7	2
24	C0	4	1	4,9,14,19,24,29,34,39	0	1	7	2
25	C0	2	1	4,9,14,19,24,29,34,39	0	1	7	2
26	C0	1	0	13,14,15, 29,30,31,37,38,39	8	2	3	2
27	C0	8	1,2	9,19,29,39	0	2	7	2
28	C0	2	1	7,15,23,31,39	0	2	7	2
0	C2	1	0	4,9,14,19,24,29,34,39	2	1	2	6
1	C2	1	0	4,9,14,19,24,29,34,39	7	1 or 2	1	6
2	C2	1	0	9,19,29,39	2	2	2	6
3	C2	1	0	24,29,34,39	7	1	1	6
4	C2	1	0	17,19,37,39	0	1	2	6
5	C2	1	0	19,39	2	1	2	6
6	C2	1	0	9,19,29,39	7	2	1	6
7	C2	1	0	0,1,2,…,39	7	1	1	6
JF	C2	1	0	23,27,31,35,39	0	1	2	6
9	C2	1	0	23,27,31,35,39	7	1 or 2	1	6
10	C2	1	0	3,7,11,15,19,23,27,31,35,39	0	1	2	6
11	C2	1	0	3,7,11,15,19,23,27,31,35,39	7	1 or 2	1	6
12	C2	1	0	1,3,5,7,....,37,39	0	1	2	6
13	C2	1	0	3,5,7	0	1	2	6
14	C2	1	0	3,5,7,9,11,13	7	1	1	6
15	C2	16	1	4,9,14,19,24,29,34,39	0	2	2	6

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1297 of 1750

16	C2	16	1	3,7,11,15,19,23,27,31,35,39	0	1	2	6
17	C2	8	1	4,9,14,19,24,29,34,39	0	2	2	6
18	C2	8	1	3,7,11,15,19,23,27,31,35,39	0	1	2	6
19	C2	4	1	4,9,14,19,24,29,34,39	0	2	2	6
20	C2	4	1	3,7,11,15,19,23,27,31,35,39	0	1	2	6
21	C2	2	1	4,9,14,19,24,29,34,39	0	2	2	6
22	C2	2	1	3,7,11,15,19,23,27,31,35,39	0	1	2	6
23	C2	1	0	7,15,23,31,39	2	1 or 2	2	6
24	C2	4	1	4,9,14,19,24,29,34,39	0	1	2	6
25	C2	2	1	4,9,14,19,24,29,34,39	0	1	2	6
26	C2	1	0	13,14,15, 29,30,31,37,38,39	7	2	1	6
27	C2	8	1,2	9,19,29,39	0	2	2	6
28	C2	2	1	7,15,23,31,39	2	2	2	6
0	A1/B1	1	0	4,9,14,19,24,29,34,39	2	1	6	2
HK	A1/B1	1	0	4,9,14,19,24,29,34,39	8	1	3	2
2	A1/B1	1	0	9,19,29,39	2	2	6	2
3	A1/B1	1	0	9,19,29,39	8	1	3	2
4	A1/B1	1	0	17,19,37,39	2	1	6	2
5	A1/B1	1	0	19,39	8	1	3	2
6	A1/B1	1	0	23,27,31,35,39	2	1	6	2
7	A1/B1	1	0	23,27,31,35,39	8	1	3	2
8	A1/B1	1	0	3,7,11,15,19,23,27,31,35,39	2	1	6	2
9	A1/B1	1	0	1,3,5,7,….,37,39	2	1	6	2
10	A1/B1	1	0	7,15,23,31,39	2	1	6	2
11	A1/B1	2	1	4,9,14,19,24,29,34,39	2	1	6	2
12	A1/B1	4	1	4,9,14,19,24,29,34,39	2	1	6	2
13	A1/B1	4	1	3,7,11,15,19,23,27,31,35,39	2	1	6	2
14	A1/B1	8	1	4,9,14,19,24,29,34,39	2	1	6	2
15	A1/B1	8	1	3,7,11,15,19,23,27,31,35,39	2	1	6	2
16	A1/B1	16	1	4,9,14,19,24,29,34,39	2	1	6	2
17	A1/B1	16	1	3,7,11,15,19,23,27,31,35,39	2	1	6	2
0	A2/B2	1	0	4,9,14,19,24,29,34,39	2	1	3	4
1	A2/B2	1	0	4,9,14,19,24,29,34,39	6	1	2	4
2	A2/B2	1	0	9,19,29,39	2	2	3	4
3	A2/B2	1	0	9,19,29,39	6	1	2	4
4	A2/B2	1	0	17,19,37,39	2	1	3	4
5	A2/B2	1	0	19,39	6	1	2	4
6	A2/B2	1	0	23,27,31,35,39	2	1	3	4
7	A2/B2	1	0	23,27,31,35,39	6	1	2	4
8	A2/B2	1	0	3,7,11,15,19,23,27,31,35,39	2	1	3	4
9	A2/B2	1	0	1,3,5,7,….,37,39	2	1	3	4
10	A2/B2	1	0	7,15,23,31,39	2	1	3	4
11	A2/B2	2	1	4,9,14,19,24,29,34,39	2	1	3	4
12	A2/B2	4	1	4,9,14,19,24,29,34,39	2	1	3	4
13	A2/B2	4	1	3,7,11,15,19,23,27,31,35,39	2	1	3	4
14	A2/B2	8	1	4,9,14,19,24,29,34,39	2	1	3	4
15	A2/B2	8	1	3,7,11,15,19,23,27,31,35,39	2	1	3	4
16	A2/B2	16	1	4,9,14,19,24,29,34,39	2	1	3	4
17	A2/B2	16	1	3,7,11,15,19,23,27,31,35,39	2	1	3	4
0	A3/B3	1	0	4,9,14,19,24,29,34,39	2	1	2	6
1	A3/B3	1	0	4,9,14,19,24,29,34,39	2	2	2	6
2	A3/B3	1	0	9,19,29,39	2	2	2	6
3	A3/B3	1	0	9,19,29,39	2	1	2	6
4	A3/B3	1	0	17,19,37,39	2	1	2	6
5	A3/B3	1	0	19,39	2	1	2	6
6	A3/B3	1	0	23,27,31,35,39	2	1	2	6
7	A3/B3	1	0	23,27,31,35,39	2	2	2	6
8	A3/B3	1	0	3,7,11,15,19,23,27,31,35,39	2	1	2	6
9	A3/B3	1	0	1,3,5,7,….,37,39	2	1	2	6
10	A3/B3	1	0	7,15,23,31,39	2	1	2	6
11	A3/B3	2	1	4,9,14,19,24,29,34,39	2	1	2	6
12	A3/B3	4	1	4,9,14,19,24,29,34,39	2	1	2	6
13	A3/B3	4	1	3,7,11,15,19,23,27,31,35,39	2	1	2	6
14	A3/B3	8	1	4,9,14,19,24,29,34,39	2	1	2	6

15	A3/B3	8	1	3,7,11,15,19,23,27,31,35,39	2	1	2	6
16	A3/B3	16	1	4,9,14,19,24,29,34,39	2	1	2	6
17	A3/B3	16	1	3,7,11,15,19,23,27,31,35,39	2	1	2	6

--- End Text proposal for 38.211, section 6.3.3 ---

Agreements:

- To adopt the following TP to 6.3.3.1 of 38.211

There are 64 preambles defined in each time-frequency PRACH occasion, enumerated in increasing order of first increasing cyclic shift C_v of a logical root sequence, and then in increasing order of the logical root sequence index, starting with the index obtained from the higher-layer parameter *PRACHRootSequenceIndex*. Additional preamble sequences, in case 64 preambles cannot be generated from a single root Zadoff-Chu sequence, are obtained from the root sequences with the consecutive logical indexes until all the 64 sequences are found. The logical root sequence order is cyclic: the logical index 0 is consecutive to 837 when $L_{RA}=839$ and is consecutive to 137 when $L_{RA}=139$. The sequence number u is obtained from the logical root sequence index according to Tables 6.3.3.1-3 and 6.3.3.1-4.

Field Code Changed

Field Code Changed

Friday

R1-1805738 Summary of remaining details on PRACH format Convida Wireless

Agreements:

- For both FR1 and FR2, the previous working assumption is replaced with the following working assumption
  - Note: The value with yellow background is not final
- For the Semi-static UL/DL configuration in RMSI, only PRACH occasions within the UL part and X part are valid as long as it does not precede or collide with an SSB in the RACH slot, and it is ~~more than~~ at least N symbols after DL part and/or the last symbol of an SSB.
  - N = 0 for Msg1 SCS = 1.25kHz, 5kHz
  - N = 2 for Msg1 SCS = 15kHz
  - N = 2 for Msg1 SCS = 30kHz
  - N = 2 for Msg1 SCS = 60kHz
  - N = 2 or 3 for Msg1 SCS = 120kHz
  - Note for format B4, N = 0 irrespectively of Msg1 SCS
- UE is not expected to receive DL signals during any valid RACH occasion
- The SSB to RO association pattern period shall repeat at most every 160 ms
  - If there are leftover ROs after an integer number of SSB to RO association period(s) within the SSB to RO association pattern period. Those leftover ROs are invalid.
- Note: In the UL/DL semi-static configuration, 0 UL slots and 0 UL symbols can be configured
- ~~FFS how to handle the gap necessary in between SS/PBCH block or DL part and PRACH tx~~

R1-1803609 Remaining details of PRACH Resource Configuration ZTE, Sanechips
R1-1803628 Remaining details of RACH Preambles Huawei, HiSilicon
R1-1803732 Further details on NR RACH format CATT
R1-1804091 Discussion on remaining issues for PRACH configuration table CMCC
R1-1804348 Corrections on PRACH Formats Samsung
R1-1804456 Remaining details on PRACH formats Nokia, Nokia Shanghai Bell
R1-1804538 Discussion on PRACH preamble format details LG Electronics
R1-1804706 NR PRACH formats Intel Corporation
R1-1804778 Remaining details on PRACH formats Qualcomm Incorporated
R1-1804842 Remaining Details for Physical Random Access Channel InterDigital, Inc.
R1-1805035 Remaining issues on PRACH formats NTT DOCOMO, INC.
R1-1805220 Remaining details of RACH configurations Ericsson

7.1.1.4.2 RACH procedure

R1-1805566 Summary of remaining details on RACH procedure Qualcomm
Decision: The document is noted.

Agreements:

- Confirm the following working assumption:

- Minimum time gap between the end of PDSCH for Msg4 and the start of HARQ-ACK equals to the duration of N1 + L2.
  - N1 refers to the UE processing time value determined in the HARQ/scheduling session with front loaded plus additional DMRS and UE capability #1
  - L2=500 usec refers to the MAC layer processing time
  - Note: the reason for working assumption is due to potential concern over satisfying ITU requirement (to be checked)

Agreement:
- For the parameter Δ_{new}, Δ_{new} =250us

Thursday

~~Proposals: Update the previous agreements as follows:~~
- ~~If a received Msg2 does not contain a response to the transmitted preamble sequence, the UE shall, if requested by higher layers, be ready to transmit a new preamble sequence after no later than the duration of N1 + Δ_{new} + L2.~~
  - ~~N1 refers to the UE processing time value determined in the HARQ/scheduling session with front loaded plus additional DMRS and UE capability #1~~
  - ~~Δ_{new}>=0, FFS~~
  - ~~L2=500 usec refers to the MAC layer processing time~~

~~Proposal:~~
- ~~For the parameter Δ_{Delay} for PDCCH ordered CFRA, Δ_{Delay}=0us~~

~~Proposals: Update previous agreements as follows:~~
- ~~Minimum time gap between Msg2 and Msg3 if Msg2 and Msg3 have the same SCS~~
  - ~~Duration of N1 + duration of N2 + L2 + TA~~
    - ~~N1 refers to the value determined in control session with front loaded plus additional DMRS and UE capability #1~~
    - ~~N2 also refers to the value determined in control session with UE capability #1~~
    - ~~TA is given by a 2-bit indicator in msg 2, with 4 values~~
      - ~~Value 1:~~
      - ~~Value 2:~~
      - ~~Value 3:~~
      - ~~Value 4: equal to the maximum timing advance value that the 12 bit TA command can provide with respect to the SCS of Msg3~~
    - ~~L2 refers to the MAC processing latency and it does not depend on subcarrier spacing~~
      - ~~L2=500us as a working assumption~~
    - ~~Note: If Msg2 and Msg3 have different SCS, value of N1 and N2 will refer to the ones determined in control session.~~

~~Proposals:~~
- ~~When the UE transmits a PRACH, it considers all TCI states associated with any CORESET or any PDSCH configuration deactivated.~~

Agreements:

Modify the previous agreement with following updates:
- For PDCCH ordered CFRA, the minimum timing gap between PDCCH order reception and Msg1 transmission is
  - N2+$\Delta_{BWPSwitching}$+ Δ_{Delay},
    - If BWP switching is not required, $\Delta_{BWPSwitching}$=0; otherwise, $\Delta_{BWPSwitching}$ is up to RAN4
    - N2 refers to the UE processing time value determined in the HARQ/scheduling session with front loaded plus additional DMRS and UE capability #1
    - N2 is dependent on the SCS of Msg1
      - Working assumption: For Msg1 with 1.25 kHz or 5 kHz SCS, calculation of N2 uses 15 kHz SCS.
    - Δ_{Delay} includes at least MAC layer delay in initializing PRACH
      - ~~Value of Δ_{Delay} is FFS (to be decided in RAN1)~~ Δ_{Delay} = 250 us for FR2, Δ_{Delay} = 500 us for FR1

Agreements:

UE does not simultaneously transmit PRACH and PUSCH/PUCCH/SRS in, at least, single CC and in intra-band CA, during any of the following scenarios:

- Same slot
- When the gap between the end of PRACH (PUSCH/PUCCH/SRS) and the start of PUSCH/PUCCH/SRS (PRACH) is less than N symbols
  - N = 2 for 15 kHz and 30 kHz SCS.
  - N = 4 for 60 kHz and 120 kHz SCS.
  - Working assumption: Reference SCS for determining N is the SCS for UL BWP.
- FFS: inter-band CA.
- Transmission of PRACH or SR (on PUCCH) if any, is up to UE implementation.

To draft reply LS based on the above agreements in R1-1805713

Friday

R1-1805713 [Draft] Reply LS response on handling parallel RA procedure and SR procedure Qualcomm

Decision: The document is endorsed and final LS is approved in R1-1805759.

Agreements:

- To adopt the following TP to 8.1 of 38.213:

[…] The UE is provided a number of contention based preambles per SS/PBCH block per PRACH occasion by the value of higher layer parameter *cb-preamblePerSSB* ~~and the UE determines a total number of preambles per SSB per PRACH occasion as the multiple of the value of *SSB-perRACH-Occasion* and the value of *cb-preamblePerSSB*~~.

Agreement:

- For the case that N SSBs are associated with one RACH occasion, where N >= 1, the subset of cb-preamblePerSSB consecutive CBRA preambles associated with SSB i (i=0, …, N-1) starts from preamble index i*(64/N).

Working assumption:

For a TA command in MAC-CE received on slot n, the corresponding adjustment of the uplink transmission timing shall apply from the beginning of slot n+k where k-1 is equal to ceil((duration of N1 + L2 + duration of N2 + TA_max)/slot_duration) and where

- N1 refers to the value determined in control session with front loaded plus additional DMRS and UE capability #1
- N2 also refers to the value determined in control session with UE capability #1
- L2 refers to the MAC processing latency and is equal to 0.5 msec.
- TA_max is equal to the maximum timing advance value that the 12 bit TA command can provide with respect to the UL SCS
- Note: Spec captures the value k for different SCS
- UE is not expected that UL transmissions in the same slot shall apply different TA values.
- If this happens, it is up to UE's implementation.
- FFS: the reference SCS of slot n+k and the time duration of (k-1) slots when UL and DL have different SCSs.

Agreement:

- The parameter cb-preamblePerSSB indicates the number of CBRA preambles per SSB per RACH occasion.

R1-1804457 Remaining details on RACH procedure Nokia, Nokia Shanghai Bell

Decision: The document is noted.

Tuesday session

R1-1805614 Summary of remaining details on RACH procedure Qualcomm

Decision: The document is noted.

Agreements:

Change the previous working assumption:

- Time period for SSB to RO association is multiple of PRACH configuration periods
  - The number of multiple PRACH configuration periods in the time period is the smallest value in the set {1, 2, 4} such that the number is ≥⌈Actually transmitted SSBs / SSBs that can be mapped to one PRACH config period⌉
  - The time period starts from frame 0

And replace it with the following:

- Time period for SSB to RO association is multiple of PRACH configuration periods
  - ~~o~~ The number of multiple PRACH configuration periods in the time period is the smallest value in the set determined by the RACH configuration period from following table ~~such that the number is ≥⌈Actually transmitted SSBs / SSBs that can be mapped to one PRACH config period⌉~~ such that all actually transmitted SSBs can be mapped, at least once, to the ROs within the time period.
  - The time period starts from frame 0

RACH configuration period (ms)	Mapping period set (# of RACH configuration period)
10	{1, 2, 4, 8, 16}
20	{1, 2, 4, 8}
40	{1, 2, 4}
80	{1, 2}
160	{1}

Agreements: Update the previous agreement on Msg1 retransmission as follows:

- If a received Msg2 does not contain a response to the transmitted preamble sequence, or no RAR is received by the end of the RAR window, the UE shall, if requested by higher layers, be ready to transmit a new preamble sequence ~~after~~ no later than the duration of N1 + Δ_{new} + L2.
  - N1 refers to the UE processing time value determined in the HARQ/scheduling session with front loaded plus additional DMRS and UE capability #1
  - Δ_{new} = 250 us
  - L2=500 usec refers to the MAC layer processing time
  - Note: UE is not mandated to measure each SSB prior to every Msg1 retransmission

Agreements: Update the previous agreement in the following way:

- From UE perspective, minimum time gap between Msg2 over-the-air reception and Msg3 transmission ~~if Msg2 and Msg3 have the same SCS~~
  - Duration of N1 + duration of N2 + L2 ~~+ N_TA + TA~~
    - N1 refers to the value determined in control session with front loaded plus additional DMRS and UE capability #1
    - N2 also refers to the value determined in control session with UE capability #1
    - ~~TA is equal to the maximum timing advance value that the 12 bit TA command can provide with respect to the SCS of Msg3~~
    - L2 refers to the MAC processing latency and it does not depend on subcarrier spacing
      - L2=500us ~~as a working assumption~~
    - ~~Note: If Msg2 and Msg3 have different SCS, value of N1 and N2 will refer to the ones determined in control session.~~
    - Note: If Msg2 and Msg3 have different SCS, value of N1 and N2 – in terms of absolute time - are determined by lower SCS between Msg2 and Msg3
    - Note: Network schedules Msg3 while ensuring the minimum time gap and considering the TA command conveyed in Msg2

Wednesday

R1-1805647 **Draft reply LS on Message 3 size for NR** **NTT DOCOMO, INC., CMCC, Orange, Deutsche Telekom, Vodafone, AT&T**

Decision: The LS is endorsed with the following updates:

- 3 to hundreds of bytes
- Q2: NR PUSCH, based on existing RAN1 evaluations, TB size…

Final LS is approved in R1-1805657.

Thursday

R1-1805701 **Summary of remaining details on RACH procedure** **Qualcomm**

Decision: The document is noted.

Agreements:

- PDCCH order for RACH procedure includes the following fields:

- Random Access Preamble index – 6 bits. Indicating which Random access preamble to use in case of contention-free random access procedure, or the value 000000 in case of contention-based random access procedure
- For CFRA only:
  - FFS BWP index. Indicating which BWP to transmit the Random access preamble on
  - SUL indicator – 1 bit. Indicating whether to transmit the Random access preamble on SUL or normal uplink carrier
  - SSB index - 6 bits are used to indicate an SSB index, which, in turn, identifies a group of RACH occasions
  - RACH occasion index - 3 bits are used to indicate the relative RACH occasion index that corresponds to the indicated SSB index identified group of RACH occasions

R1-1805634 Summary of MSG3 timing discussion Ericsson
Decision: The document is noted.

Proposal for working assumption:
- For the MSG3 PUSCH time domain resource assignment in RAR, the UE uses the default table or table indicated by RMSI for MSG3 PUSCH for the value of K_2
  - Note: FFS: Numerology for K_2
- Additional delay is added to K_2 to account for N1+L2. The delay is subcarrier specific and given by the specification
  - Note: If Msg2 and Msg3 have different SCS, value of N1 – in terms of absolute time - are determined by lower SCS between Msg2 and Msg3
- Note: Working assumption can be revisited once default table and/or support for RMSI signaling has been decided

Check later whether the above is necessary or not considering the discussion in other sessions
Friday: Revisit till next meeting

R1-1805754 Summary of remaining details on RACH procedure Qualcomm
Decision: The document is noted. Companies are encouraged to check the default search space for RACH procedure proposals as in R1-1805754

R1-1803610	Remaining details of RACH procedure	ZTE, Sanechips
R1-1803629	Remaining details of RACH Procedures	Huawei, HiSilicon
R1-1803733	Further details on NR 4-step RA Procedure	CATT
R1-1803809	Remaining issues on RACH procedure	vivo
R1-1804032	Collision between PRACH transmission and SR transmission	ASUSTEK COMPUTER (SHANGHAI)
R1-1804092	Discussion on time period for SSB to RO association	CMCC
R1-1804225	Remaining issues on RACH	Spreadtrum Communications
R1-1804349	Corrections on RACH Procedure	Samsung
R1-1804539	RACH Procedure	LG Electronics
R1-1804590	Remaining details on RACH timing for NR	ITL
R1-1804652	Remaining details of RACH Procedures	AT&T
R1-1804707	NR RACH procedures	Intel Corporation
R1-1804877	Remaining issues on RACH procedure	Sharp
R1-1804954	Remaining details on random access procedure	Motorola Mobility, Lenovo
R1-1805036	Remaining issues on RACH procedure	NTT DOCOMO, INC.
R1-1805221	Remaining details of RACH procedure	Ericsson
R1-1805524	Remaining details on RACH procedure	MediaTek Inc. (revision of R1-1804047)
R1-1805527	Remaining details on RACH procedure	Qualcomm Incorporated (revision of R1-1804779)
R1-1805573	RACH MSG2 to MSG3 delay	Ericsson

7.1.1.5 Mobility procedure

7.1.1.5.1 Measurement for mobility management

R1-1805512 Summary of Discussion for NR RRM measurements Intel
Decision: The document is noted.

Agreement:
- To adopt the following TP for 38.215

Definition	CSI reference signal received power (CSI-RSRP), is defined as the linear average over the power contributions (in [W]) of the resource elements that carry CSI reference signals configured for RSRP measurements within the considered measurement frequency bandwidth in the configured CSI-RS occasions. For CSI-RSRP determination CSI reference signals transmitted on antenna port 3000 ~~or antenna ports 3000, 3001~~ according to 3GPP TS 38.211 [4] shall be used. If CSI-RSRP is used for L1-RSRP, CSI reference signals transmitted on antenna ports 3000, 3001 can be used for CSI-RSRP determination. For frequency range 1, the reference point for the CSI-RSRP shall be the antenna connector of the UE. For frequency range 2, CSI-RSRP shall be measured based on the combined signal from antenna elements corresponding to a given receiver branch. For frequency range 1 and 2, if receiver diversity is in use by the UE, the reported CSI-RSRP value shall not be lower than the corresponding CSI-RSRP of any of the individual receiver branches.
Applicable for	If CSI-RSRP is used for L1-RSRP, RRC_CONNECTED intra-frequency. Otherwise, RRC_CONNECTED intra-frequency, RRC_CONNECTED inter-frequency

Wednesday session
R1-1805632 Summary of Offline Discussion for NR RRM measurements Intel
Decision: The document is noted.

Agreements:
Send an LS to RAN4 – R1-1805649

- RAN1 has discussed following proposals regarding Rx beam selection for RRM measurements in the context of requiring the UE to provide more stable measurements and request that RAN4 take the discussion into account in their work.
  - Measurement to be reported is the best among the measurements based on each RX beam in the selected set
  - Measurement to be reported shall be greater than average of measurements based on each RX beam in the selected set
  - The selection of Rx beam set to perform measurement on carrier is left to the UE implementation with the limitation that the same Rx beam set is used to measure the same carrier
- RAN1 believes the selection and/or definition of the Rx beam for measurement should be determined by RAN4, and have not concluded on a specific proposal.
- The following are related agreement from RAN1 2017 Adhoc #3:

Friday
R1-1805649 [DRAFT] LS on Rx beam selection for RRM measurements Intel
Decision: The document is endorsed and final LS is approved in R1-1805760.

Agreements:

- For a SS-RSRQ measurement, the same RX beam shall be applied between RSSI measurement and RSRP measurement
- For a CSI-RSRQ measurement, the same RX beam shall be applied between RSSI measurement and RSRP measurement
- It is up to UE implementation how to select a set of RX beams to perform RRM measurement on a carrier
  - Different sets of RX beams can be used in measurements based on different measurement objects
- Same set of RX beams shall be used in measurement of each TX beam based on a measurement object
- FFS
  - Alt.1: Measurement to be reported shall be greater than average of measurements based on each RX beam in the selected set
  - Alt.2: Measurement to be reported shall be the best among measurements based on each RX beam in the selected set
  - Other alternatives are not precluded

Agreement:

- NR does not support different measurement BWs for SS-RSRP and SS-RSSI for Rel-15.

Agreements:

- For reception of SSB for the target PSCell, frequency indication will be required for SSB not on the synchronization signal raster.
- Send LS to RAN2 (R1-1805651) and ask RAN2 to provide feedback if any

R1-1805651 **[DRAFT] LS on SSB frequency location of Pscell Intel**
Decision: The document is endorsed and final LS is approved in R1-1805717, with a note asking RAN2 to provide feedback if any.

Proposals:
- For intra-frequency measurement and if measurement gap is not configured, UE is not expected to
  - Measure the CSI-RS resources outside the active DL BWP when the SCS for CSI-RS and the SCS for the active DL BWP are the same, and
  - Measure the CSI-RS resources whose SCS is different from that of active DL BWP
- It is RAN1's understandings that when the UE performs CSI-RS for L3 mobility measurement with CSI-RS numerology different from the numerology of active DL BWP, UE requires measurement gap configuration in order perform measurements of the CSI-RS for L3 mobility

Conclusion:
- It is up to RAN4 to define associated UE behavior in context of reception of PUSCH/PDSCH during measurements of CSI-RS resource with same/different numerology with PUSCH/PDSCH.

Thursday session
R1-1805696 **Summary of Offline Discussion for NR RRM measurements Intel**
Decision: The document is noted.

Agreement:
- For intra-frequency measurement and if measurement gap is not configured, UE is not expected to measure the CSI-RS resources outside the active DL BWP.

Conclusion:
- It is RAN1's understandings that UE, which does not support simultaneous reception of multiple numerologies, requires measurement gap configuration in order to perform measurements of the CSI-RS for L3 mobility for intra-frequency measurements when the numerology of CSI-RS resource is different from the active DL BWP numerology.

Agreements:
- For FR1: support alt 1 with total maximum number of CSI-RS for L3 mobility as 64.
- For FR2: Support alt 2.
- Alt 1 & Alt 2
  - Alt 1) NR supports configuration of mixture of CSI-RS resources with associated SSB and without associated SSB in the same measurement object (e.g. same carrier frequency)
  - Alt 2) NR does not supports configuration of mixture of CSI-RS resources with associated SSB and without associated SSB in the same measurement object (e.g. same carrier frequency)

Agreements:
- For intra-frequency measurements, SS-RSSI configured by higher layers is measured with timing reference from serving cell in the frequency layer.
- For inter-frequency measurements, SS-RSSI configured by higher layers is measured with timing reference from any one of the cells in the target frequency layer

Friday
R1-1805736 Summary of Offline Discussion for NR RRM measurements Intel
Decision: The document is noted.

Agreements:
- Send Reply LS to RAN2 and inform that agreement 5 of R1-1805264 is not aligned with RAN1 understanding and therefore should be reconsidered.
  - It is RAN1 understanding that useServingCellTimingForSync parameter is only applicable for SSB based RRM measurements and should not be coupled with configuration of CSI-RS based RRM measurements.
  - Additionally, the configuration of SSB based RRM measurement should not be a condition for configuring CSI-RS based RRM measurement with associated SSB.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1305 of 1750

- In case *assocatedSSB* is configured for CSI-RS based RRM measurement, frequency information of the SSB (to be associated with CSI-RS) is required. For example, *ssbFrequency* in MO.

R1-1805756 Draft reply LS on RAN2 agreements on RRM Huawei
Decision: The document is endorsed assuming updates to fix the typo "assocated", & "agreement 5 in R2-1804103". Final LS is approved in R1-1805762

R1-1803611	Remaining details of RRM measurements	ZTE, Sanechips
R1-1803630	Remaining details on NR RRM	Huawei, HiSilicon
R1-1803734	Remaining Issues on NR Mobility Management	CATT
R1-1803810	Remaining issues on RRM measurement	vivo
R1-1803993	Remaining details on NR RRM	OPPO
R1-1804041	Remaining issues on RRM	MediaTek Inc.
R1-1804350	Corrections on Measurements for Mobility Management	Samsung
R1-1804540	Remaining Details on L3 measurement and mobility management	LG Electronics
R1-1804708	Remaining details of RRM measurements	Intel Corporation
R1-1804780	Remaining details on measurement for mobility management	Qualcomm Incorporated
R1-1805037	Remaining issues on Measurement for mobility management	NTT DOCOMO, INC.
R1-1805139	Remaining issues on mobility measurements	Nokia, Nokia Shanghai Bell
R1-1805222	Remaining issues on mobility measurements	Ericsson

7.1.1.5.2 Radio link monitoring for mobility management

R1-1805513 Summary of Discussion for NR Radio Link Monitoring Intel
Decision: The document is noted.

Wednesday
R1-1805608 Summary of Offline Discussion for NR Radio Link Monitoring Intel
Decision: The document is noted.

Agreements:
- To reply the LS from RAN2 in R1-1803577
  Answer 1:
  - The maximum number of BFD-RS(s) is 2 per BWP.
  - The maximum number of RLM-RS(s) and BFD-RS(s) should depend on whether same RS(s) is shared between RLM and BFD. The maximum number of *unique* RS(s), each RS using different set of resources, for both RLM-RS(s) and BFD-RS(s) are:
    - X RS(s) per BWP for below 3 GHz,
      - FFS X – to conclude this week - X=2(working assumption)
    - Y RS(s) per BWP for above 3 GHz and below 6 GHz,
      - FFS Y – to conclude this week - Y=6(working assumption)
    - Z RS(s) per BWP for above 6 GHz,
      - FFS Z – to conclude this week - Z=8(working assumption)
    - where maximum number of BFD-RS(s) is 2 RSs per BWP and maximum number of RLM-RS(s) is 2 RSs per BWP for below 3 GHz, 4 RSs per BWP for above 3 GHz and below 6 GHz, 8 RSs per BWP for above 6 GHz.
  - Please note that support of 8 RLM-RSs and 2 BFD-RS for above 6 GHz is feasible if the 2 BFD-RS are a subset of 8 RLM-RSs.

  Answer 2:
  - Yes. They can be completely orthogonal, depending on NW configuration.

Draft reply LS to R1-1803577 in R1-1805718.

Friday
R1-1805718 [DRAFT] Reply LS on RAN1 on Beam- and Cell- Radio-Link-Monitoring Intel
Decision: The document is endorsed and final LS is approved in R1-1805761.

Agreements:
- Further clarification of RAN2 agreement (will require additional physical layer text proposals):
  - Working assumption: If the TCI-states refer to CSI-RS for tracking, it is up to UE to select a NZP-CSI-RS resource from the configured resources for CSI-RS for tracking for RLM
  - FFS on the UE behavior when TCI-states indicate a combination of SSB, CSI-RS, and CSI-RS for tracking

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1306 of 1750

Proposal: Agree to the following text proposal
=== Text Proposal Starts 38.213 section 5 ===
--- parts that are not affected are omitted ---
A UE can be configured for each SpCell [11, TS 38.321] with a set of resource indexes for radio link monitoring by higher layer parameter *RadioLinkMonitoringConfig ~~RLM-RS-List~~*. The UE is provided by higher layer parameter *failureDetectionResources ~~RLM-RS~~* an association between a resource index, from the set of resource indexes, with either a CSI-RS resource configuration or a SS/PBCH block. For a CSI-RS resource configuration, the UE is provided a corresponding index by higher layer parameter *csi-RS-Index~~RLM-CSIRS~~*. The higher layer parameters *CSI-IM-RE-pattern*, *CSI-IM-Resource*, *CSI-IM-ResourceId*, *CSI-IM-timeConfig*, *CSI-IM-FreqBand*, *CSI-IM-ResourceMapping*, and *Pc_SS* in the CSI-RS configuration are not applicable. In CSI-RS resource configuration, a UE expects to be provided only 'No CDM' from higher layer parameter *CDM-Type,* only '1' and '3' from higher layer parameter *density*, and only '1 port' from higher layer parameter *nrofPorts* [6, TS 38.214]. For a SS/PBCH block, the UE is provided a corresponding index by higher layer parameter *ssb-Index ~~RLM-SSB~~*.
If the UE is not provided with higher layer parameter *RadioLinkMonitoringRS* list for the purpose of radio link monitoring, the UE determines the set *of failureDetectionResources* to include SS/PBCH block indexes and CSI-RS resource configuration indexes with same values as the RS indexes in the RS sets indicated by the active TCI states for respective control resource sets that the UE is configured for monitoring PDCCH.

Thursday
R1-1805697 Summary of Offline Discussion for NR Radio Link Monitoring Intel
Decision: The document is noted.

Conclusion:
- It is RAN1 understanding that each CSI-RS resource can be configured with QCL-info independently, and in general UE may not assume that different reference signals have QCL relationship unless configured. No further clarification is needed on the QCL assumption for RLM-RSs.

Friday
R1-1805737 Summary of Offline Discussion for NR Radio Link Monitoring Intel
Decision: The document is noted.

R1-1803612	Remaining details of RLM	ZTE, Sanechips
R1-1803631	Remaining details on NR RLM	Huawei, HiSilicon
R1-1803735	Remaining Issues on NR Radio Link Monitoring	CATT
R1-1803994	Remaining details on NR RLM	OPPO
R1-1804042	Remaining issues on RLM	MediaTek Inc.
R1-1804351	Corrections on Radio Link Monitoring for Mobility Management	Samsung
R1-1804541	Discussion on Radio Link Monitoring in NR	LG Electronics
R1-1804653	Impact of beam failure and recovery on RLM procedures	AT&T
R1-1804709	Remaining details of RLM	Intel Corporation
R1-1804781	Radio link monitoring consideration	Qualcomm Incorporated
R1-1804955	Remaining details on radio link monitoring	Motorola Mobility, Lenovo
R1-1805038	Remaining issues on RLM for mobility management	NTT DOCOMO, INC.
R1-1805140	Remaining Details on Radio Link Monitoring	Nokia, Nokia Shanghai Bell
R1-1805223	Remaining issues for radio link monitoring	Ericsson

7.1.1.6 Other

Including TA related aspects, if any leftover issues

R1-1805745 Summary of TA related aspects Panasonic
R1-1805757 Summary of TA related aspects Panasonic

Proposal:
- to revise the working assumption as following.
  - For the timing advance in MAC-CE in the case with multiple configured UL BWPs in the TAG, the granularity depends on the maximum SCS of all the activated UL BWPs including SUL within the TAG.
    - When the TA is adjusted based on the timing advance in MAC-CE in higher SCS, the TA in lower SCS may be rounded in order to align with lower SCS TA granularity while satisfying the timing advance accuracy requirements in [10, TS38.133].

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1307 of 1750

- UE keeps track of the accumulation of rounding errors. UE adjusts its uplink timing to compensate for the accumulated rounding error and to satisfy the requirement.
- This may result in different timing across UL carriers within the same TAG

Agreement:

- For TDD+FDD CA, in a TAG without PCell or PSCell, UE should adjust its uplink transmission timing of all SCells in the TAG using the largest TA offset value within the TAG

R1-1803650	On RMSI PRB grid	Huawei, HiSilicon
R1-1803651	On k0 for OFDM signal generation	Huawei, HiSilicon
R1-1803703	Remaining issues on TA aspects	Huawei, HiSilicon
R1-1804048	Remaining TA related issues	MediaTek Inc.
R1-1804310	Draft CR on TA of Pcell of EN-DC with SUL on chapter 4.2 in TS38.213	Huawei, HiSilicon
Withdrawn		
R1-1804352	Corrections on Timing Advance	Samsung
R1-1804782	Remaining details on Timing advance granularity and adjustment consideration	Qualcomm Incorporated
R1-1804949	What is "initial access" in RAN1?	Panasonic
R1-1805224	On multiple preamble transmissions for contention free random access	Ericsson
R1-1805225	L1 reporting on other cells	Ericsson

7.1.2 MIMO

R1-1805711 **Chairman's notes of AI 7.1.2 NR MIMO Ad-Hoc chair (Samsung)**
Decision: The document is endorsed, content incorporated below.

R1-1804965	On DMRS groups in Rel-15	Ericsson
R1-1804965	On DMRS groups in Rel-15	Ericsson

7.1.2.1 Multi-antenna scheme

R1-1804966	Corrections for UL Antenna Port Identification	Ericsson

7.1.2.1.1 Codeword mapping

R1-1804354	Summary of open issues on codeword mapping	Samsung

Agreement
Text proposal for TS38.211 section 6.3.1.1

- $n_{ID} \in \{0,1,...,1023\}$ equals the higher-layer parameter *Data-scrambling-Identity* if configured and the RNTI equals the C-RNTI or CS-RNTI,

Agreement
Text proposal for TS38.211 section 7.3.1.1

- $n_{ID} \in \{0,1,...,1023\}$ equals the higher-layer parameter *Data-scrambling-Identity* if configured and the RNTI equals the C-RNTI or CS-RNTI

Agreement
Text proposal for Section 7.3.1.2.2 of 38.212

---------- Start of Text Proposal ----------

7.3.1.2.2 Format 1_1

< *Unchanged parts are omitted* >

- Antenna port(s) – 4, 5, or 6 bits as defined by Tables 7.3.1.2.2-1/2/3/4, where the number of CDM groups without data of values 1, 2, and 3 refers to CDM groups {0}, {0,1}, and {0, 1,2} respectively. The antenna ports $\{p_{0,...,} p_{\upsilon-1}\}$ shall be determined according to the ordering of DMRS port(s) given by Tables 7.3.1.2.2-1/2/3/4.

Field Code Changed

< *Unchanged parts are omitted* >

Agreement
For TB to CW mapping:

- 2-TB: TB1 → CW0, TB2 → CW1
- 1-TB: always mapped to CW0

Section 5.1.3.2 of TS38.214

In case the higher layer parameter *Number-MCS-HARQ-DL-DCI* indicates that two codeword transmission is enabled, then a transport block is disabled by DCI format 1_1 if I_{MCS}=26 and if $rv_{id} = 1$ for the corresponding transport block, otherwise the transport block is enabled.

For the PDSCH assigned by a PDCCH with DCI format 1_0/1_1 with CRC scrambled by C-RNTI, if the higher layer parameter *MCS-Table-PDSCH* is set to '256QAM' is configured and $0 \le I_{MCS} \le 27$, or the higher layer parameter *MCS-Table-PDSCH* is not set to '256QAM' configured and $0 \le I_{MCS} \le 28$, the UE shall, except if the transport block is disabled in DCI format 1_1, first determine the TBS as specified below:

R1-1803632 Remaining issues on CW mapping Huawei, HiSilicon
R1-1803736 Remaining issues on codeword mapping CATT
R1-1803737 WF on codeword mapping CATT
Withdrawn
R1-1803811 Remaining issues on layer mapping vivo
R1-1804353 Issues on codeword mapping Samsung
R1-1804654 Remaining issue for MIMO Codeword mapping AT&T
R1-1804878 Open issues on codeword mapping Sharp
R1-1804967 Remaining issues on CW mapping and data scrambling Ericsson
R1-1805100 Remaining Issue on DMRS Port Mapping and its Impact on CQI/MCS Nokia, Nokia Shanghai Bell

7.1.2.1.2 Codebook based transmission for UL

R1-1805564 Summary of Codebook Based UL Transmission Intel

Agreement
Adopt the following TP.

/********** Start of Text Proposal for 38.212 **********/

7.3.1.1.2 Format 0_1

- SRS resource indicator – $\left\lceil \log_2 \left(\sum_{k=1}^{\min\{L_{max}, N_{SRS}\}} \binom{N_{SRS}}{k} \right) \right\rceil$ or $\lceil \log_2(N_{SRS}) \rceil$ bits, where N_{SRS} is the number of configured SRS resources in the SRS resource set associated with the higher layer parameter *SRS-SetUse* of value '*CodeBook*' or '*NonCodeBook*', and L_{max} is the maximum number of supported layers for the PUSCH.
  - $\left\lceil \log_2 \left(\sum_{k=1}^{\min\{L_{max}, N_{SRS}\}} \binom{N_{SRS}}{k} \right) \right\rceil$ bits ~~for non-codebook based PUSCH transmission~~ according to Tables 7.3.1.1.2-28/29/30/31 if the higher layer parameter *ulTxConfig = NonCodeBook*, where N_{SRS} is the number of configured SRS resources in the SRS resource set associated with the higher layer parameter *SRS-SetUse* of value '*NonCodeBook*';
  - $\lceil \log_2(N_{SRS}) \rceil$ bits ~~for codebook based PUSCH transmission~~ according to Tables 7.3.1.1.2-32 if the higher layer parameter *ulTxConfig = CodeBook*, where N_{SRS} is the number of configured SRS resources in the SRS resource set associated with the higher layer parameter *SRS-SetUse* of value '*CodeBook*'.
- Precoding information and number of layers – number of bits determined by the following:
  - 0 bits if the higher layer parameter *ulTxConfig* = *NonCodeBook*;
  - 0 bits for 1 antenna port and if the higher layer parameter *ulTxConfig* = *Codebook*;
  - 4, 5, or 6 bits according to Table 7.3.1.1.2-2 for 4 antenna ports, if *ulTxConfig* = *Codebook,* and according to the values of higher layer parameters *PUSCH-tp*, *ULmaxRank*, and *ULCodebookSubset*;
  - 2, 4, or 5 bits according to Table 7.3.1.1.2-3 for 4 antenna ports, if *ulTxConfig* = *Codebook,* and according to the values of higher layer parameters *PUSCH-tp*, *ULmaxRank*, and *ULCodebookSubset*;
  - 2 or 4 bits according to Table7.3.1.1.2-4 for 2 antenna ports, if *ulTxConfig* = *Codebook,* and according to the values of higher layer parameters *ULmaxRank* and *ULCodebookSubset*;

- 1 or 3 bits according to Table7.3.1.1.2-5 for 2 antenna ports, if *ulTxConfig = Codebook,* and according to the values of higher layer parameters *ULmaxRank* and *ULCodebookSubset*.

- Antenna ports – number of bits determined by the following
  - 2 bits as defined by Tables 7.3.1.1.2-6, if *PUSCH-tp=Enabled*, *UL-DMRS-config-type*=1, and *UL-DMRS-max-len*=1;
  - 4 bits as defined by Tables 7.3.1.1.2-7, if *PUSCH-tp=Enabled*, *UL-DMRS-config-type*=1, and *UL-DMRS-max-len*=2;
  - 3 bits as defined by Tables 7.3.1.1.2-8/9/10/11, if *PUSCH-tp=Disabled*, *UL-DMRS-config-type*=1, and *UL-DMRS-max-len*=1, and the value of rank is determined according to the SRS resource indicator field if the higher layer parameter *ulTxConfig = NonCodeBook~~SRS-SetUse = NonCodeBook~~* and according to the Precoding information and number of layers field if the higher layer parameter *ulTxConfig = CodeBook~~SRS-SetUse = CodeBook~~*;
  - 4 bits as defined by Tables 7.3.1.1.2-12/13/14/15, if *PUSCH-tp=Disabled*, *UL-DMRS-config-type*=1, and *UL-DMRS-max-len*=2, and the value of rank is determined according to the SRS resource indicator field if the higher layer parameter *ulTxConfig = NonCodeBook~~SRS-SetUse = NonCodeBook~~* and according to the Precoding information and number of layers field if the higher layer parameter *ulTxConfig = CodeBook~~SRS-SetUse = CodeBook~~*;
  - 4 bits as defined by Tables 7.3.1.1.2-16/17/18/19, if *PUSCH-tp=Disabled*, *UL-DMRS-config-type*=2, and *UL-DMRS-max-len*=1, and the value of rank is determined according to the SRS resource indicator field if the higher layer parameter *ulTxConfig = NonCodeBook~~SRS-SetUse = NonCodeBook~~* and according to the Precoding information and number of layers field if the higher layer parameter *ulTxConfig = CodeBook~~SRS-SetUse = CodeBook~~*;
  - 5 bits as defined by Tables 7.3.1.1.2-20/21/22/23, if *PUSCH-tp=Disabled*, *UL-DMRS-config-type*=2, and *UL-DMRS-max-len*=2, and the value of rank is determined according to the SRS resource indicator field if the higher layer parameter *ulTxConfig = NonCodeBook~~SRS-SetUse = NonCodeBook~~* and according to the Precoding information and number of layers field if the higher layer parameter *ulTxConfig = CodeBook~~SRS-SetUse = CodeBook.~~*

/********** End of Text Proposal for 38.212 **********/

Agreement
Text alignment between section 6.1.2.3 of 38214 and the UL MIMO parts in section 6.1.1 in terminology. Remove references to TPMI, TRI, etc, and use the DCI field names from 38.212 as section 6.1.2.3 does now. 38.214 editor to make necessary changes.

R1-1803738	Remaining issues on codebook based UL transmission	CATT
R1-1803812	Remaining issues on codebook based UL transmission	vivo
R1-1803967	Remaining issues on codebook based UL transmission	OPPO
R1-1804202	Remaining issues on codebook based UL transmission	Lenovo, Motorola Mobility
R1-1804278	Summary of remaining issues for codebook based transmission for UL MIMO	Huawei, HiSilicon
R1-1804355	Issues on codebook based UL transmisison	Samsung
R1-1804710	On Codebook based transmission for UL	Intel Corporation
R1-1804783	Maintenance for codebook based UL transmission	Qualcomm Incorporated
R1-1804968	Corrections for Codebook Based UL MIMO	Ericsson
R1-1805101	Remaining issues on UL codebook based transmission	Nokia, Nokia Shanghai Bell

7.1.2.1.3 Non-codebook based transmission for UL

R1-1805549 FL Summary of issues on UL non-codebook based transmission Nokia, NSB

R1-1805603 Proposal on aperiodic CSI-RS for non-codebook-based transmission Samsung, Huawei, HiSilicon, Nokia, NSB, CATT, NTT DOCOMO, CHTTL, Verizon Wireless, KDDI, Spreadtrum, KT, WILUS Inc., ASUSTek

Agreement
Text proposal for TS38.214 Section 6.1.1.2
6.1.1.2 Non-Codebook based UL transmission
For non-codebook based transmission, the UE can determine its PUSCH precoder and transmission rank based on the wideband SRI field from the DCI. The UE shall use one or multiple SRS resources for SRS transmission, where the number of SRS resources which can be configured to the UE for simultaneously transmission in the same RBs is being part of UE capability signalling Only one SRS port for each SRS resource is configured. Only one SRS resource set can be configured with higher layer parameter *srsSetUse* set to 'nonCodebook'. The maximum number of SRS resources that can be configured for non-codebook based uplink transmission is 4. The indicated SRI in slot *n* is associated with the most recent transmission of SRS resource identified by the SRI, where the SRS resource is prior to the PDCCH carrying the SRI before slot *n*.

For non-codebook based transmission, the UE can measure NZP CSI-RS resource to calculate the precoder used for the transmission of precoded SRS. A UE can be configured with only one NZP CSI-RS resource for the SRS resource set.

- If aperiodic SRS resource is configured, the [CSI-RS information in the same slot TBD] for UL channel measurement is indicated via DCI, where the association among aperiodic SRS triggering state, triggered SRS resource(s) *SRS-ResourceConfigId*, CSI-RS

resource ID *NZP-CSI-RS-ResourceConfigID* are higher layer configured by *AperiodicSRS-ResourceTrigger*. A UE may receive the dynamic SRS transmission request for aperiodic SRS transmission in the same slot as the reception of the DL CSI-RS resource. A UE is not expected to update the SRS precoding information if the gap from the last symbol of the reception of the AP-CSI-RS resource and the first symbol of the AP-SRS transmission is less than 42 OFDM symbols. ~~A UE may receive the SRI which shall be associated with the most recent SRS transmission.~~

- If periodic or semi-persistent SRS resource set is configured, the *NZP-CSI-RS-ResourceConfigID* for measurement is indicated via higher layer parameter *SRS-AssocCSIRS* per set.

R1-1805722 Offline discussion summary on non-codebook based transmission Nokia, NSB

Agreement
When the UE is configured with AP-SRS and AP-CSI-RS associated with the AP-SRS for non-codebook based UL transmission,

- Any of the TCI states in the scheduled CC should not be configured with QCL Type D.
- AP-CSI-RS is located in the same slot as the AP-SRS trigger/request.
- The presence of AP-CSI-RS is (implicitly) indicated via the SRS request field in the DCI.
- The QCL assumption for receiving the associated AP-CSI-RS for non-codebook-based transmission is up to UE implementation
- Note: This does not preclude the use of the CSI request field to trigger this AP CSI-RS for DL CSI acquisition

R1-1803633 Summary of remaining issues for UL non-codebook based transmission Huawei, HiSilicon
R1-1803739 Remaining issues on non-codebook based UL transmission CATT
R1-1803813 Remaining issues on non-codebook based UL transmission vivo
R1-1803905 Remaining issues on non-codebook based UL transmission ZTE, Sanechips
R1-1803968 Remaining issues on non-codebook based UL transmission OPPO
R1-1804056 Non-codebook based transmission for UL MediaTek Inc.
R1-1804203 Remaining issues on non-codebook based UL transmission Lenovo, Motorola Mobility
R1-1804356 Open issues on aperiodic CSI-RS for non-codebook-based transmission Samsung
R1-1804542 Corrections on non-codebook-based UL LG Electronics
R1-1804711 On non-codebook based transmission for UL Intel Corporation
R1-1804784 Maintenance for non-codebook based UL transmission Qualcomm Incorporated
R1-1804843 On Operation of Non-CB based UL Transmission InterDigital, Inc.
R1-1804969 Corrections for Non-Codebook Based UL MIMO Ericsson
R1-1805039 Remaining details on non-codebook based UL transmission NTT DOCOMO, INC.
R1-1805102 Remaining issues on non-codebook based UL-MIMO transmission Nokia, Nokia Shanghai Bell
Late submission

7.1.2.1.4 PRB bundling for DL

R1-1805582 Summary on Issues of PRB bundling for DL vivo

Agreement
In case UE is scheduled by DCI 1_0, the higher layer parameter *prb-BundlingType* is set to '*static*', and when receiving PDSCH scheduled by PDCCH with CRC scrambled by C-RNTI or CS-RNTI,

- the value of P'_{BWPi} is fixed as 2 PRBs.

Agreement
Text Proposal for TS 38.214
5.1.2.3 Physical resource block (PRB) bundling

< Unchanged parts are omitted >

A UE may assume that precoding granularity is P'_{BWPi} consecutive resource blocks in the frequency domain. P'_{BWPi} can be equal to one of the values among {2, 4, wideband}.
If P'_{BWPi} is determined as one of the values among {2, 4}, Precoding Resource Block Group (PRGs) partition the carrier bandwidth part i with P'_{BWPi} consecutive PRBs ~~P'_{BWPi} can be equal to one of the values among {2, 4, wideband}~~. Actual number of consecutive PRBs in each PRG could be one or more.
~~P'_{BWPi} for each carrier bandwidth part is equal to 2 PRBs unless configured by the higher layer parameter *prb-BundlingType*.~~
~~When receiving PDSCH scheduled by PDCCH with CRC scrambled by SI-RNTI, RA-RNTI, P-RNTI or TC-RNTI, the UE shall assume that P'_{BWPi} is equal to 2 PRBs.~~

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1311 of 1750

If $P'_{BWP,i}$ is determined as "wideband", the UE is not expected to be scheduled with non-contiguous resource allocation and the UE may assume that the same precoding is applied to the allocated resource.

When $P'_{BWP,i}$ is determined as one of the values among {2, 4}, the first PRG size is given by $P'_{BWP,i} - N^{start}_{BWP,i} \bmod P'_{BWP}$ and the last PRG size given by $(N^{start}_{BWP,i} + N^{size}_{BWP,i}) \bmod P'_{BWP,i}$ if $(N^{start}_{BWP,i} + N^{size}_{BWP,i}) \bmod P'_{BWP,i} \neq 0$, and the last PRG size is $P'_{BWP,i}$ if $(N^{start}_{BWP,i} + N^{size}_{BWP,i}) \bmod P'_{BWP,i} = 0$.

The UE may assume the same precoding is applied for any downlink contiguous allocation of PRBs in a PRG partitioned above.

For PDSCH carrying SIB1 scheduled by PDCCH with CRC scrambled by SI-RNTI, PRG is partitioned from the lowest numbered resource block of the CORESET signalled in PBCH.

When receiving PDSCH scheduled by PDCCH with CRC scrambled by C-RNTI or CS-RNTI, $P'_{BWP,i}$ for each carrier bandwidth part is equal to 2 PRBs unless configured by the higher layer parameter *prb-BundlingType*. When receiving PDSCH scheduled by PDCCH with CRC scrambled by SI-RNTI, RA-RNTI, P-RNTI or TC-RNTI, the UE shall assume that $P'_{BWP,i}$ is equal to 2 PRBs. In case UE is scheduled by DCI 1_0, the higher layer parameter *prb-BundlingType* is set to '*static*', and when receiving PDSCH scheduled by PDCCH with CRC scrambled by C-RNTI or CS-RNTI, the value of $P'_{BWP,i}$ is fixed as 2 PRBs.

If the higher layer parameter *prb-BundlingType* is set to 'dynamic', and the UE is scheduled a PDSCH with DCI format 1_0 scrambled with C-RNTI and CS-RNTI, then the UE shall assume that $P'_{BWP,i}$ is equal to 2 PRBs.

If the higher layer parameter *prb-BundlingType* is set to 'dynamic', the higher layer parameter *bundleSizeSet1* and *bundleSizeSet2* configures two sets of $P'_{BWP,i}$ values, the first set includes one or two $P'_{BWP,i}$ values among {2, 4, wideband}, and the second set includes one $P'_{BWP,i}$ value. The UE is not expected to be configured with (2, 4) in the first set.

If the *PRB bundling size indicator* signalled in DCI format 1_1 as defined in Subclause 7.3.1.2.2 of [2, TS 38.212]

- is set to '0', the UE shall use the $P'_{BWP,i}$ value from the second set of ~~PRG~~ $P'_{BWP,i}$ values when receiving PDSCH scheduled by the same DCI.
- is set to '1' and one value is configured for the first set of $P'_{BWP,i}$ values, the UE shall use this $P'_{BWP,i}$ value when receiving PDSCH scheduled by the same DCI
- is set to '1' and two values are configured for the first set of $P'_{BWP,i}$ values as 'n2-wideband' (corresponding to two $P'_{BWP,i}$ values 2 and wideband) or 'n4-wideband' (corresponding to two $P'_{BWP,i}$ values 4 and wideband), the UE shall use the value when receiving PDSCH scheduled by the same DCI as follows:
- If the scheduled PRBs are contiguous and the size of the scheduled PRBs is larger than $N^{size}_{BWP,i}/2$, $P'_{BWP,i}$ is the same as the scheduled bandwidth, otherwise $P'_{BWP,i}$ is set to the remaining configured value of 2 or 4, respectively.

If the higher layer parameter *prb-BundlingType* is set to 'static', the $P'_{BWP,i}$ value is configured with the single value indicated by the higher layer parameter *bundleSize*.

When a UE is configured with RBG = 2 for bandwidth part *i* according to Section 5.1.2.2.1, or when a UE is configured with resource block bundle size of 2 for VRB to PRB mapping provided by the higher layer parameter *VRB-to-PRB-interleaver* for bandwidth part *i*, the UE is not expected to be configured with $P'_{BWP,i} = 4$.

< Unchanged parts are omitted >

Agreement

The following text proposal for TS38.212 section 7.3.1.2.2 Format 1_1

< Unchanged parts are omitted >

- PRB bundling size indicator – 0 bit if the higher layer parameter *prb-BundlingType* ~~*PRB_bundling*~~ is not configured or is set to 'static', or 1 bit if the higher layer parameter *prb-BundlingType* ~~*PRB_bundling*~~ is set to 'dynamic', according to Subclause 5.1.2.3 of [6, TS38.214].

< Unchanged parts are omitted >

R1-1803740 Remaining issues on PRB bundling CATT
R1-1803814 Remaining issues on PRB bundling vivo
R1-1803906 Remaining issues on PRB bundling ZTE, Sanechips
R1-1803999 Text Proposal for DL PRB Bundling OPPO
R1-1804072 Remaining issues on PRB bundling MediaTek Inc.
R1-1804970 Remaining issues on DL PRB bundling Ericsson

7.1.2.1.5 Other

R1-1804447 Antenna selection for PUSCH Huawei, HiSilicon
R1-1804971 UL precoder classification Ericsson

7.1.2.2 CSI acquisition and beam management

R1-1803741 On multiplexing of signals and physical channels CATT

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1312 of 1750

7.1.2.2.1 CSI measurement

R1-1805552 Summary of remaining issues on CSI measurement ZTE, Sanechips

Agreement:
Support 3ms as MAC CE latency for activation/deactivation of SP CSI on PUCCH, SP CSI-RS and trigger states of AP-CSI/CSI-RS. Note that MAC CE latency is the time interval from the slot UE transmits the ACK corresponding to PDSCH carrying the MAC-CE message to the time that the MAC-CE message is applied.

Agreement:
Periodicities/slot offsets for P/SP CMR and IMR are configured independently

Agreement:
From a UE's perspective, the same CSI-RS/CSI-IM resource ID cannot be configured in multiple CSI Resource settings with different time-domain behaviors.

R1-1805661 [Draft] LS on time domain behavior of CSI-RS and CSI-IM ZTE, Sanechips
The LS is endorsed in R1-1805621

Conclusion:
1 slot periodicity for CSI-IM is not supported in NR Rel-15

R1-1805606 Summary of offline discussion on CSI measurement ZTE, Sanechips

Agreement
Aperiodic triggering offset of CSI-IM follows triggering offset value of the associated NZP CSI-RS for channel measurement.

R1-1803634	Summary of remaining issues on CSI measurement	Huawei, HiSilicon
R1-1803742	Remaining issues on CSI measurement	CATT
R1-1803815	Remaining issues on CSI measurement	vivo
R1-1803907	Remaining issues on CSI measurement	ZTE, Sanechips
R1-1803981	Remaining issues on CSI measurement	OPPO
R1-1804712	Remaining issues on interference measurement for CSI	Intel Corporation
R1-1804785	Maintenance for CSI measurement	Qualcomm Incorporated
R1-1804972	Remaining issues on CSI measurement	Ericsson

7.1.2.2.2 CSI reporting

R1-1805551 Summary of views on CSI reporting v2 Ericsson

Agreement
What is the time offset of the CSI reference resource of P / SP CSI report?

- A fixed time offset, $n_{CQI_{ref}} = N$ slots, is used for a given numerology
  - N=4 for 15kHz, N=8 for 30kHz, N=16 for 60kHz, N=32 for 120kHz in case of CSI report without CRI
  - N=5 for 15kHz, N=10 for 30kHz, N=20 for 60kHz, N=40 for 120kHz in case of CSI report with CRI
  - FFS: Applicability of smaller value of N depending on UE capability

Agreement
For CSI latency requirement when an A-CSI trigger state triggers multiple CSI reports, up to X CSI reports are assumed to be calculated in a given time period.

- FFS: A UE is not expected to update a CSI report if the PUSCH scheduling offset does not give enough CSI calculation time according to the Z' values for that report
- UE ignores a DCI scheduling a PUSCH with scheduling offset smaller than the any of the Z values in different reports
  - FFS: Details in case A-CSI is triggered for different numerologies
- Value of X depends on UE capability and takes into account all the CCs
- The above applies for the case of CSI only transmission

Agreement
- For PUSCH-based SP-CSI reporting triggered by DCI, the timing offset of the initial report after the trigger should meet the PUSCH preparation procedure time (Z) for A-CSI reporting

R1-1805692 Summary of views on CSI reporting v8 Ericsson

Agreement:

- A UE capable of X simultaneous CSI calculations (according to capability 2-35) is said to have X CSI processing units. For aperiodic CSI report using AP CSI-RS (with a single CSI-RS resource in the resource set for channel measurement).
  - the CSI processing unit remains occupied from the first OFDM symbol after the PDCCH trigger until the last OFDM symbol of the PUSCH carrying the CSI report
- If N AP CSI reports (each with a single CSI-RS resource in the resource set for channel measurement) are triggered in a slot, but the UE only has M un-occupied CSI processing units, UE is only required to update M of the N CSI reports
  - FFS if a rule is needed which CSI reports are required to be update or if it's up to the UE
- FFS if a CSI report linked with $K_s > 1$ CSI-RS resources for channel measurement occupies K_s CSI processing units or one CSI processing units

Agreement

- Introduce a new UE capability on support of either "Type A CSI processing capability" or "Type B CSI processing capability" with regard to the number of simultaneous CSI calculations X
  - For CSI latency requirement when an A-CSI trigger state triggers N CSI reports (where each report *n* is associated with (Z_n, Z'_n)) and have M un-occupied CSI processing units:
    - For Type A CSI processing capability:
      - A UE is not expected to update any of the triggered CSI reports if the time gap between the first symbol of PUSCH and the last symbol of the associated ap-CSI-RS / ap-CSI-IM does not give enough CSI calculation time according to $Z'_{TOT} = \sum_{n=1}^{M} Z'_n$
        - FFS how to index the M reports in this case to form Z'_{TOT}
      - UE may ignore a DCI scheduling a PUSCH with scheduling offset smaller than $Z_{TOT} = \sum_{n=1}^{M} Z_n$
        - This applied to CSI only case, FFS for CSI+UL-SCH case
    - For Type B CSI processing capability:
      - A UE is not expected to update a CSI report if the PUSCH scheduling offset does not give enough CSI calculation time according to the Z' values for that report
      - UE may ignore a DCI scheduling a PUSCH with scheduling offset smaller than the any of the Z values in different reports
        - This applied to CSI only case, FFS for CSI+UL-SCH case
  - CSI reports based on P / SP CSI-RS are assigned to CSI processing units as follows:
    - Type A:
      - For P / SP CSI reports, the CSI processing unit is occupied from the first symbol of the CSI reference resource of the P / SP report until the first symbol of the physical channel carrying the report
      - For A CSI reports, the CSI processing unit is occupied from the first symbol after the PDCCH triggering the report until the [first or last] symbol of the PUSCH carrying the report
    - Type B:
      - A periodic~~P~~ or aperiodic~~AP~~ CSI reporting setting associated with P/SP CSI-RS is assigned one (or K_s) CSI processing unit and always occupy them
      - An activated SP-CSI report setting is assigned one (or K_s) CSI processing unit and occupies them until deactivated
        - Once the SP-CSI report is deactivated, the CSI processing unit can be used for other CSI report
  - Note: Type A assumes serial CSI processing implementation while Type B assume parallel CSI processing implementation. Note that this will not be captured in specification.

Agreement:

- For Type A CSI processing capability, a UE is not expected to update P/SP CSI reports if the number of CSI processing units occupied by P/SP CSI reports exceeds the number of simultaneous CSI calculations X according to the UE capability

Agreement

- When a CSI report is linked with K_s > 1 CSI-RS resources for channel measurement is triggered
  - For Type A CSI processing capability:
    - The CSI report occupies a single CSI processing unit and the latency requirement is calculated based on (Z_n, Z'_n) according to the High latency CSI class
  - For Type B CSI processing capability, downselect between the following in RAN1#93:
    - Alt1: The CSI report occupies a single CSI processing unit and the latency requirement is calculated based on (Z_n, Z'_n) according to the High latency CSI class
    - Alt2: The CSI report occupies Ks CSI processing units and the latency requirement for each unit is calculated based on (Z_n, Z'_n) according to the High latency CSI class
    - Companies are encouraged to provide their preference on either of the above alternatives and relevant (Z_n, Z'_n) values
  - Note: If more than one CSI-RS resource for CM is configured for a CSI report, the report belongs to the High Latency CSI class
- Assuming Type A CSI processing capability or Type B if Alt 1 above is agreed:
  - If a CSI report is linked with K_s > 1 CSI-RS resources for channel measurement
    - For Ks=2, at most 16 CSI-RS ports per CSI-RS resource can be configured
    - For 8>=Ks>2, at most 8 CSI-RS ports per CSI-RS resource can be configured

Agreement

- Adopt the following (Z,Z') values for Low Latency CSI class for normal UE capability for the Type A and Type B UE CSI processing capabilities:

For normal UE capability (assuming single CSI report, single CMR/IMR)

			For Type A CSI processing capability		For Type B CSI processing capability	
			CSI only	CSI+UL-SCH	CSI only	CSI+UL-SCH
Low latency CSI	15 kHZ	Z	5	6	22	32
		Z'	3	4	15	25
	30 kHZ	Z	9	10	25	37
		Z'	6	7	16	28
	60 kHZ	Z	17	18	34	57
		Z'	12	13	25	48
	120 kHZ	Z	27	30	49	85
		Z'	22	25	37	73
High latency CSI	15 kHZ	Z				
		Z'				
	30 kHZ	Z				
		Z'				
	60 kHZ	Z				
		Z'				
	120 kHZ	Z				
		Z'				

Agreement

- When DL BWP is switched, PUCCH-based SP-CSI report setting in activated state stays in its activated state. SP-CSI reporting is simply suspended until the DL BWP is switched back, whereon it resumes

R1-1803635 Summary of remaining issues on CSI reporting Huawei, HiSilicon

R1-1803743	Remaining issues on CSI reporting	CATT
R1-1803816	Remaining issues on CSI reporting	vivo
R1-1804014	Remaining issues on CSI reporting	OPPO
R1-1804057	Remaining issues in CSI reporting	MediaTek Inc.
R1-1804093	Discussion on remaining issues on semi-persistent CSI	CMCC
R1-1804223	Remaining issues on CSI reporting	Spreadtrum Communications
R1-1804357	Issues on CSI reporting	Samsung
R1-1804499	Remaining details on CSI Reporting	MTI
R1-1804543	Remaining issues on CSI reporting	LG Electronics
R1-1804655	Remaining issue for CSI Reporting	AT&T
R1-1804713	Remaining issues on CSI reporting	Intel Corporation
R1-1804786	Maintenance for CSI reporting	Qualcomm Incorporated
R1-1804844	Remaining issues on CSI reporting	InterDigital, Inc.
R1-1804879	Clarification on aperiodic CSI reporting in CA case	Sharp
R1-1804973	Remaining issues on CSI reporting	Ericsson
R1-1805040	Remaining issues on CSI reporting	NTT DOCOMO, INC.
R1-1805103	Remaining Details on the CSI Framework	Nokia, Nokia Shanghai Bell

7.1.2.2.3 Beam measurement and reporting

R1-1805514 Feature lead summary on beam measurement and reporting Ericsson

Agreement:
The following text change is agreed:

- In Section 5.2.1 of TS 38.214, add SSBRI (SSB Resource Indicator) to the contents of CSI reporting. **Error! Reference source not found.**

>>> Text Proposal for 38.214 Section 5.2.1 >>>

5.2.1 Channel state information framework

The time and frequency resources that can be used by the UE to report CSI are controlled by the gNB. CSI may consist of Channel Quality Indicator (CQI), precoding matrix indicator (PMI), CSI-RS resource indicator (CRI), SS/PBCH Block Resource indicator (SSBRI), layer indication (LI), rank indication (RI) and/or and L1-RSRP.

For CQI, PMI, CRI, SSBRI, LI, RI, L1-RSRP, a UE is configured by higher layers with N≥1 *CSI-ReportConfig* Reporting Settings, M≥1 *CSI-ResourceConfig* Resource Settings, and a list of trigger states *ReportTriggerList* containing a list of associated CSI-ReportConfigs indicating the Resource Set IDs for channel and optionally for interference.

>>> End text proposal >>>

Agreement
For the case of single CC case, to determine the "lowest CORESET-ID" for determining default spatial QCL assumption for PDSCH, only consider CORESETs in active BWP

R1-1805574 Feature lead summary 2 on beam measurement and reporting Ericsson

Agreement:

- For PUSCH scheduled by DCI format 0_0, the UE shall use a default spatial relation corresponding to the spatial relation, if applicable, used by the PUCCH resource with the lowest ID configured in the active UL BWP
  - Above applies for a cell configured with PUCCH
  - Note: the UE is configured with a list of spatial relations in *PUCCH-SpatialRelationInfo*. MAC-CE indicates a single selected spatial relation from the list on a per-PUCCH resource basis if the list has more than one element.

Agreement

- Support SP-SRS as mandatory with UE capability signalling

Agreement
The latency for MAC CE activation is 12 slots for 60kHz SCS and 24 slots for 120kHz SCS. The latency is calculated from the ending symbol of UE's ACK transmission for PDSCH carrying MAC-CE activation message to when the MAC CE message is applied.

Agreement:

- Support uplink cross-carrier beam indication for PUCCH and SRS
- Add Cell index and BWP information in *SpatialRelation* configuration

R1-1805739 [DRAFT] LS on UL cross carrier beam indication Samsung

LS is endorsed in R1-1805627 with the following additional sentences: "RAN1 has agreed on cross carrier indication of spatial relations with SRS and PUCCH. For the case of SRS, changes are needed to the MAC CE message used for activating semi-persistent SRS to enable cross carrier indication. RAN1 suggests that RAN2 take this into their work."

R1-1803636	Remaining issue for beam management	Huawei, HiSilicon
R1-1803744	Remaining issues on beam management	CATT
R1-1803817	Remaining issues on beam measurement and reporting	vivo
R1-1803908	Remaining issues on beam management	ZTE, Sanechips
R1-1803939	Ambiguities about PUCCH beam indication	Fujitsu
R1-1804000	Text Proposal for Beam Management	OPPO
R1-1804035	Remaining issues on beam management	ASUSTEK COMPUTER (SHANGHAI)
R1-1804058	Remaining issues in beam management	MediaTek Inc.
R1-1804210	Discussion of beam management for carrier aggregation	Lenovo, Motorola Mobility
R1-1804358	Corrections on Beam reporting and Indication	Samsung
R1-1804544	Remaining issues on beam management	LG Electronics
R1-1804593	Remaining issues on downlink beam management	Sony
R1-1804714	Remaining Issues on beam management	Intel Corporation
R1-1804770	Discussion on beam measurement and reporting	Apple Inc.
R1-1804787	Beam management for NR	Qualcomm Incorporated
R1-1804845	Remaining issues on beam management	InterDigital, Inc.
R1-1804974	Remaining details of beam management	Ericsson
R1-1805041	Remining Issues on Beam Management	NTT DOCOMO, INC.
R1-1805104	Remaining issues on beam management	Nokia, Nokia Shanghai Bell

7.1.2.2.4 Mechanism to recover from beam failure

Including beamFailureREcoveryTimer related discussion per RAN plenary guidance as in RP-180597

R1-1805583 Revised Summary 1 on Remaing issues on Beam Failure Recovery MediaTek

R1-1805604 WF on beamFailureRecoveryTimer InterDigital, MediaTek, Ericsson, ZTE, SaneChips, Huawei, HiSilicon, NTT DOCOMO, Intel, Samsung, CATT

R1-1805565 WF on remaining issues for beam failure recovery Intel, MediaTek, ZTE, Sanechips, Huawei, HiSilicon

Agreement:
BFI indication interval is lower bounded by 2ms

Agreement:
Agree to the following text change for TS38.213 section 6
A UE is configured with one control resource set by higher layer parameter *Beam-failure-Recovery-Response-CORESET* and with an associated search space provided by higher layer parameter *search-space-config,* as described in subcaluse **Error! Reference source not found.**, for monitoring PDCCH in the control resource set. The UE may receive from higher layers, by parameter *Beam-failure-recovery-request-RACH-Resource*, a configuration for a PRACH transmission as described in Subclause **Error! Reference source not found.**. For PRACH transmission in slot n and according to antenna port quasi co-location parameters associated with periodic CSI-RS configuration or SS/PBCH block with index q_{new} provided by higher layer [5, TS 38.321], the UE monitors PDCCH for detection of a DCI format with CRC scrambled by C-RNTI starting from slot $n+4$ within a window configured by higher layer parameter *Beam-failure-recovery-request-window*~~, and~~ . For PDSCH reception, the UE assumes the same antenna port quasi-collocation parameters as for monitoring PDCCH until the UE receives by higher layers an activation for a TCI state or a parameter *TCI-StatesPDCCH*. ~~The UE determines the index q_{new} based on TBD.~~

R1-1805689 Summary 2 on Remaing issues on Beam Failure Recovery MediaTek

Agreement:
- Send an LS to RAN2 with following information
  - RAN1 confirms the need for beamFailureRecoveryTimer and keep its uses as current RAN1 agreement
    - Note: unsuccessful CFRA based BFR upon expiry of beamFailureRecoveryTimer means that UE shall not use CFRA for BFR after beamFailureRecoveryTimer expired and no indication to higher layer is required
  - The following use case will be captured in the LS

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1317 of 1750

- Candidate beam selection for contention-free PRACH-based BFR is based on L1-RSRP. For qualified candidate beam but poor SINR, the timer enables UE to try contention-based PRACH resources after timer expires

– Note: CBRA resource can be used when there is no candidate beam identified from candidate-beam-RS-list, as described by TS 38.321 section 5.1.2.
  - beamFailureRecoveryTimer does not apply to the use of CBRA resources.

R1-1805716 [DRAFT] LS on beamFailureRecoveryTimer InterDigital
The LS is endorsed in R1-1805622

Agreement:
Text proposal for TS38.213 section 6
----------Start Text Proposal----------

The physical layer in the UE shall~~, in slots where the radio link quality according to the set $\bar{q}_0$ is assessed,~~ provide an indication to higher layers when the radio link quality for all corresponding resource configurations in the set $\bar{q}_0$ that the UE uses to assess the radio link quality is worse than the threshold $Q_{out,LR}$. The physical layer informs the higher layers when the radio link quality is worse than the threshold $Q_{out,LR}$ with a periodicity determined by the maximum between the shortest periodicity of periodic CSI-RS configurations or SS/PBCH blocks in the set $\bar{q}_0$ and X.

----------End Text Proposal----------

R1-1805730 Summary 3 on Remaing issues on Beam Failure Recovery MediaTek

R1-1805714 [Draft] LS on NR BFR Huawei, HiSilicon
Endorsed in R1-1805623

R1-1803622 Remaining issues on beam failure recovery NEC
R1-1803637 Summary of remaining issues on beam failure recovery Huawei, HiSilicon
R1-1803745 Remaining issues on beam failure recovery CATT
R1-1803818 Remaining issues on mechanism to recover from beam failure vivo
R1-1803909 Remaining issues on beam recovery ZTE, Sanechips
R1-1804001 Text Proposal for Beam Failure Recovery OPPO
R1-1804036 Remaining issues on beam failure recovery procedure ASUSTEK COMPUTER (SHANGHAI)
R1-1804059 Remaining issues in beam failure recovery MediaTek Inc.
R1-1804094 Discussion on remaining issues on beam failure recovery CMCC
R1-1804211 Discussion of beam failure recovery for carrier aggregation Lenovo, Motorola Mobility
R1-1804359 Corrections on beam failure recovery Samsung
R1-1804494 Corrections on beam failure recovery ETRI
R1-1804545 Remaining issues on beam failure recovery LG Electronics
R1-1804715 Remaining Issues on beam failure recovery Intel Corporation
R1-1804788 Beam recovery procedures Qualcomm Incorporated
R1-1804846 Remaining issues on beam failure recovery InterDigital, Inc.
R1-1804975 Remaining issues on beam recovery Ericsson
R1-1805042 Remaining issues on beam recovery NTT DOCOMO, INC.
R1-1805105 Remaining Details on Beam Recovery Nokia, Nokia Shanghai Bell

7.1.2.2.5 CQI and MCS

R1-1805545 Summary for CQI and MCS AT&T

Agreement
Text proposals for TS 38.214 v15.0.0 Section 6.1.4.1

< Unchanged parts are omitted >

- for MCS index 0,1 and 28, q=1 if UE has reported to support pi/2 BPSK modulation; and q=2 in other cases

else

- the UE shall use I_{MCS} and Table 5.1.3.1-2 to determine the modulation order (Q_m) and Target code rate (R) used in the physical downlink shared channel.

end

Table 6.1.4.1-1: MCS index table for PUSCH with transform precoding and 64QAM

MCS Index I_{MCS}	Modulation Order Q_m	Target code Rate x 1024 R	Spectral efficiency
0	*q*	240/*q*	0.2344
1	*q*	314/*q*	0.3066
2	2	193	0.3770
3	2	251	0.4902
4	2	308	0.6016
5	2	379	0.7402
6	2	449	0.8770
7	2	526	1.0273
8	2	602	1.1758
9	2	679	1.3262
10	4	340	1.3281
11	4	378	1.4766
12	4	434	1.6953
13	4	490	1.9141
14	4	553	2.1602
15	4	616	2.4063
16	4	658	2.5703
17	6	466	2.7305
18	6	517	3.0293
19	6	567	3.3223
20	6	616	3.6094
21	6	666	3.9023
22	6	719	4.2129
23	6	772	4.5234
24	6	822	4.8164
25	6	873	5.1152
26	6	910	5.3320
27	6	948	5.5547
28	~~1~~*q*	reserved	
29	2	reserved	
30	4	reserved	
31	6	reserved	

< Unchanged parts are omitted >

Agreement
Text proposals for TS 38.214 v15.0.0 Section 5.2.2.1.1

The PDSCH transmission scheme where the UE may assume that PDSCH transmission would be performed with up to 8 transmission layers as defined in Subclause 7.3.1.4 of [4, TS 38.211]. For CQI calculation, the UE should assume that PDSCH signals on antenna ports in the set [1000,...,1000 ~~1008~~+v-1] for v layers would result in signals equivalent to corresponding symbols transmitted on antenna ports [3000,…,3000+*P*-1], as given by

$$\begin{bmatrix} y^{(3000)}(i) \\ M \\ y^{(3000+P-1)}(i) \end{bmatrix} = W(i) \begin{bmatrix} x^{(0)}(i) \\ M \\ x^{(\nu-1)}(i) \end{bmatrix}$$

where $x(i) = \left[x^{(0)}(i) \ldots x^{(\nu-1)}(i)\right]^T$ is a vector of PDSCH symbols from the layer mapping defined in Subclause 7.3.1.4 of [4, TS 38.211], $P \in [1,2,4,8,12,16,24,32]$ is the number of CSI-RS ports. If only one CSI-RS port is configured, *W(i)* is 1, otherwise *W(i)* is the precoding matrix corresponding to the reported PMI applicable to *x(i)*. The corresponding PDSCH signals transmitted on antenna ports [3000,…,3000 + *P* - 1] would have a ratio of EPRE to CSI-RS EPRE equal to the ratio given in Subclause 4.1.

Agreement:
- For PDSCH scheduled by DCI format 1_0, UE assumes the default 64QAM table regardless of RRC configuration
- For PUSCH scheduled by DCI format 0_0, UE assumes the default 64QAM table regardless of RRC configuration

Agreement:
- For PDSCH scheduled with other RNTIs than C-RNTI & CS-RNTI, UE assumes 64 QAM MCS table
- For PUSCH scheduled with other RNTIs than C-RNTI & CS-RNTI, SP-CSI C-RNTI, UE assumes 64 QAM MCS table

Agreement
Text proposals for TS 38.214 v15.0.0 Section 5.2.2.1

< Unchanged parts are omitted >

If a UE is not configured with higher layer parameter *MeasRestrictionConfig-time-channel*, the UE shall derive the channel measurements for computing ~~CQI~~ CSI value reported in uplink slot *n* based on only the NZP CSI-RS, no later than the CSI reference resource, (defined in TS 38.211[4]) associated with the CSI resource setting.
If a UE is configured with higher layer parameter *MeasRestrictionConfig-time-channel*, the UE shall derive the channel measurements for computing CSI reported in uplink slot *n* based on only the most recent, no later than the CSI reference resource, occasion of NZP CSI-RS (defined in [4, TS 38.211]) associated with the CSI resource setting.
If a UE is not configured with higher layer parameter *MeasRestrictionConfig-time-interference*, the UE shall derive the interference measurements for computing ~~CQI~~ CSI value reported in uplink slot *n* based on only the CSI-IM and/or NZP CSI-RS for interference measurement no later than the CSI reference resource associated with the CSI resource setting.
If a UE is configured with higher layer parameter *MeasRestrictionConfig-time-interference* the UE shall derive the interference measurements for computing the ~~CQI~~ CSI value reported in uplink slot *n* based on the most recent, no later than the CSI reference resource, occasion of CSI-IM and/or NZP CSI-RS for interference measurement (defined in [4, TS 38.211]) associated with the CSI resource setting.

< Unchanged parts are omitted >

Agreement
Text proposals for TS 38.214 v15.0.0 Section 5.2.2.1

----------Start text proposal----------

5.2.2.1.1 CSI reference resource definition

- the PDSCH transmission scheme where the UE may assume that PDSCH transmission would be performed with up to 8 transmission layers as defined in Subclause 7.3.1.4 of [4, TS 38.211]. For CQI calculation, the UE should assume that PDSCH signals on antenna ports in the set [1000 1000+v-1] for v layers would result in signals equivalent to corresponding symbols transmitted on antenna ports [3000 3000+*P*-1], as given by

$$\begin{bmatrix} y^{(3000)}(i) \\ M \\ y^{(3000+P-1)}(i) \end{bmatrix} = W(i) \begin{bmatrix} x^{(0)}(i) \\ M \\ x^{(\nu-1)}(i) \end{bmatrix}$$

where $x(i) = \left[x^{(0)}(i) \ldots x^{(\nu-1)}(i)\right]^T$ is a vector of PDSCH symbols from the layer mapping defined in Subclause 7.3.1.4 of [4, TS 38.211], $P \in \{1,2,4,8,12,16,24,32\}$ is the number of CSI-RS ports. If only one CSI-RS port is configured, *W(i)* is 1~~.~~ ~~otherwise~~ If the higher layer parameter *reportQuantity* for the *CSI-ReportConfig* for which the CQI is reported is set to either 'CRI/RI/PMI/CQI' or 'CRI/RI/LI/PMI/CQI', *W(i)* is the precoding matrix corresponding to the reported PMI applicable to *x(i)*. If the higher layer parameter *reportQuantity* for the *CSI-ReportConfig* for which the CQI is reported is set to 'CRI/RI/CQI', *W(i)* is the precoding matrix corresponding to the procedure described in Subclause 5.2.1.4.2. If the higher layer parameter *reportQuantity* for the *CSI-ReportConfig* for which the CQI is reported is set to 'CRI/RI/i1/CQI', *W(i)* is the precoding matrix corresponding to the reported i1 according to the procedure described in Subclause 5.2.1.4. The corresponding PDSCH signals transmitted on antenna ports [3000,3000 + *P* - 1] would have a ratio of EPRE to CSI-RS EPRE equal to the ratio given in Subclause 4.1.

R1-1803819	Remaining issues for CQI and MCS	vivo
R1-1804360	Remaining issues on CQI and MCS	Samsung
R1-1804444	Remaining issues on CQI and MCS	Huawei, HiSilicon
R1-1804716	Corrections to CQI definition in NR	Intel Corporation

7.1.2.2.6 Other

Including handling simultaneous transmission and reception of different channels and reference signals

For further discussion in RAN1#93

- RAN4 agreement exists for SSB-RRM + PDSCH multiplexing for non-CA and CA cases
- Consider at least the following alternatives. At least for cases outside SMTC window (SSB-RLM+PDSCH, SSB-BM+PDSCH) including CA:

- Alt 1: (multiplexing restriction) Extend the RAN4 agreement to the case of SSB+PDSCH multiplexing for both CA and non-CA without PDSCH associated with SI-RNTI, P-RNTI. This means that the UE is not expected to receive PDSCH on SSB symbols (for same numerology in FR2)
- Alt 2: gNB will ensure at least spatial QCL
- Alt 3: The UE is not expected to perform Rx beam refinement on SSB locations (Rx beam refinement may be associated with BM, RLM, BFD)

Note: The above applies to the case with same numerology for SSB and PDSCH. The case with different numerologies for SSB and PDSCH is to be addressed.

R1-1803701	QCL and spatial-relation for simultaneous reception and transmission	Huawei, HiSilicon
R1-1803820	Remaining issues on simultaneous reception of DL/UL physical channels and reference signals	vivo
R1-1803910	Simultaneous transmission and reception of channels/signals	ZTE, Sanechips
R1-1803964	Discussion on QCL across CCs	ITRI
R1-1804002	Discussion on simultaneous receptions/transmissions of multiple signals/channels	OPPO
R1-1804060	Views on multi-CC QCL assumptions	MediaTek Inc.
R1-1804085	PHY notification for beam failure instance	ASUSTEK COMPUTER (SHANGHAI)
R1-1804118	Enhancements on Type-II CSI Reporting Scheme	Fraunhofer IIS, Fraunhofer HHI
R1-1804361	Aperiodic beam reporting	Samsung
R1-1804362	Corrections on UL beam management	Samsung
R1-1804363	Simultaneous reception of physical channels and reference signals	Samsung
R1-1804445	Further enhancements on CSI reporting and codebook design	Huawei, HiSilicon
R1-1804717	Spatial QCL considerations for multiplexing of physical channels and RS	Intel Corporation
R1-1804718	On UE capability signalling for Type II CSI	Intel Corporation
R1-1804789	Details on simultaneous reception of PHY channels and RS in FR2	Qualcomm Incorporated
R1-1804976	Multi-cell beam recovery	Ericsson
R1-1804977	On simultaneous reception of physical and reference signals across CCs	Ericsson
R1-1804978	Remaining issues on SP CSI reporting on PUSCH	Ericsson
R1-1804979	Miscellaneous corrections and clarifications on CSI acquisition	Ericsson
R1-1804980	On OFDM symbol level PDSCH power boosting	Ericsson
R1-1805043	On Type II codebook enhancement	NTT DOCOMO, INC.
R1-1805106	Remaining Issue on Type II CSI Omission	Nokia, Nokia Shanghai Bell
R1-1805107	On channels multiplexing	Nokia, Nokia Shanghai Bell

7.1.2.3 Reference signals and QCL

7.1.2.3.1 Multiplexing of different types of RSs

R1-1805544 Feature lead summary of remaining issues for RS multiplexing Huawei, HiSilicon

Agreement
Text proposal in Section 5.1.6.1 of TS 38.214
The CSI-RS defined in Subclause 7.4.1.5 of [4, TS 38.211], may be used for time/frequency tracking, CSI computation, L1-RSRP computation and mobility.
If the UE is configured with a CSI-RS resource and a CORESET in the same OFDM symbol(s), the UE may assume that the CSI-RS and a PDCCH DM-RS transmitted in the CORESET are quasi co-located with 'QCL-TypeD', if 'QCL-TypeD' is applicable.
Furthermore, the UE shall not expect to be configured with the CSI-RS in PRBs that overlap those of the CORESET.

Agreement
Text proposal in Section 6.2.1 of TS38.214
A UE shall not transmit simultaneously SRS resource(s) and PRACH. ~~If a UE is configured with an SRS resource and PRACH in the same OFDM symbols in a slot, SRS is not transmitted in the overlapping symbols.~~ If SRS and PRACH would occur on overlapping OFDM symbol(s), SRS is not transmitted on the overlapping symbol(s).

R1-1805704 Feature lead summary 2 of remaining issues for RS multiplexing Huawei, HiSilicon

Agreement
In the case of collision of aperiodic/semi-persistent/periodic SRS and short PUCCH carrying HARQ-ACK, drop SRS.

And related Text Proposal:
TP for Section 6.2.1 in TS 38.214 (treatment of short PUCCH with A/N against SRS)

------Unchanged parts are omitted------

For PUCCH formats 0 and 2, a UE shall not transmit SRS when semi-persistent and periodic SRS are configured in the same symbol(s) with PUCCH carrying only CSI report(s), or only L1-RSRP report(s) or if aperiodic SRS is configured and PUCCH consists of beam failure request. A UE shall not transmit SRS when semi-persistent or periodic SRS is configured or aperiodic SRS is triggered to be transmitted in the same symbol(s) with PUCCH carrying HARQ-ACK. In the case that SRS is not transmitted due to overlap with PUCCH, only the SRS symbol(s) that overlap with PUCCH symbol(s) are dropped. PUCCH shall not be transmitted when aperiodic SRS ~~happens~~ is triggered to be transmitted to overlap in the same symbol with semi-persistent or periodic PUCCH carrying semi-persistent/periodic CSI report(s) or semi-persistent/periodic L1-RSRP report(s) only.

------Unchanged parts are omitted------

R1-1803704	Remaining issues on RS multiplexing	Huawei, HiSilicon
R1-1803821	Remaining issues on multiplexing of different types of RSs	vivo
R1-1804073	Remaining issues on multiplexing	MediaTek Inc.
R1-1804364	Remaining issues on RS multiplexing	Samsung
R1-1804546	Correction on multiplexing between CSI-RS and CORESET	LG Electronics
R1-1804790	Maintenance for Multiplexing of RS	Qualcomm Incorporated
R1-1804948	Discussions on multiplexing of different types of RSs	Mitsubishi Electric Co.
R1-1804981	Remaining issues on RS multiplexing	Ericsson

7.1.2.3.2 CSI-RS

R1-1805557	Remaining issues on CSI-RS	Huawei, HiSilicon

Agreement:
Confirm the WA on CSI-RS sequence mapping for the case with 0.5 density

Agreement:
A UE may assume all CSI-RS ports within one CSI-RS resource are quasi co-located with respect to 'QCL type A' and 'QCL type D' when applicable.

Agreement:
Text proposal for Section 5.2.2.3.1 in 38.214

- *CSI-RS-FreqBand* parameters configure the bandwidth and the initial RB index in the frequency domain, both in units of 4RBs, of a CSI-RS resource within a BWP as defined in Subclause 7.4.1.5 of [4, TS 38.211] , and the minimum bandwidth is the minimum between 24 and $N_{\mathrm{RB}}^{\mathrm{BWP}\,i}$ resource blocks.

Agreement
Text proposal for Section 5.1.6.1.2 in 38.214

If the UE is configured with a *CSI-ReportConfig* with *reportQuantity* set to "CRI/RSRP", or "No Report" and if the Resource Setting for channel measurement contains a CSI-RS Resource Set that is configured with the higher layer parameter *CSI-RS-ResourceRep* and configured without the higher layer parameter *TRS-Info*, the UE can only be configured with 1 or 2 ports with the higher layer parameter *NrofPorts* for all CSI-RS resources within the set, and the UE may be configured with the CSI-RS resource in the same OFDM symbol(s) as an SS/PBCH block, and the UE may assume that the CSI-RS and the SS/PBCH block are quasi co-located with 'QCL-TypeD' if 'QCL-TypeD' is applicable. Furthermore, the UE shall not expect to be configured with the CSI-RS in PRBs that overlap those of the SS/PBCH block, and the UE shall expect that the same subcarrier spacing is used for both the CSI-RS and the SS/PBCH block.

Agreement
The number of ports in a resource set for L1-RSRP

- Always have the same number of ports (1 or 2) across all resources

---

Agreement
For density ½, odd/even PRB allocations is respect to the common resource block grid
Include in LS to RAN2 for CSI-RS Xi (Huawei)

Agreement
Text proposal for Section 5.1.4.2 in 38.214

- *ZP-CSI-RS-ResourceConfigId* determines ZP CSI-RS resource configuration identity.

- *NrofPorts* defines the number of CSI-RS ports, where the allowable values are given in Subclause 7.4.1.5 of [4, TS 38.211].
- *ZP-CSI-RS-Density* defines the zero-power CSI-RS frequency density, where the allowable values are given in Subclause 7.4.1.5 of [4, TS 38.211].
- *CDMType* defines CDM values and pattern, where the allowable values are given in Subclause 7.4.1.5 of [4, TS 38.211].

R1-1805685 Remaining issues on CSI-RS #2 Huawei, HiSi

Agreement

Text proposal for Section 5.2.2.3.1 in 38.214

- *CSI-RS-FreqBand* parameters configure the bandwidth and the initial RB index in the frequency domain, both in units of 4RBs, of a CSI-RS resource within a BWP as defined in Subclause 7.4.1.5 of [4, TS 38.211]. If the configured bandwidth is larger than the corresponding BWP, UE shall assume that the actual CSI-RS bandwidth is equal to the BWP size.

Agreement

- The UE expects that all the CSI resources of a resource set are configured with the same starting RB and number of RBs and the same CDM-type.
  - FFS: Other parameters

Agreement

Text proposal for Section 5.2.2.3.1 in 38.214

- *CSI-RS-Density* defines CSI-RS frequency density of each CSI-RS port per PRB and CSI-RS PRB offset in case of the density value of 1/2, where the allowable values are given in Subclause 7.4.1.5 of [4, TS 38.211]. For density ½, odd/even PRB allocations is respect to the common resource block grid.
- *CDMType* defines CDM values and pattern, where the allowable values are given in Subclause 7.4.1.5 of [4, TS 38.211].
- *CSI-RS-FreqBand* parameters configure the bandwidth and the initial RB index in the frequency domain, both in units of 4RBs, of a CSI-RS resource within a BWP as defined in Subclause 7.4.1.5 of [4, TS 38.211].
- *Pc*: which is the assumed ratio of PDSCH EPRE to NZP CSI-RS EPRE when UE derives CSI feedback and takes values in the range of [-8, 15] dB with 1 dB step size.
- *Pc_SS*: which is the assumed ratio of SS/PBCH block EPRE to NZP CSI-RS EPRE.
- *ScramblingID*: defines scrambling ID of CSI-RS with length of 10 bits.
- *CC_Info* defines which component carrier the configured CSI-RS is located in.
- *BWP_Info* defines which bandwidth part the configured CSI-RS is located in.

Agreement

Text proposal for Section 5.1.4.2 in 38.214

- ~~*ZP*~~*-CSI-RS-ResourceMapping* defines the OFDM symbol and subcarrier occupancy of the ZP-CSI-RS resource within a slot that are given in Subclause 7.4.1.5 of [4, TS 38.211].

R1-1805740 [Draft] LS on NR CSI-RS Huawei, HiSilicon
LS is endorsed in R1-1805626

R1-1803638 Remaining details on CSI-RS design in NR Huawei, HiSilicon
R1-1803746 Remaining issues on CSI-RS CATT
R1-1803822 Remaining issues on CSI-RS vivo
R1-1803969 Remaining issues on CSI-RS design OPPO
R1-1804074 Remaining issues on CSI-RS MediaTek Inc.
R1-1804197 Remaining issues on CSI-RS Lenovo, Motorola Mobility
R1-1804365 Remaining issues on CSI-RS Samsung
R1-1804719 Remaining issues on CSI-RS Intel Corporation
R1-1804791 Maintenance for on CSI-RS Qualcomm Incorporated
R1-1804982 Remaining issues on CSI-RS Ericsson

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1323 of 1750

R1-1805044 Remaining details on CSI-RS NTT DOCOMO, INC.
R1-1805108 Remaining issues on CSI-RS design Nokia, Nokia Shanghai Bell

7.1.2.3.3 DMRS

R1-1805611 First Summary of Issues for PDSCH/PUSCH's DM-RS Qualcomm

Agreement:
Text proposals for TS 38.211 Section 6.4.1.1.1.2

------Unchanged parts are omitted------

6.4.1.1.1.2 Sequence generation when transform precoding is enabled
If transform precoding for PUSCH is enabled, the reference-signal sequence $r(n)$ shall be generated according to

$$r(n) = r_{u,v}^{(\alpha,\delta)}(n) \qquad n = 0,1,\ldots,M_{sc}^{PUSCH} - 1$$

$$r(n) = r_{u,v}^{(\alpha,\delta)}(n) \qquad n = 0,1,\ldots,M_{sc}^{PUSCH} / 2^{\delta} - 1$$

Field Code Changed

where $r_{u,v}^{(\alpha,\delta)}(m)$ is given by clause 5.2.2 with $\delta = 1$ and $\alpha = 0$ for a PUSCH transmission dynamically scheduled by DCI.

------Unchanged parts are omitted------

Agreement
Text proposals for TS 38.211 Section 7.4.1.1.1

------Unchanged parts are omitted------

7.4.1.1 Demodulation reference signals for PDSCH
7.4.1.1.1 Sequence generation
The UE shall assume the sequence $r(n)$ is defined by

$$r(n) = \frac{1}{\sqrt{2}}(1 - 2 \cdot c(2n)) + j\frac{1}{\sqrt{2}}(1 - 2 \cdot c(2n+1)).$$

where the pseudo-random sequence $c(i)$ is defined in clause 5.2.1. The pseudo-random sequence generator shall be initialized with

~~$c_{init} = \left(2^{17}\left(14n_{s,f}^{\mu} + l + 1\right)\left(2N_{ID}^{n_{SCID}} + 1\right) + 2N_{ID}^{n_{SCID}}\right) \bmod 2^{31}$~~

$$c_{init} = \left(2^{17}\left(14n_{s,f}^{\mu} + l + 1\right)\left(2N_{ID}^{n_{SCID}} + 1\right) + 2N_{ID}^{n_{SCID}} + n_{SCID}\right) \bmod 2^{31}$$

Field Code Changed

where l is the OFDM symbol number within the slot, $n_{s,f}^{\mu}$ is the slot number within a frame, and

- $n_{SCID} \in \{0,1\}$ and $N_{ID}^{n_{SCID}} \in \{0,1,\ldots,65535\}$ is given by the higher-layer parameter *DL-DMRS-Scrambling-ID* if provided and the PDSCH is scheduled by PDCCH with CRC scrambled by C-RNTI or CS-RNTI
- $n_{SCID} = 0$ and $N_{ID}^{n_{SCID}} = N_{ID}^{cell}$ otherwise

------Unchanged parts are omitted------

Agree with the above TP and change 14 to N_{symb}^{slot}

Agreement
<<<< **Text proposal for section 6.4.1.1.3 in TS 38.211** <<<<

6.4.1.1.3 Precoding and mapping to physical resources
[…]

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1324 of 1750

Table 6.4.1.1.3-6: PUSCH DM-RS positions $\bar{l}$ for single-symbol DM-RS and frequency hopping enabled.

Duration in symbols for each hop	DM-RS positions $\bar{l}$							
	PUSCH mapping type A				PUSCH mapping type B			
	UL-DMRS-add-pos				UL-DMRS-add-pos			
	0		1		0		1	
	First hop	Second hop	First hop	Second hop	First hop	Second hop	First hop	Second hop
≤3	-	-	-	-	l_0	0	l_0	0
4	l_0	0	l_0	0	l_0	0	l_0	0
5, 6	l_0	0	l_0	0, 4	l_0	0	l_0, l_0+4	0, 4
7	l_0	0	l_0, l_0+4	0, 4	l_0	0	l_0, l_0+4	0, 4

[…]

Agreement:

UE DM-RS transmission procedure for before RRC configuration in case of frequency hopping enabled should be specified in TS38.214 as following:

- If frequency hopping is enabled, the UE shall assume dmrs-AdditionalPosition = 1, and one additional DM-RS can be transmitted according to PUSCH duration.

Text Proposal for this correction shown below:

6.2.2 UE DM-RS transmission procedure

When transmitted PUSCH is not scheduled by PDCCH with CRC scrambled by C-RNTI or CS-RNTI, the UE shall use single symbol front-loaded DM-RS of configuration type 1 on DM-RS port 0 and the remaining Res not used for DM-RS in the symbols are not used for any PUSCH transmission, additional DM-RS can be transmitted according to the scheduling type and the PUSCH duration as specified in Table 6.4.1.1.3-3 of [4, TS38.211] for frequency hopping disabled and as specified in Table 6.4.1.1.3-6 of [4, TS38.211] for frequency hopping enabled, and

If frequency hopping is disabled,

- For PUSCH with allocation duration of more than 7 symbols, the UE shall assume *dmrs-AdditionalPosition*=2 and up to two additional DM-RS can be transmitted according to PUSCH duration, or
- For PUSCH with allocation duration of 7 symbols with mapping type B, the UE shall assume *dmrs-AdditionalPosition*=1 and one additional DM-RS can be transmitted
- For PUSCH with allocation duration of less than 7 symbols with mapping type B, the UE shall assume *dmrs-AdditionalPosition*=0 and not transmit additional DM-RS.

If frequency hopping is enabled,

- The UE shall assume *dmrs-AdditionalPosition*=1 and up to one additional DM-RS can be transmitted according to PUSCH duration.

[…]

Agreement

For PUSCH not scheduled by PDCCH format 0_1:

- Support FDM for PUSCH and DMRS when PUSCH duration is N or less OFDM symbols
  - N=2 for CP-OFDM.

TDM for other cases. Note: For DFT-S-OFDM, always TDM.

R1-1805587 WF on group/sequence hopping for DFT-S-OFDM PUSCH DMRS CMCC, ZTE, Sanechips, Intel, Nokia, Nokia Shanghai Bell, OPPO, NEC, LG Electronics, NTT DOCOMO, MediaTek, vivo, Qualcomm

Agreement

- For DFT-s-OFDM based PUSCH transmission, if group hopping or sequence hopping is used, the sequence of the second DMRS symbol follows the first symbol for each pair of adjacent DMRS symbols.

Agreement

The following text proposal for section 7.4.1.1.2 of TS38.211 is agreed.

For PDSCH mapping type B

- if the PDSCH duration is 2, 4, or 7 OFDM symbols for normal CP, or 2, 4, 6 OFDM symbols for extended CP, and the PDSCH allocation collides with resources reserved for a CORESET, $\bar{l}$ shall be incremented such that the first DM-RS symbol occurs immediately after the CORESET and
  - if the PDSCH duration is 4 symbols, the UE is not expected to receive a DM-RS symbol beyond the third symbol,
  - if the PDSCH duration is 7 symbols for normal CP, or 6 OFDM symbols for extended CP,
    - the UE is not expected to receive the first DM-RS beyond the fourth symbol, and
    - if one additional single-symbol DM-RS is configured, the UE only expects the additional DM-RS to be transmitted on the 5th or 6th symbol when the front-loaded DM-RS symbol is in the 1st or 2nd symbol, respectively, of the PDSCH duration, otherwise the UE should expect that the additional DM-RS is not transmitted.

Table 7.4.1.1.2-3: PDSCH DM-RS positions $\bar{l}$ for single-symbol DM-RS.

Duration in symbols	DM-RS positions $\bar{l}$							
	PDSCH mapping type A				PDSCH mapping type B			
	DL-DMRS-add-pos				*DL-DMRS-add-pos*			
	0	***1***	***2***	***3***	***0***	***1***	***2***	***3***
2	-	-	-	-	l_0	l_0		
3	l_0	l_0	l_0	l_0	-	-		
4	l_0	l_0	l_0	l_0	l_0	l_0		
5	l_0	l_0	l_0	l_0	-	-		
6	l_0	l_0	l_0	l_0	l_0	l_0,4		
7	l_0	l_0	l_0	l_0	l_0	l_0,4		
8	l_0	l_0 , [7]	l_0 , [7]	l_0 , [7]	-	-		
9	l_0	l_0 ,7	l_0 ,7	l_0 ,7	-	-		
10	l_0	l_0 ,9	l_0 , 6, 9	l_0 , 6, 9	-	-		
11	l_0	l_0 ,9	l_0 , 6, 9	l_0 , 6, 9	-	-		
12	l_0	l_0 9	l_0 , 6, 9	l_0 , 5, 8, 11	-	-		
13	l_0	l_0 ,11	l_0 , 7, 11	l_0 , 5, 8, 11	-	-		
14	l_0	l_0 ,11	l_0 , 7, 11	l_0 , 5, 8, 11	-	-		

Table 7.4.1.1.2-4: PDSCH DM-RS positions $\bar{l}$ for double-symbol DM-RS

Duration in symbols	DM-RS positions $\bar{l}$					
	PDSCH mapping type A			PDSCH mapping type B		
	DL-DMRS-add-pos			DL-DMRS-add-pos		
	0	1	2	0	1	2

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1326 of 1750

<4				-	-	
4	l_0	l_0		-	-	
5	l_0	l_0		-	-	
6	l_0	l_0		l_0	l_0	
7	l_0	l_0		l_0	l_0	
8	l_0	l_0		-	-	
9	l_0	l_0		-	-	
10	l_0	l_0, 8		-	-	
11	l_0	l_0, 8		-	-	
12	l_0	l_0, 8		-	-	
13	l_0	l_0, 10		-	-	
14	l_0	l_0, 10		-	-	

Agreement
In Section 5.1.6.2 of TS38.214
When receiving PDSCH scheduled by PDCCH with CRC scrambled by SI-RNTI, RA-RNTI, P-RNTI or TC-RNTI, or receiving PDSCH before dedicated higher layer configuration of any of the parameters *dmrs-AdditionalPosition*, *DL-DMRS-max-len* and *dmrs-Type,* the UE shall assume that the PDSCH is not present in any symbol carrying DM-RS except for PDSCH with allocation duration of 2 symbols with PDSCH mapping type B (described in subclause 7.4.1.1.2 of [4, TS 38.211]), and a single symbol front-loaded DM-RS of configuration type 1 on DM-RS port 1000 is transmitted, and that all the remaining orthogonal antenna ports are not associated with transmission of PDSCH to another UE and in addition

- For PDSCH with mapping type A, the UE shall assume *dmrs-AdditionalPosition*=2 and up to two additional single-symbol DM-RS present in a slot according to the PDSCH duration indicated in the DCI as defined in Subclause 7.4.1.1 of [4, TS 38.211], and
- For PDSCH with allocation duration of 7 symbols for normal CP or 6 symbols for extended CP with mapping type B, the UE shall assume one additional single-symbol DM-RS present in the 5th or 6th symbol when the front-loaded DM-RS symbol is in the 1st or 2nd symbol respectively of the PDSCH allocation duration, otherwise the UE shall assume that the additional DM-RS symbol is not present, and
- For PDSCH with allocation duration of 4 symbols with mapping type B, the UE shall assume that no additional DM-RS are present, and
- For PDSCH with allocation duration of 2 symbols with mapping type B, the UE shall assume that no additional DM-RS are present, and the UE shall assume that the PDSCH is present in the symbol carrying DM-RS

R1-1805691 Second Summary of Issues for PDSCH/PUSCH's DM-RS Qualcomm

Agreement
Add the following text in Section 7.4.1.1.2 of 38.211 to clarify the above:

------Unchanged parts are omitted------

The position(s) of the DM-RS symbols is given by $\bar{l}$ *and*

- *for PDSCH mapping type A, the duration is between the first OFDM symbol of the slot and the last OFDM symbol of the scheduled PDSCH resources in the slot*
- *for PDSCH mapping type B, the duration is the number of OFDM symbols of the scheduled PDSCH resources as signalled*

and according to Tables 7.4.1.1.2-3 and 7.4.1.1.2-4. The case DL-DMRS-add-pos equal to 3 is only supported when DL-DMRS-typeA-pos is equal to 2. **For PDSCH mapping type A, duration of 3 and 4 symbols in Tables 7.4.1.1.2-3 and 7.4.1.1.2-4 respectively is only applicable for DL-DMRS-typeA-pos equals 2.**

------Unchanged parts are omitted------

Agreement
Add the following text in Section 6.4.1.1.3 of 38.211 to clarify the above:

------Unchanged parts are omitted------

The position(s) of the DM-RS symbols is given by $\bar{l}$ and

- the signalled duration between the first OFDM symbol of the slot and the last OFDM symbol of the scheduled PUSCH resources in the slot for PUSCH mapping type A according to Tables 6.4.1.1.3-3 and 6.4.1.1.3-4 if frequency hopping is not used, or
- the signalled duration of scheduled PUSCH resources for PUSCH mapping type B according to Tables 6.4.1.1.3-3 and 6.4.1.1.3-4 if frequency hopping is not used, or
- the signalled duration per hop according to Table 6.4.1.1.3-6 if frequency hopping is used.

For PUSCH mapping type A, the case *UL-DMRS-add-pos* equal to 3 is only supported when *DL-DMRS-typeA-pos* is equal to 2.
For PUSCH mapping type A, duration of 4 symbols in Table 6.4.1.1.3-4 is only applicable for DL-DMRS-typeA-pos equals 2.

------Unchanged parts are omitted------

Agreement
Text proposal for Section 5.1.6.2, 38.214

------Unchanged parts are omitted------

When receiving PDSCH scheduled by PDCCH with CRC scrambled by SI-RNTI, RA-RNTI, P-RNTI or TC-RNTI, or **receiving PDSCH scheduling DCI format 1_0 by PDCCH with CRC scrambled by C-RNTI or CS-RNTI**, or receiving PDSCH before dedicated higher layer configuration of any of the parameters *dmrs-AdditionalPosition*, *DL-DMRS-max-len* and *dmrs-Type,*

------Unchanged parts are omitted------

When receiving PDSCH scheduled **by DCI format 1_1** by PDCCH with CRC scrambled by C-RNTI or CS-RNTI,

- the UE may be configured with the higher layer parameter *dmrs-Type*, and the configured DM-RS configuration type is used for receiving PDSCH in as defined in Subclause 7.4.1.1 of [4, TS 38.211].
- the UE may be configured with the maximum number of front-loaded DM-RS symbols for PDSCH by higher layer parameter *DL-DMRS-max-len.*
  - if *DL-DMRS-max-len* is equal to 1, single-symbol DM-RS can be scheduled for the UE by DCI, and the UE can be configured with a number of additional DM-RS for PDSCH by higher layer parameter *dmrs-AdditionalPosition,* which can be 0, 1, 2 or 3.
  - if *DL-DMRS-max-len* equal to 2, both single-symbol DM-RS and double symbol DM-RS can be scheduled for the UE by DCI, and the UE can be configured with a number of additional DM-RS for PDSCH by higher layer parameter *dmrs-AdditionalPosition,* which can be 0 or 1.
  - and the UE shall assume to receive additional DM-RS as specified in Table 7.4.1.1.2-3 and Table 7.4.1.1.2-4 as described in Subclause 7.4.1.1.2 of [4, TS 38.211].

------Unchanged parts are omitted------

Agreement
Text proposal for TS38.211
6.4.1.1.3Precoding and mapping to physical resources
[…]
The time-domain index l' and the supported antenna ports $\tilde{p}_j$ are given by Tables 6.4.1.1.3-3 through 6.4.1.1.3-6:

- if the higher-layer parameter *UL-DMRS-max-len* is equal to 1 and frequency hopping is disabled, the tables shall be used according to single-symbol DM-RS
- if the higher-layer parameter *UL-DMRS-max-len* is equal to 2 and frequency hopping is disabled, the associated DCI determines whether single-symbol or double-symbol DM-RS shall be used
- if higher-layer parameter *UL-DMRS-add-pos* is equal to or more than 1 and frequency hopping is enabled according to clause 7.3.1.1.2 in [5, TS 38.212], Table 6.4.1.1.3-6 shall be used assuming *UL-DMRS-add-pos* is 1 for each hop. If $l_0 = 3$, ~~only~~ *UL-DMRS-add-pos* ~~equal to 0 is supported~~ is assumed to be 0.

Formatted: Font: Italic
Formatted: Font: Italic

[…]

Agreement
For DMRS scrambling ID for PDSCH scheduled by PDCCH format 1_0 with CRC scrambled by C-RNTI, or PUSCH scheduled by PDCCH format 0_0 with CRC scrambled by C-RNTI

- If a PUSCH/PDSCH of a UE is scheduled by DCI format 0_0 or DCI format 1_0, the UE would assume the first DMRS scrambling ID if configured, otherwise N_{ID}^{cell} is used.

R1-1803705	Remaining issues on DMRS design	Huawei, HiSilicon
R1-1803747	Remaining issues on DMRS	CATT
R1-1803823	Remaining issues on DMRS	vivo
R1-1803911	Remaining issues on DMRS	ZTE, Sanechips
R1-1803970	Remaining issues on DMRS design	OPPO
R1-1804075	Remaining issues on DMRS	MediaTek Inc.
R1-1804095	Discussion on remaining issues on DMRS	CMCC
R1-1804198	Remaining issues on DMRS	Lenovo, Motorola Mobility
R1-1804366	Remaining issues on DMRS	Samsung
R1-1804647	DMRS for pi/2 BPSK with spectrum shaping	IITH, CEWIT, IITM, Tejas Networks, Reliance Jio
R1-1804720	Remaining issues on DM-RS	Intel Corporation
R1-1804792	Maintenance for DMRS	Qualcomm Incorporated
R1-1804946	Discussions on DMRS	Mitsubishi Electric Co.
R1-1804983	Remaining issues on DMRS	Ericsson
R1-1805045	Remaining details on DM-RS	NTT DOCOMO, INC.
R1-1805109	Further comments on DM-RS for NR physical data channels	Nokia, Nokia Shanghai Bell

7.1.2.3.4 PT-RS

R1-1805542	Feature lead summary 2 of PT-RS	Ericsson

Working assumption:
Support variable time density $L_{PT\text{-}RS}$ for UCI-only PUSCH where information (e.g. MCS) in DCI is used to determine $L_{PT\text{-}RS}$.

R1-1805584 WF on UL PTRS Port Indication vivo, Intel, NEC, Lenovo, Motorola Mobility, ZTE, Sanechips, OPPO, Samsung, LG Electronics, MediaTek, Nokia, Nokia Shanghai Bell, Huawei, HiSilicon, CMCC, DOCOMO

Agreement
- For the following case, the field of *PTRS-DMRS association* is 0 bit for both codebook based UL transmission and non-codebook based UL transmission
  - High layer parameter *maxRank* is configured as 1.
- Update the following Table 7.3.1.1.2-26 for PTRS-DMRS association for UL PTRS ports 0 and 1, UL-PTRS-ports = 2

Value of MSB	DMRS port	Value of LSB	DMRS port
0	~~1st DMRS port transmitting layers corresponding to SRS port 0 and 2,~~ the 1st DMRS port which shares PTRS port 0	0	~~1st DMRS port transmitting layers corresponding to SRS port 1 and 3,~~ 1st DMRS port which shares PTRS port 1
1	~~2nd DMRS port transmitting layers corresponding to SRS port 0 and 2,~~ 2nd DMRS port which shares PTRS port 0	1	~~2nd DMRS port transmitting layers corresponding to SRS port 1 and 3,~~ 2nd DMRS port which shares PTRS port 1

Agreement
Agree on the following text proposal **TS 38.211 v15.0.0 Section 6.4.1.2.1.2** to implement the previous agreement by changing m' in the exponential to m:

< Unchanged parts are omitted >

If transform precoding is enabled, the phase-tracking reference signal $r_m(m')$ to be mapped in position m before transform precoding, where m depends on the number of PT-RS groups N_{group}^{PTRS}, the number of samples per PT-RS group N_{samp}^{group}, and M_{sc}^{PUSCH} according to Table 6.4.1.2.2.2-1, shall be generated according to

$$r_m(m') = w(k')\frac{e^{j\frac{\pi}{2}(m \bmod 2)}}{\sqrt{2}}\left[(1-2c(m')) + j(1-2c(m'))\right]$$

$$m' = N_{\text{samp}}^{\text{group}} s' + k'$$
$$s' = 0,1,\ldots, N_{\text{group}}^{\text{PTRS}} - 1$$
$$k' = 0,1, N_{\text{samp}}^{\text{group}} - 1$$

< Unchanged parts are omitted >

R1-1803623	Remaining issues on PTRS configurations	NEC
R1-1803706	Remaining issues on PTRS	Huawei, HiSilicon
R1-1803748	Remaining issues on PT-RS	CATT
R1-1803824	Remaining issues on PT-RS	vivo
R1-1803912	Remaining issues on PT-RS	ZTE, Sanechips
R1-1803940	Discussion on remaining details on PT-RS	Fujitsu
R1-1804076	Remaining issues on PT-RS	MediaTek Inc.
R1-1804096	Discussion on remaining issues on PT-RS	CMCC
R1-1804199	Remaining issues on PTRS	Lenovo, Motorola Mobility
R1-1804216	Remaining issues on PT-RS	Spreadtrum Communications
R1-1804273	Remaining issues on PT-RS	Panasonic Corporation
R1-1804367	Remaining issues on PTRS	Samsung
R1-1804469	Remaining issues on PTRS	Mitsubishi Electric RCE
R1-1804547	Text proposals on PT-RS	LG Electronics
R1-1804721	Remaining issues On PT-RS	Intel Corporation
R1-1804793	PTRS considerations	Qualcomm Incorporated
R1-1804847	Remaining issues on PT-RS	InterDigital, Inc.
R1-1804984	Remaining issues on PT-RS	Ericsson
R1-1805046	Remaining details on PTRS	NTT DOCOMO, INC.
R1-1805110	Further comments on PT-RS	Nokia, Nokia Shanghai Bell

7.1.2.3.5 SRS

R1-1805522	Summary of SRS Sony

Agreement
The following working assumption is confirmed.
- NR supports the case that different ports of one 4-port SRS resource have different comb offsets for comb 2 and 4.

Agreement
Text proposal for section 6.2.1.3, 38.214):
*For an aperiodic SRS triggered in DCI format 2_3 and UE configured with higher layer parameter **typeA-SRS-TPC-PDCCH-Group** without PUSCH/PUCCH transmission, the order of the triggered SRS transmission on the serving cells follow the order of the serving cells in the indicated set of serving cells configured by higher layers.*
*For an aperiodic SRS triggered in DCI format 2_3 and UE configured with higher layer parameter **typeB-SRS-TPC-PDCCH-Group** without PUSCH/PUCCH transmission, the order of the triggered SRS transmission on the serving cells follow the order of the serving cells with aperiodic SRS triggered in the DCI.*

Agreement
Text proposal for s***ection 7.3.1.3.4, 38.212:***
If the UE is configured with higher layer parameter typeA-SRS-TPC-PDCCH-Group for an UL without PUCCH and PUSCH or an UL on which the SRS power control is not tied with PUSCH power control, one block is configured for the UE by higher layers, with the following fields defined for the block:
- *SRS request – 0 or 2 bits. The presence of this field is according to the definition in Subclause x.x of [5, TS38.213]. If present, this field is interpreted as defined by Table 7.3.1.1.2-5.*
- ~~*TPC command number –2 bits*~~ *TPC command number 1, TPC command number 2, …, TPC command number n*
  where each TPC command applies to a respective serving cell index provided by higher layer parameter cc-IndexInOneCC-Set.

If the UE is configured with higher layer parameter typeB-SRS-TPC-PDCCH-Group for an UL without PUCCH and PUSCH or an UL on which the SRS power control is not tied with PUSCH power control, one or more blocks is configured for the UE by higher layers where each block applies to a serving cell, with the following fields defined for the block:
- *SRS request – 0 or 2 bits. The presence of this field is according to the definition in Subclause x.x of [5, TS38.213]. If present, this field is interpreted as defined by Table 7.3.1.1.2-5.*
- *TPC command number –2 bits*

Agreement:
If TS38.214 does not capture that slot-level offset is for aperiodic SRS resource set, the spec editor should capture this

Agreement
The configuration of SRS starting position offset l_{offset} and symbol number N_{symb}^{SRS} should satisfy $l_{\text{offset}} \geq N_{\text{symb}}^{\text{SRS}} - 1$.
The following text proposal for TS38.211 section 7.1.2.4 captures the above agreement.

< Unchanged parts are omitted >

An SRS resource consists of

- $N_{\text{ap}}^{\text{SRS}} \in \{1,2,4\}$ antenna ports $\{p_i\}_{i=0}^{N_{\text{ap}}^{\text{SRS}}-1}$, $p_i \in \{1000,1001,...\}$, given by the higher layer parameter *NrofSRS-Ports*
- $N_{\text{symb}}^{\text{SRS}} \in \{1,2,4\}$ consecutive OFDM symbols contained in the higher layer parameter *SRS-ResourceMapping*
- l_0, the starting position in the time domain given by $l_0 = N_{\text{symb}}^{\text{slot}} - 1 - l_{\text{offset}}$ where the offset $l_{\text{offset}} \in \{0,1,\ldots,5\}$ counts symbols backwards from the end of the slot and is contained in the higher layer parameter *SRS-ResourceMapping*, where $l_{\text{offset}} \geq N_{\text{symb}}^{\text{SRS}} - 1$
- k_0, the frequency-domain starting position of the sounding reference signal

Field Code Changed

< Unchanged parts are omitted >

Agreement
Inform RAN2 that *aperiodicSRS-ResourceTrigger* should start from 1 not 0. LS to be prepared by Steve (Ericsson)

Agreement
>>> Text proposal for 38.212 Section 7.3.1.1.2 >>>

Table 7.3.1.1.2-24: SRS request

Value of SRS request field	Triggered aperiodic SRS resource set(s)
00	No aperiodic SRS resource set triggered
01	SRS resource set(s) configured with higher layer parameter *aperiodicSRS-ResourceTrigger* set to 1
10	SRS resource set(s) configured with higher layer parameter *aperiodicSRS-ResourceTrigger* set to 2
11	SRS resource set(s) configured with higher layer parameter *aperiodicSRS-ResourceTrigger* set to 3

>>> End text proposal >>>

Agreement
To avoid duplication between 38.212 and 38.214 of the table mapping the codepoints of the SRS request field in DCI to the triggered aperiodic SRS resource set(s), remove Table 6.2.1-1 from 38.214. Text proposal is provided below.
>>> Text proposal for 38.214 Section 6.2.1 >>>
For aperiodic SRS, at least one state of the DCI field is used to select at least one out of the configured SRS resource set.
The 2-bit SRS request field [5, TS38.212] in DCI format 0_1, 1_1 indicates the triggered SRS resource set given in Table ~~6.2.1-1~~ 7.3.1.1.2-24 of [5, TS38.212]. The 2-bit SRS request field [5, TS38.212] in DCI format 2_3 indicates the triggered SRS resource set given in Subclause 11.4 of [6, TS 38.213].

~~**Table 6.2.1-1: SRS request value for aperiodic SRS**~~

~~Value of SRS request field~~	~~Description~~
~~'00'~~	~~No aperiodic SRS trigger~~
~~'01'~~	~~The 1st SRS resource set(s) configured by higher layers~~
~~'10'~~	~~The 2nd SRS resource set(s) configured by higher layers~~
~~'11'~~	~~The 3rd SRS resource set(s) configured by higher layers~~

If a UE is configured with the higher layer parameter *SRS-AssocCSIRS* and with the higher layer parameter *ulTxConfig* set to 'NonCodebook', the UE may be configured with a NZP CSI-RS resource where a *NZP-CSI-RS-ResourceConfigId* is associated with an SRS resource set.
>>> End text proposal >>>

R1-1805654 WF on SRS antenna switching CMCC, ZTE, Sanechips, Ericsson, CATT, Sony, OPPO, NEC, Nokia, Nokia Shanghai Bell

R1-1805695 Summary of SRS Sony

Agreement
- 1T4R antenna switching for SRS transmission is supported by 2 aperiodic SRS resource sets
  - two aperiodic SRS resource sets with total four SRS resources transmitted in different symbols of two different slots, each SRS resource consisting of a single SRS port, and where the SRS port of each resource is associated with a different UE antenna port
  - each of the two SRS resource sets consists of two SRS resources, or one SRS resource set consists of a single SRS resource and the other SRS resource set consists of three SRS resources
  - the UE shall expect the same value for the higher layer parameters *alpha-srs, p0-srs, srs-pathlossReference-rs-config and srs-pcadjustment-state-config* in the two SRS resource sets
  - FFS: On UE ambiguity if two DCI triggers separately triggers two SRS resource sets
- FFS: The gap before or after any SRS resource set for antenna switching
- FFS: The number of SRS resource sets for other cases

R1-1805700 Draft LS on aperiodic SRS triggering Ericsson
LS is endorsed in R1-1805625

Agreement
>>> Text proposal for 38.214 Section 6.2.1.2 >>>

6.2.1.2 UE antenna switching
When UE antenna switching is enabled by the higher layer parameter *SRS-SetUse* set as 'antenna switching' for a UE that supports transmit antenna switching, a UE may be configured with one of the following configurations depending on the UE capability:
- SRS resource set with two SRS resources transmitted in different symbols, each SRS resource consisting of a single SRS port, being associated with different UE antenna ports, or
- SRS resource set with two SRS resources transmitted in different symbols, each SRS resource consisting of two SRS ports where the port pair of the second resource is associated with a different UE antenna pair than the port pair of the first resource, or
- SRS resource set with four SRS resources transmitted in different symbols, each SRS resource consisting of a single SRS port being associated with different UE antenna port, or
- SRS resource set with one SRS resource, where the number of SRS ports is equal to 1, 2, or 4

and a guard period where UE does not transmit any other signal of *Y* symbols in-between the SRS resources of the set, is used in case the SRS resources are transmitted in the same slot.

The value of *Y* is defined by Table 6.2.1.2-1.
>>> End text proposal >>>

R1-1803639 Remaining details of SRS design Huawei, HiSilicon
R1-1803749 Remaining issues on SRS CATT
R1-1803825 Remaining issues on SRS vivo
R1-1803913 Remaining issues on SRS ZTE, Sanechips
R1-1803971 Remaining issues on SRS design OPPO
R1-1804061 Remaining issues in SRS MediaTek Inc.
R1-1804097 Discussion on remaining issues on SRS CMCC
R1-1804368 Remaining issues on SRS Samsung
R1-1804548 Remaining issues on SRS LG Electronics
R1-1804594 Remaining issues on SRS Sony
R1-1804722 Remaining issues on SRS Intel Corporation
R1-1804794 Maintenance for SRS Qualcomm Incorporated
R1-1804880 Discussions on SRS resource transmission for BWP switch Sharp
R1-1804985 Remaining issues on SRS Ericsson

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1332 of 1750

R1-1805111 Remaining details on SRS design in NR Nokia, Nokia Shanghai Bell

7.1.2.3.6 TRS

R1-1805550 Summary #1 for TRS MediaTek

Agreement
The following text proposals are agreed.
Text proposal 5.1.6.1.2 38.214
~~A UE does not expect to be configured with a Reporting Setting, which is linked to a CSI-RS resource set for tracking, where the higher layer parameter *MeasRestrictionConfig-time-channel* for the Reporting Setting set to 'ON'.~~

Text proposal 5.1.6.1.1 38.214
The periodic CSI-RS resources in the CSI-RS resource set configured with higher layer parameter *TRS-Info* have the same periodicity, bandwidth and subcarrier location.
A UE does not expect to be configured with a report~~ing~~ setting, which is linked to a CSI-RS resource set for tracking, where the higher layer parameter *MeasRestrictionConfig-time-channel* for the report~~ing~~ setting set to 'ON'.

Agreement
A CSI-RS resource set should not be configured with *TRS-info* and *CSI-RS-ResourceRep* simultaneously.

R1-1805694 Summary #2 for TRS MediaTek

~~Working Assumption~~
Agreement
- Rel-15 supports aperiodic TRS for FR2 as an optional UE feature with UE capability signalling
  - A UE does not expect to be triggered to aperiodic TRS unless it has been configured with an associated periodic TRS with the same burst length X slots on the same BWP
    - The aperiodic TRS and the associated periodic TRS has the same BW, [same symbol position, same subcarrier location] and the aperiodic TRS will be QCL type A+D (if applicable) with this periodic TRS
    - FFS on DCI trigger timing for SCell activation and BWP switching
    - The UE does not expect the scheduling offset between DCI to the first symbol of TRS be smaller than the threshold UE reported
    - The aperiodic TRS is triggered by UL DCI (same as CSI-RS)
- No new/additional RRC parameters are introduced for this feature except UE capability

Note: (from Huawei) Aperiodic TRS is a new feature in Rel-15 but Huawei is willing to accept this for progress
Note: AT&T has concerns to make this an UE optional feature since this is a forward compatibility issue

Friday
Huawei confirmed the above note and worried that the new feature was lately introduced – nevertheless it should be clarified that this is clearly an optional feature
MIMO session's chair: lengthly discussed, many companies believe it is essential.
RAN1 chair: let's take it as an agreement – warned the group for introducing new feature at this stage of the WI
Intel suggested to liaise to RAN2 asking them whether a new feature group can still be added
Samsung requested preparing the corresponding CRs by June
Debate regarding the timeline for CRs as the new feature has not been incorporated in the current UE feature list spreadsheet and the impact to RAN2 work.

Conclusion: Above working assumption is changed to Agreement.
Send an LS to RAN2 regarding the above agreements and ask RAN2 to take into account in their work – R1-1805758 (Xiaoyi, ATT)
R1-1805758 [draft] LS for supporting aperiodic TRS AT&T
Decision: The document is endorsed and final LS is approved in R1-1805763.
The above optional UE feature is to be included in the current UE feature spreadsheet for RAN1#93.

R1-1803826 Remaining issues on TRS vivo
R1-1803914 Remaining issues on TRS ZTE, Sanechips
R1-1804003 Text Proposal for CSI-RS for Time/frequency Tracking OPPO
R1-1804077 Remaining issues on TRS MediaTek Inc.
R1-1804232 Remaining details on TRS design Spreadtrum Communications
R1-1804369 Remaining issues on TRS Samsung

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1333 of 1750

R1-1804443 Further discussion on introducing aperiodic TRS Huawei, HiSilicon
R1-1804549 Text proposals on TRS LG Electronics
R1-1804723 Remaining Issues On TRS Intel Corporation
R1-1804795 Remaining issues on TRS Qualcomm Incorporated
R1-1804986 Remaining issues on TRS Ericsson
R1-1805047 Remaining details on TRS NTT DOCOMO, INC.
R1-1805112 Remaining details of TRS design Nokia, Nokia Shanghai Bell

7.1.2.3.7 QCL

R1-1805660 Feature lead summary on QCL Nokia, NSB

R1-1805690 Offline discussion summary on QCL Nokia, NSB

Agreement
Text proposal for TS38.211
----------begin text change----------
4.4.1 Antenna ports
An antenna port is defined such that the channel over which a symbol on the antenna port is conveyed can be inferred from the channel over which another symbol on the same antenna port is conveyed.

- For DM-RS associated with PDSCH the channel over which a symbol on one of these antenna ports is conveyed can be inferred from the channel over which another symbol on the same antenna port is conveyed only if the two symbols are within the same scheduled PDSCH, same slot and in the same PRG as described in 3GPP TS 38.214 Section 5.1.2.3.

---------- end text change----------
Note that the above text change does not imply the support of time domain PRB bundling.
Working assumption on 'same' slot in Rel 15. If there is no consensus to revisit the working assumption in RAN1#93, it is automatically confirmed.

R1-1803640 Remaining issues and TP for QCL assumptions Huawei, HiSilicon
R1-1803750 Remaining issues on QCL CATT
R1-1803827 Remaining issues on QCL vivo
R1-1803915 Remaining issues on QCL ZTE, Sanechips
R1-1804004 Text Proposal for QCL OPPO
R1-1804724 Corrections to QCL for NR Intel Corporation
R1-1804796 Remaining details on QCL Qualcomm Incorporated
R1-1804987 Remaining issues on QCL Ericsson

7.1.2.3.8 Other

R1-1803982 Evaluation on DMRS performance in high mobility scenario OPPO
R1-1804281 Draft CR on PDSCH/PUSCH DMRS position for ECP in TS38.211 Huawei, HiSilicon
R1-1804282 Draft CR on PDSCH/PUSCH DMRS position for ECP in TS38.214 Huawei, HiSilicon
R1-1804284 SRS carrier switching involving SUL Huawei, HiSilicon
R1-1804448 Remaining issues for SRS switching among CCs Huawei, HiSilicon
R1-1804988 Analysis of periodic vs aperiodic TRS Ericsson
R1-1804989 Benefits of resource specific DMRS mapping Ericsson
R1-1804990 Evaluations of TRS periodicity Ericsson
R1-1804991 Lossless compression of scheduling BW thresholds for PT-RS Ericsson
R1-1804992 On correlation of DMRS Gold sequences Ericsson
R1-1804993 On UE TX frequency accuracy with TRS based synchronization Ericsson
R1-1804994 TP for TS 38.212 related to aperiodic and semi-persistent TRS Ericsson
R1-1804995 TP for TS 38.214 related to DMRS sequence Ericsson
R1-1804996 Type 1 mapping of halp-pi BPSK DFTS DMRS Ericsson
R1-1804997 On a resource specific sequence mapping for CSI-RS Ericsson
R1-1804998 On correlation of CSI-RS Gold sequences Ericsson
R1-1804999 On additional periodicities for CSI-RS and SRS Ericsson

7.1.2.4 Other

R1-1805000 NR UE feature list for MIMO and RS Ericsson
R1-1805001 On RRC parameter alignment between 38.214 and 38.331 Ericsson

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1334 of 1750

7.1.3 Scheduling/HARQ aspects

7.1.3.1 Physical downlink control channel

R1-1805176 Further Notes for DCI Size Discussion Ericsson

7.1.3.1.1 PDCCH structure

R1-1805537 Offline summary AI 7.1.3.1.1 PDCCH structure NTT DOCOMO
Decision: The document is noted.

Proposals**:**

- For wideband RS CORESET,
  - The UE shall rate-match around PDCCH RBs containing the scheduling DCI as well as the DMRS across all the resource-element groups within the set of contiguous resource blocks in the CORESET.
  - The UE is not expected to be configured with non-contiguous RBs for the CORESET.
  - FFS interaction with BD/CCE limitations

From Thursday's offline

Agreements:

- NW and UE maintain the same understanding on SSB/CORESET#0/SS#0 in connected_mode at least for non-broadcast PDCCH
  - Solutions FFS
- For the broadcast PDCCH, it is up to UE which common search space to monitor based on which SSB in both connected, in-active, and idle modes
- Unicast PDSCH can be scheduled by a DCI associated with the CORESET #0

Agreement:

- The size of DCI 1_1 is the same (by zero-padding when necessary) across CORESETs of a BWP of a serving cell

Friday
Agreements:

- For WB RS CORESET, the UE is expected to be configured with the CORESET only with the following possibilities:
  - Up to 4 clusters, each cluster consisting of contiguous RBs.
- It is clarified that the counting rule of CCE for channel estimation is the same between NB RS CORESET and WB RS CORESET, which implies following:
  - The number of CCEs for channel estimation in case of WB RS CORESET is counted as the union of the sets of CCEs for PDCCH candidates to be monitored and hence BW of the WB RS CORESET is not restricted by CCE limit for channel estimation.
  - Note: it is up to RAN4 whether UE may perform channel estimation within a BW smaller than the maximum number of contiguous RBs within the WB RS CORESET

R1-1803790 PDCCH structure remaining issues ZTE, Sanechips
R1-1804279 Remaining issues on PDCCH structure Huawei, HiSilicon
R1-1804550 Remaining issues on PDCCH structure LG Electronics
R1-1804759 Remaining details on PDCCH structure Nokia, Nokia Shanghai Bell
R1-1804797 Remaining issues on PDCCH structure Qualcomm Incorporated
R1-1804950 Collision between SSB and PDCCH Panasonic
R1-1805177 On remaining issues of PDCCH structure Ericsson

7.1.3.1.2 Search space

R1-1805568 Summary of offline for search space NTT DOCOMO
Decision: The document is noted.

Agreement:

- For Rel.15 December 2017 version of Case 2, number of CCEs for channel estimation per slot is {56, 56, 48, 32} CCEs for SCS {15kHz, 30kHz, 60kHz, 120kHz}

Nokia, LGE raised concern to take it as an agreement, would prefer as a working assumption

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1335 of 1750

Agreement:
- UE is not expected to be configured with PDCCH monitoring in CSS(s) for more than what UE can monitor in terms of numbers of BDs/CCEs

Proposals:
- For the non-CA case, in mapping PDCCH candidates in a slot, start with CSS monitored by the UE, then for USS, across search-space-sets:
  - Alt 1: SS with lower ID take precedence over SS with higher ID
  - Alt 2: alternating decoding candidates across SS sets?
  - FFS the case of CA

Wednesday
R1-1805655 **Summary of offline for search space** **NTT DOCOMO**
Decision: The document is noted.

Agreements:
- Following working assumption is made:
  - For a UE supporting CA with up to X DL-CCs with the same numerology with X <= 4, maximum number of PDCCH blind decodes per slot the UE shall support is X*M, and;
  - For a UE supporting CA with up to Y DL-CCs with the same numerology Y > 4, maximum number of PDCCH blind decodes per slot the UE shall support is y*M, where;
    - M = {44, 36, 22, 20} for SCS = {15kHz, 30kHz, 60kHz, 120kHz}
    - y is an integer from {4, …, 16} and is reported as UE capability to the network.
  - For a UE supporting CA with up to X DL-CCs with the same numerology with X <= 4, maximum number of CCEs for channel estimation per slot the UE shall support is X*N, and;
  - For a UE supporting CA with up to Y DL-CCs with the same numerology with Y > 4, maximum number of CCEs for channel estimation per slot the UE shall support is y*N, where;
    - N = {56, 56, 48, 32} for SCS = {15kHz, 30kHz, 60kHz, 120kHz}
    - y is an integer from {4, …, 16} and is reported as UE capability to the network.

Agreement:
- The working assumption as part of the agreements below is confirmed:
  - Change $Y\_\{p, k_p\}$ to $Y\_\{p, n_{s,f}^{\mu}\}$ in the search space hashing function in subclause 10.1 of 38.213, where the index $n_{s,f}^{\mu}$ is the slot number.
    - (Working assumption) The reset of the update is per radio frame

Agreement:
- A UE is not expected to be configured to monitor PDCCH across a slot boundary.

Working assumption:
- For a common search space configured with *RMSI-PDCCH-Config*, *osi-searchSpace*, *paging-searchSpace*, and *ra-searchSpace*, DCI format 0_0/1_0 with C-RNTI is monitored in non-DRX occasions after C-RNTI is available.
- For a common search space configured with *RMSI-PDCCH-Config*, *osi-searchSpace*, *paging-searchSpace*, and *ra-searchSpace*, DCI format 0_0/1_0 with CS-RNTI is monitored in non-DRX occasions after CS-RNTI is available.

Agreements:
- Following is to be clarified in 213:
  - Type0-CSS is configured by *RMSI-PDCCH-Config* provided by *MIB* or is configured by *searchSpace-SIB1* provided by *PDCCH-ConfigCommon*
  - Type0A-CSS is configured by *searchSpace-OSI* provided by *PDCCH-ConfigCommon*
  - Type1-CSS is configured by *ra-SearchSpace* provided by *PDCCH-ConfigCommon*
  - Type2-CSS is configured by *pagingSearchSpace* provided by *PDCCH-ConfigCommon*
  - Type3-CSS is configured by a *SearchSpace* with the *searchSpaceType* "*common*" provided by *PDCCH-Config*

From Thursday's offline

Working assumption:

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1336 of 1750

- At least for Case 1-1 and Case 1-2, map all candidates of USS search-space-set with lower SS set ID before candidates of USS with higher ID
  - If all candidates in a SS set can't be mapped, any candidates in the SS set and in any subsequent SS sets are dropped (not mapped)
- Case 2 FFS

Proposal:
- Update RRC signaling *searchSpace* such that it includes the set of periodicities defined for *ssb-PeriodicityServingCell*
  - These added periodicities are used only for *searchSpaceSIB1*

Friday
Email discussion till May 4th to come-up with identifying necessary information (e.g., periodicities, offsets, occasions) for updating RRC signaling *searchSpace* such that it includes the set of periodicities defined for *ssb-PeriodicityServingCell*.
Aim to target providing an LS to RAN2 – Fred (NTT DOCOMO)

R1-1803642	Remaining issues on search space	Huawei, HiSilicon
R1-1803751	Remaining details of NR PDCCH search space	CATT
R1-1803828	Remaining issues on PDCCH search space	vivo
R1-1803988	Remaining issues on Search Space	OPPO
R1-1804031	Remaining details on search space	ASUSTEK COMPUTER (SHANGHAI)
R1-1804043	Remaining issues on search space	MediaTek Inc.
R1-1804098	Discussion on PDCCH blind decoding dropping rule	CMCC
R1-1804214	On PDCCH candidate priority rules	Spreadtrum Communications
R1-1804240	Discussion on search space	Potevio
R1-1804370	Corrections on Search Space Design	Samsung
R1-1804551	Remaining issues on search space	LG Electronics
R1-1804725	NR PDCCH search spaces: BDs and channel estimation requirements	Intel Corporation
R1-1804760	On NR operation under PDCCH channel estimation and BD limits	Nokia, Nokia Shanghai Bell
R1-1804798	Remaining issues on control resource set and search space	Qualcomm Incorporated
R1-1804848	Remaining issues of search spaces	InterDigital, Inc.
R1-1804951	Channel estimation complexity and search space	Panasonic
R1-1805048	Search space	NTT DOCOMO, INC.
R1-1805178	On remaining issues of search space	Ericsson
R1-1805263	Search space design and related issues	ZTE, Sanechips (revision of R1-1803791)
R1-1805517	Remaining details on search space	Nokia, Nokia Shanghai Bell (revision of R1-1804761)

7.1.3.1.3 Group-common PDCCH

R1-1805559 **Offline discussion summary for GC-PDCCH carrying SFI Qualcomm**
Decision: The document is noted.

Agreement**:**
- Adopt the TP in R1-1805569 for 38.213 section 11.1
  - Note that it reflects the agreements reached before RAN1 #92bis related to TDD UL/UL configurations and SFI

Agreements:
- UE does not expect the reference SCS in TDD UL/DL configuration common and common2 to be different
- UE does not expect the reference SCS in cell-specific UL/DL configuration in a cell to be larger than the SCS of any BWP configured for the cell

Wednesday
R1-1805656 **Offline discussion summary on GC-PDCCH carrying SFI Qualcomm**
Decision: The document is noted.

Agreement:
- Limit the size of the UE-specific SFI table to a max total of 512 values across all entries in Rel 15.

Proposal:
- In the slot format table in TS38.211, the entry 255 is defined such that the slot format is according to the RRC configuration

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1337 of 1750

Agreements:
- On slot format indication for ECP, reuse the slot format indication for NCP, and determine the direction of an ECP symbol using the indicated direction of (partially) overlapping NCP symbols
  - If all (partially) overlapping NCP symbols are D, the ECP symbol is D
  - If all (partially) overlapping NCP symbols are U, the ECP symbol is U
  - If one of (partially) overlapping NCP symbols is X, the ECP symbol is X

Agreement:
- Regarding cancellation of RRC configured DL reception with a DCI granted UL transmission, or the cancellation of RRC configured UL transmission with a DCI granted DL reception, the cancellation is subject to a minimum time constraint, which follows N2 timeline

Proposal:
- Clarify that for the N2 for SFI or DCI based RRC configured UL transmission cancellation, the N2 is measured at the UE side, from the end of the OFDM symbol carrying the SFI or DCI to the beginning of the intended RRC configured UL transmission time.

Agreement:
- After active BWP switching, the SFI received before the BWP switching is still applicable to the new active BWP after switching.

Agreement:
- UE is not expected to monitor GC-PDCCH for SFI for a first cell in another cell with larger SCS than the first cell in Rel-15.

Proposals:
- For cancellation of RRC configured transmission or reception by SFI, the cancellation is for a unit of transmission/reception if any OFDM symbol within the unit is cancelled by SFI.
  - For RRC configured CSI-RS resource set, the cancellation unit is the CSI-RS resource set
    - Note that the CSI-RS resource set definition for the case of TRS vs. for the case of not-for-TRS is a separate issue
  - For RRC configured PDSCH and PUSCH with slot aggregation, the cancellation unit is the whole PDSCH or PUSCH within a slot
  - For RRC configured PDSCH, PUCCH, and PUSCH without slot aggregation, the cancellation unit is the whole PDSCH, PUCCH, and PUSCH
  - For RRC configured SRS transmission, the cancellation unit is OFDM symbol

Thursday
R1-1805720 **Offline discussion summary on GC-PDCCH carrying SFI Qualcomm**
Decision: The document is noted.

Agreements:
- In UE-specific SFI table configuration, it is possible for the length of an entry to be longer than the configured monitoring period of the SFI
- For a slot covered by multiple SFIs transmitted at different slots, the UE does not expect to receive different slot format indicated by different SFIs.
  - If UE receives different slot formats for the same slot from different SFI, the UE behaviour is not defined.

Agreement
- In the slot format table in TS38.211, the entry 255 is defined such that when a slot format for a slot is indicated as 255, the UE does not use this information in deciding the cancellation of UE-specific RRC configured DL receptions or UE-specific RRC configured UL transmissions

Agreement
- When an RRC configured UL transmission is cancelled by SFI or DCI, the UE is not expected to cancel the part of RRC configured UL transmission that is to be transmitted over the OFDM symbols within N2 OFDM symbols after the end of

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1338 of 1750

the OFDM symbol carrying the SFI or DCI from UE perspective.

Agreements:
- For cancellation of RRC configured transmission or reception by SFI, the cancellation is for a unit of transmission/reception if any OFDM symbol within the unit is cancelled by SFI.
  - For RRC configured CSI-RS resource set, the cancellation unit is the CSI-RS resource set
  - For RRC configured PDSCH and PUSCH with slot aggregation, the cancellation unit is the whole PDSCH or PUSCH within a slot
  - For RRC configured PDSCH, PUCCH, and PUSCH without slot aggregation, the cancellation unit is the whole PDSCH, PUCCH, and PUSCH
  - For RRC configured SRS transmission, the cancellation unit is OFDM symbol

Agreements:
- For a grant based PDSCH, rate matching around RRC configured CSI-RS, if the CSI-RS is cancelled by setting SFI to "flexible" or the UE does not detect the SFI for the slot, the PDSCH still rate match around the CSI-RS RE locations.
  - This may not have spec impact

~~Agreement:~~ (Friday)
- ~~UE does not expect to be UE-specific RRC configured to perform UL transmission or DL reception in the same symbol~~

Proposal:
- For the reception of PDSCH granted by DCI scrambled by P-RNTI, SI-RNTI, RA-RNTI, and TC-RNTI(?), same behaviour as if the UE-specific RRC configuration is not configured (i.e, SIB1 configuration is available only)

Friday
R1-1805725 Offline discussion summary on GC-PDCCH carrying SFI Qualcomm
Decision: The document is noted.

Agreement**:**
- In 38.213 section 11.1, when PDSCH granted by DCI with CRC scrambles by C-RNTI is mentioned, add CS-RNTI, P-RNTI, SI-RNTI, RA-RNTI, and TC-RNTI to the list of RNTIs as well

Agreements**:**
- For a UE-specific RRC configured UL transmission, if one OFDM symbol of the configured transmission falls on the semi-static DL symbol or a symbol SSB is transmitted as indicated, the UE shall cancel the transmission.
- For a UE-specific RRC configured DL reception, if one OFDM symbol of the configured reception falls on the semi-static UL symbol or a symbol PRACH is configured, the UE shall cancel the reception.

R1-1803643	Remaining issues on group-common PDCCH	Huawei, HiSilicon
R1-1803752	Open issues for semi-static and dynamic slot format indication	CATT
R1-1803792	Remaining issues for slot format	ZTE, Sanechips
R1-1803829	Remaining issues on GC-PDCCH	vivo
R1-1803989	Remaining issues on GC-PDCCH	OPPO
R1-1804044	Remaining issues in GC-PDCCH	MediaTek Inc.
R1-1804371	Corrections on UE-Group Common PDCCH	Samsung
R1-1804552	Remaining issues on group common PDCCH	LG Electronics
R1-1804613	Remaining issues for the Slot Format Indication	Nokia, Nokia Shanghai Bell
R1-1804726	GC PDCCH: Some remaining details	Intel Corporation
R1-1804799	Remaining issues for slot format indication	Qualcomm Incorporated
R1-1804881	Remaining issues on slot format for NR	Sharp
R1-1805049	Remaining issues on group-common PDCCH	NTT DOCOMO, INC.
R1-1805179	On remaining issues of GC-PDCCH	Ericsson
R1-1805240	Remaining issues on group-common PDCCH for NR	WILUS Inc.

7.1.3.1.4 DCI contents and formats

R1-1805601 Outcome of offline discussion on 7.1.3.1.4 Ericsson

Decision: The document is noted.

Wednesday
R1-1805638 **Summary of offline discussion on 7.1.3.1.4 part II Ericsson**

Agreement:
- Confirm the following working assumption:
  - (working assumption) At most 4 different DCI sizes are monitored by the UE per slot
    - At most 3 different DCI sizes are monitored per C-RNTI per slot

Conclusion:
- It is understood that DCI sizes to monitor do not vary dynamically from slot-to-slot (other than impact due to BWP switching) but are based on RRC configuration, CSS vs. USS, and/or active BWP.

Agreements:
- To confirm the following working assumption with update
  Working assumption:
  - When monitoring for DCI in a BWP, the size of DCI format 0-0/1-0 is given by
    - For format 0-0/1-0 (regardless of RNTI) in CSS, the size is given by the initial DL BWP
    - For format 0-0/1-0 in USS, the size is given by the active BWP as long as the DCI size budget is fulfilled
      - ~~FFS:~~ Otherwise, for format 0-0/1-0, the size is given by the initial DL BWP

Agreements:
- For DCI format 1-0 in CSS with P-RNTI, SI-RNTI, RA-RNTI, C-RNTI, CS-RNTI, or TC-RNTI:
  - the RB numbering for the scheduled PDSCH starts from the lowest RB in the CORESET the DCI is received in
  - the maximum number of RBs possible to indicate in the DCI is given by the size of the initial DL BWP.
  - The case of TC-RNTI is a working assumption
  - The case of C-RNTI/CS-RNTI is at least applicable to non-CA case and Pcell in CA
    - FFS other cases

Agreements:
- Confirm the following working assumption:
  - (working assumption) Payload sizes for 2-2 and 2-3 are padded (if needed) to match the size of formats 0-0/1-0 as defined by the initial BWP

Proposals:
- Confirm the following working assumption:
  - Sizes of all DCI bitfields in DCI formats 0-1 and 1-1 in USS determined by current BWP. Data transmitted on the BWP indicated by the BWP index. If the BWP index activates another BWP, transform as follows:
    - Zero-pad too small bitfields to match the new BWP
    - Truncate too large bitfields to match the new BWP
- Support null assignment in BWP switching, i.e., switching without scheduling data

Friday
R1-1805735 **Summary of offline discussions on 7.1.3.1.4 (DCI contents and formats) – part III Ericsson**
Decision: The document is noted.

Agreements:

When a valid DCI with P-RNTI is detected, the following fields apply:

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1340 of 1750

Field	Bits	Comment
Short Messages Indicator	1	Already captured in 38.212. Need to add interpretation. 0 = short message ([8] bits defined by RAN2 + padding to meet the DCI size) 1 = paging message scheduled (following fields)
In case of short message service		
Short message	[8]	Defined by RAN2. The number of bits to be checked with RAN2.
Reserved bits		To meet overall DCI size
In case of paging message		
Frequency domain resource assignment	$\lceil \log_2(N_{RB}^{DL,BWP}(N_{RB}^{DL,BWP}+1)/2) \rceil$	
Time domain resource assignment	4	Note: applicability of the currently agreed default table to paging or whether an additional default table or SIB1 signaled table is FFS.
VRB-to-PRB mapping	1	
Modulation and coding scheme	5	Same MCS table as for "normal" transmission without 256QAM
TB scaling	2	To scale TB size
Reserved bits	(fixed value)	To meet overall DCI size

- Note: If initial access session defines the possibility for simultaneous short message service and paging, the DCI design may need to be updated. From a DCI payload perspective, concurrent transmission of short messages and paging is possible.
- Note: The TB size and RB allocation are dependent and there may be a need to apply TB size scaling to obtain low code rates for small payloads.

Agreements:
- For PDSCH scheduled by P-RNTI (working assumption), and RA-RNTI, scaling factor is applied in the calculation of N_{info} of TBS determination
  - (Working assumption) values of scaling factor: 1, ½, ¼
    - FFS the possibility of adding another value, e.g., 1/8 or 1/16

Agreements:
When a valid DCI with SI-RNTI is detected in either CSS type 0 or CSS type 0a, the following fields apply:

Field	Bits	Comment
Frequency domain resource assignment	$\lceil \log_2(N_{RB}^{DL,BWP}(N_{RB}^{DL,BWP}+1)/2) \rceil$	
Time domain resource assignment	4	Index into default table
VRB-to-PRB mapping	1	FFS whether this field is needed or not
Modulation and coding scheme	5	Same MCS table as for "normal" transmission without 256QAM, only lowest part used.
Redundancy version	2	FFS whether this field is needed or not
Reserved bits	(fixed value)	To meet fallback DCI size

- Note: Need to check whether interleaved VRB-to-PRB mapping is possible for SI-RNTI as the UE does not know the CRB grid.
- Note: Need to check with initial access session whether RV field is needed or not. From a DCI perspective, there is no problem of providing 2 bits for signaling the redundancy version.

Agreements:
- 4 bits are used for time-domain allocation field for RA-RNTI
- RV0 is used for transmissions using RA-RNTI
- 4 bits are used for time-domain resource allocation field for TC-RNTI

Working assumption:

- Interpret RIV in RAR for initial msg3 according to the same method as in LTE

Agreements:
Time domain allocation field in RAR for initial msg3 interpreted according to
- use table provided by RMSI (if provided)
- otherwise use default PUSCH table

Agreements:
- SUL indicator for DCI format 0-0 is located last in the DCI (including padding)
- FH bit is optional in DCI format 0-1

Conclusion:
- Remove UL VRB-to-PRB interleaver from Rel-15

R1-1803707	Remaining issues on DCI contents and format	Huawei, HiSilicon
R1-1803753	Open issues on DCI formats	CATT
R1-1803793	Remaining issues on DCI content	ZTE, Sanechips
R1-1803830	Remaining issues on DCI formats	vivo
R1-1803941	Frequency domain field interpretation for fallback DCI in DL	Fujitsu
R1-1803965	Discussion on DCI format 0-0/0-1	ITRI
R1-1804033	Discussion about number of DCI format size	ASUSTEK COMPUTER (SHANGHAI)
R1-1804045	Remaining issues on DCI contents and formats	MediaTek Inc.
R1-1804099	Discussion on remaining issues for DCI	CMCC
R1-1804219	Remaining issues on DCI contents and formats	Spreadtrum Communications
R1-1804372	DCI Contents and Formats	Samsung
R1-1804553	Remaining issues on DCI contents and formats	LG Electronics
R1-1804614	On the alignment of DCI format sizes	Nokia, Nokia Shanghai Bell
R1-1804656	DCI size reduction for eMBB	AT&T
R1-1804727	Further considerations on DCI sizes	Intel Corporation
R1-1804800	Discussion on DCI related issues	Qualcomm Incorporated
R1-1805050	DCI contents and formats	NTT DOCOMO, INC.
R1-1805080	DCI format 1_0 with X-RNTIs	Panasonic Corporation
R1-1805180	On remaining issues of DCI	Ericsson
R1-1805241	Discussion on DCI contents and formats	WILUS Inc.

7.1.3.1.5 Other

R1-1803652	Discussion and TP on slot format for ECP	Huawei, HiSilicon
R1-1803708	DCI interpretation for different BWP	Huawei, HiSilicon
R1-1803710	Summary of remaining issues on PDCCH monitoring with TP	Huawei, HiSilicon
R1-1803831	On compact DCI	vivo
R1-1804426	DCI contents and formats for RMSI/OSI/Paging/RAR	Huawei, HiSilicon
R1-1805181	TP for remaining issues of GC-PDCCH	Ericsson
R1-1805182	TP for remaining issues of DCI	Ericsson
R1-1805251	Modifications to the specification for UE procedure for receiving control information	Ericsson
R1-1805569	TP for 38.213 on SFI section 11.1	Qualcomm Incorporated (revision of R1-1804801)

7.1.3.2 Physical uplink control channel

7.1.3.2.1 PUCCH structure in short-duration

R1-1805560 Summary of Partially Overlapped PUCCH Resources Ericsson
Decision: The document is noted.

Proposals:
- When SR PF1 resource partially overlap with an HARQ-ACK PF 3 or 4 resource with a starting symbol before the SR PUCCH resource, the HARQ-ACK and SR are multiplexed using the agreed multiplexing method when the SR PF1 resource and HARQ-ACK PUCCH resource had the same stating time.

- When SR PF0 resource partially overlap with an HARQ-ACK PF0 or 2 resource with a starting symbol before the SR PUCCH resource, the HARQ-ACK and SR are multiplexed using the agreed multiplexing method when the SR PF1 resource and HARQ-ACK PUCCH resource had the same stating time.
- Consider potential impact of UE processing time

R1-1805561 Summary of Remaining Issues on Short PUCCH Ericsson
Decision: The document is noted.

Proposals:
- To adopt the following TP for 38.213, Section 9.2.3:

A UE may transmit one or ~~more~~ two PUCCHs on a serving cell in different symbols within a slot of $N_{\mathrm{symb}}^{\mathrm{slot}}$ symbols as defined in [4, TS 38.211]. In case of two PUCCHs in the slot, the possible combinations are given by Table xxx

- Offline discussion to finalize the table based on previous agreements

Check futher offline the agreements (tx vs. configuration)

Agreements**:**
- TS38.212 to catpure that in case of multiplexing CSI with SR in a same PUCCH format, bit sequence order is that SR bit(s) are mapped to the UCI bit sequence first and CSI bits are mapped to the UCI bit sequence second.
  - The corresponding description is to be removed from 38.213

Friday
Agreement:
- To adopt the following TP for 38.213, Section 9.2.3:

A UE may transmit one or ~~more~~ two PUCCHs on a serving cell in different symbols within a slot of $N_{\mathrm{symb}}^{\mathrm{slot}}$ symbols as defined in [4, TS 38.211]. In case of two PUCCHs in the slot, at least one of them is based on PUCCH format 0 or 2.

R1-1805636 Partially overlapped PUCCH resources Ericsson
R1-1805698 Multiplexing rules for PUCCH resources with the same starting symbols Ericsson
Decision: The document is noted.

Agreements:
- When HARQ-ACK PUCCH resource with PUCCH F1 overlaps with SR PUCCH resource with PUCCH F0 with the same starting symbol in a slot,
  - The UE transmits only HARQ-ACK in the HARQ-ACK PUCCH resource (i.e the UE does not transmit SR if it is positive).

Agreements:
- When AN/SR and configured CSI PUCCH resources based on PF3 or 4 have the same starting symbols in a slot, when the UE determines the PUCCH resource set is based on the total number of AN/SR and CSI and the PUCCH resource based on ARI, if the PUCCH resource based on ARI for transmitting HARQ-ACK/SR and CSI is determined to PF2,
  - Drop CSI part 2 (if present). Transmit jointly encoded AN/SR and CSI part 1 on the determined PUCCH format 2 resource indicated by ARI using the mapping rules for PF2.

Agreements:
- When AN/SR and CSI PUCCH resources have the same starting symbols in a slot, for a wideband semi-persistent/periodic CSI reporting based on a PUCCH format 2, if the PUCCH resource based on ARI for transmitting HARQ-ACK/SR and CSI is based on format 3:
  - CSI (only CSI part 1) is jointly encoded with HARQ-ACK/SR, following the existing procedure of encoding and mapping on resources for PUCCH format 3 or 4 to transmit the UCI.

Agreements:
- When a configured CSI PUCCH resource overlaps with one or more configured SR PUCCH resources in a slot,
  - The UE multiplexes all UCIs on the CSI PUCCH resource using the corresponding UCI multiplexing rules for the overlapping PUCCH resources with the same starting symbol.
  - FFS: When one SR PUCCH resource overlaps with two non-overlapping CSI PUCCH resources

R1-1805764 Summary of offline discussion Ericsson
Decision: The document is noted.

Proposals

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1343 of 1750

- When HARQ-ACK/SR PUCCH resource determined by ARI and configured CSI PUCCH resources have the same starting symbols in a slot, if the UE is configured with only one PUCCH resource set and simultaneous transmission of HARQ-ACK/SR and CSI is enabled, select from one of the following alternatives:
  - **Alt 1:** The UE is not expected to transmit the corresponding HARQ-ACK/SR and the CSI report in a PUCCH resource in that slot.
    - **Supportive companies:** Ericsson, Intel, OPPO, Qualcomm, Huawei, Samsung, Panasonic
  - **Alt 2:** HARQ-ACK/SR and CSI are transmitted together by PUCCH resource for CSI
    - **Supportive companies:** Nokia, MediaTek, Lenovo, Motorola, ZTE, CATT, NTT DOCOMO
  - **Alt 3:** HARQ-ACK/SR is transmitted on the HARQ-ACK/SR PUCCH resource and CSI reporting is dropped in that slot.
    - **Supportive companies:** LG, Vivo

Discuss further till next meeting

Proposals:

- Select one of the following two alternatives:
  - **Alt 1:** If a HARQ-ACK transmission from a UE using PUCCH format 1 determined by ARI overlaps with K SR occasions each using PUCCH format 1, in case of negative SR, the HARQ-ACK is transmitted on the HARQ-ACK resource. In case of positive SR, the HARQ-ACK is transmitted on the SR resource corresponding to the positive SR.
    - **Supportive companies:** Nokia, Ericsson, CATT, LG, NTT DOCOMO, Huawei, Vivo, Panasonic
  - **Alt 2:** PUCCH format 2 or 3 or 4 is used to carry L = 1 or 2 bits HARQ-ACK and K > 1 SR. That implies when a UE has K SRs configured in a same time position,
    - For 1 or 2 bits HARQ-ACK, if K=0 or 1, ARI field in DCI indicates PUCCH format 0 or 1; otherwise, ARI field in DCI indicates PUCCH format 2 or 3 or 4.
    - **Supportive companies:** Samsung, ZTE

Discuss till next meeting

R1-1803644	Remaining issues on PUCCH structure in short-duration	Huawei, HiSilicon
R1-1803754	On multiplexing of different UCI transmissions	CATT
R1-1803794	Remaining issues on short PUCCH	ZTE, Sanechips
R1-1803832	Remaining issues on PUCCH with short-duration	vivo
R1-1804005	Multiplexing of HARQ-ACK and SR	OPPO
R1-1804373	Corrections on PUCCH for up to 2 Symbols	Samsung
R1-1804458	Remaining open items on short PUCCH	Nokia, Nokia Shanghai Bell
R1-1804481	Discussion on partial overlap between HARQ-ACK and SR	Panasonic Corporation
R1-1804554	Remaining issues on short-duration PUCCH	LG Electronics
R1-1804728	Handling collision between HARQ-ACK/SR and CSI	Intel Corporation
R1-1804802	Remaining issues for short PUCCH	Qualcomm Incorporated
R1-1805051	PUCCH structure in short-duration	NTT DOCOMO, INC.
R1-1805131	Remaining Issues on Overlapping of HARQ-ACK and SR	III
R1-1805183	On UCI Multiplexing on PUCCH	Ericsson
R1-1805699	SR ID for multiple overlapping SR PUCCHs with UCI PUCCH	Ericsson

7.1.3.2.2 PUCCH structure in long-duration

R1-1805526 **Review Summary for AI 7.1.3.2.2 PUCCH structure in long-duration** **Huawei**
Decision: The document is noted.

Proposals:

- The meaning of the capability of FH (frequency-hopping) is UE is configured the higher layer parameter intraSlotFrequencyHopping as “enabled”, regardless of whether the values of startingPRB and secondHopPRB are the same or not.
- The meaning of the capability of Non-frequency hopping is UE is configured the higher layer parameter intraSlotFrequencyHopping as “disabled”.
- In the table 6.3.2.4.1-1 of TS38.211,
  - No intra-slot hopping is replaced as intraSlotFrequencyHopping = “disabled”.
  - Intra-slot hopping is replaced as intraSlotFrequencyHopping = “enabled”.

Proposals:

- When AN/SR and CSI PUCCH resources have the same starting symbols, UE assumes a fixed rank for CSI part 2 in determination of PUCCH resource set from which one PUCCH resource is used for transmission of AN/SR and CSI
  - FFS: the value of fixed rank
- Also consider the case of PUSCH

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1344 of 1750

Wednesday

R1-1805615 **Outcome of the offline discussion for PUCCH structure in long-duration** **Huawei**

Decision: The document is noted.

Proposed conclusion:

- The meaning of the capability of FH (frequency-hopping) is UE is configured the higher layer parameter intraSlotFrequencyHopping as "enabled" including the case where the values of startingPRB and secondHopPRB are the same.
- When intraSlotFrequencyHopping is enabled, UE is not required to keep phase coherence or use the same antenna port between the two hops even when the values of startingPRB and secondHopPRB are the same
  - FFS the issue of phase coherent within one hop (including the case when hopping is disabled)
- No spec impact for the above two bullets

Proposals:

- When AN/SR and SP-CSI PUCCH resources have the same starting symbols, the following options can be considered (down selected)
  - Opt1: Drop SP-CSI and only transmit AN/SR
  - Opt2: Drop CSI part2 for SP-CSI and only transmit AN/SR and CSI part1
  - Opt3: Multiplex AN/SR and SP-CSI on a PUCCH resource. The reference payload for CSI part 2 could be estimated based on one of the following options (down selected)
    - Opt1: Assume rank 1
      - Ericsson, MediaTek, Samsung, Intel, Qualcomm, LGE
    - Opt2: Assume maximum size of CSI part 2
      - OPPO, Huawei, Lenovo

Friday

R1-1805733 **Outcome of the offline discussion for PUCCH structure in long-duration** **Huawei**

Decision: The document is noted.

Agreements:

- To adopt the following TP to 9.2.5.2 of 38.213

---- Start of TP ----

-else, the UE selects $N_{\text{CSI}}^{\text{reported}}$ CSI report(s) for transmission together with HARQ-ACK/SR in ascending order of $\text{Pri}_{\text{CSI}}(y,s,c,t)$, where $\text{Pri}_{\text{CSI}}(y,s,c,t)$ is determined according to [6, TS 38.214]; the value of $N_{\text{CSI}}^{\text{reported}}$ satisfies $\left(O_{\text{ACK}} + O_{\text{SR}} + \sum_{n=1}^{N_{\text{CSI}}^{\text{reported}}} O_{\text{CSI,n}} + \cancel{O_{\text{CRC}}} O_{\text{CRC},N}\right) \leq M_{\text{RB}}^{\text{PUCCH}} \cdot N_{\text{sc,ctrl}}^{\text{RB}} \cdot N_{\text{symb-UCI}}^{\text{PUCCH}} \cdot Q_m \cdot r$ and $\left(O_{\text{ACK}} + O_{\text{SR}} + \sum_{n=1}^{N_{\text{CSI}}^{\text{reported}}+1} O_{\text{CSI,n}} + \cancel{O_{\text{CRC}}} O_{\text{CRC},N+1}\right) > M_{\text{RB}}^{\text{PUCCH}} \cdot N_{\text{sc,ctrl}}^{\text{RB}} \cdot N_{\text{symb-UCI}}^{\text{PUCCH}} \cdot Q_m \cdot r$, where $O_{\text{CSI},n}$ is the number of CSI report bits for the n_{th} CSI report in ascending order of $\text{Pri}_{CSI}(y,s,c,t)$, $O_{\text{CRC},N}$ is the number of CRC bits corresponding to $O_{\text{ACK}} + O_{\text{SR}} + \sum_{n=1}^{N_{\text{CSI}}^{\text{reported}}} O_{\text{CSI,n}}$ and $O_{\text{CRC},N+1}$ is the number of CRC bits corresponding to $O_{\text{ACK}} + O_{\text{SR}} + \sum_{n=1}^{N_{\text{CSI}}^{\text{reported}}+1} O_{\text{CSI,n}}$.

---- End of TP ----

Agreement:

- When AN/SR and SP-CSI PUCCH resources have the same starting symbol, multiplexing AN/SR and SP-CSI on a PUCCH resource. The reference payload for CSI part 2 is based on assuming by rank 1.

Proposal: Support CGS ordering for DFT-s- for length-12, length-18 and length-24 CGS

Discussion: No consensus regarding the timeline for introducing the new CGS – proponents believe it should be done now in NR – opponents believe it is kind of optimization

Huawei: re-ordering the CGS tables should not be considered as a big issue and requested objecting companies going forward

Objected by Qualcomm and Samsung

R1-1803645 Remaining issues on PUCCH structure in long-duration Huawei, HiSilicon

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1345 of 1750

R1-1803795 Issues related to Long PUCCH ZTE, Sanechips
R1-1803833 Remaining issues on PUCCH with long-duration vivo
R1-1804006 Remaining issues on CSI reporting using PUCCH OPPO
R1-1804066 Remaining issues of long-PUCCH MediaTek Inc.
R1-1804100 Discussion on PUCCH repetition CMCC
R1-1804212 Multiplexing of different type of UCIs Lenovo, Motorola Mobility
R1-1804374 Corrections on PUCCH for more than 2 Symbols Samsung
R1-1804459 Remaining open items on long PUCCH Nokia, Nokia Shanghai Bell
R1-1804493 Remaining issues for UCI repetition ETRI
R1-1804555 Remaining issues on long-duration PUCCH LG Electronics
R1-1804729 PUSCH-PUCCH and PUCCH-PUCCH collision handling Intel Corporation
R1-1804803 Remaining issues for long PUCCH Qualcomm Incorporated
R1-1804882 Discussions on RB selection for PUCCH resource Sharp
R1-1805052 PUCCH structure in long-duration NTT DOCOMO, INC.
R1-1805184 On PUCCH Remaining Issues Ericsson
R1-1805242 Remaining issues on long PUCCH over multiple slots WILUS Inc.

7.1.3.2.3 UCI multiplexing

R1-1805554 Summary of remaining issues for UCI multiplexing on PUSCH Qualcomm
Decision: The document is noted.

Proposals:

- For SP-CSI on PUSCH or A-CSI-only on PUSCH colliding with other UL transmissions with the same starting symbol, adopt the proposals in the table below

SP-CSI on PUSCH	A-CSI-only on PUSCH	HARQ-ACK	SR	PUSCH with UL-SCH	Proposal
	*		*		Drop A-CSI-only on PUSCH, transmit SR.
	*	*	*		Drop A-CSI-only on PUSCH, transmit SR and HARQ-ACK
*			*		Drop SP-CSI on PUSCH, transmit SR
*		*			Multiplex HARQ-ACK on SP-CSI on PUSCH
*		*	*		Drop SP-CSI on PUSCH, transmit HARQ-ACK and SR
*				*	Drop SP-CSI on PUSCH

- FFS when the starting symbols among UL transmissions are different in the above scenarios.

Tuesday session
R1-1805599 Summary of remaining issues for UCI multiplexing on PUSCH Qualcomm
Decision: The document is noted.

Agreements:

- For SP-CSI on PUSCH or A-CSI-only on PUSCH colliding with SR/HARQ-ACK with the same starting symbol within the same CC, adopt the proposals in the table below

SP-CSI on PUSCH without UL-SCH	A-CSI-only on PUSCH without UL-SCH	HARQ-ACK	SR	Proposal
	*		•	Drop A-CSI-only on PUSCH, transmit SR on PUCCH. (follow LTE approach)
	*	*	*	Drop A-CSI-only on PUSCH, transmit SR and HARQ-ACK on PUCCH. (follow LTE approach)
*			*	Drop SP-CSI on PUSCH, transmit SR on PUCCH (follow LTE approach)
*		*	*	Drop SP-CSI on PUSCH, transmit HARQ-ACK and SR on PUCCH (follow LTE approach)

- The symbol "*" in SR means when SR is positive
- FFS when the starting symbols among UL transmissions are different in the above scenarios.

Agreements:

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1346 of 1750

- For SP-CSI on configured PUSCH without UL-SCH colliding with a PUSCH with UL-SCH with overlapped symbols in time
  - When starting symbols between the two channels are aligned, drop SP-CSI (following MIMO agreements made in last meeting)
  - When starting symbols between the two channels are not aligned
    - FFS
    - Note: this replaces the MIMO agreements made earlier

Agreement:

- Adopt the following TP in Section 6.2.7 of 38.212:

for $j = 0$ to $m_{\text{count}}^{\text{RE}} - 1$

~~$\bar{\Phi}_l^{\text{UCI}} = \bar{\Phi}_l^{\text{UCI}} \setminus \{\bar{\Phi}_l^{\text{UCI}}(j \cdot d)\}$;~~

~~$\bar{\Phi}_l^{\text{UL-SCH}} = \bar{\Phi}_l^{\text{UL-SCH}} \setminus \{\bar{\Phi}_l^{\text{UCI}}(j \cdot d)\}$;~~

$\bar{\Phi}_l^{\text{UL-SCH}} = \bar{\Phi}_l^{\text{UL-SCH}} \setminus \{\bar{\Phi}_l^{\text{UCI}}(j \cdot d)\}$;

$\bar{\Phi}_l^{\text{UCI}} = \bar{\Phi}_l^{\text{UCI}} \setminus \{\bar{\Phi}_l^{\text{UCI}}(j \cdot d)\}$;

end for

Conclusion:

- It is clarified that based on this sentence of "A UE is not expected to receive more than one aperiodic CSI report request for a given slot" in Section 5.2.1.5.1 in 38.214 V15.0.1, for a given slot, UE is not expected to transmit CSI report triggered by more than one CSI requests received in multiple DCIs, in both CA and non-CA scenarios, unless for a given CC where it is possible that two or more DCIs may trigger the same CSI report
  - No spec update is necessary.

Wednesday

R1-1805666 **Summary of remaining issues for UCI multiplexing on PUSCH** **Qualcomm**

Decision: The document is noted.

Proposals:

- When single-slot PUCCH overlaps with single-slot PUCCH or single-slot PUSCH in slot n for a PUCCH group,
  - If the first symbol of the earliest PUCCH/PUSCH starts no earlier than symbol N1+X after the last symbol of PDSCH(s) and no earlier than N2+Y after the last symbol of PDCCHs scheduling UL transmissions including HARQ-ACK and PUSCH(only applicable to grant based PUSCH) for slot n, the UE multiplex all UCIs on either one PUCCH or one PUSCH, using the same UCI multiplexing rule defined with the same starting symbols.
  - Otherwise, it is considered as an error case.
- The definition of N1 and N2 follows the same definition in current NR spec.
- X and Y are non-negative integer values.
- FFS on values of X and Y
- FFS different Y values for grant-based vs grant free PUSCH
- FFS multiplexing rule when AN PUCCH resource with F1 overlaps with SR PUCCH resource with F0.
- FFS how to handle ACK-bundling when partial HARQ-ACK bits cannot fulfil the timeline requirement.
- FFS how to handle one PUCCH overlap with multiple PUSCHs which satisfies timeline requirement.
- FFS How to handle two PUCCH groups when the two PUCCH groups are on contiguous intra-band CCs
- Note: The above proposal does not override the dropping rules defined for ACK/SR colliding with A-CSI-only on PUSCH without UL-SCH, or ACK/SR colliding with SP-CSI on PUSCH without UL-SCH, and SP-CSI on PUSCH colliding with PUSCH with UL-SCH.

Friday

Working assumption:

- When single-slot PUCCH overlaps with single-slot PUCCH or single-slot PUSCH in slot n for a PUCCH group,
  - The UE multiplex all UCIs on either one PUCCH or one PUSCH, using the existing UCI multiplexing rule, if both following conditions are satisfied:
    - If the first symbol of the earliest PUCCH(s)/PUSCH(s) among all the overlapping channels starts no earlier than symbol N1+X after the last symbol of PDSCH(s)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1347 of 1750

- If the first symbol of the earliest PUCCH(s)/PUSCH(s) among all the overlapping channels starts no earlier than N2+Y after the last symbol of PDCCHs scheduling UL transmissions including HARQ-ACK and PUSCH (if applicable) for slot n
- If at least one pair of overlapping channels does not meet the above timeline requirements, UE consider it is an error case for all UL channels in the group of overlapping channels. UE behavior is not specified.

- The definition of N1 and N2 follows the same definition in current NR spec.
- X and Y are non-negative integer values.
- FFS on values of X and Y
- FFS on timeline requirement for multiplexing UCIs on PUSCH with A-CSI.
- FFS how to handle one PUCCH overlap with multiple PUSCHs which satisfy timeline requirement.
- FFS: how to handle HARQ-ACK for semi-static PDSCH.
- FFS multiplexing rule when AN PUCCH resource with F1 overlaps with SR PUCCH resource with F0.
- FFS: how to handle semi-statically configured PUCCH overlap with semi-statically configured PUCCH or PUSCH.
- Note: The above proposal does not override the dropping rules defined for ACK/SR colliding with A-CSI-only on PUSCH without UL-SCH, or ACK/SR colliding with SP-CSI on PUSCH without UL-SCH.
- Note: Consider how to handle PUCCH colliding with other UL channels in NR Rel. 15 June drop when URLLC is taking into account.

Agreements:

- For HARQ-ACK, CSI part 1, and CSI part 2 (if exists) transmission on PUSCH without UL-SCH, the number of coded modulation symbols per layer for HARQ-ACK, CSI part 1, and CSI part 2 (exists), are determined as follows:

$$Q'_{\text{ACK}} = \min\left\{\left\lceil \frac{(O_{\text{ACK}} + L_{\text{ACK}})\cdot \beta_{\text{offset}}^{\text{PUSCH}}}{SE} \right\rceil, \left\lceil \alpha \cdot \sum_{l=l_0}^{N_{\text{symb,all}}^{\text{PUSCH}}-1} M_{\text{sc}}^{\text{UCI}}(l) \right\rceil \right\}$$

$$Q'_{\text{CSI-1}} = \min\left\{\left\lceil \frac{(O_{\text{CSI-1}} + L_{\text{CSI-1}})\cdot \beta_{\text{offset}}^{\text{PUSCH}}}{SE} \right\rceil, \sum_{l=0}^{N_{\text{symb,all}}^{\text{PUSCH}}-1} M_{\text{sc}}^{\text{UCI}}(l) - Q'_{\text{ACK}} \right\}$$

$$Q'_{\text{CSI-2}} = \sum_{l=0}^{N_{\text{symb,all}}^{\text{PUSCH}}-1} M_{\text{sc}}^{\text{UCI}}(l) - Q'_{\text{ACK}} - Q'_{\text{CSI-1}}$$

- SE is the spectrum efficiency which is code rate * modulation order
- FFS: UE is not expected to transmit A-CSI on PUSCH without UL-SCH, if the actual coding rate for CSI-part 1 is smaller than T_m for a modulation order m.
  - When A-CSI is dropped, HARQ-ACK if exists is transmitted on PUCCH resource.
  - FFS the value of T_m for each modulation order m

R1-1803646	Remaining issues on UCI multiplexing	Huawei, HiSilicon
R1-1803755	Remaining aspects of UCI multiplexing on PUSCH	CATT
R1-1803834	Remaining issues on UCI multiplexing	vivo
R1-1804007	Remaining details on UCI multiplexing	OPPO
R1-1804067	Remaining issues of UCI on PUSCH	MediaTek Inc.
R1-1804213	Multiplexing between PUCCH and PUSCH	Lenovo, Motorola Mobility
R1-1804375	Corrections on UCI Multiplexing in PUSCH	Samsung
R1-1804460	Remaining open items on UCI multiplexing	Nokia, Nokia Shanghai Bell
R1-1804482	Discussion on partial overlap between PUCCH and PUSCH	Panasonic Corporation
R1-1804556	Remaining issues on UCI multiplexing	LG Electronics
R1-1804730	UCI on PUSCH	Intel Corporation
R1-1804804	Remaining issues for multiplexing UCI on PUSCH	Qualcomm Incorporated
R1-1804883	UCI multiplexing with NUCI based PUCCH resource set selection	Sharp
R1-1805053	UCI multiplexing on PUSCH	NTT DOCOMO, INC.
R1-1805185	On UCI Multiplexing on PUSCH	Ericsson
R1-1805252	Remaining issues on UCI multiplexing on PUSCH	CATR

7.1.3.2.4 Resource allocation for PUCCH

R1-1805578 **Summary of offline discussion on PUCCH resource allocation** **OPPO**

Decision: The document is noted.

Proposal from offline
For PUCCH resource allocation with $N_{UCI} \leq 2$ after a UE has a dedicated PUCCH configuration, when >8 resources are configured, down-select from following two options for determining the PUCCH resource in the resource set:

- Option 1: ARI-indicated resource sub-set + CCE-index-based implicit mapping within sub-set
- Support: Nokia, NSB, Qualcomm, OPPO, LGE, Ericsson, ZTE
  - Resource sub-set *m* is indicated by ARI
  - The resource index *r* within the resource sub-set *m* is implicitly derived based on the equation:

$$r_m = \left\lfloor \frac{CCE_{start}|R_m|}{N_{CCE,p}} \right\rfloor$$

    - $N_{CCE,p}$ is the total number of CCEs in CORESET p
    - R_m is the size of resource sub-set m

- Option 2: CCE-index-based implicit determination of a PUCCH resource + ARI-indicated offset (EPDCCH-like approach)
- Support: Samsung, Huawei, HiSilicon, Lenovo, MotM
  - The resource index r within the resource set is implicitly derived based on the equation:

$$r = Mod\left(\left\lfloor \frac{CCE_{start}|R|}{N_{CCE,p}} \right\rfloor + ARI, |R|\right)$$

    - $N_{CCE,p}$ is the total number of CCEs in CORESET p
    - R is the size of the resource set

Samsun's concern with option 1 and granularity (1 resource or 4 resources?)

~~Agreements:~~
~~For PUCCH resource allocation with $N_{UCI} \leq 2$ after a UE has a dedicated PUCCH configuration, when >8 resources are configured, the following is used to determine the PUCCH resource in the resource set:~~

- ~~ARI-indicated resource sub-set + CCE-index-based implicit mapping within sub-set~~
  - ~~Resource sub-set *m* is indicated by ARI~~
  - ~~The resource index *r* within the resource sub-set *m* is implicitly derived based on at least the following two parameters:~~
    - ~~$N_{CCE,p}$ is the total number of CCEs in CORESET p~~
    - ~~R_m is the size of resource sub-set m~~

Wednesday
R1-1805612 **Summary of offline discussion on PUCCH resource allocation** **OPPO**
Decision: The document is noted.

Above agreements replaced by following agreements:

- For PUCCH resource allocation with $N_{UCI} \leq 2$ after a UE has a dedicated PUCCH configuration, when >8 resources are configured,
  - The resource index *r* within the resource set is derived by:

$$r = \left(\sum_{i=0}^{m} |R_i| - |R_m|\right) + \left\lfloor \frac{CCE_{start}|R_m|}{N_{CCE,p}} \right\rfloor$$

    - m is the ARI value
    - $N_{CCE,p}$ is the total number of CCEs in CORESET p of the corresponding PDCCH
    - R is the resource set
    - $|R_i|$ is given by:

$$|R_i| = \begin{cases} \left\lceil \frac{|R|}{8} \right\rceil, & if\ i < Mod(|R|, 8) \\ \left\lfloor \frac{|R|}{8} \right\rfloor, & if\ i \geq Mod(|R|, 8) \end{cases}$$

    - CCE_{start} is the starting CCE index of the last received DCI within the ACK bundling window
      - In case of CA, CCE_{start} is the starting CCE index of the DCI received on the CC with the smallest CC index in the last slot where a DCI is received within the ACK bundling window
        - FFS the case of different SCS of CCs in CA
    - Note: for m>0, the summation in the equation is equivalent to having the upper bound as m-1 without substracting $|R_m|$ - up to editor how to capture

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1349 of 1750

Proposals:

For PUCCH resource allocation with before a UE has a dedicated PUCCH configuration,

- The resource index r within the resource set is derived by:

$$r = 2m + \left\lfloor \frac{CCE_{start}|R_m|}{N_{CCE,p}} \right\rfloor$$

  - m is the ARI value
  - $N_{CCE,p}$ is the total number of CCEs in CORESET p
  - $|R_i|$ is given by:

$$|R_i| = \begin{cases} \left\lceil \frac{|R|}{8} \right\rceil, & if\ i < Mod(|R|, 8) \\ \left\lfloor \frac{|R|}{8} \right\rfloor, & if\ i \geq Mod(|R|, 8) \end{cases}$$

  - CCE_{start} is the starting CCE index of the DCI containing the ARI

Agreements: Confirm the following working assumption:

- For HARQ-ACK resource allocation before a UE has a dedicated PUCCH configuration,
  - Frequeny hopping is always enabled for PUCCH transmission for FR1 and FR2.

Proposals:

For PUCCH resource allocation before a UE has a dedicated PUCCH configuration,

- For each PUCCH duration in the RMSI table,
  - 4 RMSI values are used to indicate 4 PUCCH resource sets respectively
    - The same 4 cell-specific PRB offsets from edge of initial UL BWP are specified
      - Option 1: Defined as x PRBs (using the outermost PRBs)
      - Option 2: Defined based on the initial BWP size, e.g. $\{0, \left\lfloor \frac{1}{8} N_{BWP} \right\rfloor, \left\lfloor \frac{2}{8} N_{BWP} \right\rfloor, \left\lfloor \frac{3}{8} N_{BWP} \right\rfloor\}$
    - FFS: Necessity of cell-specific Intial CS indication in RMSI table

RMSI	PUCCH duration	Starting symbol	Cell-specific PRB offset
0	2-symbol	#12	Offset #1
1			Offset #2
2			Offset #3
3			Offset #4
4	4-symbol	#10	Offset #1
5			Offset #2
6			Offset #3
7			Offset #4
8	10-symbol	#4	Offset #1
9			Offset #2
10			Offset #3
11			Offset #4
12	14-symbol	#0	Offset #1
13			Offset #2
14			Offset #3
15			Offset #4

Friday

R1-1805667 **Summary of offline discussion on PUCCH resource allocation** **OPPO**

Decision: The document is noted.

Agreements:

For PUCCH resource allocation before a UE has a dedicated PUCCH configuration,

- One RMSI value is used for indicating cell-specific PRB offset = 0 for PUCCH duration = 2, 4, 10,14 symbols respectively.
- (working assumption) One RMSI value is used for indicating cell-specific PRB offset = Floor(N_{BWP}/4) for PUCCH duration = 14 symbols.
  - N_{BWP} is the size of initial UL BWP

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1350 of 1750

Agreements:
For PUCCH resource allocation before a UE has a dedicated PUCCH configuration,
- Up to two sets of initial CS shift indices can be specified for different RMSI values for a specific PUCCH format

Agreements:
For PUCCH resource allocation with $N_{UCI}\leq 2$ after a UE has a dedicated PUCCH configuration, when >8 resources are configured,
- Adopt the following equation for 38.213 subclause 9.2.3 for resource index r within the resource set:

$$r = \begin{cases} m * \left\lfloor \frac{R_{PUCCH}}{8} \right\rfloor + \left\lfloor \frac{CCE_{start}[R_{PUCCH}/8]}{N_{CCE,p}} \right\rfloor & if\ m < R_{PUCCH} \bmod 8 \\ m * \left\lfloor \frac{R_{PUCCH}}{8} \right\rfloor + (R_{PUCCH} \bmod 8) + \left\lfloor \frac{CCE_{start}[R_{PUCCH}/8]}{N_{CCE,p}} \right\rfloor & if\ m \geq R_{PUCCH} \bmod 8 \end{cases}$$

Where, m is the PUCCH resource indicator field value, R_{PUCCH} is the number of the PUCCH resources given by higher layer parameter *maxNrofPUCCH-ResourcesPerSet*. CCE_{start} is the starting CCE index of the last received DCI within the ACK bundling window, In case of CA, CCE_{start} is the starting CCE index of the DCI received on the CC with the largest CC index in the last slot where a DCI is received within the ACK bundling window . And $N_{CCE,p}$ is the number of CCEs in control resource set p. r is the PUCCH resource index within the PUCCH resource set. $r = 0 \ldots R_{PUCCH} - 1$.

Agreements:
For PUCCH resource determination within a resource set before a UE has a dedicated PUCCH configuration, besides 3-bit ARI, the additional 1-bit indication is based on
- CCE-index-based implicit mapping same as that after UE has a dedicated PUCCH configuration

R1-1805742 Summary of offline discussion on PUCCH resource allocation OPPO

R1-1803647 Remaining issues on resource allocation for PUCCH Huawei, HiSilicon
R1-1803756 Remaining issues on PUCCH resource allocation CATT
R1-1803835 Remaining issues PUCCH resource allocation vivo
R1-1804015 Remaining issues on resource allocation for PUCCH OPPO
R1-1804115 PUCCH resource allocation prior to RRC configuration NEC
R1-1804220 Remaining issues on resource allocation for PUCCH Spreadtrum Communications
R1-1804376 Corrections on Resource Allocation for PUCCH Samsung
R1-1804483 Discussion on remaining issues on PUCCH resource allocation Panasonic Corporation
R1-1804557 Remaining issues on PUCCH resource allocation LG Electronics
R1-1804657 Remianing issues of multi-slot PUCCH AT&T
R1-1804731 Resource allocation before RRC setup Intel Corporation
R1-1804805 Remaining issues for resource allocation for PUCCH Qualcomm Incorporated
R1-1804956 Remaining details on PUCCH resource allocation Motorola Mobility, Lenovo
R1-1805054 Resource allocation for PUCCH NTT DOCOMO, INC.
R1-1805186 On PUCCH Resource Allocation Ericsson
R1-1805509 Remaining open items on PUCCH resource allocation Nokia, Nokia Shanghai Bell (revision of R1-1804461)

7.1.3.2.5 Other

R1-1804287 TP on UCI multiplexing between UL and SUL Huawei, HiSilicon
R1-1804427 Discussion on partial overlap between PUCCHs Huawei, HiSilicon
R1-1804432 Discussion and text proposal for HARQ-ACK on PUCCH format 0 Huawei, HiSilicon
R1-1804434 Discussion on aperiodic CSI feedback on PUCCH in NR Huawei, HiSilicon
R1-1804451 Correction on PUCCH multiplexing in 38.213 Huawei, HiSilicon
R1-1805187 TP on UCI Multiplexing on PUSCH Ericsson
R1-1805732 On CGS ordering for NR Huawei, HiSilicon, ZTE, Sanechips(revision of R1-1804433)

7.1.3.3 DL/UL data scheduling and HARQ procedure

7.1.3.3.1 DL/UL resource allocation

Including handling LS on formula or table for L1 data rate as in R1-1801324

R1-1805602 **Outcome of offline discussion on 7.1.3.3.1 Ericsson**
Decision: The document is noted.

~~Agreements:~~
- ~~(Working assumption) adopt the tables of R1-1805602 for RMSI time domain resource allocation~~
  - ~~The previously agreed 4-bit indicator in DCI is not changed~~
  - ~~Note:~~
    - ~~Some entries in the tables are to be merged by using the known DM-RS position and/or CORESET duration/location signaled in PBCH, or removed~~
    - ~~New entries may also be added~~
    - ~~However, no more than 16 entries in total for pattern 1~~
  - ~~FFS: Need for "gaps" in time domain allocation, K0 offset, or rate matching information to handle collisions with other SSBs.~~
  - ~~FFS the applicability to OSI/Paging/RAR/Msg4~~

Wednesday
R1-1805663 **Summary of offline discussion on 7.1.3.3.1 part II Ericsson**
Decision: The document is noted.

Above agreements are modified as follows:
Agreements:
- Adopt the tables below for RMSI time domain resource allocation
  - The previously agreed 4-bit indicator in DCI is not changed

Table 5.1.2.1-x: Resource allocation for PDSCH scheduled using CORESET #0 and multiplexing pattern 1

L	*DL-DMRS-typeA-pos*	*PDSCH mapping type*	K_0	S	L
0	2	Type A	0	2	12
	3	Type A	0	3	11
1	2	Type A	0	2	10
	3	Type A	0	3	9
2	2	Type A	0	2	9
	3	Type A	0	3	8
3	2	Type A	0	2	7
	3	Type A	0	3	6
4	2	Type A	0	2	5
	3	Type A	0	3	4
5	2	Type B	0	9	4
	3	Type B	0	10	4
6	2	Type B	0	4	4
	3	Type B	0	6	4
7	x	Type B	0	5	7
8	x	Type B	0	5	2
9	x	Type B	0	9	2
10	x	Type B	0	12	2
11	x	Type A	0	1	13
12	x	Type A	0	1	6
13	x	Type A	0	2	4
14	x	Type B	0	4	7
15	x	Type B	0	8	4

Table 5.1.2.1-x: Resource allocation for PDSCH scheduled using CORESET #0 and multiplexing pattern 2

I	*PDSCH mapping type*	K_0	S	L
0	Type B	0	2	2
1	Type B	0	4	2
2	Type B	0	6	2
3	Type B	0	8	2
4	Type B	0	10	2
5	Type B	1	2	2
6	Type B	1	4	2

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1352 of 1750

Note: From a table size perspective, it is possible to add 7 more rows with same K0 and S as above but with L=4 as well as 2 more rows S=0 and L=4.

Table 5.1.2.1-x: Resource allocation for PDSCH scheduled using CORESET #0 and multiplexing pattern 3

i	*PDSCH mapping type*	K_0	*S*	*L*
0	Type B	0	4	2
1	Type B	0	6	2
2	Type B	0	8	2
3	Type B	0	10	2

Note: From a table size perspective, additional entries are possible.

Proposals:
- If SIB1 configures a table with values for time-domain allocation, use this table for
  - at least for CSS configured by MIB/RMSI: RA-RNTI and TC-RNTI (msg4)
  - FFS: OSI, P-RNTI
- If SIB1 does not provide a table, use the RMSI table above.
  - FFS: which pattern (Same pattern as used for SIB1? Always pattern 1? New pattern? …)

Thursday
R1-1805702 **Summary of offline discussion on 7.1.3.3.1 (resource allocation) – part III** **Ericsson**
Decision: The document is noted.

Working assumption:
- For PUSCH tx, 4-bit to indicate the resource allocation, as shown in Table below

Table 6.1.2.1-x: Default resource allocation for PUSCH

i	*PUSCH mapping type*	K_2	S	L
0	Type A	j	0	14
1	Type A	j	0	12
2	Type A	j	0	10
3	Type B	j	2	10
4	Type B	j	4	10
5	Type B	j	4	8
6	Type B	j	4	6
7	Type A	j+1	0	14
8	Type A	j+1	0	12
9	Type A	j+1	0	10
10	Type B	j+2	0	14
11	Type A	j+2	0	12
12	Type A	j+2	0	10
13	Type B	j	8	6
14	Type A	j +3	0	14
15	Type A	j +3	0	10

Table 6.1.2.1-x: Definition of value *j* in determination for K_2

μ	*j for msg 3 initial tx*	j *for other cases*
0	3	1
1	3	1
2	6	2
3	9	3

Agreements:
For time-domain signaling for PUSCH scheduled by DCI in USS
- if dedicated RRC signaling has provided a table
  - Use this table for PUSCH transmission scheduled by DCI in USS
- else if RMSI signaling has provided a table
  - Use this table for PUSCH transmission scheduled by DCI in USS

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1353 of 1750

- else
  - Use the default PUSCH table

For time-domain signaling for PDSCH scheduled by DCI in USS

- if dedicated RRC signaling has provided a table
  - Use this table for PDSCH transmission scheduled by DCI in USS
- else if RMSI signaling has provided a table
  - Use this table for PDSCH transmission scheduled by DCI in USS
- else
  - Use pattern 1 from the agreed default table

There is a WF in the inbox (5641). Interested companies are encouraged to check the WF and discuss to try to come up with a common proposal.

Friday

R1-1805641 Way Forward on NR Peak Data Rate Formula Intel, Samsung, MediaTek, Huawei, HiSilicon, Apple, Vivo, OPPO

Decision: The document is noted for email discussion/approval including the related RAN2 LS(s) till 4/27 – Daewon (Intel)

R1-1803709	Remaining issues on resource allocation and TBS	Huawei, HiSilicon
R1-1803757	Remaining issues on PDSCH/PUSCH resource allocation	CATT
R1-1803796	Remaining issues for data resource allocation	ZTE, Sanechips
R1-1803836	Remaining issues on resource allocation	vivo
R1-1804016	Remaining issues on multi-slot resource allocation	OPPO
R1-1804082	Remaining Issues on DL/UL Resource Allocation	MediaTek Inc.
R1-1804221	Remaining issues on time-domain scheduling	Spreadtrum Communications
R1-1804377	Corrections on DL/UL Resource Allocation	Samsung
R1-1804558	Remaining issues on Resource allocation	LG Electronics
R1-1804650	Further details of PDSCH time-domain resource allocation before RRC connection setup	AT&T
R1-1804732	On peak rates and remaining details on DL/UL RA	Intel Corporation
R1-1804806	Remaining Issues on DL/UL resource allocation	Qualcomm Incorporated
R1-1805055	Resource allocation and TBS determination	NTT DOCOMO, INC.
R1-1805142	Open issues on time domain resource allocation	Nokia, Nokia Shanghai Bell
R1-1805266	Discussion on remaining issues for time domain resource allocation	CMCC (revision of R1-1804101)
R1-1805505	Summary of 7.1.3.3.1 (resource allocation)	Ericsson
R1-1805506	On DL/UL resource allocation	Ericsson (revision of R1-1805188)
R1-1805607	Discussion on Approximate Peak Data Rate and Scaling Factor Use Cases	Intel
R1-1805618	Default PDSCH table	Ericsson
R1-1805721	Way Forward on LTE Peak Data Rate Calculation for EN-DC	Huawei, HiSilicon, Intel
R1-1805743	Summary of EN-DC LTE and NR data rate	Intel

7.1.3.3.2 DL/UL scheduling and HARQ management

R1-1805540 Summary of DL/UL scheduling and HARQ management Qualcomm

Decision: The document is noted.

Agreements:

The following text proposal is adopted to clarify that N1 processing time at least follows the semi-static configuration for DMRS, and not that resulting from the allocation.

------ Text Proposal for TS 38.214 Subclause 5.3 ------

- N_1 is based on μ of table 5.3-1 that corresponds to the min (μ_{DL}, μ_{UL}) where the μ_{DL} corresponds to the subcarrier spacing of the downlink with which the PDSCH was transmitted and μ_{UL} corresponds to the subcarrier spacing of the uplink channel with which the HARQ-ACK is to be transmitted. If the higher layer parameter *dmrs-AdditionalPosition* is configured with a value greater than 0, or if the high layer parameter is not configured, then N_1 value follows from the second column of table 5.3.1; otherwise, the N_1 value follows from the first column of table 5.3-1.

Agreements:

The following text proposal is adopted to clarify the start position of the physical channel carrying HARQ-ACK.

------ Text Proposal for TS 38.214 Subclause 5.3 ------

If the first uplink symbol of the physical channel ~~to~~ ~~which carry~~ carries the HARQ-ACK information, as defined by the assigned HARQ-ACK timing K_1 and the PUCCH resource to be used and including the effect of the timing advance, starts no earlier than at symbol L_1 then the UE shall provide a valid HARQ-ACK message, where L_1 is defined as the next uplink symbol with its CP

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1354 of 1750

starting after $T_{proc,1} = \left((N_1 + d_{1,1} + d_{1,2} + d_{1,3})(2048 + 144) \cdot \kappa 2^{-\mu_{DL}}\right) \cdot T_C$ after the end of the last symbol of the PDSCH carrying the TB being acknowledged.

<text omitted which is unchanged>

- If the PDSCH is mapping type A as given in subclause 7.4.1.1 of [4, TS 38.211], and the last symbol of PDSCH is on the ith symbol of the slot where i<7, then $d_{1,3} = 7 - i$, otherwise $d_{1,3} = 0$.
- ~~otherwise $d_{1,2} = 0$.~~

------ End of Text Proposal ------

Agreement:

- Confirm the following working assumption:
  - For broadcast PDSCH, MCS is limited to QPSK, rank is limited to 1.

Agreements:

- Adopt the corresponding text proposals:

----- Text proposals for 38.214, 5.1.1.1 -----

For transmission scheme 1 of the PDSCH, the UE may assume that a gNB transmission on the PDSCH would be performed with up to 8 transmission layers on antenna ports 1000-1011 as defined in Subclause 7.3.1.4 of [4, TS 38.211], subject to the DMRS reception procedures in Subclause 5.1.6.2.

<unchanged text omitted>

The UE shall use I_{MCS} and Table 5.1.3.1-2 to determine the modulation order (Q_m) and Target code rate (R) used in the physical downlink shared channel scheduled with other RNTIs than C-RNTI. The UE is not expected to decode a PDSCH scheduled with P-RNTI, RA-RNTI, or SI-RNTI and (Q_m) > 2.

----- End of Text Proposal -----

Agreement:

- Confirm the following working assumption:
  - P-RNTI PDSCH is not required to be decoded by UE in RRC_CONNECTED mode
    - Note: P-RNTI PDCCH may not schedule a P-RNTI PDSCH but rather carries the message by itself, which may be used for e.g. *systemInfoModification, cmas-Indication, and etws-Indication*

Working assumption:

- For baseline (Capability 1) UE processing times, for PDSCH mapping type B with 2-symbol duration, the minimum UE processing times are defined as the following where N1 is the corresponding value from Table 5.3-1 of TS 38.214:
  - N1 + 3 + d symbols when there is a time-domain overlap of 'd' symbols (d = {0,1,2}) between the scheduling PDCCH and the scheduled PDSCH

Thursday

R1-1805686 **Simultaneous Decoding of System Information** **Qualcomm**

Decision: The document is noted.

Agreements:

The previous WA is confirmed with updates:

- While UE acquires SI upon being triggered by Paging DCI
  - UE is not required to decode C-RNTI PDSCH if the SI-RNTI PDSCH is overlapped with at least one symbol
- In case UE autonomously monitors SI-RNTI PDCCH while monitoring C-RNTI PDCCH, and both SI-RNTI PDSCH and C-RNTI PDSCH are overlapped with at least one symbol, the UE is not required to decode SI-RNTI PDSCH
- ~~o~~ (Working assumption)The first two bullets apply unless TBS of SI-RNTI PDSCH ≤ ~~2216~~ 2976 for FR1, then UE decodes both SI-RNTI PDSCH and C-RNTI PDSCH
- The first two bullets always apply in FR2

Formatted: Bulleted + Level: 1 + Aligned at: 0.63 cm + Indent at: 1.27 cm

R1-1805687 **Baseline Capability #1 Remaining Issues** **Qualcomm**

Decision: The document is noted.

Conclusion:

Consider whether further handling on UE processing time may be needed in the following cases

- L1 is the length (in symbols) of a first PDSCH allocation
  - L1-dmrs is location of last DMRS in the allocation
- L2 is the length (in symbols) of a second PDSCH allocation
  - L2-dmrs is location of last DMRS in the allocation
- g is the delay (in symbols) between the first and second PDSCH allocation
- In case where L1 – L2 – g > 0

- The DMRS locations between the first and second PDSCH allocation are different

R1-1805688 Aggressive Capability #2 Processing Time Qualcomm
Decision: The document is noted.

Conclusion:
At least for the following conditions below, the processing times listed in Table 2 have been considered as potential candidates for specification of Capability #2, although there has been no conclusion on the final value.

- Single numerology for PDCCH, PDSCH, and PUSCH and no UCI multiplexing
- Case 1-1: PDCCH monitoring on up to three OFDM symbols at the beginning of a slot
- PDSCH allocation with at least 7 symbols is supported
- One unicast PDSCH received and/or one unicast PUSCH transmitted within the same slot
  - FFS: More than one PDSCH and/or PUSCH case
- Single CC
  - FFS: CA case with and without cross-carrier scheduling
- For C-RNTI only
  - FFS: also applicable to the cases when C-RNTI and with other broadcast RNTIs are processed simultaneously by the UE
- FFS: whether Capability #2 relaxation is applied dynamically depending on conditions
- Note: Companies are also encouraged to provide processing times for 60kHz (FR1)
- Note: Companies are also encouraged to provide conditions under which more aggressive processing times (within the range) could be enabled

Table 2. UE Processing Times for Capability #2

Configuration	HARQ Timing Parameter	Units	15 KHz SCS	30 KHz SCS
Front-loaded DMRS only	N1	Symbols	[2.5-4]	[2.5-6]
Frequency-first RE-mapping	N2[1]	Symbols	[2.5-6]	[2.5-6]
[1]If 1st symbol of PUSCH is data-only or FDM data with DMRS, then add 1 symbol to N2 in table.				

Friday
R1-1805746 Summary of DL/UL scheduling and HARQ management Qualcomm
Decision: The document is noted.

Conclusion:
The existing agreements were made before RAN2 defined SUL and non-SUL as a single serving cell

- One TB is mapped to one DL/UL carrier.
- Re-transmission of a TB cannot take place on different carrier than the initial transmission.

So far this implies for some companies that for SUL, the re-transmission of a TB should not take place on a different carrier than the initial transmission. Other companies believe re-transmission may take place on a different carrier in case of SUL and UL.

- If intention for previous agreement was to be worded "per cell" then it would be restricted to CA
- RAN1 should discuss whether to clarify the existing agreements
- Note: in SUL there is only one cell and one HARQ entity

Working assumption:

- The processing requirement for HARQ-ACK in response to DL SPS release is N OFDM symbols from last symbol of the corresponding PDCCH for UE Capability #1:
  - 15 kHz case: 8 + 5
  - 30 kHz case: 10 + 5
  - 60 kHz case: 17 + 5
  - 120 kHz case: 20 + 5

Proposals:

- UE behavior in RRC_IDLE: If any two PDSCH among SI-RNTI PDSCH, P-RNTI PDSCH, and RA-RNTI/TC-RNTI PDSCH are overlapped with at least one symbol for a given UE from the primary cell, the UE is not required to decode both of PDSCH simultaneously
  - FFS: the prioritization of the PDSCH to be decoded

Discuss till next meeting

R1-1805747 **TP to 38.214 on UE processing time definitions** **Qualcomm**
Decision: The proposal in R1-1805747 is agreed.

R1-1803758	Remaining issues on NR HARQ timing	CATT
R1-1803837	Remaining issues on HARQ management	vivo
R1-1804068	Remaining issues of DL/UL scheduling and HARQ management	MediaTek Inc.
R1-1804102	Discussion on HARQ timing for DL SPS	CMCC
R1-1804207	Remaining issues for HARQ-ACK feedback timing indication	Lenovo, Motorola Mobility
R1-1804312	CR on semi-static HARQ-ACK codebook fallback operation in 38.213	Huawei, HiSilicon
R1-1804378	Corrections on HARQ Management and Feedback	Samsung
R1-1804431	Remaining issues on scheduling and HARQ	Huawei, HiSilicon
R1-1804559	Remaining issues on DL/UL scheduling and HARQ	LG Electronics
R1-1804733	Some remaining details on DL/UL scheduling and HARQ management	Intel Corporation
R1-1804807	Remaining Issues on DL/UL Scheduling, Processing Time and HARQ management	Qualcomm Incorporated
R1-1805056	PUSCH time-domain resource allocation	NTT DOCOMO, INC.
R1-1805081	Discussions on HARQ-ACK bundling and multiplexing	China Telecommunications
Late submission		
R1-1805189	On remaining issues of scheduling and HARQ management	Ericsson
R1-1805249	TP to 38.214 on UE processing time definitions	Nokia, Nokia Shanghai Bell

7.1.3.3.3 CBG-based (re)transmission

R1-1805570 **Summary of remaining issues on CBG based retransmission** **LG Electronics**
Decision: The document is noted.

For the first two issues identified in R1-1803759 (CATT), prepare a TP – revisit later
Notes: # CBGs is configured per TB
For the third issue identified in R1-1803759 (CATT), check further offline

Proposal:
- To adopt the following TP (Section 9.1.1, 38.213)

---Start of TP---
~~If a UE is configured with higher layer parameter *HARQ-ACK-codebook=semi-static*, t~~The HARQ-ACK codebook includes the $N_{\text{HARQ-ACK}}^{\text{CBG/TB,max}}$ HARQ-ACK information bits and, if $N_{\text{HARQ-ACK}}^{\text{CBG/TB}} < N_{\text{HARQ-ACK}}^{\text{CBG/TB,max}}$ for a transport block, the UE generates a NACK value for the last $N_{\text{HARQ-ACK}}^{\text{CBG/TB,max}} - N_{\text{HARQ-ACK}}^{\text{CBG/TB}}$ HARQ-ACK information bits for the transport block in the HARQ-ACK codebook.
---End of TP---

R1-1803759 **Corrections to CBG-based transmission** **CATT**

Friday
R1-1805731 **Summary of text proposals on CBG based retransmission** **LG Electronics**
Decision: The document is noted. The four TPs in R1-1805731 are endorsed in principle, up to editor to refine the wording where necessary

R1-1804379	Corrections on CBG-Based UL/DL Retransmissions	Samsung
R1-1804430	Remaining issues on CBG-based (re)transmission	Huawei, HiSilicon
R1-1805190	On remaining issues for CBG based HARQ	Ericsson

7.1.3.3.4 UL data transmission procedure

R1-1805539 **Offline summary for AI 7.1.3.3.4 UL data transmission procedure** **NTT DOCOMO**
Decision: The document is noted.

Agreement:

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1357 of 1750

- Adopt following TP for 38.213 subclause 8.3 Msg3 PUSCH:

---Start of TP---
If the UE applies transform precoding to an Msg3 PUSCH transmission with frequency hopping, the frequency offset for the second hop [6, TS38.214] is given in Table 8.3-1.

Number of PRBs in initial active UL BWP	Value of $N_{\mathrm{UL,hop}}$ Hopping Bits	Frequency offset for 2nd hop
$N_{\mathrm{BWP}}^{\mathrm{size}} < 50$	0	$floor(N_{\mathrm{BWP}}^{\mathrm{size}}/2)$
	1	$floor(N_{\mathrm{BWP}}^{\mathrm{size}}/4)$
$N_{\mathrm{BWP}}^{\mathrm{size}} \geq 50$	00	$floor(N_{\mathrm{BWP}}^{\mathrm{size}}/2)$
	01	$floor(N_{\mathrm{BWP}}^{\mathrm{size}}/4)$
	10	$-floor(N_{\mathrm{BWP}}^{\mathrm{size}}/4)$
	11	Reserved

---End of TP---

Agreement:
- To adopt the following TP for Section 6.3 of 38.214

---Start of TP---
In case of intra-slot frequency hopping is configured for PUSCH without repetitions, the number of symbols in the first hop is given by $\lfloor N_{symb}^{PUSCH,s}/2 \rfloor$, the number of symbols in the second hop is given by $N_{symb}^{PUSCH,s} - \lfloor N_{symb}^{PUSCH,s}/2 \rfloor$, where ~~$N_{symbol}^{PUSCH,s}/2$~~ $N_{symbol}^{PUSCH,s}$ is the length of the PUSCH transmission in OFDM symbols in one slot.
---End of TP---

Conclusion:
- Confirmation of the activation/deactivation signalling for SP-CSI on PUSCH is not explicitly supported in the specs
  - Up to gNB implementation

Wednesday
R1-1805646 Repetition for PUSCH mapping Type B NTT DOCOMO, INC.

Agreement:
- For Rel.15 Dec. drop, for both Type 1 and Type 2 PUSCH transmissions with a configured grant, when a UE is configured with data mapping Type B and K> 1, the same symbol allocation is applied across the K consecutive slots.

R1-1803797 Remaining issues for UL data transmission procedure ZTE, Sanechips
R1-1803838 Remaining issues on UL data transmission procedure vivo
R1-1803900 Underlay SR: a complementary solution to overcome the limitations of periodic PUCCH-SR Idaho National Laboratory
R1-1804013 Remaining issues on grant free OPPO
R1-1804103 Discussion on PUSCH repetition for grant-free transmission CMCC
R1-1804228 correction of PUSCH frequency hopping Spreadtrum Communications
R1-1804295 Summary of remaining issues on UL data transmission procedure Huawei, HiSilicon
R1-1804560 Remaining issues on UL data transmission procedure LG Electronics
R1-1804734 Remaining issues of UL data transmission procedures Intel Corporation
R1-1805057 UL data transmission procedure NTT DOCOMO, INC.
R1-1805507 On UL data transmission procedure Ericsson (Revision of R1-1805191)

7.1.3.3.5 Soft-buffer management for NR

R1-1803938 Remaining Issues of Soft Buffer Management Ericsson

R1-1805664 Summary of offline for 7.1.3.3.5 Ericsson
Decision: The document is noted.

Agreements:
- Adopt the following TP regarding the number of layers in LBRM operation.

----Start of TP ---
5.4.2.1 Bit selection
The bit sequence after encoding $d_0, d_1, d_2, ..., d_{N-1}$ from Subclause 5.3.2 is written into a circular buffer of length N_{cb} for the r-th coded block, where N is defined in Subclause 5.3.2.

For the r-th code block, let $N_{cb} = N$ if $I_{LBRM} = 0$ and $N_{cb} = \min(N, N_{ref})$ otherwise, where $N_{ref} = \left\lfloor \frac{TBS_{\text{LBRM}}}{C \cdot R_{\text{LBRM}}} \right\rfloor$, $R_{\text{LBRM}} = 2/3$, TBS_{LBRM} is determined according to Subclause 6.1.4.2 in [6, TS 38.214] for UL-SCH and Subclause 5.1.3.2 in [6, TS 38.214] for DL-SCH/PCH, assuming the following:

- maximum number of layers for one TB supported by the UE for the serving cell~~, if the UE has reported its corresponding capability; otherwise a maximum of 2 layers is assumed for DL-SCH~~;
- maximum modulation order configured for the serving cell, if configured by higher layers; otherwise a maximum modulation order $Q_m = 6$ is assumed for DL-SCH ;

---End of TP---

Conclusion:

- It is RAN1 understanding that UE is not expected to handle cases where the Nref value (in 5.4.2.1) changes across transmissions for the same transport block.
  - No spec impact.

7.1.3.3.6 Multiplexing data with different transmission durations

R1-1805529 **Summary of Multiplexing data with different transmission durations** **vivo**
Decision: The document is noted.

Agreement:

- Following change is adopted for TS 38.213 section.

----------start of text proposal----------
If a UE detects a DCI format 2_1 in a PDCCH transmitted in a control resource set in a slot, the set of symbols indicated by a field in DCI format 2_1 includes the last $N^{\text{slot}}_{\text{symb}} \cdot T_{\text{INT}} \cdot 2^{\mu - \mu_{INT}}$ symbols prior to the first symbol of the control resource set in the slot where T_{INT} is the value of higher layer parameter *Monitoring-periodicity-PDCCH-slot*, $N^{\text{slot}}_{\text{symb}}$ is the number of symbols per slot, μ is the subcarrier spacing configuration for a serving cell with mapping to a respective field in the DCI format 2_1, μ_{INT} is the subcarrier spacing configuration of the DL BWP where the UE receives the PDCCH conveying the DCI format 2_1~~, and m is a natural number~~. If the UE is configured with higher layer parameters *UL-DL-configuration-common* or *UL-DL-configuration-common-Set2*, symbols indicated as uplink by *UL-DL-configuration-common* or *UL-DL-configuration-common-Set2* are excluded from the last $N^{\text{slot}}_{\text{symb}} \cdot T_{\text{INT}} \cdot 2^{\mu - \mu_{INT}}$ symbols prior to the first symbol of the control resource set in the slot. The resulting set of symbols includes a number of symbols that is denoted as N_{INT}.
----------end of text proposal----------

R1-1803662 Summary of remaining issues on pre-emption indication with TP Huawei, HiSilicon
R1-1803760 Remaining details of DL pre-emption indication CATT
R1-1803839 Remaining issues on Multiplexing data with different transmission durations vivo
R1-1804083 Remaining issues on pre-emption indication MediaTek Inc.
R1-1804086 Remaining issues for preemption indication ASUSTEK COMPUTER (SHANGHAI)
R1-1804808 Remaining issues on downlink preemption indication Qualcomm Incorporated
R1-1805192 Multiplexing data with different durations Ericsson

7.1.3.3.7 Other

R1-1804280 TP on HARQ-ACK reporting with different numerology Huawei, HiSilicon
R1-1804292 Support of 60 kHz subcarrier spacing Huawei, HiSilicon
R1-1804307 Draft CR on resource allocation Huawei, HiSilicon
R1-1804308 Draft CR on TBS Huawei, HiSilicon
R1-1804309 Draft CR on HARQ-ACK codebook Huawei, HiSilicon
R1-1804311 Correction on scheduling and HARQ procedure for case 1 HARQ timing of EN-DC in TS36.213 Huawei, HiSilicon
R1-1804452 Draft CR on UL data transmission procedure Huawei, HiSilicon
R1-1804771 Discussion on CBG based retransmissions Apple Inc.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1359 of 1750

R1-1804952 Inconsistent PDCCH detection Panasonic
R1-1805193 [DRAFT] Reply LS on formula or table for L1 data rate Ericsson
R1-1805194 TP on RAR grant resource allocation Ericsson
R1-1805195 TP on default resource allocation table and MSG3 table Ericsson
R1-1805196 TP for remaining issues of scheduling and HARQ management Ericsson
R1-1805197 TP for DL and UL semi-persistent scheduling Ericsson
R1-1805198 [DRAFT] Reply LS on LTE peak data-rate calculation for EN-DC Ericsson

7.1.3.4 Other aspects on carrier aggregation and bandwidth parts

7.1.3.4.1 Other aspects on bandwidth Parts

R1-1805543 Summary of bandwidth part remaining issues MediaTek
Decision: The document is noted.

~~Conclusion:~~
- ~~Regarding the discrepancy in RAN1 and RAN2 agreements w.r.t. initial active BWP vs. the up to configured 4 BWPs, to adopt the RAN2 agreements and make necessary RAN1 spec update~~

Wednesday
R1-1805658 Summary of bandwidth part remaining issues MediaTek
Decision: The document is noted.

Agreements:
- Regarding the discrepancy in RAN1 and RAN2 agreements w.r.t. initial active BWP vs. the up to configured 4 BWPs, to adopt the RAN2 agreements and make necessary RAN1 spec update
- The corresponding TP is shown below:

---Start of Text Proposal Sec 7.3.1.1.2 of 38.212 ---
< Omitted >
- Bandwidth part indicator – 0, 1 or 2 bits as determined by the number of UL bandwidth parts $n_{BWP,RRC}$ configured by higher layers~~defined in Table 7.3.1.1.2-1~~. The bitwidth for this field is determined as $\lceil \log_2(n_{BWP}) \rceil$ bits, where
  - $n_{BWP} = n_{BWP,RRC} + 1$ and the bandwidth part indicator is equivalent to the higher layer parameter *BWP-Id* if $n_{BWP,RRC} \leq 3$ ~~the higher layer parameter *BandwidthPart-Config* configures up to 3 bandwidth parts and the initial bandwidth part is not included in higher layer parameter *BandwidthPart-Config*~~;
  - otherwise $n_{BWP} = n_{BWP,RRC}$ and the bandwidth part indicator is defined in Table 7.3.1.1.2-1.~~;~~
  - ~~$n_{BWP,RRC}$ is the number of configured bandwidth parts according to higher layer parameter *BandwidthPart-Config*.~~

< Omitted >

Table 7.3.1.1.2-1: Bandwidth part indicator

Value of BWP indicator field		Bandwidth part
~~1 bit~~	2 bits	
~~0~~	00	First bandwidth part configured by higher layers
~~1~~	01	Second bandwidth part configured by higher layers
	10	Third bandwidth part configured by higher layers
	11	Fourth bandwidth part configured by higher layers

---End of Text Proposal Sec 7.3.1.1.2 of 38.212 ---

---Start of Text Proposal Sec 7.3.1.2.2 of 38.212 ---
< Omitted >
- Bandwidth part indicator – 0, 1 or 2 bits as determined by the number of DL bandwidth parts $n_{BWP,RRC}$ configured by higher layers~~defined in Table 7.3.1.1.2-1~~. The bitwidth for this field is determined as $\lceil \log_2(n_{BWP}) \rceil$ bits, where
  - $n_{BWP} = n_{BWP,RRC} + 1$ and the bandwidth part indicator is equivalent to the higher layer parameter *BWP-Id* if $n_{BWP,RRC} \leq 3$ ~~the higher layer parameter *BandwidthPart-Config* configures up to 3 bandwidth parts and the initial bandwidth part is not included in higher layer parameter *BandwidthPart-Config*~~;
  - otherwise $n_{BWP} = n_{BWP,RRC}$ and the bandwidth part indicator is defined in Table 7.3.1.1.2-1.~~;~~

~~$n_{BWP,RRC}$ is the number of configured bandwidth parts according to higher layer parameter *BandwidthPart-Config*.~~

< Omitted >

---End of Text Proposal Sec 7.3.1.2.2 of 38.212 ---

Agreements:
- To adopt the following TP:

---Start of Text Proposal Sec 12 of 38.213 ---
< Omitted >
For each DL BWP or UL BWP in a set of DL BWPs or UL BWPs, respectively, the UE is configured the following parameters for the serving cell as defined in [4, TS 38.211] or [6, TS 38.214]:
- a subcarrier spacing provided by higher layer parameter *DL-BWP-mu* or *UL-BWP-mu*;
- a cyclic prefix provided by higher layer parameter *DL-BWP-CP* or *UL-BWP-CP*;
- ~~a PRB offset with respect to the PRB determined by higher layer parameters *offset-pointA-low-scs* and *ref-scs* and a number of contiguous PRBs provided by higher layer parameter *DL-BWP-BW* or *UL-BWP-BW*;~~
- a starting PRB and a number of contiguous PRBs indicated by higher layer parameter *locationAndBandwidth* which is interpreted as RIV according to [5.1.2.2.2, TS 38.213], setting N_{BWP}^{size}=275 and the starting PRB is a PRB offset with respect to the PRB indicated by higher layer parameters *offsetToCarrier* and *subcarrierSpacing*.
- an index in the set of DL BWPs or UL BWPs by respective higher layer parameters *DL-BWP-index* or *UL-BWP-index*;
- DCI format 1_0 or DCI format 1_1 detection to a PDSCH reception timing values by higher layer parameter *DL-data-time-domain*, PDSCH reception to a HARQ-ACK transmission timing values by higher layer parameter *DL-data-DL-acknowledgement*, and DCI format 0_0 or DCI format 0_1 detection to a PUSCH transmission timing values by higher layer parameter *UL-data-time-domain*;

< Omitted >
---End of Text Proposal Sec 12 of 38.213 ---

Thursday
R1-1805693 **Summary of bandwidth part remaining issues** **MediaTek**
Decision: The document is noted.

R1-1805662 **[Draft] Reply LS on SI Reception in BWP** **LGE, MediaTek**
Decision: The document is endorsed and final LS is approved (accepting all change marks) in R1-1805726

Agreements (**RAN2 impact**)
- The existing higher-layer parameter *SCS-SpecificCarrier* provided to a UE via a dedicated RRC signal is also applicable to Scell & SUL.

Agreements:
- It's RAN1's understanding that the active DL (or UL) BWP switching delay (i.e. T μs) for two types of UE capability will be specified in RAN4 specs.
  - Send LS to RAN4 – R1-1805727
- For DCI-based active DL (or UL) BWP switching, a UE is not expected to switch its active DL (or UL) BWP based on an active DL (or UL) BWP switching DCI which is considered as invalid where invalidity is defined as when the signaled K0 (or K2) value in the DCI can't guarantee the active DL (or UL) BWP switching delay equal to or larger than the one specified in RAN4 specs to the UE based on the UE's capability.

Friday
R1-1805727 **[Draft] LS on active BWP switching delay specification** **MediaTek**
Decision: The document is endorsed and final LS is approved in R1-1805755

R1-1805750 **Summary of bandwidth part remaining issues** **MediaTek**
Decision: The document is noted.

Agreements:
Confirm the following working assumption with updates:
- Sizes of all DCI bitfields in DCI formats 0-1 and 1-1 in USS determined by current BWP. Data transmitted on the BWP indicated by the BWP index. If the BWP index activates another BWP, transform as follows:

- Zero-pad too small bitfields to match the new BWP
- Truncate too large bitfields to match the new BWP
- The truncation is done from MSB (including the bit indicating the resource allocation type)
- Zero-padding is done for MSB

R1-1803653	Remaining issues on bandwidth part and wideband operation	Huawei, HiSilicon
R1-1803761	Corrections to BWP operation	CATT
R1-1803798	Issues for scell BWP	ZTE, Sanechips
R1-1803840	Remaining issues on BWP operation	vivo
R1-1803966	Discussion on bandwidth part operation	ITRI
R1-1804017	Other aspects on bandwidth parts	OPPO
R1-1804049	Remaining details on bandwidth part operation	MediaTek Inc.
R1-1804226	Remaining issues on BWP	Spreadtrum Communications
R1-1804380	Corrections on Bandwidth Part Operation	Samsung
R1-1804502	Remaining details on common PRB indexing and RRC parameters	NEC Corporation
R1-1804561	Remaining issues on bandwidth part operation	LG Electronics
R1-1804674	Remaining issues on dynamic BWP switching	InterDigital, Inc.
R1-1804762	On remaining details of BWPs	Nokia, Nokia Shanghai Bell
R1-1804809	Remaining issues on BWP	Qualcomm Incorporated
R1-1805058	Other aspects on bandwidth Parts	NTT DOCOMO, INC.
R1-1805199	On BWP adaptation	Ericsson
R1-1805244	Remaining issues on BWP switching	WILUS Inc.

7.1.3.4.2 Other aspects on carrier aggregation

Including up to two different numerologies per PUCCH group

R1-1805277 **Summary on CA AspectsSamsung**
Decision: The document is noted.

Conclusion:
- It is confirmed that when a UE is configured with semi-static HARQ-ACK codebook, the HARQ association set is determined based on the semi-static (via RMSI/UE-specific) UL/DL configurations for PDSCH occasions in addition to HARQ-ACK in response to SPS release
  - This is already reflected in the current specs

Agreements:
- Confirm WA from RAN1#92 with the following update
  - When a UE is configured with semi-static HARQ-ACK Codebook, on a per cell basis:
    - If the UE indicates capability to receive more than one unicast PDSCH per slot, it assumes a max number of non-overlapping candidate unicast PDSCH occasions per slot as determined by the SLIV in the configured pdsch-symbolAllocation table.
    - Otherwise, the UE is expected to receive only one unicast PDSCH per slot, and HARQ-ACK association set assumes one unicast PDSCH per slot
      - The UE is not expected to receive SPS PDSCH release and unicast PDSCH in a same slot
  - Handling HARQ-ACK for PDCCH for SPS release follows the same way as in LTE

Thursday
R1-1805719 **Offline summary on CA aspects Samsung**
Decision: The document is noted.

Agreement:
- For unpaired spectrum and DL/UL BWP switching
  - UE does not transmit HARQ-ACK for PDSCH reception(s) on the DL BWP prior to DL/UL BWP switching

R1-1803655	Remaining issues on NR CA	Huawei, HiSilicon
R1-1803762	Remaining issues on NR CA operation	CATT
R1-1803841	Other aspects on carrier aggregation	vivo
R1-1804008	Remaining details on HARQ-ACK transmission	OPPO

R1-1804034	Discussion about semi static codebook	ASUSTEK COMPUTER (SHANGHAI)
R1-1804046	Remaining issues in carrier aggregation	MediaTek Inc.
R1-1804208	Remaining issues for CA with different numerologies	Lenovo, Motorola Mobility
R1-1804227	Remaining issues on HARQ-ACK codebook	Spreadtrum Communications
R1-1804381	Corrections on CA Operation	Samsung
R1-1804562	Remaining issues on CA and HARQ-ACK codebook	LG Electronics
R1-1804735	Further discussion UCI mapping for carrier aggregation	Intel Corporation
R1-1804763	Remaining aspects of NR CA	Nokia, Nokia Shanghai Bell
R1-1804810	Remaining issues on CA	Qualcomm Incorporated
R1-1805059	Remaining issues on HARQ-ACK codebook and CA	NTT DOCOMO, INC.
R1-1805200	On remaining issues of carrier aggregation	Ericsson
R1-1805245	Remaining issues on HARQ-ACK codebook construction	WILUS Inc.

7.1.3.5 Rate matching aspects for NR DL and UL

R1-1805518 **Summary of open issues related to rate-matching in NR** **Nokia, Nokia Shanghai Bell**
Decision: The document is noted.

Proposals:

- Clarify in the TS 38.214 that
  - a PDSCH conveying [RAR, OSI, Paging, Msg4] is rate-matched only around *SSB-transmitted-SIB1* and the PDCCH that scheduled the PDSCH.
  - a PDSCH conveying [SIB1] is rate-matched only around the PDCCH that scheduled the PDSCH
- To check offline (also with initial access experts/DL control concepts e.g. w.r.t. wideband RS), to prepare TP if necessary

Proposals:
For resources of a bitmap pair configured with rate-match-PDSCH-bitmap3 and of a CORESET included in one or two groups of resource sets, the dynamic indication of availability for PDSCH applies

- Alt 1: to a set of slot(s) where the bitmap pair/CORESET actually exists among the slots of PDSCH scheduled.
- Alt 2: to the first slot among the slots of PDSCH scheduled (if bitmap pair / CORESET is present in that slot).

Agreements:

- When UE is to rate-match a PDSCH around PDCCH scheduling the PDSCH, and PDCCH is received in the CORESET configured with WB RS, the UE shall rate-match around
  - The union of REs of the PDCCH scheduling the PDSCH and the WB RS REs for the configured CORESET

Proposals:

- Update the agreement from the last meeting:
  - When ~~non-interleaved CORESET which is 1 symbol long and~~ AL8 and AL16 PDCCH candidates have the same starting CCE, when the UE successfully decodes a PDCCH with AL8 or AL16 satisfying the ambiguity condition, the UE performs rate-matching for PDSCH by assuming AL 16.
    - Note: the actual spec text wording can be refined
    - Applies to at least non-interleaved CORESET which is 1 symbol long
    - Decide on other scenarios by the end of RAN1#92bis

Agreement:

- To adopt the following TP to 5.1.4 of 38.214
  When receiving PDSCH not conveying [RAR, OSI, Paging, Msg4, SIB1], ~~T~~the REs corresponding to the union of configured or dynamically indicated resources in Subclauses 5.1.4.1, 5.1.4.2 and resources corresponding to SS/PBCH are declared as not available for PDSCH in Subclause 7.3.1.5 of [4, TS 38.211].

Agreements:

- When an PDCCH candidate collides with any RB-level resource (FFS RE-level), where PDSCH is semi-statically not mapped, as described in TS38.214 Section 5.1.4.1 then
  - The UE is not required to monitor the PDCCH candidate overlapping with the resource even only by one RE

Friday
Agreements: Clarify in the specification that the periodicity of bitmap-pair, when bitmap-3 is not configured, is equal to the length of the bitmap-2.

- For bitmap-pair not included in one or two groups of resource sets (semi-static RMR) and associated with two-slot long bitmap-2, first slot of bitmap-2 corresponds to even slots, second slot corresponds to odd slots.
- For bitmap-pair not included in one or two groups of resource sets (semi-static RMR) and associated with one slot long bitmap-2, corresponds to every slot.

Agreements:
- For resources of a bitmap-pair configured with bitmap-3 and of a CORESET included in one or two groups of resource sets (dynamic RMR), the dynamic indication of availability for PDSCH applies to a set of slot(s) where the bitmap-pair/CORESET actually exists among the slots of PDSCH scheduled.

R1-1803654	Remaining issues on reserved resources and rate-matching	Huawei, HiSilicon
R1-1803799	Remaining aspects for rate matching	ZTE, Sanechips
R1-1804215	On PDSCH rate-matching when UE configured with WB RS	Spreadtrum Communications
R1-1804267	Handling of PDCCH on rate matching resource	vivo
R1-1804382	Corrections on Rate Matching	Samsung
R1-1804563	Remaining issues on rate matching	LG Electronics
R1-1804764	Remaining details on rate-matching in NR	Nokia, Nokia Shanghai Bell
R1-1805250	Remaining issues on PDSCH rate matching in CORESET	Qualcomm Incorporated

7.1.3.6 Other

R1-1804283	Consideration on power saving for NR CA	Huawei, HiSilicon
R1-1804773	Potential enhancements for NR UE power saving	Apple Inc.
R1-1805201	TP on remaining issues of carrier aggregation	Ericsson

7.1.4 Channel coding

R1-1805710 Chairman's notes of AI 7.1.4 Channel coding Ad-hoc chair (Ericsson)
Decision: The document is endorsed, content incorporated below.

R1-1803937 Remaining Issues of Channel Coding Ericsson
R1-1804383 Corrections on Channel Coding Samsung

R1-1804849 Remaining Issues on URLLC Data Channel Coding InterDigital, Inc.
R1-1804889 Consideration on TBS determination ZTE, Sanechips
Discussed VoIP support of TBS determination procedure in 38.214. There is no consensus on modifying the TBS table. Further discussion in Scheduling/HARQ session when DOCOMO's contribution is discussed in that agenda item

R1-1805556 TBS determination for HARQ re-transmission, Intel

R1-1805645 Text Proposals on Polar Codes Samsung, Ericsson, MediaTek, Nokia

Agreement:
The UE is not expected to transmit or receive the bit sequence if $K + n_{pc} > E$, where n_{pc} is the number of parity check bits as defined in Section 5.3.1.2;
- Editor to capture this in Section 5.3 of TS 38.212

Agreement:
Polar code segmentation is applied if ($A \geq 360$ and $E \geq 1088$) or A >= 1013
- Editor to capture this in Section 6.3.1.2.1 of TS 38.212

Conclusion:
It is RAN1's understanding that a UE is not expected to receive a retransmission with a TB size that is different from the last valid TB size signalled for this TB.
Note: This does not have any RAN1 specification impact. A note similar to the one in TS36.321, Subclause 5.3.2.2 can be added to 38.321.

7.1.5 NR-LTE co-existence

R1-1805709 Chairman's notes of AI 7.1.5 NR-LTE co-existence Ad-Hoc chair (Ericsson)

Decision: The document is endorsed, content incorporated below.

*Including architecture option 4 related issues for **both NR and LTE**, if any*

R1-1803656 **Discussion on remaining issues for SUL and EN-DC** **Huawei, HiSilicon**
R1-1804384 **Corrections on LTE-NR Coexistence** **Samsung**
R1-1804455 **On NR-LTE coex design Ericsson GmbH, Eurolab**
R1-1804564 **Remaining issues on NR-LTE DC/Coexistence** **LG Electronics**

Conclusion:
Placement of the SUL CIF field in DCI needs to be corrected.
- Details should be handled in the DCI discussions in scheduling and HARQ AI

R1-1804811 **Remaining aspects of NR-LTE coexistence** **Qualcomm Incorporated**
R1-1805143 **Power control for EN-DC option 4** **Nokia, Nokia Shanghai Bell**

Agreement:
In Rel-15, Case 1 HARQ timing is supported for the LTE serving cells only for the following cases
- A single FDD cell
- DL CA with FDD-FDD CA and FDD-TDD CA, where the LTE PCell is FDD and there is only one UL carrier
  - The UE is not configured for cross-carrier scheduling

Agreement:
For a UE operating in EN-DC when configured with Case 1 HARQ timing on an FDD PCell, the following is supported for the LTE serving cells
- For an FDD SCell, the same DL HARQ timing as the PCell is applied for the FDD SCell,
- For a TDD SCell, the same DL HARQ timing as the PCell is applied restricted to the set of DL/special subframes on the TDD SCell
- The UL HARQ timing for the FDD PCell is the same for the CA and non-CA cases

7.1.6 UL power control

R1-1805708 **Chairman's notes of AI 7.1.6 UL Power control** **Ad-Hoc chair (Samsung)**
Decision: The document is endorsed, content incorporated below.

7.1.6.1 NR UL power control - non-CA aspects

R1-1805553 **Summary for Al 7.1.6.1 NR UL power control in non-CA aspects** **ZTE, Sanechips**

Agreement
Definition of PUSCH open-loop parameter j=0 should also include Msg3 transmission in the RRC_CONNECTED state

Agreement
For PUSCH Msg3 in the RRC_CONNECTED state, UE shall use the SSB or CSI-RS associated with the PRACH for the pathloss measurement

Agreement
For PUSCH Msg3 and UE in RRC_CONNECTED state, if the UE is configured with more than one closed-loop process for PUSCH, the CL-PC index shall be fixed to $l=0$.

Agreement
For PUCCH without high layer parameter *PUCCH-Spatial-relation-info*, the closed loop index l should also be set to a fixed value, i.e., l=0.

Agreement:
Single K1 value is supported for PUCCH power control
- The value will be decided in RAN1#93

Agreement
Single K2 value is supported for PUCCH power control
- The value will be decided in RAN1#93

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1365 of 1750

R1-1805665 **Summary 2 for AI 7.1.6.1 NR UL power control in non-CA aspects ZTE, Sanechips**

Agreement:
UE uses one selected SSB or CSI-RS resource among SSB(s) and CSI-RS resource(s) associated with indicated RACH resource(s) in the handover message for pathloss estimation for PRACH during handover.

Agreement:
- For group-common TPC command in DCI format 2-2, both closed loops can be adjusted dynamically

Working Assumption
For group-common TPC command in DCI format 2-2,
One bit *closedloopindex* field is present along with the TPC command in the DCI format 2_2 to indicate which closed loop the TPC command applies to
- When a UE is configured with 1 closed loop, the bit *closedloopindex* field is NOT present.
- When a UE is configured with 2 closed loops, the bit location of *closedloopindex* field follows the 2 bit TPC command.

Notes: UE assumes that the start bit of the TPC command is X*tpc_index, where X=3 if configured with 2 closed-loop process, otherwise X=2.

R1-1805637 **Way Forward on UL Power Control Regarding NR Scheduling MediaTek**

Conclusion
For further discussion in RAN1#93
- K value for group common TPC is the minimum of the configured K2 values plus one.
  - Applies for both PUCCH, PUSCH, SRS
- Power scaling

R1-1803641	Remaining details of UL power control design	Huawei, HiSilicon
R1-1803763	Remaining issues of Non-CA based power control	CATT
R1-1803842	Remaining issues on non-CA UL power control	vivo
R1-1803916	Remaining issues on NR power control in non-CA aspects	ZTE, Sanechips
R1-1803972	Remaining issues on uplink power control for non-CA	OPPO
R1-1804069	Remaining issues of UL power control	MediaTek Inc.
R1-1804104	Discussion on power control signalling	CMCC
R1-1804385	Corrections on UL Power Control	Samsung
R1-1804503	RRC parameter alignment for EN-DC power control	NEC Corporation
R1-1804566	Remaining issues on non-CA aspect of UL power control	LG Electronics
R1-1804736	On Power Control framework	Intel Corporation
R1-1804812	Remaining issues on power control for NR	Qualcomm Incorporated
R1-1804850	On Pathloss Correction during Beam Switch	InterDigital, Inc.
R1-1804959	Remaining Details on non-CA NR UL power control	Motorola Mobility, Lenovo
R1-1805060	Remaining issues on PHR	NTT DOCOMO, INC.
R1-1805156	Remaining details on NR PUSCH power control	Nokia, Nokia Shanghai Bell
R1-1805202	Remaining issues for NR power control	Ericsson

7.1.6.2 NR UL power control – CA aspects

R1-1805571 **Summary of NR UL power control – CA aspects Samsung**

Agreement

Default parameter setting for virtual PHR
How to set $\{j, q_d, l\}$
- For j, P0alphasetindex = 0 of p0-pusch-alpha-setconfig
- For q_d, pusch-pathlossreference-index = 0 of pusch-pathloss-Reference-rs
- For l, l =0
- Note: If the UE is configured with multiple UL BWPs, j, qd, l corresponding to lowest BWP ID are used

Conclusion: Type 3 PHR is supported only in case PUSCH is not configured

Agreement
- At least from RAN1 perspective, it is not needed to include Pcmax,c together with PH in case of virtual PHR

Agreement: Priority rule for SUL
- For simultaneous uplink transmissions that are power-limited, when one or multiple serving cell(s) are configured with both UL and SUL carriers
  - Existing priority rule based on signals/channels content
  - In case transmissions with the same priority level on the two UL carriers,
    - the UL carrier which is configured for PUCCH has higher priority

R1-1803700	Remaining details of UL power control design for CA	Huawei, HiSilicon
R1-1803764	Parameters setting on virtual PHR for CA	CATT
R1-1803843	Remaining issues on CA UL power control	vivo
R1-1803917	Remaining issues on NR power control in CA aspects	ZTE, Sanechips
R1-1804039	Virtual PHR derivation in some situations	ASUSTEK COMPUTER (SHANGHAI)
R1-1804386	Corrections on UL Power Control for EN-DC	Samsung
R1-1804567	Remaining issues on CA aspect of UL power control	LG Electronics
R1-1804737	Power headroom report for NR carrier aggregation	Intel Corporation
R1-1804813	Remaining Issues on power control for NR CA	Qualcomm Incorporated
R1-1804960	On CA-related NR UL power control	Motorola Mobility, Lenovo
R1-1805203	Remaining issues for CA and power sharing	Ericsson

7.1.6.3 Other

R1-1804286	Discussion on PHR for SUL	Huawei, HiSilicon
R1-1804288	TP on power control for concurrent transmission of SRS on both UL and SUL	Huawei, HiSilicon
R1-1804387	Corrections on PHR calculation for CA	Samsung
R1-1804449	Independent Power control for SRS	Huawei, HiSilicon
R1-1804675	Timing and Asynchronous Transmissions with Power Control for NR DC	InterDigital, Inc.
R1-1804676	Power Control for NR DC	InterDigital, Inc.
R1-1805204	Remaining issues on closed loop power control	Ericsson
R1-1805205	Power control for UL MIMO	Ericsson

7.1.7 UE features

R1-1805707 **Chairman's notes of AI 7.1.7 on NR - UE features** **Ad-hoc chair (NTT DOCOMO, AT&T)**
Decision: The document is endorsed, content incorporated below.

R1-1803844	Discussion on Rel-15 NR UE features	vivo
R1-1804055	**Discussion on NR UE Feature List**	**MediaTek Inc.**
R1-1804305	Remaining issues of NR UE features	Huawei, HiSilicon
R1-1804388	UE Features	Samsung
R1-1804568	Views on UE feature (scheduling, BWP)	LG Electronics
R1-1804651	**Further details on NR UE Feature List**	**AT&T**
R1-1805546	**On NR UE feature list**	**Intel Corporation** (Revision of R1-1804738)
R1-1804814	NR Features and Capabilities	Qualcomm Incorporated
R1-1804815	Signaling aspects for UE capabilities	Qualcomm Incorporated
R1-1804961	On DL 4-layer MIMO supporting	China Unicom
R1-1805002	Discussion on UE capability list	Ericsson
R1-1805061	**Views on NR UE features**	**NTT DOCOMO, INC.**

Agreement
Feature 0-13 “Phase coherence across non-contiguous UL symbols in slot in the transmission of one channel” deleted from the NR UE feature list as this feature is not supported in Rel-15.

Note :
Create the following new feature if the following new feature is supported in Rel-15 after other discussion related to R1-1803374.
1-13: Simultaneous Transmission of PRACH and SR (new): Optional with capability signaling

Conclusion
NR UE feature related to June version of Rel-15 specification will be discussed separately.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1367 of 1750

Conclusion:
"Optional" in the UE feature list means it's optional with UE capaiblity signaling

Friday
R1-1805728 NR UE feature list NTT DOCOMO, INC., AT&T
Discussion: Late agreement made in the MIMO session not included in
Decision: The document is agreed.
R1-1805729 Draft LS on NR UE features NTT DOCOMO, INC., AT&T
Decision: The document is endorsed and final LS is approved in R1-1805752.

7.1.8 Other

R1-1805206	Corrections to 38.212	Ericsson
R1-1805207	Corrections to 38.213	Ericsson
R1-1805208	Corrections to 38.214	Ericsson

7.2 NR URLLC in Release 15

7.2.1 Support of separate CQI and MCS table(s) for URLLC

Focus on:
- *N separate CQI table(s) are supported for URLLC*
  - *Downselect the value of N between 1 or 2*
- *Two target BLER are supported for URLLC*
  - *Note: RRC signalling is used by gNB to select one of the two target BLER*
  - *Note: The configuration of target BLER or CQI table is part of CSI report setting*

R1-1803661 MCS/CQI design for URLLC Huawei, HiSilicon
- Observation: The fine granularity CQI/MCS table has a significant improvement on spectrum efficiency which translates directly to improved URLLC system capacity.
- Proposal 1: The CQI/MCS table with target BLER of 1e-3 and 1e-5 should be supported for URLLC.
- Proposal 2: CQI/MCS table design for URLLC should support the fine SNR granularity, as 1dB SNR CQI value granularity and 0.5dB SNR MCS value granularity.
- Proposal 3: Adopt Table 3 as the CQI tables with target BLER 1e-3 and 1e-5 for URLLC.
- Proposal 4: Adopt Table 4 as the MCS tables with target BLER 1e-3 and 1e-5 for URLLC.
- Proposal 5: Selection of MCS table for URLLC should be dynamically indicated.

Decision: The document is noted.

R1-1805515 Considerations on CQI /MCS table(s) and related aspects for URLLC ZTE, Sanechips (rev of R1-1803800)
- Proposal 1: One-shot transmission should be supported by URLLC for its lower latency.
- Proposal 2: Two-shot transmission can also be supported by URLLC for its higher transmission efficiency.
- Proposal 3: The BLER targets of URLLC CQI reporting should be 10^{-1} and 10^{-5}.
- Proposal 4: The lowest code rate x 1024 of URLLC CQI table should be 40 or 30.
- Proposal 5: The highest code rate x 1024 of URLLC CQI table should be 666 or 873.
- Proposal 6: The CQI table of Option A or B should be taken as URLLC CQI table for BLER target =10^{-5}.
- Proposal 7: The CQI table of Option C or D should be taken as URLLC CQI table for BLER target =10^{-1}.
- Proposal 8: The 5-bit MCS table for URLLC should consist of all the CQI entries and the interpolation between adjacent CQI entries.
- Proposal 9: If the CQI table of Option A is adopted, its corresponding MCS table for CP-OFDM should be the one in Table 8.
- Proposal 10: Some entries with QPSK modulation should be changed into pi/2 BPSK with the same efficiencies for DFT-s-OFDM MCS table.
- Proposal 11: If the CQI table of Option A is adopted, its corresponding MCS table for DFT-s-OFDM should be the one in Table 9.
- Proposal 12: If the CQI table of Option A is adopted, its corresponding 4-bit MCS table for CP-OFDM should be the one in Table 10.
- Proposal 13: If the CQI table of Option A is adopted, its corresponding 4-bit MCS table for DFT-s-OFDM should be the one in Table 11.
- Proposal 14: Support gNB configuration of at least the number of DL symbols per slot to UE for URLLC CQI derivation.
- Observation 1: The accuracy of SNR estimation can be much improved by OLLA in EMBB.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1368 of 1750

- Observation 2: The fact that OLLA is not suitable in URLLC scenario makes it more important to reduce the difference between the real and the target BLER.
- Observation 3: The accuracy of SNR estimation have an impact on the transmission efficiency.
- Observation 4: For low SNR range, the CQI report has low accuracy; for medium or high SNR range, the CQI report has high accuracy.
- Observation 5: One-shot transmission scheme has an overall lower latency, and the average latency of different two-shot transmission schemes are comparable. In the case when the initial transmission fails, the latency in most cases is beyond the URLLC user plane latency of 1 ms for two-shot transmission.
- Observation 6: For two shot-transmission, the first transmission BLER target impacts the occupied resource most and a lower target occupies more RE.
- Observation 7: If 10^{-1} is set as the BLER target for the initial transmission, a BLER target of 10^{-5} or 10^{-4} for retransmission occupies almost the same resources.
- Observation 8: there is a about 2dB SNR offset between LTE 16QAM table and LTE 64QAM table at BLER=0.1 for the same CQI index.
- Observation 9: For pi/2 BPSK and QPSK, a similar performance is achieved in MCS 0~3 and the gap becomes large from MCS4 above.

Decision: The document is noted.

R1-1803919 **CQI and MCS Tables for URLLC** **Ericsson**

- Observation 1: In many scenarios physical layer has time for only one or two HARQ transmissions.
- Observation 2: Testing time for CQI reporting at BLER target 10^{-5} is equivalent to NB-IoT NPDCCH.
- Observation 3: Low rate MCSs is more efficient compare to automatic repetitions in case of contiguous RA.
- Proposal 1: CQI reporting target BLERs supported for URLLC are 10^{-3} and 10^{-5} (Option C).
- Proposal 2: Selection of CQI table for URLLC should be done based on RRC configured target BLER.
- Proposal 3: Highest spectral efficiency in any/all CQI table is not greater than 873/1024 * 6 (Option C).
- Proposal 4: Use Table 2 as the CQI table for URLLC, with one set of CQI index for BLER=10^{-3} and another set for BLER=10^{-5}.
- Proposal 5: Highest spectral efficiency in any/all MCS table is not greater than 873/1024 * 6 (Option C).
- Proposal 6: Selection of MCS table for URLLC should be UE-specific RRC configured.
- Proposal 7: Use Table 3 as the MCS table for PDSCH and PUSCH with CP-OFDM for URLLC.
- Proposal 8: Use Table 4 as the MCS table for PUSCH with DFT-s-OFDM for URLLC.
- Proposal 9: If compact DCI is to be adopted, consider limiting the size of MCS table(s) for URLLCs to be smaller than 5 bits, while taking into account scheduling flexibility.
- Proposal 10: TBS determination for URLLC follows the same procedure as eMBB.

Decision: The document is noted.

R1-1804739 **CQI and MCS tables for NR URLLC** **Intel Corporation**

- Proposal 1: Select 10% and 0.001% (1e-1, 1e-5) as configurable BLER targets for CQI reporting targeting URLLC use cases
- Proposal 2: Single separate CQI table is defined for the second (i.e. lowest) BLER target while the legacy 64QAM CQI table is reused for the first (i.e. higher) BLER target
- Proposal 3
  - Minimum SE point in the new CQI table designed specifically for URLLC is 50 * 2/1024.
  - Maximum SE point in the new CQI table designed specifically for URLLC for 64 QAM table is 873 * 6/1024
- Proposal 4: Adopt Table 2 of current document for CQI table designed for configured BLER 10^{-5}
- Proposal 5
  - Adopt Table 4 of current document as the MCS table designed specifically for URLLC
  - Minimum SE point of MCS table designed specifically for URLLC is 50 * 2 /1024
  - Maximum SE point of MCS table designed specifically for URLLC is 772 * 6 /1024
- Proposal 6
  - MCS Table is independently configured from BLER target and CQI Table
  - MCS Table for UL and DL can be separately configured

Decision: The document is noted.

R1-1805511 **Considerations for CQI and MCS for URLLC** **Qualcomm Incorporated** (rev of R1-1804817)

- Proposal 1: The minimum SE in the URLLC CQI table should be 2*39/1024 (half of that of the EMBB table).
- Observation 1: The number of allocated RBs is very sensitive to variation in SE in the low SE region, but not in the high SE region.
- Observation 2: The CQI table for EMBB has coarse granularity in low SE, which can result in either inefficient resource allocation or more transmission failures due to insufficient resource allocation.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1369 of 1750

- Proposal 2: The CQI table for URLLC should take into consideration the sensitivity of RB allocation with respect to SE.
- Proposal 3: The CQI table for URLLC should have finer SE granularity in the low SE region and coarser granularity in the high SE region.
- Proposal 4: The minimum SE entry in the CQI table is included in the MCS table in URLLC.
- Observation 3: A low BLER target will cause the UE to underreport the achievable spectral efficiency.
- Observation 4: A BLER target of 1e-5 can lower the average reported SE by up to 20-50%.
- Observation 5: A first transmission BLER target between 10% and 1% minimizes amount of used resources.
- Observation 6: CQI report with low BLER target can only be practical use under static channel condition and with reasonably
- Proposal 5: UE should not be expected to achieve the reported the very low target BLER if channel and interference varies from where CSI measurement takes place to where data transmission occurs or CSI measurement cannot be done with sufficient accuracy (FFS the level of accuracy).
- Observation 7: Not using 1e-1 as a BLER target for URLLC increases CSI reporting complexity and UL resource.
- Proposal 6: For URLLC, 1e-4 can be considered as the low target BLER in addition to the 1e-1 BLER target for regular 1st transmission BLER target considering all the practical challenges in the accuracy of reporting. Higher reliability can be achieved via gNB scheduling and HARQ retransmissions.

Decision: The document is noted.

Tuesday's wrap-up: Continue discussion offline – Yufei (Ericsson)

Wednesday

R1-1805613 **Offline Discussion on Support of Separate CQI and MCS table(s) for URLLC** **Ericsson**

Decision: The document is noted.

Agreements:

- The two BLER targets that are configurable for URLLC for CSI reporting are:
  - Option B. (10-1, 10-5)
  - Note: The definition of the test case for the BLER target of 10-5 should take into account channel and interference variations and estimation errors.

Agreements:

- Highest spectral efficiency for CQI based on 10-5 BLER target for URLLC is no more than 772/1024*6
- Highest spectral efficiency for CQI based on 10-1 BLER target for URLLC is no more than 873/1024*6
  - It doesn't necessarily mean that the CQI table introduced for eMBB can not be directly reused for URLLC – it's still a separate discussion
- Note that
  - Whether or not to have two tables or a single table covering both BLER targets is a separate issue

Thursday

R1-1805642 **Summary of Wednesday offline discussion on Support of Separate CQI and MCS table(s) for URLLC** **Ericsson**

Decision: The document is noted.

Agreements:

- In total, there are two CQI tables for URLLC CQI reporting
  - The first table for URLLC CQI reporting is the same as the existing 64QAM CQI table without any change, which is for BLER target 10-1 for URLLC
    - Note: this means the agreement on "Highest spectral efficiency for CQI based on 10-1 BLER target for URLLC is no more than 873/1024*6" is overturned
  - The new table will have entries corresponding to BLER target 10-5
- For CSI reporting, the CQI field is 4-bit.

Agreements:

- For BLER 10-5,
  - Companies are encouraged to perform simulations for the new CQI table for URLLC, including
    - The lowest SE entry
      - E.g., 30~50/1024*2
    - Note that the highest SE entry of no more than 772/1024*6 is already agreed
    - Consider using approximately equally spaced SNR values
      - Other options are not precluded

        - Whether or not some existing CQI entries for BLER 10-1 can be reused
            - Consider exsiting CQI entires when applicable
    - In total 15 CQI entries (+1 OOR entry)
- In performing the simulations, consider
    - Fading channel (TDL-A, 30ns) & (TDL-C, 300ns)
        - Other options are not precluded
    - Payload of 32 bytes
        - Other payload sizes can also be considered, up to each company
    - SNR at 5% geometry for the lowest SE entry
        - Other options are not precluded
    - For other simulation assumptions, refer to agreements from RAN1#92
- Similar considerations are also applicable to the MCS table evaluations

R1-1803765	CQI and MCS design for NR URLLC	CATT
R1-1803845	Discussion on CSI report for URLLC	vivo
R1-1804009	CQI and MCS design for URLLC	OPPO
R1-1804078	On CQI and MCS Design for URLLC	MediaTek Inc.
R1-1804105	Discussion on BLER requirement for URLLC	CMCC
R1-1804569	Discussion on CQI and MCS table design for URLLC	LG Electronics
R1-1804615	Remaining details of CQI and MCS for URLLC	Nokia, Nokia Shanghai Bell
R1-1804641	On details of CQI and MCS tables for NR URLLC	Panasonic
R1-1804658	CQI/MCS table design for URLLC	AT&T
R1-1804851	Remaining Details of CQI and MCS Tables for URLLC	InterDigital, Inc.
R1-1805519	CQI and MCS Tables for URLLC	Samsung (revision of R1-1804389)

7.2.2 Study of necessity of a new DCI format

Whether or not to define a new DCI format(s) that has a smaller DCI payload size than DCI format 0-0 and DCI format 1-0 unicast data

R1-1803657 Compact DCI for URLLC Huawei, HiSilicon

- Observation 1: For 1e-5 target BLER, around 1dB gain can be achieved by reducing the DCI payload from 40 bits to 24 bits without CRC for AL 16.
- Observation 2: A compact DCI with a smaller DCI payload size than DCI format 0_0 and DCI format 1_0 requires more than 20% less resources in order to meet BLER of 1e-5.
- Proposal 1: For transmission without HARQ-ACK feedback, the operating BLER of the PDCCH for URLLC should be on the order of 1e-5 or smaller.
- Proposal 2: Support a new DCI format(s) design that has a smaller DCI payload size than DCI format 0_0 and DCI format 1_0 for URLLC.
- Proposal 3: Consider the following DL compact DCI format for URLLC

DCI field	Header	Frequency domain resource allocation	Time domain resource allocation	HARQ process	MCS	NDI	RV	HARQ-ACK timing	TPC	PUCCH resource	A-CQI	CRC	Total payload size
# bits	1	5	2	3	4	1	2	2	2	1	1	24	48

- Proposal 4: Consider the following UL compact DCI format for URLLC

DCI field	Header	Frequency domain resource allocation	Time domain resource allocation	HARQ process	MCS	NDI	RV	Frequency hopping flag	TPC	CRC	Total payload size
# bits	1	5	2	3	4	1	1	1	2	24	44

Decision: The document is noted.

R1-1804390 On Need for Additional DCI Format Samsung

- Observation 1: In case of 2 Rx and 700MHz, all DCI payloads with AL 16 satisfy URLLC reliability requirements for all channel models.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1371 of 1750

- Observation 2: In case of 2 Rx and 700MHz, all DCI payloads with AL 4 does not satisfy URLLC reliability requirements for all channel models
- Observation 3: In case of 2 Rx and 700MHz, all DCI payloads with AL 8 satisfy URLLC reliability requirements in TDL-B and TDL-C.
- Observation 4: In case of 2 Rx and 700MHz, only DCI payloads of 30bits and 24bits with AL 8 satisfy URLLC reliability requirements in TDL-A.
- Observation 5: In case of 4 Rx and 4GHz, all DCI payloads with AL 4, 8 and 16 satisfy URLLC reliability requirements for all channel models.
- Observation 6: Compact DCI might not support full scheduling flexibility as Normal DCI does
- Proposal: It does not need to consider compact DCI because current NR specification can sufficiently satisfy URLLC reliability requirement by using normal DCI.

Decision: The document is noted.

R1-1805268 **On further study of compact DCI for URLLC** **Nokia, Nokia Shanghai Bell** (rev of R1-1804616)

- Observation 1: With the agreed RAN1 link level simulation assumptions, 0.4~0.8 dB gain can be achieved with the compact DCI (30 bits vs. 40 bits) with AL 8 at BLER=10^{-4}.
- Observation 2: With the agreed RAN1 link level simulation assumptions, 0.3~0.4 dB gain can be achieved with the compact DCI (30 bits vs. 40 bits) with AL 16 at BLER=10^{-4}.
- Proposal: Do not specify compact DCI in NR Rel-15, considering both the limited benefit and the resulted impact from compact DCI.

Decision: The document is noted.

R1-1804943 **Discussion on compact DCI for NR URLLC** **Beijing Xiaomi Mobile Software**

- Observation: Around 1 dB performance gain can be achieved by reducing the DCI payload from 40bits to 24bits
- Proposal: The number of the monitored DCI formats should be limited for a URLLC UE.

Decision: The document is noted.

Tuesday's wrap-up: Continue discussion offline – Xinghua (Huawei)

Wednesday
R1-1805630 **Summary of 7.2.2 Study of necessity of a new DCI format** **Huawei**
Decision: The document is noted.

R1-1803766 Necessity of a compact DCI format for NR URLLC CATT
R1-1803801 NR compact DCI format for URLLC ZTE, Sanechips
R1-1803846 Discussion on compact DCI for URLLC vivo
R1-1803920 On Compact DCI for URLLC Ericsson
R1-1804010 DCI design for URLLC OPPO
R1-1804079 On Compact DCI Design for URLLC MediaTek Inc.
R1-1804497 Discussion on compact DCI format for NR URLLC Panasonic Corporation
R1-1804570 Discussion on compact DCI format design LG Electronics
R1-1804595 Compact DCI for NR URLLC operation Sony
R1-1804659 Compact DCI and DM-RS design for URLLC AT&T
R1-1804740 On compact DCI format for NR URLLC Intel Corporation
R1-1804818 Considerations on new DCI format Qualcomm Incorporated
R1-1804852 Evaluation of Compact DCI for URLLC InterDigital, Inc.
R1-1804940 Consideration of compact DCI design for URLLC China Unicom
R1-1805062 Necessity of compact DCI NTT DOCOMO, INC.
R1-1805096 DCI format for URLLC China Telecommunications

7.2.3 Study of necessity of PDCCH repetition

Whether or not for a given carrier, PDCCH repetitions over same or multiple PDCCH monitoring occasion(s) of the same or multiple CORESET and search space

R1-1803921 **On PDCCH Repetition for URLLC** **Ericsson**

- Observation 1: Existing PDCCH design and improved UE capability in terms of increased number of receive antennas provide a strong basis for PDCCH reliability enhancement fulfilling URLLC requirements.
- Observation 2: PDCCH repetition provides extra robustness for DL control information in general but also requires extra resources in time, or frequency.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1372 of 1750

- Observation 3: PDCCH repetition over multiple CORESETs and search spaces can lead to additional UE complexity regarding PDCCH monitoring and blind decoding.
- Observation 4: Gain from PDCCH repetition over multiple monitoring occasions is unclear.
- Proposal 1 If compact DCI is not adopted, PDCCH repetition associated with PDSCH repetition is considered for improving URLLC reliability.
- Proposal 2 Existing PDCCH design potentially together with compact DCI size are sufficient for fulfilling URLLC reliability requirement.

Decision: The document is noted.

R1-1804071 On PDCCH Repetition for URLLC MediaTek Inc.

- Observation 1: From IMT-2020 self evaluation results, 5 percentile SINR target can be set as -3.1dB for carrier frequency 4GHz and as -3.0dB for carrier frequency 700MHz.
- Observation 2: For carrier frequency 4GHz, NR PDCCH fulfils the reliability requirement of URLLC for UEs equipped with 4 receive antennas.
- Observation 3: For carrier frequency 700MHz with 2 Rx at the UE side, the current NR PDCCH can attain a BLER less than 10^{-5} at SNR -2.5dB.
- Observation 4: Compact DCI is a more suitable solution to provide proper gain than PDCCH repetition.
- Observation 5: PDCCH repetition can enhance reliability but is unnecessary for the existing NR-PDCCH.
- Observation 6: In terms of latency, PDCCH repetition provides little benefit to the existing NR-PDCCH.
- Observation 7: Under stringent latency and reliability requirements of URLLC, PDCCH repetition cannot improve spectral efficiency.
- Observation 8: Comparing with PDCCH repetition, HARQ retransmission is a more efficient way to lower the blocking probability.
- Observation 9: PDCCH repetition can enhance scheduling flexibility but with increased monitoring and blind decoding complexity.
- Observation 10: For carrier frequency 700MHz, NR PDCCH with a payload size of 30 bits fulfils the reliability requirement of URLLC for UEs equipped with 2 receive antennas.
- Proposal: PDCCH repetition is not adopted in NR.

Decision: The document is noted.

R1-1804644 On PDCCH repetition for NR URLLC Sequans Communications

- Observation 1: For URLLC PDCCH, keeping AL 16 or higher as the only mechanism to reach reliability target is inefficient in terms of CCE usage and PDCCH blocking probability, while AL 8 is inadequate.
- Observation 2: Compact DCI provides minor gain for AL of 8 or 16.
- Proposal 1: For NR URLLC, RAN1 should decide on the necessity of compact DCI and PDCCH repetition by taking into account the $Y<10^{-5}$ PDCCH BLER target to support the one-shot data transmission case, i.e. where only a single PDSCH transmission is possible.
- Proposal 3: PDCCH repetition is supported to achieve URLLC reliability.
- Proposal 4: PDCCH repetition in time, i.e. in different monitoring occasions, where the additional DCI transmission is conditional to the successful reception of the initial DCI by the UE, is supported.

Decision: The document is noted.

R1-1804853 Evaluation of PDCCH Repetition for URLLC InterDigital, Inc.

- Observation 1: PDCCH repetition is needed for achieving the block error rate of less than 10^{-5} for URLLC with one-shot transmission.
- Observation 2: For the case of 2 receive antennas at the UE and the lack of frequency selectivity, PDCCH repetition with the highest aggregation level of 16 is not sufficient to satisfy URLLC requirement with one-shot transmission.
- Proposal 1: Introduce URLLC DCI diversity transmission by exploring DCI diversity based on:
  - Uncorrelated spatial resource assignment
  - Disjoint frequency allocations with large frequency distance, e.g. carrier assignment for DCI transmission for the same UE.
- Proposal 2: NR should support paired search spaces over multiple CORESETs
  - FFS: One-to-one correspondence between the candidates of the paired search spaces.

Decision: The document is noted.

Tuesday's wrap-up: Continue discussion offline – Chih-Ping (Qualcomm)

Wednesday

R1-1805633 Offline summary on the study of necessity of PDCCH repetition Qualcomm

Decision: The document is noted. Continue offline discussion (Xinghua/Chih-Ping) focusing on:

- Whether or not the case of 700MHz, TDL-A, 30ns has issues or not in terms PDCCH reliability, and if so, whether such a case should be addressed by spec
  - Including checking/discussing the target SINR operating point for URLLC
- Whether or not to support one or both of the following:
  - Compact DCI targeting minimal spec impact
    - At least 10 bits reduction?
    - Target to have a list of information fields for reduction
  - PDCCH repetition with minimal spec impact, e.g.,
    - Up to 4 repetitions?
    - Also in freq domain?

Thursday
R1-1805683 **Offline summary on compact DCI and PDCCH repetition Qualcomm**
Decision: The document is noted.

- Alt 1: No support of compact DCI and PDCCH repetition
  - Yes: AT&T, MediaTek, Qualcomm, Samsung, Nokia, NSB, Fujitsu, Ericsson, Intel, NTT DOCOMO
  - No: Huawei, HiSilicon, InterDigital, ZTE
- Alt.2: Support compact DCI but not PDCCH repetetion
  - Yes: Vivo, CATT, OPPO, Huawei, HiSilicon, Qualcomm, InterDigital
  - No: Nokia, NSB, Samsung, LGE, Intel, Ericsson, KT
- Alt.3: not supporting compact DCI but support PDCCH repetetion
  - Yes: Nokia, NSB, LGE, ZTE, Sequans, NTT DOCOMO, Intel, SONY, KT
  - No: Qualcomm, MediaTek, CATT, vivo, InterDigital, OPPO, AT&T, Samsung
- Alt.4: support both
  - Yes: Huawei, HiSilicon, ZTE
  - No: Qualcomm, Samsung, MediaTek, AT&T, CATT, Ericsson, Nokia, NSB, vivo, OPPO, NTT DOCOMO

Conclusion:
- There is no consensus in Rel-15 to support:
  - Defining a new DCI format(s) that has a smaller DCI payload size than DCI format 0-0 and DCI format 1-0 unicast data, and/or
  - For a given carrier, PDCCH repetitions over same or multiple PDCCH monitoring occasion(s) of the same or multiple CORESET and search space

R1-1803658 PDCCH repetition for URLLC Huawei, HiSilicon
R1-1803767 Discussion on enhanced PDCCH for NR URLLC CATT
R1-1803802 Discussion on PDCCH repetition for URLLC ZTE, Sanechips
R1-1803847 Discussion on PDCCH repetition for URLLC vivo
R1-1803943 PDCCH repetition for URLLC transmissions Fujitsu
R1-1804011 PDCCH repetition for URLLC OPPO
R1-1804224 On URLLC PDCCH simulation Spreadtrum Communications
R1-1804234 On enhancing reliability of PDCCHNEC
R1-1804391 On Need for PDCCH Repetitions Samsung
R1-1804571 Discussion on PDCCH repetition for URLLC LG Electronics
R1-1804599 PDCCH repetition for NR URLLC Sony
R1-1804617 Discussion on reliability enhancement for PDCCH Nokia, Nokia Shanghai Bell
R1-1804660 On PDCCH repetition for URLLC AT&T
R1-1804741 On NR PDCCH repetitions for URLLC Intel Corporation
R1-1804819 Considerations on PDCCH repetition Qualcomm Incorporated
R1-1804944 Discussion on PDCCH repetition for NR URLLC Beijing Xiaomi Mobile Software
R1-1805063 Necessity of PDCCH repetition NTT DOCOMO, INC.
R1-1805547 On PDCCH Reliability KT Corp.

7.2.4 Study of handling UL multiplexing of transmissions with different reliability requirements

Study of handling UL multiplexing of transmission with different reliability requirements (including the potential need for UL UE pre-emption)

R1-1804106 **Discussion on handling for UL URLLC and eMBB collision issue CMCC**

- Proposal 1: UE decides which one is transmitted when multiple UL transmissions with different traffic priority collide and are not allowed simultaneously. Traffic priority could be taken into account by UE to make the decision.
- Specifically, in case of overlapping between URLLC UL transmission (for both grant-based and grant-free) and eMBB transmissions, URLLC transmission is prioritized and eMBB UL transmission is cancelled.
- Proposal 2: Semi-static power control mechanism is supported in Rel-15. Specifically, multiple sets of power control parameters should be configured by RRC signaling and UE can select one set of parameters according to the traffic priority.

Decision: The document is noted.

R1-1804600 Considerations on UL pre-emption Sony

- Observation 1: Intra-UE grant based uplink pre-emption of an ongoing eMBB transmission by a grant based URLLC transmission can be avoided via mini-slot level scheduling.
- Observation 2: An intra-UE uplink grant based eMBB transmission can collide with an uplink grant free URLLC transmission.
- Observation 3: Intra-UE uplink grant free URLLC repetitions can collide with another grant free URLLC transmission.
- Observation 4: Since the gNB is unaware when a UE may use the grant free resource for URLLC transmission, transmitting a grant free URLLC transmission using resources originally granted for eMBB would require the gNB to blind detect for possible URLLC or mini-slot transmission for every scheduled eMBB transmission.
- Observation 5: A Pre-emption Indicator can only be transmitted to an eMBB UE if the gNB receives an SR prior to the slot (PDCCH) where the eMBB is transmitted.
- Observation 6: Increasing URLLC transmission power and/or reducing eMBB transmission power would lead to poor SNR for the eMBB transmission and cause spikes of inter-cell interferences.
- Proposal 1: For eMBB scheduled at slot level, the eMBB transmission is terminated if the UE receives an UL grant for a mini-slot PUSCH.
- Proposal 2: For intra-UE pre-emption, when an earlier ongoing (eMBB or URLLC repetition) is pre-empted by a later grant free URLLC transmission, the earlier transmission is terminated and the later grant free URLLC transmission will proceed.
- Proposal 3: For grant based inter-UE URLLC and eMBB pre-emption, a Pre-emption Indicator (PI) can be transmitted with a DCI using a PDCCH prior to the transmission of the eMBB data to terminate its eMBB transmission prior to the URLLC pre-emption.
- Proposal 4: For inter-UE URLLC and eMBB pre-emption where the URLLC is transmitted using uplink grant free that overlaps the eMBB transmission, the eMBB is transmitted in a DTX manner.

Decision: The document is noted.

R1-1804742 Handling UL transmissions with different reliability requirements Intel Corporation

- Observation 1: There is no need for additional handling of configured grant and dynamic grant prioritization since RAN2 already considered the use cases of URLLC and eMBB multiplexing when taking the decision about current overriding behaviour
- Observation 2: NR provides sufficient mechanisms to configure different power control parameters for different services either dynamically or semi-statically
- Observation 3: Dynamic reduction of eMBB power can be better classified as a generalized form of interruption indication and should be discussed in that context rather than power control techniques
- Observation 4: Different approaches may be considered to support cancellation of UL transmissions in favor of higher priority URLLC traffic in terms of either transmission interruption or continuation signaling and related UE behavior.
- Proposal 1: For a UE supporting URLLC traffic, if the UE receives a dynamic grant scheduling PUSCH overlapping with another PUSCH scheduled by an earlier received grant, the UE follows the latter-received grant and the previously scheduled PUSCH is dropped in the overlapping symbols
  - UE is not expected to continue transmission of the lower priority earlier scheduled PUSCH after dropping the overlapped symbols
- Proposal 2: For a UE supporting URLLC traffic, if the UE is instructed to trigger an UL transmission overlapping with a previously triggered UL transmission regardless whether this is PUSCH or UCI/PUCCH, SRS, the previously triggered UL transmission is dropped starting from the overlapping symbols
- Proposal 3: It is not essential to specify UL interruption indication in NR

Decision: The document is noted.

R1-1804820 eMBB and URLLC dynamic multiplexing and preemption indication on the uplink Qualcomm Incorporated

- Proposal 1: NR supports dynamic resource sharing between different latency and/or reliability requirements for the eMBB and URLLC services on the uplink.
- Observation 1: Boosting transmission power of URLLC UEs is infeasible for cell-edge UEs that have limited power headroom, and is ineffective in the interference-limited regime for all URLLC UEs.

- Observation 2: Static or semi-static reduction of the transmission power of eMBB UEs significantly impacts the eMBB performance. Dynamic power reduction is similar to the pre-emption indication scheme.
- Observation 3: In intra-cell eMBB and URLLC multiplexing on the uplink, semi-static power control of eMBB UEs significantly degrades the URLLC performance, unless the target received data SNR of eMBB is very low, resulting in significantly degraded eMBB performance.
- Observation 4: Uplink pre-emption indication maximizes the URLLC performance by muting eMBB transmissions that interfere with the URLLC ones. Compared to semi-static power control, the eMBB performance is substantially improved since eMBB transmissions are only suspended when URLLC transmission is present.
- Observation 5: The monitoring and reacting to ULPI, per UE capability, takes less processing time than monitoring UL grants and preparing for uplink data transmissions by URLLC UEs.
- Observation 6: The timing alignments of UEs with different TAs for ULPI processing can be done the same way as how they are handled in SFI (which are signalled similarly in GC-PDCCH).
- Proposal 2: NR should support uplink pre-emption indication for eMBB and URLLC dynamic multiplexing on the uplink. Monitoring of ULPI by eMBB UEs, per UE capability, should be non-slot-based to align with non-slot-based UL URLLC transmissions. ULPI needs to be a current indication scheme and is received by eMBB UEs before the scheduled URLLC PUSCH resources.
- Proposal 3: The discussions of inter-UE multiplexing of eMBB and URLLC should be prioritized over that of intra-UE multiplexing.

Decision: The document is noted.

Tuesday's wrap-up: Continue discussion offline – Xueming (vivo)

Wednesday
R1-1805629 **Summary of handling UL multiplexing of transmission with different reliability requirements** **vivo**
Decision: The document is noted. Continue discussion offline (Xueming) focusing on:

- Whether or not to have any enhancements
- For any potential enhancements, aim to converge on a high-level summary of impacts
  - Aim to have minimal spec impact

Thursday
R1-1805684 **URLLC Wednesday Offline summary** **vivo**
Decision: The document is noted.

Proposal:

- Support of handling inter-UE UL multiplexing of transmission with different reliability requirements (inc. the potential need UL UE pre-emption)
  - No: Huawei, HiSilicon, CATT, Intel, MediaTek
  - Yes: Qualcomm, ZTE, Sharp, NTT DOCOMO, CMCC, NEC, Ericsson, Fujitsu, Mitsubishi, vivo, OPPO, LGE, Sequans, MoTM, Lenovo, Nokia, NSB, Panasonic

General comment from the "No" companies: Only one company has provided simulation results (Qualcomm), how can a decision be made supporting such the above proposal without results showing the benefits/drawbacks?

Conclusion:

- There is no concensus in Rel-15 to support handling inter-UE UL multiplexing of transmission with different reliability requirements (including the potential need for UL UE pre-emption).

R1-1803659	UL multiplexing between URLLC and eMBB	Huawei, HiSilicon
R1-1803768	Multiplexing of UL transmissions of different reliability requirements	CATT
R1-1803803	UL multiplexing of transmissions with different reliability requirements	ZTE, Sanechips
R1-1803848	Discussion on handling UL multiplexing of transmissions with different reliability requirements	vivo
R1-1803922	On Pre-emption in Uplink	Ericsson
R1-1803944	On UL multiplexing of transmissions with different reliability requirements	Fujitsu
R1-1804012	Low-latency transmission for uplink	OPPO
R1-1804080	On UL Multiplexing for URLLC	MediaTek Inc.
R1-1804084	Power control details for multiplexing UL eMBB and URLLC	ASUSTEK COMPUTER (SHANGHAI)
R1-1804222	Discussion on UL multiplexing of transmissions with different reliability requirements	Spreadtrum Communications
R1-1804392	Multiplexing of UL transmissions with different reliability requirements	Samsung
R1-1804450	Uplink Pre-emption for URLLC Reliability III	
R1-1804572	Discussion on multiplexing UL transmission with different requirements	LG Electronics

R1-1804618 On UL multiplexing between eMBB and URLLC Nokia, Nokia Shanghai Bell
R1-1804642 Discussion on URLLC UL multiplexing Panasonic
R1-1804772 Discussion on handling of UL multiplexing of transmissions with different reliability requirement Apple Inc.
R1-1804854 On Dynamic Resource Sharing between eMBB and URLLC in UL InterDigital, Inc.
R1-1804945 On UL multiplexing of transmission with different reliability requirements Beijing Xiaomi Mobile Software
R1-1804947 Discussions on UL multiplexing Mitsubishi Electric Co.
R1-1804957 Multiplexing of URLLC and eMBB uplink channels Motorola Mobility, Lenovo
R1-1804963 Disscussion on UL multiplexing of transmissions with different reliability requirements China Unicom
R1-1805064 Handling UL multiplexing of transmissions with different reliability requirements NTT DOCOMO, INC.
R1-1805098 UL Multiplexing for Transmissions of different Reliabilities TCL Communication
R1-1805155 On uplink multiplexing of transmissions with different reliability requirements KDDI Corporation
R1-1805158 Considerations for UL multiplexing with different reliability requirements Sequans Communications
R1-1805246 UCI multiplexing considering URLLC data in PUSCH WILUS Inc.

7.2.5 Other

R1-1803660 PDSCH reliability for URLLC Huawei, HiSilicon
R1-1803698 Discussion on semi-static HARQ-ACK codebook for slot aggregation Huawei, HiSilicon
R1-1803769 PUCCH enhancement for URLLC CATT
R1-1803849 Other aspects for URLLC vivo
R1-1803923 Channel Coding Techniques for URLLC Ericsson
R1-1803924 On PUCCH for Ultra-Reliable Transmission Ericsson
R1-1803925 On Performance of PUCCH Format 0 for URLLC Use Cases Ericsson
R1-1803926 On Performance of PUCCH Format 2 for URLLC Use Cases Ericsson
R1-1803927 On Frequency Hopping for Ultra-reliable Transmission Ericsson
R1-1803928 On Transmit Diversity for Ultra-high Reliability Use Cases Ericsson
R1-1803929 URLLC Downlink System Level Simulation Results Ericsson
R1-1803930 On Supporting Reliable HARQ Feedback for UL Transmission with Configured Grant Ericsson
R1-1803931 UCI Transmission for URLLC Ericsson
R1-1803932 Evaluation of Reliability in NR Ericsson
R1-1803933 Evaluation of UP latency in NR Ericsson
R1-1803936 Indication of URLLC Configuration Ericsson
R1-1803945 UCI piggyback on PUSCH with URLLC data Fujitsu
R1-1804081 On Grant-Free Transmission Framework for URLLC MediaTek Inc.
R1-1804173 UCI multiplexing for URLLC ZTE, Sanechips
R1-1804217 Discussion on possible open issues for PDCCH in URLLC Spreadtrum Communications
R1-1804289 CSI feedback enhancements for URLLC Huawei, HiSilicon
R1-1804290 UCI piggyback on PUSCH for URLLC Huawei, HiSilicon
R1-1804291 PUCCH reliability Huawei, HiSilicon
R1-1804293 PUCCH resource allocation for non-slot scheduling Huawei, HiSilicon
R1-1804294 Considerations on DMRS to support URLLC Huawei, HiSilicon
R1-1804296 Reliability enhancement for grant-free transmission Huawei, HiSilicon
R1-1804297 Discussion on partially overlapped PUCCH and PUSCH for URLLC Huawei, HiSilicon
R1-1804428 Discussion on the feasibility of High Accuracy Time Synchronization for NR Huawei, HiSilicon
R1-1804429 Discussion on the motivation of High Accuracy Time Synchronization for URLLC Huawei, HiSilicon
R1-1804619 Simultaneous configuration of grant and grant-free based UL transmission for URLLC UEs Nokia, Nokia Shanghai Bell
R1-1804643 On support of faster inter-bandwidth part hopping for increased reliability Panasonic
R1-1804677 Transmission of UCI with different reliability requirements InterDigital, Inc.
R1-1804678 Power Control for Transmissions with Different Service Requirements InterDigital, Inc.
R1-1804765 Precoder Update for SPS UL Ericsson Inc.
R1-1804821 Impact of UE processing timeline on the URLLC performance Qualcomm Incorporated
R1-1805157 Considerations for PUCCH reliability Sequans Communications

7.3 Study on enhanced NR to support Non-Terrestrial Networks - SID in RP-171450

R1-1805706 Chairman's notes of 7.3 SI on NR to support non-terrestrial networks Ad-Hoc chair (Samsung)
Decision: The document is endorsed, content incorporated below.

R1-1805652 Summary of NTN offline discussions Thales

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1377 of 1750

7.3.1 Channel Model

Agreement: Besides rural and sub-urban environments, two urban environments are included in the channel model for NTN: urban and dense urban.

Agreement: Use the formula $B_C = \frac{1}{\alpha \tau_{rms}}$ to calculate the coherence bandwidth from the x percentile rms delay spread for each environment and elevation

Working Assumption
- α = 10 and x = 95

Agreement
The two-state ITU model (flat fading model) can be used as a simplified alternative to the TR38.901 methodology for:
- Omnidirectionnal UE antenna patterns
- If for all elevatation angles under consideration in an environment the UE bandwidth is lower than the coherence bandwidth

Agreement
For rural environments, the coherence bandwidth should be the same as that of suburban environment.

Agreement:
For dense urban environment, the following LOS probability is assumed:

Elevation	LOS probability
10°	28.2%
20°	33.1%
30°	39.8%
40°	46.8%
50°	53.7%
70°	73.8%
90°	98.1%

Agreement:
For urban environment, the following LOS probability is assumed:

Elevation	LoS prob. Urban
10°	24.58%
20°	38.56%
30°	49.34%
40°	61.33%
50°	72.59%
60°	80.51%
70°	91.94%
80°	96.79%
90°	99.21%

Agreement
For suburban environment, the LOS probability is as follows:

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1378 of 1750

Elevation	LOS probability
10°	78,2%
20°	86,9%
30°	91,9%
40°	92,9%
50°	93,5%
60°	94%
70°	94.9%
80°	95.2%
90°	99.8%

Agreement
The tropospheric scintillation is only considered for satellite links above 6GHz, and is defined by the ITU-R P.618-13 model.

Agreement
The ionospheric scintillation is only considered for satellite links below 6GHz, and is defined by the ITU-R P.531-11 model.

Working Assumption
O2I loss is considered based on the ITU-R P.2109-0 recommendation

Agreement
Atmospheric attenuation is only considered for above 10GHz, and is defined by the ITU-R P.676-11 model.

R1-1805670 TP for chapter 6 of TR38.811 Huawei, HiSilicon, Thales, ESA, Nokia, Nokia Shanghai Bell

Agreement
The text proposal for TR38.811 is agreed.

------- start of Text Proposal -------

6 Non-Terrestrial Networks channel models

6.1. Status/expectation of existing information for satellite/HAPS channels

6.1.1 Channel modeling works outside of 3GPP

6.1.2 Targeted user environment (Satellite: outdoor only; HAPS: outdoor & indoor)

6.1.3 Modeling objectives

6.2 Differences between satellite/HAPS and terrestrial channel modelling approaches

Figures 6.2-1 and 6.2-2 compare the macro-cellular and satellite access links in NLOS and LOS cases, respectively. The terrestrial propagation is quite similar: multipath propagation is caused by objects near the user. However, the angular spread from satellite is almost zero (due to its distant location) while it can still be several degrees from the base station.

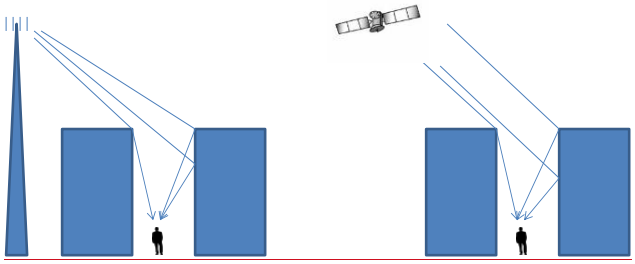


Figure 6.2-1: Macro-cellular vs. satellite channel, NLOS

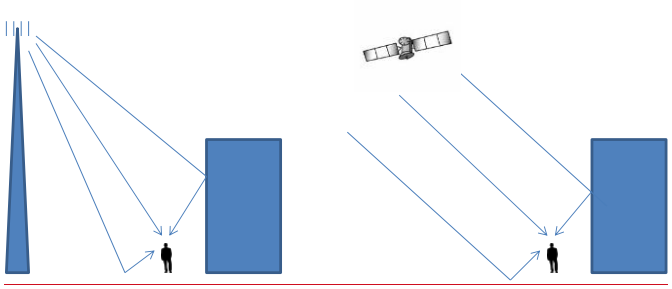


Figure 6.2-2: Macro-cellular vs. satellite channel, LOS

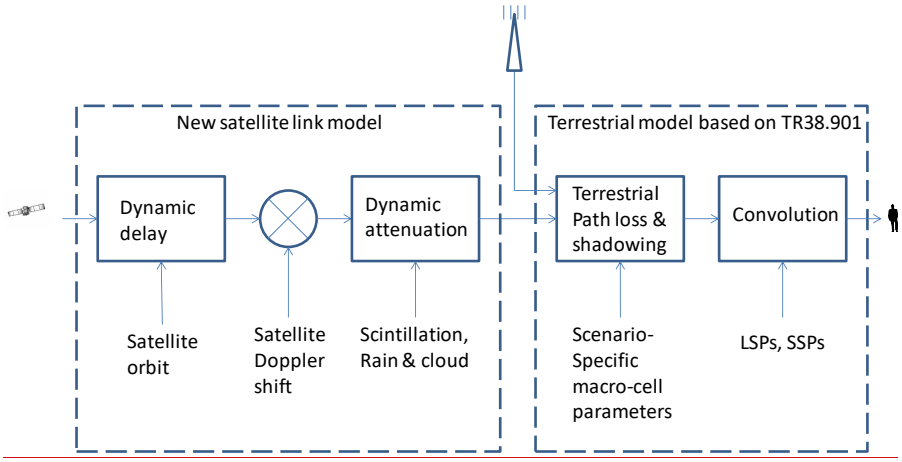


Figure 6.2-3: Combined satellite and terrestrial channels (conceptual drawing).

6.3 Coordinate system

6.4 Antenna modelling

6.4.1 HAPS/Satellite antenna

6.4.2 UE antenna

6.5 Methodology to define channel models

6.5.1 for system-level simulations

6.5.2 for link-level simulations

6.6 Large scale model

6.6.1 LOS probability

6.6.2 Path loss and Shadow fading

6.6.3 O2I penetration loss

6.6.4 Atmospheric absorption

6.6.5 Rain and cloud attenuation

6.6.6 Scintillation

6.7 Fast fading model

6.7.1 Flat fading

6.7.2 Frequency selective fading

In the fast fading model, the process in 7.5 of TR38.901 is used. This section is not a stand-alone description of the fast fading model, but it describes the differences between the channel models used for terrestrial and satellite/HAPS communications.

The channel model parameter tables (Table 7.5-6 Part-1 and Part-2 in TR38.901) are replaced by the following tables.

Table 6.7-6 Part-1: Channel model parameters for Urban Scenario (LOS).

Scenarios		Urban LOS								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
• Delay spread (DS)	• μ_{lgDS}	•	•	•	•	•	•	•	•	•
• lgDS=$\log_{10}$(DS/1s)	• σ_{lgDS}	•	•	•	•	•	•	•	•	•
• AOD spread (ASD)	• μ_{lgASD}	•	•	•	•	•	•	•	•	•
• lgASD=$\log_{10}$(ASD/1°)	• σ_{lgASD}	•	•	•	•	•	•	•	•	•
• AOA spread (ASA)	• μ_{lgASA}	•	•	•	•	•	•	•	•	•
• lgASA=$\log_{10}$(ASA/1°)	• σ_{lgASA}	•	•	•	•	•	•	•	•	•
• ZOA spread (ZSA)	• μ_{lgZSA}	•	•	•	•	•	•	•	•	•
• lgZSA=$\log_{10}$(ZSA/1°)	• σ_{lgZSA}	•	•	•	•	•	•	•	•	•
• ZOD spread (ZSD)	• μ_{lgZSD}	•	•	•	•	•	•	•	•	•
• lgZSA=$\log_{10}$(ZSD/1°)	• σ_{lgZSD}	•	•	•	•	•	•	•	•	•
Shadow fading (SF) [dB]	• σ_{SF}	•	•	•	•	•	•	•	•	•
K-factor (K) [dB]	• μ_K	•	•	•	•	•	•	•	•	•
	• σ_K	•	•	•	•	•	•	•	•	•
Cross-Correlations	• *ASD* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *SF*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *SF*	•	•	•	•	•	•	•	•	•
	• *DS* vs *SF*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *ASA*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *K*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *K*	•	•	•	•	•	•	•	•	•
	• *DS* vs *K*	•	•	•	•	•	•	•	•	•
	• *SF* vs *K*	•	•	•	•	•	•	•	•	•
Cross-Correlations	• *ZSD* vs *SF*	•	•	•	•	•	•	•	•	•

	• *ZSA* vs *SF*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *K*	•	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *K*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *DS*	•	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *DS*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ASD*	•	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *ASD*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ASA*	•	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *ASA*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ZSA*	•	•	•	•	•	•	•	•	•	•
• Delay scaling parameter r_τ		•	•	•	•	•	•	•	•	•	•
• XPR [dB]	• μ_{XPR}	•	•	•	•	•	•	•	•	•	•
	• σ_{XPR}	•	•	•	•	•	•	•	•	•	•
• Number of clusters N		•	•	•	•	•	•	•	•	•	•
• Number of rays per cluster M		•	•	•	•	•	•	•	•	•	•
• Cluster *DS* (C_{DS}) in [ns]		•	•	•	•	•	•	•	•	•	•
• Cluster *ASD* (C_{ASD}) in [deg]		•	•	•	•	•	•	•	•	•	•
• Cluster *ASA* (C_{ASA}) in [deg]		•	•	•	•	•	•	•	•	•	•
• Cluster *ZSA* (C_{ZSA}) in [deg]		•	•	•	•	•	•	•	•	•	•
• Per cluster shadowing std ζ [dB]		•	•	•	•	•	•	•	•	•	•
• Correlation distance in the horizontal plane [m]	• *DS*	•	•	•	•	•	•	•	•	•	•
	• *ASD*	•	•	•	•	•	•	•	•	•	•
	• *ASA*	•	•	•	•	•	•	•	•	•	•
	• *SF*	•	•	•	•	•	•	•	•	•	•
	• *K*	•	•	•	•	•	•	•	•	•	•
	• *ZSA*	•	•	•	•	•	•	•	•	•	•
	• *ZSD*	•	•	•	•	•	•	•	•	•	•

f_c is carrier frequency in GHz; d_{2D} is BS-UT distance in km.
NOTE 1: *DS* = rms delay spread, *ASD* = rms azimuth spread of departure angles, *ASA* = rms azimuth spread of arrival angles, *ZSD* = rms zenith spread of departure angles, *ZSA* = rms zenith spread of arrival angles, *SF* = shadow fading, and *K* = Ricean K-factor.
NOTE 2: The sign of the shadow fading is defined so that positive SF means more received power at UT than predicted by the path loss model.
NOTE 3: All large scale parameters are assumed to have no correlation between different floors.
NOTE 4: The following notation for mean (μ_{lgX}=mean{$\log_{10}$(X) }) and standard deviation (σ_{lgX}=std{$\log_{10}$(X) }) is used for logarithmized parameters X.
NOTE 5: For all considered scenarios the AOD/AOA distributions are modelled by a wrapped Gaussian distribution, the ZOD/ZOA distributions are modelled by a Laplacian distribution and the delay distribution is modelled by an exponential distribution.
NOTE 6: For UMa and frequencies below 6 GHz, use f_c = 6 when determining the values of the frequency-dependent LSP values
• NOTE 7: For UMi and frequencies below 2 GHz, use f_c = 2 when determining the values of the frequency-dependent LSP values

Table 6.7-6 Part-2: Channel model parameters for Urban Scenario (NLOS).

Scenarios		Urban NLOS								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
• Delay spread (DS)	• μ_{lgDS}	•	•	•	•	•	•	•	•	•

• lgDS=$\log_{10}$(DS/1s)	• σ_{lgDS}	•	•	•	•	•	•	•	•	•	•
• AOD spread (ASD)	• μ_{lgASD}	•	•	•	•	•	•	•	•	•	•
• lgASD=$\log_{10}$(ASD/1°)	• σ_{lgASD}	•	•	•	•	•	•	•	•	•	•
• AOA spread (ASA)	• μ_{lgASA}	•	•	•	•	•	•	•	•	•	•
• lgASA=$\log_{10}$(ASA/1°)	• σ_{lgASA}	•	•	•	•	•	•	•	•	•	•
• ZOA spread (ZSA)	• μ_{lgZSA}	•	•	•	•	•	•	•	•	•	•
• lgZSA=$\log_{10}$(ZSA/1°)	• σ_{lgZSA}	•	•	•	•	•	•	•	•	•	•
• ZOD spread (ZSD)	• μ_{lgZSD}	•	•	•	•	•	•	•	•	•	•
• lgZSA=$\log_{10}$(ZSD/1°)	• σ_{lgZSD}	•	•	•	•	•	•	•	•	•	•
Shadow fading (SF) [dB]	• σ_{SF}	•	•	•	•	•	•	•	•	•	•
K-factor (K) [dB]	• μ_K	•	•	•	•	•	•	•	•	•	•
	• σ_K	•	•	•	•	•	•	•	•	•	•
Cross-Correlations	• *ASD* vs *DS*	•	•	•	•	•	•	•	•	•	•
	• *ASA* vs *DS*	•	•	•	•	•	•	•	•	•	•
	• *ASA* vs *SF*	•	•	•	•	•	•	•	•	•	•
	• *ASD* vs *SF*	•	•	•	•	•	•	•	•	•	•
	• *DS* vs *SF*	•	•	•	•	•	•	•	•	•	•
	• *ASD* vs *ASA*	•	•	•	•	•	•	•	•	•	•
	• *ASD* vs *K*	•	•	•	•	•	•	•	•	•	•
	• *ASA* vs *K*	•	•	•	•	•	•	•	•	•	•
	• *DS* vs *K*	•	•	•	•	•	•	•	•	•	•
	• *SF* vs *K*	•	•	•	•	•	•	•	•	•	•
Cross-Correlations	• *ZSD* vs *SF*	•	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *SF*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *K*	•	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *K*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *DS*	•	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *DS*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ASD*	•	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *ASD*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ASA*	•	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *ASA*	•	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ZSA*	•	•	•	•	•	•	•	•	•	•
• Delay scaling parameter r_τ		•	•	•	•	•	•	•	•	•	•
• XPR [dB]	• μ_{XPR}	•	•	•	•	•	•	•	•	•	•
	• σ_{XPR}	•	•	•	•	•	•	•	•	•	•

• Number of clusters N		•	•	•	•	•	•	•	•	•
• Number of rays per cluster M		•	•	•	•	•	•	•	•	•
• Cluster *DS* (C_{DS}) in [ns]		•	•	•	•	•	•	•	•	•
• Cluster *ASD* (C_{ASD}) in [deg]		•	•	•	•	•	•	•	•	•
• Cluster *ASA* (C_{ASA}) in [deg]		•	•	•	•	•	•	•	•	•
• Cluster *ZSA* (C_{ZSA}) in [deg]		•	•	•	•	•	•	•	•	•
• Per cluster shadowing std ζ [dB]		•	•	•	•	•	•	•	•	•
• Correlation distance in the horizontal plane [m]	• *DS*	•	•	•	•	•	•	•	•	•
	• *ASD*	•	•	•	•	•	•	•	•	•
	• *ASA*	•	•	•	•	•	•	•	•	•
	• *SF*	•	•	•	•	•	•	•	•	•
	• *K*	•	•	•	•	•	•	•	•	•
	• *ZSA*	•	•	•	•	•	•	•	•	•
	• *ZSD*	•	•	•	•	•	•	•	•	•

f_c is carrier frequency in GHz; d_{2D} is BS-UT distance in km.
NOTE 1: *DS* = rms delay spread, *ASD* = rms azimuth spread of departure angles, *ASA* = rms azimuth spread of arrival angles, *ZSD* = rms zenith spread of departure angles, *ZSA* = rms zenith spread of arrival angles, *SF* = shadow fading, and *K* = Ricean K-factor.
NOTE 2: The sign of the shadow fading is defined so that positive SF means more received power at UT than predicted by the path loss model.
NOTE 3: All large scale parameters are assumed to have no correlation between different floors.
NOTE 4: The following notation for mean (μ_{lgX}=mean{$\log_{10}$(X) }) and standard deviation (σ_{lgX}=std{$\log_{10}$(X) }) is used for logarithmized parameters X.
NOTE 5: For all considered scenarios the AOD/AOA distributions are modelled by a wrapped Gaussian distribution, the ZOD/ZOA distributions are modelled by a Laplacian distribution and the delay distribution is modelled by an exponential distribution.
NOTE 6: For UMa and frequencies below 6 GHz, use f_c = 6 when determining the values of the frequency-dependent LSP values
• NOTE 7: For UMi and frequencies below 2 GHz, use f_c = 2 when determining the values of the frequency-dependent LSP values

Table 6.7-6 Part-3: Channel model parameters for Dense Urban Scenario (LOS)

Scenarios		Dense Urban LOS								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
• Delay spread (DS)	• μ_{lgDS}	•	•	•	•	•	•	•	•	•
• lgDS=$\log_{10}$(DS/1s)	• σ_{lgDS}	•	•	•	•	•	•	•	•	•
• AOD spread (ASD)	• μ_{lgASD}	•	•	•	•	•	•	•	•	•
• lgASD=$\log_{10}$(ASD/1°)	• σ_{lgASD}	•	•	•	•	•	•	•	•	•
• AOA spread (ASA)	• μ_{lgASA}	•	•	•	•	•	•	•	•	•
• lgASA=$\log_{10}$(ASA/1°)	• σ_{lgASA}	•	•	•	•	•	•	•	•	•
• ZOA spread (ZSA)	• μ_{lgZSA}	•	•	•	•	•	•	•	•	•
• lgZSA=$\log_{10}$(ZSA/1°)	• σ_{lgZSA}	•	•	•	•	•	•	•	•	•
• ZOD spread (ZSD)	• μ_{lgZSD}	•	•	•	•	•	•	•	•	•
• lgZSA=$\log_{10}$(ZSD/1°)	• σ_{lgZSD}	•	•	•	•	•	•	•	•	•
Shadow fading (SF) [dB]	• σ_{SF}	•	•	•	•	•	•	•	•	•
K-factor (K) [dB]	• μ_K	•	•	•	•	•	•	•	•	•
	• σ_K	•	•	•	•	•	•	•	•	•
Cross-Correlations	• *ASD* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *SF*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *SF*	•	•	•	•	•	•	•	•	•

	• DS vs SF	•	•	•	•	•	•	•	•	•
	• ASD vs ASA	•	•	•	•	•	•	•	•	•
	• ASD vs K	•	•	•	•	•	•	•	•	•
	• ASA vs K	•	•	•	•	•	•	•	•	•
	• DS vs K	•	•	•	•	•	•	•	•	•
	• SF vs K	•	•	•	•	•	•	•	•	•
Cross-Correlations	• ZSD vs SF	•	•	•	•	•	•	•	•	•
	• ZSA vs SF	•	•	•	•	•	•	•	•	•
	• ZSD vs K	•	•	•	•	•	•	•	•	•
	• ZSA vs K	•	•	•	•	•	•	•	•	•
	• ZSD vs DS	•	•	•	•	•	•	•	•	•
	• ZSA vs DS	•	•	•	•	•	•	•	•	•
	• ZSD vs ASD	•	•	•	•	•	•	•	•	•
	• ZSA vs ASD	•	•	•	•	•	•	•	•	•
	• ZSD vs ASA	•	•	•	•	•	•	•	•	•
	• ZSA vs ASA	•	•	•	•	•	•	•	•	•
	• ZSD vs ZSA	•	•	•	•	•	•	•	•	•
• Delay scaling parameter r_τ		•	•	•	•	•	•	•	•	•
• XPR [dB]	• μ_{XPR}	•	•	•	•	•	•	•	•	•
	• σ_{XPR}	•	•	•	•	•	•	•	•	•
• Number of clusters N		•	•	•	•	•	•	•	•	•
• Number of rays per cluster M		•	•	•	•	•	•	•	•	•
• Cluster DS (c_{DS}) in [ns]		•	•	•	•	•	•	•	•	•
• Cluster ASD (c_{ASD}) in [deg]		•	•	•	•	•	•	•	•	•
• Cluster ASA (c_{ASA}) in [deg]		•	•	•	•	•	•	•	•	•
• Cluster ZSA (c_{ZSA}) in [deg]		•	•	•	•	•	•	•	•	•
• Per cluster shadowing std ζ [dB]		•	•	•	•	•	•	•	•	•
• Correlation distance in the horizontal plane [m]	• DS	•	•	•	•	•	•	•	•	•
	• ASD	•	•	•	•	•	•	•	•	•
	• ASA	•	•	•	•	•	•	•	•	•
	• SF	•	•	•	•	•	•	•	•	•
	• K	•	•	•	•	•	•	•	•	•
	• ZSA	•	•	•	•	•	•	•	•	•
	• ZSD	•	•	•	•	•	•	•	•	•

f_c is carrier frequency in GHz; d_{2D} is BS-UT distance in km.
NOTE 1: *DS* = rms delay spread, *ASD* = rms azimuth spread of departure angles, *ASA* = rms azimuth spread of arrival angles, *ZSD* = rms zenith spread of departure angles, *ZSA* = rms zenith spread of arrival angles, *SF* = shadow fading, and *K* = Ricean K-factor.
NOTE 2: The sign of the shadow fading is defined so that positive SF means more received power at UT than predicted by the path loss model.
NOTE 3: All large scale parameters are assumed to have no correlation between different floors.
NOTE 4: The following notation for mean (μ_{lgX}=mean{$\log_{10}$(X) }) and standard deviation (σ_{lgX}=std{$\log_{10}$(X) }) is used for logarithmized parameters X.
NOTE 5: For all considered scenarios the AOD/AOA distributions are modelled by a wrapped Gaussian distribution, the ZOD/ZOA distributions are modelled by a Laplacian distribution and the delay distribution is modelled by an exponential distribution.
NOTE 6: For UMa and frequencies below 6 GHz, use f_c = 6 when determining the values of the frequency-dependent LSP values
NOTE 7: For UMi and frequencies below 2 GHz, use f_c = 2 when determining the values of the frequency-dependent LSP values

Table 6.7-6 Part-3: Channel model parameters for Dense Urban Scenario (NLOS)

Scenarios		Dense Urban NLOS								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
Delay spread (DS) lgDS=$\log_{10}$(DS/1s)	μ_{lgDS}									
	σ_{lgDS}									
AOD spread (ASD) lgASD=$\log_{10}$(ASD/1°)	μ_{lgASD}									
	σ_{lgASD}									
AOA spread (ASA) lgASA=$\log_{10}$(ASA/1°)	μ_{lgASA}									
	σ_{lgASA}									
ZOA spread (ZSA) lgZSA=$\log_{10}$(ZSA/1°)	μ_{lgZSA}									
	σ_{lgZSA}									
ZOD spread (ZSD) lgZSA=$\log_{10}$(ZSD/1°)	μ_{lgZSD}									
	σ_{lgZSD}									
Shadow fading (SF) [dB]	σ_{SF}									
K-factor (K) [dB]	μ_K									
	σ_K									
Cross-Correlations	*ASD* vs *DS*									
	ASA vs *DS*									
	ASA vs *SF*									
	ASD vs *SF*									
	DS vs *SF*									
	ASD vs *ASA*									
	ASD vs *K*									
	ASA vs *K*									
	DS vs *K*									
	SF vs *K*									
Cross-Correlations	*ZSD* vs *SF*									
	ZSA vs *SF*									
	ZSD vs *K*									
	ZSA vs *K*									
	ZSD vs *DS*									

	• *ZSA* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ASD*	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *ASD*	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ASA*	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *ASA*	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ZSA*	•	•	•	•	•	•	•	•	•
• Delay scaling parameter r_τ		•	•	•	•	•	•	•	•	•
• XPR [dB]	• μ_{XPR}	•	•	•	•	•	•	•	•	•
	• σ_{XPR}	•	•	•	•	•	•	•	•	•
• Number of clusters N		•	•	•	•	•	•	•	•	•
• Number of rays per cluster M		•	•	•	•	•	•	•	•	•
• Cluster *DS* (c_{DS}) in [ns]		•	•	•	•	•	•	•	•	•
• Cluster *ASD* (c_{ASD}) in [deg]		•	•	•	•	•	•	•	•	•
• Cluster *ASA* (c_{ASA}) in [deg]		•	•	•	•	•	•	•	•	•
• Cluster *ZSA* (c_{ZSA}) in [deg]		•	•	•	•	•	•	•	•	•
• Per cluster shadowing std ζ [dB]		•	•	•	•	•	•	•	•	•
• Correlation distance in the horizontal plane [m]	• *DS*	•	•	•	•	•	•	•	•	•
	• *ASD*	•	•	•	•	•	•	•	•	•
	• *ASA*	•	•	•	•	•	•	•	•	•
	• *SF*	•	•	•	•	•	•	•	•	•
	• *K*	•	•	•	•	•	•	•	•	•
	• *ZSA*	•	•	•	•	•	•	•	•	•
	• *ZSD*	•	•	•	•	•	•	•	•	•

f_c is carrier frequency in GHz; d_{2D} is BS-UT distance in km.
NOTE 1: *DS* = rms delay spread, *ASD* = rms azimuth spread of departure angles, *ASA* = rms azimuth spread of arrival angles, *ZSD* = rms zenith spread of departure angles, *ZSA* = rms zenith spread of arrival angles, *SF* = shadow fading, and *K* = Ricean K-factor.
NOTE 2: The sign of the shadow fading is defined so that positive SF means more received power at UT than predicted by the path loss model.
NOTE 3: All large scale parameters are assumed to have no correlation between different floors.
NOTE 4: The following notation for mean (μ_{lgX}=mean{$\log_{10}$(X) }) and standard deviation (σ_{lgX}=std{$\log_{10}$(X) }) is used for logarithmized parameters X.
NOTE 5: For all considered scenarios the AOD/AOA distributions are modelled by a wrapped Gaussian distribution, the ZOD/ZOA distributions are modelled by a Laplacian distribution and the delay distribution is modelled by an exponential distribution.
NOTE 6: For UMa and frequencies below 6 GHz, use f_c = 6 when determining the values of the frequency-dependent LSP values
• NOTE 7: For UMi and frequencies below 2 GHz, use f_c = 2 when determining the values of the frequency-dependent LSP values

Table 6.7-6 Part-1: Channel model parameters for Suburban and Rural Scenarios (LOS).

Scenarios		Suburban and Rural LOS								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
• Delay spread (DS) • lgDS=$\log_{10}$(DS/1s)	• μ_{lgDS}	•	•	•	•	•	•	•	•	•
	• σ_{lgDS}	•	•	•	•	•	•	•	•	•
• AOD spread (ASD) • lgASD=$\log_{10}$(ASD/1°)	• μ_{lgASD}	•	•	•	•	•	•	•	•	•
	• σ_{lgASD}	•	•	•	•	•	•	•	•	•
• AOA spread (ASA) • lgASA=$\log_{10}$(ASA/1°)	• μ_{lgASA}	•	•	•	•	•	•	•	•	•
	• σ_{lgASA}	•	•	•	•	•	•	•	•	•
• ZOA spread (ZSA)	• μ_{lgZSA}	•	•	•	•	•	•	•	•	•

• lgZSA=$\log_{10}$(ZSA/1°)	• σ_{lgZSA}	•	•	•	•	•	•	•	•	•
• ZOD spread (ZSD)	• μ_{lgZSD}	•	•	•	•	•	•	•	•	•
• lgZSA=$\log_{10}$(ZSD/1°)	• σ_{lgZSD}	•	•	•	•	•	•	•	•	•
Shadow fading (SF) [dB]	• σ_{SF}	•	•	•	•	•	•	•	•	•
K-factor (K) [dB]	• μ_K	•	•	•	•	•	•	•	•	•
	• σ_K	•	•	•	•	•	•	•	•	•
Cross-Correlations	• *ASD* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *SF*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *SF*	•	•	•	•	•	•	•	•	•
	• *DS* vs *SF*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *ASA*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *K*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *K*	•	•	•	•	•	•	•	•	•
	• *DS* vs *K*	•	•	•	•	•	•	•	•	•
	• *SF* vs *K*	•	•	•	•	•	•	•	•	•
Cross-Correlations	• *ZSD* vs *SF*	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *SF*	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *K*	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *K*	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ASD*	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *ASD*	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ASA*	•	•	•	•	•	•	•	•	•
	• *ZSA* vs *ASA*	•	•	•	•	•	•	•	•	•
	• *ZSD* vs *ZSA*	•	•	•	•	•	•	•	•	•
• Delay scaling parameter r_τ		•	•	•	•	•	•	•	•	•
• XPR [dB]	• μ_{XPR}	•	•	•	•	•	•	•	•	•
	• σ_{XPR}	•	•	•	•	•	•	•	•	•
• Number of clusters N		•	•	•	•	•	•	•	•	•
• Number of rays per cluster M		•	•	•	•	•	•	•	•	•
• Cluster *DS* (c_{DS}) in [ns]		•	•	•	•	•	•	•	•	•

• Cluster *ASD* (C_{ASD}) in [deg]		•	•	•	•	•	•	•	•	•
• Cluster *ASA* (C_{ASA}) in [deg]		•	•	•	•	•	•	•	•	•
• Cluster *ZSA* (C_{ZSA}) in [deg]		•	•	•	•	•	•	•	•	•
• Per cluster shadowing std ζ [dB]		•	•	•	•	•	•	•	•	•
• Correlation distance in the horizontal plane [m]	• *DS*	•	•	•	•	•	•	•	•	•
	• *ASD*	•	•	•	•	•	•	•	•	•
	• *ASA*	•	•	•	•	•	•	•	•	•
	• *SF*	•	•	•	•	•	•	•	•	•
	• *K*	•	•	•	•	•	•	•	•	•
	• *ZSA*	•	•	•	•	•	•	•	•	•
	• *ZSD*	•	•	•	•	•	•	•	•	•

f_c is carrier frequency in GHz; d_{2D} is BS-UT distance in km.
NOTE 1: *DS* = rms delay spread, *ASD* = rms azimuth spread of departure angles, *ASA* = rms azimuth spread of arrival angles, *ZSD* = rms zenith spread of departure angles, *ZSA* = rms zenith spread of arrival angles, *SF* = shadow fading, and *K* = Ricean K-factor.
NOTE 2: The sign of the shadow fading is defined so that positive SF means more received power at UT than predicted by the path loss model.
NOTE 3: All large scale parameters are assumed to have no correlation between different floors.
NOTE 4: The following notation for mean (μ_{lgX}=mean{$\log_{10}$(X) }) and standard deviation (σ_{lgX}=std{$\log_{10}$(X) }) is used for logarithmized parameters X.
NOTE 5: For all considered scenarios the AOD/AOA distributions are modelled by a wrapped Gaussian distribution, the ZOD/ZOA distributions are modelled by a Laplacian distribution and the delay distribution is modelled by an exponential distribution.
NOTE 6: For UMa and frequencies below 6 GHz, use f_c = 6 when determining the values of the frequency-dependent LSP values
• NOTE 7: For UMi and frequencies below 2 GHz, use f_c = 2 when determining the values of the frequency-dependent LSP values

Table 6.7-6 Part-2: Channel model parameters for Suburban and Rural Scenarios (NLOS).

Scenarios		Suburban and Rural NLOS								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
• Delay spread (DS)	• μ_{lgDS}	•	•	•	•	•	•	•	•	•
• lgDS=$\log_{10}$(DS/1s)	• σ_{lgDS}	•	•	•	•	•	•	•	•	•
• AOD spread (ASD)	• μ_{lgASD}	•	•	•	•	•	•	•	•	•
• lgASD=$\log_{10}$(ASD/1°)	• σ_{lgASD}	•	•	•	•	•	•	•	•	•
• AOA spread (ASA)	• μ_{lgASA}	•	•	•	•	•	•	•	•	•
• lgASA=$\log_{10}$(ASA/1°)	• σ_{lgASA}	•	•	•	•	•	•	•	•	•
• ZOA spread (ZSA)	• μ_{lgZSA}	•	•	•	•	•	•	•	•	•
• lgZSA=$\log_{10}$(ZSA/1°)	• σ_{lgZSA}	•	•	•	•	•	•	•	•	•
• ZOD spread (ZSD)	• μ_{lgZSD}	•	•	•	•	•	•	•	•	•
• lgZSA=$\log_{10}$(ZSD/1°)	• σ_{lgZSD}	•	•	•	•	•	•	•	•	•
Shadow fading (SF) [dB]	• σ_{SF}	•	•	•	•	•	•	•	•	•
K-factor (K) [dB]	• μ_K	•	•	•	•	•	•	•	•	•
	• σ_K	•	•	•	•	•	•	•	•	•
Cross-Correlations	• *ASD* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *DS*	•	•	•	•	•	•	•	•	•
	• *ASA* vs *SF*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *SF*	•	•	•	•	•	•	•	•	•
	• *DS* vs *SF*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *ASA*	•	•	•	•	•	•	•	•	•
	• *ASD* vs *K*	•	•	•	•	•	•	•	•	•

	• *ASA* vs *K*	•	•	•	•	•	•	•	•	•	
	• *DS* vs *K*	•	•	•	•	•	•	•	•	•	
	• *SF* vs *K*	•	•	•	•	•	•	•	•	•	
Cross-Correlations	• *ZSD* vs *SF*	•	•	•	•	•	•	•	•	•	
	• *ZSA* vs *SF*	•	•	•	•	•	•	•	•	•	
	• *ZSD* vs *K*	•	•	•	•	•	•	•	•	•	
	• *ZSA* vs *K*	•	•	•	•	•	•	•	•	•	
	• *ZSD* vs *DS*	•	•	•	•	•	•	•	•	•	
	• *ZSA* vs *DS*	•	•	•	•	•	•	•	•	•	
	• *ZSD* vs *ASD*	•	•	•	•	•	•	•	•	•	
	• *ZSA* vs *ASD*	•	•	•	•	•	•	•	•	•	
	• *ZSD* vs *ASA*	•	•	•	•	•	•	•	•	•	
	• *ZSA* vs *ASA*	•	•	•	•	•	•	•	•	•	
	• *ZSD* vs *ZSA*	•	•	•	•	•	•	•	•	•	
• Delay scaling parameter r_τ		•	•	•	•	•	•	•	•	•	
• XPR [dB]	• μ_{XPR}	•	•	•	•	•	•	•	•	•	
	• σ_{XPR}	•	•	•	•	•	•	•	•	•	
• Number of clusters N		•	•	•	•	•	•	•	•	•	
• Number of rays per cluster M		•	•	•	•	•	•	•	•	•	
• Cluster *DS* (c_{DS}) in [ns]		•	•	•	•	•	•	•	•	•	
• Cluster *ASD* (c_{ASD}) in [deg]		•	•	•	•	•	•	•	•	•	
• Cluster *ASA* (c_{ASA}) in [deg]		•	•	•	•	•	•	•	•	•	
• Cluster *ZSA* (c_{ZSA}) in [deg]		•	•	•	•	•	•	•	•	•	
• Per cluster shadowing std ζ [dB]		•	•	•	•	•	•	•	•	•	
• Correlation distance in the horizontal plane [m]	• *DS*	•	•	•	•	•	•	•	•	•	
	• *ASD*	•	•	•	•	•	•	•	•	•	
	• *ASA*	•	•	•	•	•	•	•	•	•	
	• *SF*	•	•	•	•	•	•	•	•	•	
	• *K*	•	•	•	•	•	•	•	•	•	
	• *ZSA*	•	•	•	•	•	•	•	•	•	
	• *ZSD*	•	•	•	•	•	•	•	•	•	

f_c is carrier frequency in GHz; d_{2D} is BS-UT distance in km.
NOTE 1: *DS* = rms delay spread, *ASD* = rms azimuth spread of departure angles, *ASA* = rms azimuth spread of arrival angles, *ZSD* = rms zenith spread of departure angles, *ZSA* = rms zenith spread of arrival angles, *SF* = shadow fading, and *K* = Ricean K-factor.
NOTE 2: The sign of the shadow fading is defined so that positive SF means more received power at UT than predicted by the path loss model.
NOTE 3: All large scale parameters are assumed to have no correlation between different floors.
NOTE 4: The following notation for mean (μ_{lgX}=mean{$\log_{10}$(X) }) and standard deviation (σ_{lgX}=std{$\log_{10}$(X) }) is used for logarithmized parameters X.
NOTE 5: For all considered scenarios the AOD/AOA distributions are modelled by a wrapped Gaussian distribution, the ZOD/ZOA distributions are modelled by a Laplacian distribution and the delay distribution is modelled by an exponential distribution.
NOTE 6: For UMa and frequencies below 6 GHz, use f_c = 6 when determining the values of the frequency-dependent LSP values
- NOTE 7: For UMi and frequencies below 2 GHz, use f_c = 2 when determining the values of the frequency-dependent LSP values

6.8 Additional modelling components

6.8.1 Time-varying Doppler shift

6.8.2 Faraday Rotation

6.9 Channel models for link level simulations

6.9.1 CDL models

6.9.2 TDL models (3GPP TR38.901 based and ITU-R based)

6.10 Channel model calibration

------- end of Text Proposal -------

R1-1805680 **NR-NTN Channel Modeling – Text proposal for the 6th clause of TR38.811** **Thales** (Revision of R1-1805116)

Agreement: The text proposal in R1-1805680 for TR38.811 is endorsed.

Agreement: The clear-air basic path loss for a single unwanted transmitter and victim receiver over an Earth-space path is composed of losses as follows:

$$L_B = L_{bfs} + A_g + A_s + L_c + L_{be} \quad \text{(dB)}$$

where:

L_{bfs} : Free space basic path loss
A_g : Attenuation due to atmospheric gasses
A_s : Attenuation due to either ionospheric or troposcatter scintillation
L_c : Earth-space and Aeronautical statistical clutter loss
L_{be} : Building entry/exit loss
Note : No indoor conditions are considered for satellite links.

Agreement: The clutter loss = 0dB in LOS conditions

R1-1803675 General considerations on NTN Channel Modeling Huawei, HiSilicon
R1-1804235 Discussion on the large scale channel model for NTN ZTE, Sanechips,CATR
R1-1804393 Remaining issues on NTN Channel Modeling Samsung
R1-1804470 Fast Fading Model of GEO S-Band Satellite Dish Network
R1-1804479 Path loss model for NTN Nokia, Nokia Shanghai Bell
R1-1804480 Fast fading characteristics for NTN Nokia, Nokia Shanghai Bell
R1-1804855 Modeling of Tropospheric Scintillation Effects in NTN Channel Model InterDigital, Inc.
R1-1805083 Ionospheric scintillations for NTN channel ESA
R1-1805084 Tropospheric scintillations for NTN channel ESA
R1-1805114 NR-NTN channel modeling - Flat fading criteria THALES
R1-1805115 NR-NTN Channel Modeling – Large scale parameters THALES

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1391 of 1750

7.3.2 Other

R1-1803673 Consideration on GEO and LEO channel models Huawei, HiSilicon
R1-1803674 HAPS channel modeling Huawei, HiSilicon
R1-1803696 Ray Tracing simulation result for NTN Huawei, HiSilicon
R1-1803697 On the multipath propagation in satellite to UE link Huawei, HiSilicon
R1-1804236 Discussion on the NR impacts on random access for NTN ZTE, Sanechips,CATR
R1-1804304 TP for chapter 6 of TR38.811 Huawei, HiSilicon
R1-1804394 PT-RS design consideration for NTN Samsung
R1-1804395 Considerations on random access for NTN Samsung
R1-1804467 TDD and FDD for NTN Applications HUGHES Network Systems Ltd
R1-1804495 Considerations on NR impacts for Non-Terrestrial Networks ETRI
R1-1804610 Considerations on NTN Relay use cases Sony
R1-1804640 Phase noise correction for non-terrestrial networks Mitsubishi Electric RCE
R1-1804822 On NTN initial access Qualcomm Incorporated
R1-1804856 Simulation Results for PTRS Performance in Non-Terrestrial Networks InterDigital, Inc.
R1-1804857 Deactivating HARQ for Non-Terrestrial Networks InterDigital, Inc.
R1-1804858 Considerations on Timing Advance for NTN InterDigital, Inc.
R1-1805078 NR-NTN: Link budget analysis THALES
R1-1805079 NR-NTN: Potential areas of impact, chapter structure THALES
R1-1805089 NR-NTN: Impact of channel frequency selectivity on DM-RS distribution (frequency) THALES
R1-1805094 NR-NTN: Impact of Doppler variation rate on DM-RS distribution (time) THALES
R1-1805095 NR-NTN: Impact on Initial TA during random access procedure THALES
R1-1805130 NTN NR impacts due to phase noise Fraunhofer IIS

7.4 Study on non-orthogonal multiple access for NR - SID in RP-171043

R1-1803613 Text proposal for LLS parameters in TR 38.812 (NOMA) ZTE, Sanechips
Decision: The TP is endorsed.

R1-1803614 Updated work plan for Rel-15 SI on NR NOMA ZTE, Sanechips
Decision: The document is noted. For information.

7.4.1 Transmitter side signal processing schemes for NOMA

R1-1803615 Key processing modules at transmitter side for NOMA ZTE, Sanechips

- Proposal 1: Further clarify the following simulation parameters:
  - Number of TBS value does not include the CRC overhead which is 16 bits for NR LDPC when TBsize < 3824 bits.
  - For the ideal channel estimation for calibration purpose, REs of one every 7 symbols for DMRS will not be used to carry the data.
  - Using 8 PRB for high payload sizes of 60 and 75 Bytes in mMTC, 16 PRB for 60 and 75 Bytes in URLLC, and 16 PRB for 120 and 150 Bytes in eMBB.
- Observation 1: NOMA with QAM-sequence based symbol-level linear spreading can achieve excellent overloading capability with very limited per UE performance loss in all the interested use scenarios.
- Observation 2: Low code rate is beneficial when the overloading is not very high, while low inter-user interference is beneficial for high overloading cases.
- Observation 3: Trade-off of spreading factor between per UE performance and overloading capability should be considered for the design of symbol-level linear spreading based NOMA.
- Observation 4: Different schemes have similar performance at moderate system overloading and low per UE spectral efficiency. For higher overloading or per UE spectral efficiency, more comprehensive evaluations should be performed to have better understanding on the performances of different schemes.

Decision: The document is noted.

R1-1803953 Considerations on NOMA schemes Google, Inc.

- Proposal 1: A flexible NOMA transmitter is desired to support mMTC, eMBB, and URLLC.
- Proposal 2: Evaluate and compare NOMA features with single spreading ingredient first.
- LDS: PDMA
  - Full-length symbol spreading: RSMA, GOCA, NCMA, NCOA, (LDS-SVE without LDS)
  - LCRS: LCRS
  - Bit spreading: MUSA

- Proposal 3: The PAPR of LDS based features needs for further investigation.
- Proposal 4: Consider multiple features to NOMA scheme regarding different use scenarios.
- Proposal 5: Companies should study the potential of combining multiple NOMA features under the consideration of the mutual interference within the signature resource pool.

Decision: The document is noted.

R1-1804823 Transmitter side signaling processing schemes for NOMA Qualcomm Incorporated

Proposal 1: The standardization of NOMA UL transmission should consider the best trade-off among the following design objectives:

- error performance [4-5]
  - conditioned on per UE SE and the number of multiplexing UEs
- sum throughput vs SNR for a given BLER target [4-5]
  - conditioned on per UE SE and the number of multiplexing UEs
- scalability
  - easy adaptation of spreading and/or scrambling codes configuration to accommodate N NOMA UEs with spreading factor K, where N and K can be configured dynamically
- complexity and latency [4-5]
  - transmitter side and receiver side processing, including computation and memory requirements for successful data decoding
  - latency of advanced receiver
- flexibility
  - joint support of DFT-s-OFDM waveform and CP-OFDM waveform
  - joint support for different operation modes and use cases
- PAPR and ACLR

Proposal 2: NR NOMA SI needs to consider linear hybrid spreading and scrambling as the UL transmission scheme.
Proposal 3: The design, evaluation and optimization of linear spreading codebook needs to consider a comprehensive set of overloading configurations for (K, N), where K denotes the spreading factor and N denotes the codebook size.
Proposal 4: Depending on the use cases of NOMA UL transmission, the following options of linear hybrid spreading and scrambling need to be considered:

- Option A: Apply UE-specific short spreading code only, wherein the configuration of spreading code can be made symbol-dependent;
- Option B: Apply UE-specific long scrambling codes only, wherein the configuration of scrambling codes can be made symbol-dependent and can be combined with repetition of modulation symbols;
- Option C: Joint use of UE-specific short spreading code and cell-specific long scrambling code, wherein the configuration of spreading codes and/or scrambling codes can be made symbol-dependent.

Proposal 5: To reduce the signalling overhead of NOMA systems, as well as the complexity and memory size of transceivers, it is desirable to employ the following schemes for NOMA transmission:

- a closed form design for the short spreading codes that achieves Welch bound equality (WBE) for arbitrary spreading factor (K) and overloading ratio (N/K>1);
- a closed from design for the long scrambling codes that is compliant with Rel-15 NR specification;
- reuse the same spreading codes and scrambling codes for both DFT-s-OFDM and CF-OFDM waveforms;
- reuse linear modulation of NR Tx chain.

Proposal 6: The design of linear spreading scheme for NOMA should consider the inclusion of symbol-wise scrambling to improve the PAPR performance. The PAPR distribution of QPSK can be used as a baseline.
Proposal 7: In NR NOMA SI, the complexity, configuration flexibility and scalability of transmitter configuration, as well as the memory requirements, should be evaluated and compared.

Decision: The document is noted.

Tuesday's wrap-up: Continue discussion offline – Li (ZTE)

R1-1803663	Discussion on the design of SCMA	Huawei, HiSilicon
R1-1803770	PDMA transmitter side signal processing	CATT
R1-1803850	Discussion on NOMA transmitters	vivo
R1-1804107	Considerations on Rel-15 NoMA transmitter design	CMCC
R1-1804116	Discussion on NoMA Schemes for NR	NEC
R1-1804396	Transmitter side signal processing schemes for NOMA	Samsung
R1-1804462	Considerations on NOMA transmitter	Nokia, Nokia Shanghai Bell
R1-1804573	Transmitter side signal processing schemes for NCMA	LG Electronics
R1-1804601	Consideration on the transmitter side signal processing for NOMA	Sony
R1-1804667	On Transnmitter side processing for NOMA	AT&T
R1-1804743	NOMA transmission scheme: LCRS	Intel Corporation

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1393 of 1750

R1-1804859 Implementation Aspects of Low Code Rate NOMA Schemes InterDigital, Inc.
R1-1804941 Tx side processing for UL NOMA NICT
R1-1805003 Signature design for NoMA Ericsson
R1-1805065 Transmitter design for uplink NOMA NTT DOCOMO, INC.

7.4.2 Receivers for NOMA

R1-1803664 Discussion on the design of NoMA receiver Huawei, HiSilicon

- Observation 1: Different NoMA receivers adopt a common iterative structure that iterates between the SU/MU detector and the FEC decoders to separate mutually interfered UEs at the receiver.
- Observation 2: An iterative receiver can improve the BLER performance of the NoMA transmissions. The higher the number of users, the more iterations may be needed.
- Observation 3: The implementation of MPA supports full parallelism and its complexity can be greatly reduced by low projection in constellation design and ordered group SIC decoding.
- Observation 4: ESE-PIC receiver heavily relies on the coding gain from the FEC and thus may have slower convergence, especially at high spectral efficiency and high overloading.
- Observation 5: A Block-wise MMSE has much higher complexity than a chip-by-chip MMSE.
- Observation 6: EPA can achieve similar performance as MPA in many cases of interest with lower complexity and has better convergence performance compared with ESE.
- Proposal 1: The iterative receiver structure with configurable number of outer-loop iterations between MU detector and channel decoders is supported for NoMA transmissions.
- Proposal 2: Further study the performance limits, application scenarios, and the implementation costs of the iterative NoMA receivers with different MU detectors and different IC methods.

Decision: The document is noted.

R1-1804744 Receiver structure for NOMA Intel Corporation

- Observation 1:
  - Baseline SIC shows higher BLER compared to modified SIC and PIC
  - Modified SIC shows comparable BLER performance with PIC while it needs much less decoding trials than PIC
- Observation 2: IC-based channel estimation algorithm can improve the channel estimation and hence overall decoding performance, especially for the support of a relatively large number of UEs.
- Observation 3: The complexity of MMSE equalizer is increased by the order of the SF^2 if spreading based NOMA scheme is used
- Proposal 1: IC-based receiver (hard IC or soft IC) should be a baseline receiver of NOMA
  - Modified SIC is considered for hard IC based receiver
- Proposal 2: Enhanced channel estimation algorithm should be studied for NOMA receivers.

Decision: The document is noted.

R1-1805004 NoMA receiver design Ericsson

- Observation 1: A CW-level successive IC receiver processing overhead in a gNB is mainly due to re-encoding each detected user and the associated buffering. Symbol-level IC obviates the need for re-encoding, with minor expected performance penalty in short-TBS scenarios.
- Observation 2: Sequential receiver structures, detecting one signal at a time, have reduced decoding and signal regeneration complexity compared to iterative receivers.
- Observation 3: JD and iterative receivers are less suited for NOMA reception in scenarios with unknown MCS, compared to sequential receivers.
- Observation 4: Symbol-level MMSE-SIC type of receivers, e.g. OMMSE-SIC, are versatile and robust for WSMA-based NOMA reception.
- Observation 5: A commercial gNB preferably implements a single UL MU receiver architecture for different multiple-access signal demodulation scenarios, including regular MU-MIMO and NOMA.
- Observation 6: NOMA evaluations should be based on receiver structures that are likely to be implemented in gNB products.
- Proposal 1: NOMA designs should target receiver architectures that suitable for both MU-MIMO and NOMA reception.
- Proposal 2: NOMA signature design should target the lowest possible receiver complexity needed to attain performance gains, while being scalable to a wide variety of MCS states.
- Proposal 3: Both OMA and MU-MIMO should be baseline schemes for comparing NOMA performance. Performance evaluation of all schemes should be done at similar receiver complexities.

Decision: The document is noted.

Tuesday's wrap-up: Continue discussion offline – Li (ZTE)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1394 of 1750

Thursday

R1-1805589 Summary of offline discussion on receiver types ZTE, Sanechips

Decision: The document is noted.

Agreements:

Adopt Figure 1 as the general block diagram of multi-user receiver for UL data transmissions.

- The algorithms for the detector block (for data) can be e.g. MMSE, MF, ESE, MAP, MPA, EPA.
- The interference cancellation can be hard, soft, or hybrid, and can be implemented in serial, parallel, or hybrid.
  - Note: the IC block may consist of an input of the received signal for some types of IC implementations
- The interference cancellation block may or may not be used.
  - Note: if not used, an input of interferene estimation to the decoder may be required for some cases.
- The input to interference cancellation may come directly from the Detector for some cases

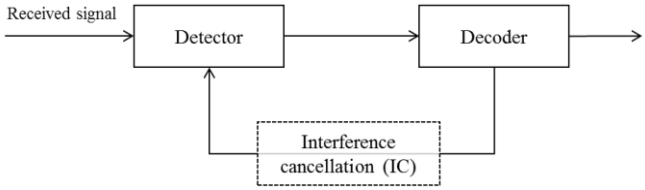


Figure 1 A high-level block diagram of multi-user receiver

R1-1803616 Typical multi-user receivers for NOMA ZTE, Sanechips
R1-1803771 Discussion on PDMA receivers CATT
R1-1803851 Receiver design considerations for NOMA vivo
R1-1804397 Considerations on receiver types for NoMA schemes Samsung
R1-1804463 Receiver considerations for UL NOMA Nokia, Nokia Shanghai Bell
R1-1804574 Considerations on the receiver types and NoMA schemes LG Electronics
R1-1804668 Low complexity Receiver design for NOMA AT&T
R1-1804824 Receivers for NOMA Qualcomm Incorporated
R1-1804860 DMRS CHEST Error Model for NOMA Evaluation InterDigital, Inc.
R1-1804942 Receivers for UL NOMA NICT
R1-1805066 Receiver candidate for uplink NOMA transmission NTT DOCOMO, INC.
R1-1805082 Multistage MMSE scheme for low complexity NOMA receivers ESA, AIRBUS DS SLC

7.4.3 Procedures related to NOMA

R1-1803852 Discussion on NOMA procedures vivo

- Proposal 1: For asynchronous UL transmission, both cell-specific and UE specific signalling should be allowed for MA signature pool configuration.
- Proposal 2: The preambles used for UL transmission may need to be associated to UE ID.
  - Mapping between preamble and DMRS could be limited to reduce Rx complexity.
  - Mapping between DMRS and MA signature could be one to one to reduce Rx complexity.
- Proposal 3: To reduce false alarm, UE ID could be piggybacked in transmitted data in the following way
- CRC check
- MAC CE
- Proposal 4: Group-common DCI signalling could be used for HARQ ACK/NACK for NOMA transmission
- The DCI field applicable to a specific UE is based on preambles selected.
- Proposal 5: For pool-based MA signature allocation and selection, without explicit ACK/NACK signaling, UE should not assume correct transmission.
  - OMA resources could be scheduled for retransmission and share the same HARQ process ID as previous NOMA transmission.
- Proposal 6: For synchronous UL transmission, pool-based based MA signature allocation and selection should also be supported.
- Proposal 7: For synchronous UL transmission, Preambles like what is used by asynchronous UL transmission could also be used for synchronous UL transmission for the network to identify the UE.

  - DMRS and MA signature are both pool based and MA signature could be indexed by DMRS port or configuration index
- Proposal 8: For pool-based MA signature allocation and selection, if preambles are not transmitted DMRS should be one to one mapped to a specific UE ID for UL detection.
  - To reduce Rx complexity, the mapping between MA signature and UE ID could be limited through configuration.
- Proposal 9: Group common DCI signaling for ACK/NACK and OMA based retransmission could also be used for synchronous UL transmission.

Decision: The document is noted.

R1-1804398 **Procedures related consideration to NOMA** **Samsung**

- Observation 1: the Alt.1 of grant free transmission (viewed as being similar to SPS transmission, where multiple access (MA) resources are pre-assigned/pre-configured to UEs, and the MA signatures pool shared by UEs are actually transparent to UE) can have gNB controllable collision of MA signature.
- Observation 2: HARQ retransmission can be supported for contention based non-orthogonal multiple access, e.g. by explicit signalling or by resource partitioning and mapping, for identifying initial transmission and associated retransmission(s).
- Observation 3: Link adaptation with explicit/implicit MCS signalling can be supported by, e.g. resource partitioning, for grant-free non-orthogonal multiple access.
- Observation 4: Enhanced DMRS design should be studied for improving channel estimation performance and the UE-detection.
- Observation 5: Dynamic switching between OMA and NoMA can be considered for grant-based non-orthogonal multiple access.
- Observation 6: Dynamic resource allocation is group-common information for grant-based non-orthogonal multiple access.
- Proposal 1: Means to support grant-free alt.1 can be studied for grant-free/contention based non-orthogonal multiple access.
- Proposal 2: Means to support HARQ re-transmission should be studied for grant-free/contention based non-orthogonal multiple access.
- Proposal 3: Means to support link adaptation should be studied for grant-free/contention based non-orthogonal multiple access.

Decision: The document is noted.

R1-1805067 **Initial views on procedures related to NOMA** **NTT DOCOMO, INC.**

- Proposal 1:
  - Grant-free based NOMA is supported at least for mMTC scenario
  - Grant-free based NOMA can be considered for eMBB with small data transmission
- Proposal 2: The contents of resource pool including the time/frequency resource, candidate signatures and the DM-RS for the grant-free should be further considered for grant-free transmission
- Proposal 3: NOMA SI should assume UL synchronization is maintained by certain manners
  - Further study the exact manner to maintain the UL synchronization
- Proposal 4: Support of HARQ can be considered
  - How to support the UE identification and differentiation of the initial transmission and retransmission needs further investigation
- Proposal 5: Functionalities to achieve link adaptation should be considered for UL grant free transmission
  - The supported set of MCS levels needs further study
  - The detailed design for MCS notification needs further study
- Proposal 6: Further investigate solution to control the signature collision and DM-RS collision
  - Joint selection of signature and DM-RS for the collision reduction can be considered

Decision: The document is noted.

Tuesday's wrap-up: Continue discussion offline – Li (ZTE)

R1-1803617	Procedures related to NOMA	ZTE, Sanechips
R1-1803669	Discussion on NoMA related procedures	Huawei, HiSilicon
R1-1803772	Discussion on NOMA procedures	CATT
R1-1803946	Considerations on NOMA related procedures	Fujitsu
R1-1804117	Considerations on NOMA related procedures	NEC
R1-1804229	Considerations on NOMA procedures	Spreadtrum Communications
R1-1804464	Procedures to be considered for NOMA operation	Nokia, Nokia Shanghai Bell
R1-1804575	Discussion on procedures related to NOMA	LG Electronics

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1396 of 1750

R1-1804646	Discussion on procedures related to NOMA	Google, Inc.
R1-1804745	NOMA related procedure	Intel Corporation
R1-1804825	Procedures related to NOMA	Qualcomm Incorporated
R1-1804861	On Procedures Related to Non-orthogonal Multiple Access	InterDigital, Inc.
R1-1805005	Procedures related to NoMA	Ericsson
R1-1805151	Considerations of DMRS design with large number of UEs	ETRI
R1-1805255	Consideration on a basic receiver for NOMA schemes	CATR

7.4.4 Link and system level performance evaluation for NOMA

R1-1803773 System evaluation assumptions for NOMA CATT

Decision: The document is noted.

R1-1804108 Discussion on SLS Evaluation Methodology and Assumptions for R15 NoMA CMCC

- Proposal 1: The curve of packet drop rate (PDR) vs packet arrival rate (PAR) and the curve of resource utilization (RU) v.s. PAR for OMA should be used as the evaluation metrics in mMTC scenario. The RU is defined as "RU= Number of RB per cell used by traffic during observation time / Total number of RB per cell available for traffic over observation time", where one RB allocated to one (e.g., SU-MIMO) or more (e.g., MU-MIMO or NOMA) users within a cell is counted as used only one time, which is different from the definition in TR36.814.
- Proposal 2: The curve of the reliability which can be achieved by 95% UEs v.s. PAR and the curve of resource utilization (RU) v.s. PAR for OMA should be used as the evaluation metrics in URLLC scenarios.
- Proposal 3: For grant-based eMBB case, user perceived throughput (UPT) should be taken as the evaluation metric.
- Proposal 4: For grant-free eMBB case, the same evaluation metrics as in mMTC could be used, which are the curve of PDR vs PAR and the curve of RU vs PAR for OMA.
- Proposal 5: BS antenna configurations with 16 ports for URLLC and eMBB scenarios should be considered in SLS assumptions for NoMA performance evaluation.

Decision: The document is noted.

R1-1804465 Considerations on NOMA evaluation Nokia, Nokia Shanghai Bell

- Proposal 1: The NOMA evaluation should in the first place focus on UL grant-free for each usage scenario. If NOMA for grant-based is evaluated, the baseline scheme for comparison should be UL MU-MIMO.
- Proposal 2: Scalable spreading factors need to be evaluated for spreading based scheme.
- Proposal 3: The evaluation should consider same number of UEs occupying same number of total resources, and use same TBS for evaluation of different schemes. Based on these, two methods could be considered
  - Method 1: same MCS for each case with per-UE occupied different number of PRBs
  - Method 2: different MCS for each case with same per-UE occupied number of PRBs.
- Proposal 4: DMRS details need to be reported in the evaluation.

Decision: The document is noted.

R1-1805209 Considerations on NoMA Performance Evaluation Vodafone Group Plc

Proposal 1: NoMA SI should not target any Low Power Wide Area (LPWA) use cases and shall focus on only "normal coverage" use cases which corresponds to UE spectral efficiency values greater than 0.1 bps/Hz for establishing the feasibility of NoMA.

Proposal 2: To evaluate the system level gain of NoMA over existing NR, the baseline reference system configuration shall include MU-MIMO (for grant-based operation) and the existing grant-free operation. This baseline configuration should be mandatory for SLS.

Proposal 3: In terms of the antenna configurations included for the evaluated deployment scenarios, the following baseline is proposed:

- for 700MHz carrier frequency: 1 UE Tx and 2 BS Rx antennas
- for 4GHz carrier frequency: 1 UE Tx and 16 BS Rx for 4GHz

Proposal 4: The following should be agreed upon as an input to system level simulations:

- Traffic generation: UE transmit power control modelling
  - Non-full-buffer traffic model should be the focus of the NoMA SI, with full buffer traffic model being used as a baseline for eMBB.
- How resource allocation is modelled for scheduled and grant-free operation
- NoMA performance gains should be evaluated as a function of packet size variation

Proposal 5: The output metrics of total latency and throughput for system-level simulations should include cumulative distribution functions (CDFs) of average throughput and average latency for each user in the system, derived for both NoMA and the baseline performance, instead of just a single average throughput and latency value averaged across all users in the system.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1397 of 1750

Proposal 6: Companies should focus on a uniform spatial distribution of UE drops within a cell when running system-level simulations.

Decision: The document is noted.

Tuesday's wrap-up: Continue discussion offline – Li (ZTE)

Thursday

R1-1805681 Summary of offline email discussion on SLS assumptions ZTE, Sanechips

Decision: The document is noted.

Agreements:

- Adopt the parameters in the following table for system-level evaluations of NOMA study

Table I: System-level evaluation assumptions

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1398 of 1750

Parameters	mMTC	URLLC	eMBB	Further specified values
Layout	Single layer - Macro layer: Hex. Grid			
Inter-BS distance	[1732]m	[500m]	200m	
Carrier frequency	700MHz	[4GHz. 700MHz]	4GHz	
Simulation bandwidth	[6] PRBs	12 PRBs	12 PRBs	
Number of UEs per cell	Companies report			
Channel model	UMa in TR 38.901			
UE Tx power	Max 23 dBm			
BS antenna configurations	2 Rx or 4 Rx for 700MHz; 2 ports: (M, N, P, Mg, Ng) = (10, 1, 2, 1, 1), 2 TXRU; 4 ports: (M, N, P, Mg, Ng) = (10, 2, 2, 1, 1), 4 TXRU; dH = dV = 0.5λ; BS antenna downtilt: companies to report, FFS a single value 4 Rx or 16 Rx for 4GHz; 4 ports: (M, N, P, Mg, Ng) = (10, 2, 2, 1, 1), 4 TXRU; 16 ports: (M, N, P, Mg, Ng) = (10, 8, 2, 1, 1), 16 TXRU; dH = 0.5λ, dV = 0.8λ; BS antenna downtilt: companies to report, FFS a single value			
BS antenna height	25m			
BS antenna element gain + connector loss	8 dBi, including 3dB cable loss			
BS receiver noise figure	5dB			
UE antenna configuration	1Tx as starting point			
UE antenna height	Follow the modelling of TR 38.901			
UE antenna gain	0dBi as starting point			
UE distribution	For mMTC: [20%] of users are outdoors (3km/h), [80%] of users are indoor (3km/h); Users dropped uniformly in entire cell Companies are encouraged to check whether the percentage of UEs whose CL > 144 dB is significant (e.g., 5%) and the CDF of the CL. Further discuss the percentage of outdoor UEs, to be finalized in May meeting. For URLLC [20%] of users are outdoors (3km/h), [80%] of users are indoor (3km/h); Users dropped uniformly in entire cell For eMBB 20% of users are outdoors (3km/h), 80% of users are indoor (3km/h); Users dropped uniformly in entire cell			
UE power control	Open loop PC for mMTC. Companies report the PC mechanisms used for eMBB and URLLC.			
HARQ/repetition	Companies report (including HARQ mechanisms).			
Channel estimation	Realistic			
BS receiver	Advanced receiver, with baseline scheme is MU-MIMO (e.g., has the capability of spatial differentiation) Companies to provide analysis of complexity between baseline vs. advanced receivers			
Packet dropping criterion				

Note: other values can be considered.

Agreements:

- The traffic model below is used for NOMA evaluations in mMTC scenario:
  - Packet arrival per UE: Poisson arrival with arrival rate λ;
  - Packet size: 20~200 bytes Pareto + higher layer protocol overhead of [29] bytes, as defined in TR 45.820 to be

the starting point
  - Other packet sizes are not precluded.
- The traffic model for NOMA evaluations in URLLC scenario is to be decided in May meeting.
- The traffic model for NOMA evaluations in eMBB scenario is to be decided in May meeting.

Agreements:
- Adopt the following performance metrics for NOMA study from system level point of view.

For mMTC
- Focus on normal coverage.
- The performance metrics for mMTC include the following:
  - Higher layer packet drop rate (PDR) vs. offered load. The definition of PDR is FFS:
    - Offered load can be at least
      - Higher layer packet arrival rate (PAR) per cell for massive connectivity
  - CDF of packet drop rate per UE is optional.
  - CDF of transmission latency is optional.
  - CDF of the inter-cell interference-over-thermal (IOT) is optional.
- Note: companies are encouraged to provide the curve of resource utilization (RU) vs. offered load.

For URLLC
- The baseline for performance comparison is UL transmission without dynamic link adaptation (i.e., using configured grant type 1 or type 2)
- The performance metrics for URLLC include at least the following:
- Percentage of users satisfying reliability and latency requirements vs. packet arrival rate (PAR).
  - CDF of reliability per UE is optional.
  - CDF of the inter-cell interference-over-thermal (IOT) is optional.
    - Note: companies are encouraged to provide the curve of resource utilization (RU) vs. PAR.

For eMBB
- The performance metrics for eMBB include the following:
  - Metric 1: Higher layer packet drop rate (PDR) vs. offered load. The definition of PDR is FFS:
    - Offered load can be at least
      - Higher layer packet arrival rate (PAR) per cell
    - CDF of packet drop rate per UE is optional.
    - CDF of transmission latency is optional.
    - CDF of the inter-cell interference-over-thermal (IOT) is optional.
    - Note: companies are encouraged to provide the curve of resource utilization (RU) vs. offered load.
  - Metric 2: UPT vs. offered load.
    - CDF of the inter-cell interference-over-thermal (IOT) is optional.
    - CDF of UE perceived throughput is optional
  - FFS whether or not to have signalling overhead as one performance metric

R1-1805682 **Summary of offline discussion on LLS clarifications** **ZTE, Sanechips**
Decision: The document is noted.

Agreements: Further clarify the LLS parameters:
- For ideal channel estimation, DMRS overhead is 1/7 for #OS 7 and 14, and 1/4 for #OS 4.
- For a=[3], companies are encouraged to check RAN4 power control rerquirements → aim to conclude in RAN1#93
- FFS timing offset for grant-free without perfect TA,
- FFS frequency offset

R1-1803618 System-level evaluation methodology and assumptions for NOMA ZTE, Sanechips
R1-1803668 Discussion on LLS and SLS evaluation metrics and parameters Huawei, HiSilicon
R1-1803774 Link level evaluation results of PDMA CATT
R1-1803853 Evaluations for NOMA vivo
R1-1804169 ACMA-OFDM with NR LDPC Code for Uplink NOMA HUGHES Network Systems Ltd
R1-1804170 Low PAPR ACMA (SC-FDE) for Uplink NOMA HUGHES Network Systems Ltd
R1-1804171 ACMA-OFDM for Uplink NOMA HUGHES Network Systems Ltd
R1-1804399 Considerations on evaluation for NoMA study Samsung

R1-1804576 Initial LLS evaluation for NCMA LG Electronics
Late submission
R1-1804670 Views On NOMA procedures AT&T
R1-1805528 Initial LLS results and SLS evaluation assumptions Intel Corporation (rev of R1-1804746)
R1-1804826 Link and system level evaluation for NOMA Qualcomm Incorporated
R1-1804862 IDMA Link Level Simulation Results InterDigital, Inc.
R1-1805006 Evaluation methodology and metrics for NoMA Ericsson
R1-1805068 Discussion on comparison methodology and system-level evaluations for NOMA NTT DOCOMO, INC.
R1-1805152 Initial LLS results for low-rate code and signature based shared access NOMA scheme ETRI
R1-1805256 Preliminary link level simulation results of non-orthogonal multiple-access schemes CATR

7.4.5 Other

R1-1803619 Channel estimation error modeling for NOMA receiver ZTE, Sanechips
R1-1803665 Preliminary LLS evaluation results for mMTC scenario Huawei, HiSilicon
R1-1803666 Preliminary LLS evaluation results for URLLC scenario Huawei, HiSilicon
R1-1803667 Preliminary LLS evaluation results for eMBB scenario Huawei, HiSilicon
R1-1804466 Consideration on NOMA study Nokia, Nokia Shanghai Bell
R1-1804468 Initial link level simulation results for NOCA Nokia, Nokia Shanghai Bell
R1-1804487 Coding schemes for NOMA in mMTC Google Inc.
R1-1804863 Discussion on System Level NOMA Evaluation InterDigital, Inc.
R1-1804864 On Operations for Non-orthogonal Multiple Access InterDigital, Inc.
R1-1805007 Observations on NOMA traffic models Ericsson
R1-1805535 Summary of offline email discussion on Tx side processing and receiver types for clarification ZTE, Sanechips
R1-1805588 Summary of offline email discussion on system-level evaluation methodology and assumptions for NOMA ZTE, Sanechips

7.5 Study on evaluation methodology of new V2X use cases - SID in RP-170837

R1-1804589 Draft TR 37.885 v0.1.0 Study on evaluation methodology of new Vehicle-to-Everything V2X use cases for LTE and NR LG Electronics Inc.
Decision: The document is endorsed.

R1-1805581 Summary of offline discussion on eV2X evaluation methodology LG Electronics
Decision: The document is noted.

Proposals:
- Three vehicle types are defined as follows.
  - Type 1 (passenger vehicle with lower antenna position): length 5 meters, width X meters, height 1.6 meters, antenna height Y meters
    - X & Y FFS
  - Type 2 (passenger vehicle with higher antenna position): length 5 meters, width 2.6 meters, height 1.6 meters, antenna height 1.6 meters
  - Type 3 (truck): length 13 meters, width 2.6 meters, height 3 meters, antenna height 3 meters
- The difference of the vehicle type does not change the channel model potentially except the following aspects:
  - Pathloss equation where the antenna height is set according to the vehicle type
  - Loss caused by vehicle blockage (details to be discussed in the vehicle blockage modeling)
  - Radiation pattern

Agreements:
- At least one "clustered UE dropping model" is defined.
  - A cluster consists of a number vehicle UEs located in the same lane and having the same direction/speed. Two closest UEs belonging to the same cluster are separated with a fixed distance and no other UEs can be located between them.
  - The distance between a platoon and a vehicle not belonging to the platoon follows the statistics of the distance between two vehicles not belonging to any platoon.
  - Only Type 3 vehicles form a cluster.
  - Clustered UE dropping is used only in Freeway scenario.

Proposals:
- Adopt the following metric for persistent collision
  - Packet Inter-Reception (PIR)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1401 of 1750

- Time elapsed between two successive successful receptions of two different packets transmitted from node A to node B for the same application. Results collected in an area of interest are to be used in a form of [CDF].
  - FFS the area of interest

Continue offline discussion – Hanbyul (LGE)

Thursday
R1-1805671 **Summary of offline discussion on eV2X evaluation methodology** **LG Electronics**
Decision: The document is noted.

7.5.1 Evaluation scenarios

Including scenarios, performance metric, vehicle dropping, traffic model

R1-1803775 **Discusion on evaluation scenarios of new V2X use cases** **CATT**
- Proposal 1: It is necessary to include mixed scenarios in new V2X use cases evaluation.
- Proposal 2: From the perspective of generation and generation interval, the following two traffic models are proposed to be evaluated:
  - Messages are periodically generated and the message generation interval is fixed like the Release14 periodic traffic.
  - Message generation starts when certain conditions such as time/location/probability are met, periodic or non-periodic transmission for a certain duration (details are FFS).
- Proposal 3: Message size of a traffic model shall be dependent of the use cases for evaluation accordingly and needs further study.
- Proposal 4: Platoon-type dropping is proposed to add to UE dropping model.
- Proposal 5: UEs are dropped on the roads according to the Poisson process as Release 14.

Decision: The document is noted.

R1-1804638 **Simulation scenarios and performance metrics for V2X** **Ericsson**
Decision: The document is noted.

R1-1805590 **Evaluation scenarios for NR V2X use cases** **Qualcomm Incorporated** (rev of R1-1804827)
Decision: The document is noted.

Thursday

Agreements:
- Three vehicle types are defined as follows.
  - Type 1 (passenger vehicle with lower antenna position): length 5 meters, width 2.0 meters, height 1.6 meters, antenna height 0.75 meters
  - Type 2 (passenger vehicle with higher antenna position): length 5 meters, width 2.0 meters, height 1.6 meters, antenna height 1.6 meters
  - Type 3 (truck): length 13 meters, width 2.6 meters, height 3 meters, antenna height 3 meters
  - FFS how to drop different vehicle types
- The difference of the vehicle type does not change the channel model potentially except the following aspects:
  - Pathloss equation where the antenna height is set according to the vehicle type
  - Loss caused by vehicle blockage (details to be discussed in the vehicle blockage modeling)
  - Radiation pattern

Agreements:
- Vehicles are dropped according to the following process.
  - The distance between the rear bumper of a vehicle and the front bumper of the following vehicle in the same lane is max {1 meter, an exponential random variable with the average of the speed * x sec}.
    - FFS for x sec.
- All the vehicles in the same lane have the same speed.
- The following options are supported for freeway:
  - Option A
    - Homogeneous vehicle types: 100% vehicle type 2
    - Non-clustered dropping

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1402 of 1750

- Same vehicle density in all the directions: Speed is [140 and/or 70] km/h in all the lanes.
- Option B
  - Heterogeneous vehicle types: [20]% vehicle type 1, [60]% vehicle type 2, [20]% vehicle type 3
  - Non-clustered dropping
  - Different vehicle density in different lanes:
    - Speed in Lane 1: 80km/h
    - Speed in Lane 2: 100km/h
    - Speed in Lane 3: 140km/h
    - Speed in Lane 4: 40km/h
    - Speed in Lane 5: 30km/h
    - Speed in Lane 6: 20km/h
- Option C
  - Heterogeneous vehicle types: 0% vehicle type 1, [67]% vehicle type 2, [33]% vehicle type 3
  - Clustered dropping: Each cluster consists of [6] Type 3 vehicles with a gap of [2] meters
    - FFS how to drop multiple clusters
  - Same vehicle density in all the directions: Speed is [140] km/h in all the lanes.

Agreements:

- The following options are supported for urban case:
  - Option A
    - Homogeneous vehicle types: 100% vehicle type 2
    - Non-clustered dropping
    - Same vehicle density in all the directions: Speed is [60 and/or 15] km/h in all the lanes.
    - In the intersection, a UE goes straight, turns left, turns right with the probability of 0.5, 0.25, 0.25, respectively.
  - Option B
    - Heterogeneous vehicle types: [20]%, [60]%, [20]% for vehicles types 1, 2, 3, respectively
    - Non-clustered dropping
    - Different vehicle density in different directions:
      - In the East-West direction:
        - Speed in Lane 1: 60km/h
        - Speed in Lane 2: 50km/h
        - Speed in Lane 3: 25km/h
        - Speed in Lane 4: 15km/h
      - In the North-South direction:
        - 0 km/h in all the lanes.
    - FFS how to handle the vehicle dropping and direction change at the intersection.
    - FFS whether to consider a reduced layout (e.g., covering a single intersection)

Agreements:

- Adopt the following metric for persistent collision
  - Packet Inter-Reception (PIR)
    - Time elapsed between two successive successful receptions of two different packets transmitted from node A to node B for the same application.
      - FFS how to collect results of PIR

Agreements:

- "Alt. 2" (agreed in [85-15] and RAN1#86) is supported and can be used as performance metric in scenarios such as multicast/unicast or to see the performance of links in a certain condition (e.g., links blocked by a building). When used, the company needs to clarify how the intended set of receivers is determined and what the motivation is.
  - i.e., Alt. 2: (1-Y) is the packet reception ratio calculated on a subset of UEs:
    - For one Tx packet, 1-Y is calculated by S/Z, where Z is the number of UEs in the intended set of receivers, and S is the number of UE with successful reception among Z.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1403 of 1750

- Unicast is the special case where Z includes a single UE, where the PRR is average of packets of the unicast link

Agreements:

- Two options are supported as follows:
  - Periodic traffic based on Option 1
    - FFS on which option(s) is(are) supported:
      - Message size varies in time in a deterministic manner.
      - Message size varies in time in a random manner.
  - Aperiodic Traffic based on Option 3
    - Working assumption: Inter-packet arrival time = a non-negative constant value + a random variable following an exponential distribution
    - Message size varies in time in a random manner.
  - Other options are not precluded if a relevant use case is identified.
- Further discussion till next meeting whether both options have equal priority or one of them has a higher priority

R1-1803672 On eV2X Evaluation Methodology Huawei, HiSilicon
R1-1803854 Discussion on eV2X evaluation scenarios vivo
R1-1803897 NR eV2X evaluation methodology ZTE, Sanechips
R1-1804022 Considerations on NR-eV2X evaluation scenarios OPPO
R1-1804262 Evaluation scenarios of new V2X use cases Nokia, Nokia Shanghai Bell
R1-1804400 Evaluation scenarios for NR V2X Samsung
R1-1804577 Discussion on evaluation scenarios for new V2X use cases LG Electronics
R1-1804596 Discussion on remaining issues of eV2X evaluation methodology Sony
R1-1804671 Evaluation scenario and simulation assumptions AT&T
R1-1804747 On scenarios, traffic models and performance metrics for eV2X evaluations Intel Corporation
R1-1804865 On V2X Evaluation Methodology InterDigital, Inc.
R1-1805069 Evaluation assumption for V2X phase 3 NTT DOCOMO, INC.
R1-1805257 V2X NR evaluation criterions OnStar
Late submission
R1-1805258 V2X NR evaluation scenarios OnStar
Late submission

7.5.2 Channel Model

R1-1805567 **Three state V2X sidelink channel model Huawei, HiSilicon, Spirent Communications, Panasonic, Cohere Technologies, ITRI, Intel, InterDigital, CATT, NEC, Keysight Technologies, Qualcomm, ZTE, Sanechips, LGE, Fraunhofer HHI, General Motors, Nokia, Nokia Shanghai Bell, AT&T, Sony, Vodafone**
(rev of R1-1803670)

- Proposal : At least for above 6 GHz, the V2V sidelink channel is modeled according to the following three states:
  - LOS
  - NLOS: LOS path blocked by static objects (e.g., building, tree)
  - NLOSv: LOS path blocked by mobile objects (i.e., vehicle)
- FFS details including at least the following aspects:
  - How to determine the different states (e.g., statistically, deterministically),
  - Whether the blockage loss is dependent on the blocker size, number, and/or the distance between Tx, Rx, blocker, etc.
  - Small and large scale parameters for the different state

Decision: The document is noted.

R1-1804578 **Discussion on channel model for new V2X use cases LG Electronics**
Decision: The document is noted.

R1-1804748 **On channel models for eV2X evaluation methodology Intel Corporation**
Discussion: Huawei: Proposal 5 is already part of R1-1805567 – others required more discussion

Decision: The document is noted.

Thursday

Agreements:
- At least for above 6 GHz, the V2V sidelink channel is modeled according to the following three states:
  - LOS
  - NLOS: LOS path blocked by buildings
  - NLOSv: LOS path blocked by vehicles

Agreements:
- The following pathloss equation applies to both below and above 6 GHz

LOS/NLOS	Pathloss [dB]
LOS	For Freeway case, PL = 32.4 + 20log10(d) + 20log10(fc) (fc is in GHz and d is in meters) For Urban case, PL= 38.77 + 16.7log10(d) + 18.2log10(fc) (fc is in GHz and d is in meters)
NLOS	FFS including Option 1: $PL_{NLOS} = \min(PL(d_1, d_2), PL(d_2, d_1))$ where $PL(d_k, d_l) = PL_{LOS}(d_k) + 17.9 - 12.5n_j + 10n_j \log_{10}(d_l) + 3\log_{10}(f_c)$ and $n_j = \max(2.8 - 0.0024d_k, 1.84)$ Option 2: NLOS pathloss equation in R1-1803671 Other options are not precluded.

- LOS pathloss equation is used when the two vehicles are in the same street.
  - Additional vehicle blockage loss is added the link between the two vehicles is blocked by other vehicles.
- NLOS pathloss equation is used when the two vehicles are in different streets.
  - No vehicle blockage is considered in this case.

Agreements:
- A link between two vehicles is considered blocked (i.e., in NLOSv)
  - Option 1: if a line connecting the antennas of the two vehicles in the same street intersects any vehicle (including either of the two vehicles) in the 3-dimensional space.
  - Option 2: with a probability
    - Distribution is FFS. Note that vehicle width and height will not affect this option once the probability is defined.
- In NLOSv , a random variable is added to the pathloss equation.
  - FFS the distribution of the random variable
- Vehicle blockage is applied to below 6 GHz.

Agreements:
- The link state (LOS, NLOS, or NLOSv) is updated for each link during the SLS runtime.
  - FFS whether the state is updated by Option 1 or Option 2 w.r.t the link between two vehicles is considered blocked (i.e., in NLOSv)
- At each state, each link uses pathloss, shadowing, and fast fading parameters corresponding to the state.
  - FFS how to model smooth transition between different states
- UE location is updated every [100] ms.

Agreements:
- Use LOS propagation type for V2B and B2R links in Freeway scenario
- Use LOS/NLOS propagation types for V2B, P2B and B2R links in Urban scenario and maintain spatial consistency following procedure in Subclause 7.6.3.3 of the 3GPP TR 38.901
  - Derive propagation type based on probability formula

Pathloss models of V2B, P2B, B2R for Freeway and Urban scenarios

	Below 6 GHz		Above 6 GHz	
	LOS	NLOS	LOS	NLOS
B2V B2P B2R	Urban: TR 38.901 UMa LOS Freeway: TR 38.901 RMa LOS	Urban: TR 38.901 UMa NLOS Freeway: N/A	Urban: TR 38.901 UMa LOS Freeway: FFS	Urban: TR 38.901 UMa NLOS Freeway: N/A

Agreements:

Large scale parameters of fast fading for V2B, P2B, B2R

	B2V/B2P/B2R	
	LOS	**NLOS**
Freeway	TR 38.901 RMa LOS	N/A
Urban	TR 38.901 UMa LOS	TR 38.901 UMa NLOS

Agreements:

- For sidelink in Urban and freeway, the fast fading parameters of "UMi-Street Canyon in TR 38.901" is the starting point and to be modified considering sidelink characteristics.
  - FFS fading parameters in Urban and Freeway

- Scenarios		UMi - Street Canyon		
		LOS	**NLOS**	**NLOSv**
Delay spread (DS) lgDS=$\log_{10}$(DS/1s)	μ_{lgDS}	[-0.24 $\log_{10}(1+f_c)$ - 7.14]	[-0.24 $\log_{10}(1+f_c)$ - 6.83]	FFS
	σ_{lgDS}	[0.38]	[0.16 $\log_{10}(1+f_c)$ + 0.28]	FFS
AOD spread (ASD) lgASD=$\log_{10}$(ASD/1°)	μ_{lgASD}	[-0.05 $\log_{10}(1+f_c)$ + 1.21]	[-0.23 $\log_{10}(1+f_c)$ + 1.53]	FFS
	σ_{lgASD}	[0.41]	[0.11 $\log_{10}(1+f_c)$ + 0.33]	FFS
AOA spread (ASA) lgASA=$\log_{10}$(ASA/1°)	μ_{lgASA}	[-0.08 $\log_{10}(1+f_c)$ + 1.73]	[-0.08 $\log_{10}(1+f_c)$ + 1.81]	FFS
	σ_{lgASA}	[0.014 $\log_{10}(1+f_c)$ + 0.28]	[0.05 $\log_{10}(1+f_c)$ + 0.3]	FFS
ZOA spread (ZSA) lgZSA=$\log_{10}$(ZSA/1°)	μ_{lgZSA}	[-0.1 $\log_{10}(1+f_c)$ + 0.73]	[-0.04 $\log_{10}(1+f_c)$ + 0.92]	FFS
	σ_{lgZSA}	[-0.04 $\log_{10}(1+f_c)$ + 0.34]	[-0.07 $\log_{10}(1+f_c)$ + 0.41]	FFS
Shadow fading (*SF*) [dB]	σ_{SF}	[4]	[7.82]	FFS
K-factor (*K*) [dB]	μ_K	[9]	N/A	FFS
	σ_K	[5]	N/A	FFS
Cross-Correlations	*ASD* vs *DS*	[0.5]	[0]	FFS
	ASA vs *DS*	[0.8]	[0.4]	FFS
	ASA vs *SF*	[-0.4]	[-0.4]	FFS
	ASD vs *SF*	[-0.5]	[0]	FFS
	DS vs *SF*	[-0.4]	[-0.7]	FFS
	ASD vs *ASA*	[0.4]	[0]	FFS
	ASD vs □	[-0.2]	N/A	FFS
	ASA vs □	[-0.3]	N/A	FFS
	DS vs □	[-0.7]	N/A	FFS
	SF vs □	[0.5]	N/A	FFS
Cross-Correlations [1)]	*ZSD* vs *SF*	[0]	[0]	FFS
	ZSA vs *SF*	[0]	[0]	FFS
	ZSD vs *K*	[0]	N/A	FFS
	ZSA vs *K*	[0]	N/A	FFS
	ZSD vs *DS*	[0]	[-0.5]	FFS
	ZSA vs *DS*	[0.2]	[0]	FFS
	ZSD vs *ASD*	[0.5]	[0.5]	FFS
	ZSA vs *ASD*	[0.3]	[0.5]	FFS
	ZSD vs *ASA*	[0]	[0]	FFS
	ZSA vs *ASA*	[0]	[0.2]	FFS
	ZSD vs *ZSA*	[0]	[0]	FFS
Delay scaling parameter r_τ		[3]	[2.1]	FFS
XPR [dB]	μ_{XPR}	[9]	[8.0]	FFS
	σ_{XPR}	[3]	[3]	FFS
Number of clusters N		[12]	[19]	FFS
Number of rays per cluster M		[20]	[20]	FFS

Scenarios		LOS	NLOS	NLOSv
ZOD spread (ZSD) lgZSD=$\log_{10}$(ZSD/1°)	μ_{lgZSD}	[max[-0.21, -14.8(d_{2D}/1000) + 0.01$\lvert h_{UT}-h_{BS}\rvert$ + 0.83]]	[max[-0.5, -3.1(d_{2D}/1000) + 0.01 max(h_{UT}-h_{BS},0) +0.2]]	FFS
	σ_{lgZSD}	[0.35]	[0.35]	FFS
ZOD offset	$\mu_{offset,ZOD}$	[0]	[-10^{-1.5log$_{10}$(max(10, d_{2D}))+3.3}]	FFS

Agreements:

- Rel-14 dual mobility is modified such that a random Doppler shift is added to each reflected path.
  - FFS details of the additional random Doppler shift

Agreements:

- gNB antenna element pattern and array configuration follows TR 38.901.
  - FFS which gNB configuration is used in which cases

Agreements:

Antenna element pattern for UE-Type RSU

Parameter	Below 6 GHz	Above 6 GHz
Antenna element gain vertical pattern	FFS	FFS
Antenna element gain horizontal pattern		
Pattern combining method for 3D	FFS	FFS
Max direct. gain of the antenna element	FFS	FFS

Antenna array configuration for UE-Type RSU

	Below 6 GHz	Above 6 GHz
TXRU mapping	FFS	FFS
Number of antenna elements across all panels	FFS	FFS
Antenna array configuration (M, N, P, Mg, Ng)	FFS	FFS
Antenna array spacing (dH,dV,dH,g,dV,g)	FFS	FFS
Antenna tilt, deg	FFS	FFS

Agreements:

Antenna element pattern for pedestrian UE

	Pedestrian UE	
	For 6 GHz	For 63 GHz (according to the UE antenna radiation pattern parameters specified in Table A.2.1-8 of TR 38.802)
Antenna element gain vertical pattern	Omni-directional	$A_{E,V}(\theta'') = -\min\left\{12\left(\frac{\theta''-90°}{\theta_{3dB}}\right)^2, SLA_V\right\}, \theta_{3dB}=90°, SLA_V=25\text{dB}$
Antenna element gain horizontal pattern		$A_{E,H}(\varphi'') = -\min\left\{12\left(\frac{\varphi''}{\varphi_{3dB}}\right)^2, A_m\right\}, \varphi_{3dB}=90°, A_m=25\text{dB}$
Pattern combining method for 3D		$A''(\theta'',\varphi'') = -\min\left\{-\left[A_{E,V}(\theta'')+A_{E,H}(\varphi'')\right], A_m\right\}$
Max direct. gain of the antenna element	0 dBi	5 dBi

Antenna array configuration for pedestrian UE

	Pedestrian UE	
	For 6 GHz	For 63 GHz
TXRU mapping	Up to proponents decision	Up to proponents decision
Number of antenna elements across all panels	Up to 8 Tx /Rx antenna elements	Up to 32 Tx /Rx antenna elements
Antenna array configuration (M, N, P, M_g, N_g)	FFS TR 38.802, Table A.1.6-1	(2, 4, 2, 1, 2) Panel bearing angle: $\Omega_{0,1}=\Omega_{0,0}+180°$ TR 38.802, Table A.1.6-2
Antenna array spacing (d_H,d_V,$d_{H,g}$,$d_{V,g}$)	(d_H, d_V) = (0.5, 0.5)λ TR 38.802, Table A.1.6-1	(d_H, d_V) = (0.5, 0.5)λ; ($d_{H,g}$, $d_{V,g}$) = (0, 0)λ TR 38.802, Table A.1.6-2
Antenna tilt, deg	0	90

Note: Antenna pattern can be different in different carrier frequencies.

Agreements:

Antenna element pattern for vehicle UE

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1407 of 1750

	Vehicle UE	
	For 6 GHz	For 63 GHz
Antenna element gain vertical pattern	FFS	FFS
Antenna element gain horizontal pattern	FFS	FFS
Pattern combining method for 3D	FFS	FFS
Max direct. gain of the antenna element	FFS	FFS

Antenna array configuration for vehicle UE

	Vehicle UE	
	For 6 GHz	For 63 GHz
TXRU mapping	FFS	FFS
Number of antenna elements across all panels	FFS	FFS
Antenna array configuration (M, N, P, M_g, N_g)	FFS	FFS
Antenna array spacing (d_H,d_V,$d_{H,g}$,$d_{V,g}$)	FFS	FFS
Antenna tilt, deg	FFS	FFS

R1-1803776 Discussion on channel models of new V2X use cases CATT
R1-1803898 Consideration of Blockage in eV2X Channel Modeling ZTE, Sanechips
R1-1804023 On some remaining issues in channel modelling OPPO
R1-1804263 V2X channel modelling and other issues Nokia, Nokia Shanghai Bell
R1-1804401 Channel model for NR V2X Samsung
R1-1804639 On channel models for eV2X evaluation Ericsson
R1-1804672 Channel model for V2X AT&T
R1-1804866 V2X Sidelink Channel Model with Vehicle Blockage InterDigital, Inc.
R1-1805070 Channel model for V2X phase 3 NTT DOCOMO, INC.
R1-1805077 On channel models for eV2X Cohere Technologies
R1-1805259 V2X NR channel model OnStar
Late submission
R1-1805659 Modelling of the Doppler effect in V2V sidelink channel Huawei, HiSilicon

7.5.3 Other

R1-1804673 Integrated access and sidelink: A unified concept for V2X AT&T
Decision: The document is noted.

R1-1803899 NR eV2X link level simulation assumptions ZTE , Sanechips
R1-1805090 Discussion on eV2X use cases Ericsson LM

7.6 Study on NR-based Access to Unlicensed Spectrum - SID in RP-172021

R1-1805705 Chairman's notes of AI 7.6 SI on NR-based access to unlicensed spectrum Ad-Hoc chair (Ericsson)
Decision: The document is endorsed, content incorporated below.

R1-1805677 Summary of offline discussion for NR-U Qualcomm

Agreement:
In the discussions in the NR-U study item, references to sub-7 GHz are intended to include unlicensed bands in the 6 GHz region that are being discussed in regulatory discussions which may have some region exceeding 7 GHz (e.g., 7.125 GHz).

7.6.1 Simulation Methodology for NR-U operation

R1-1803777 Remaining Issues of Simulation Methodology for NR Unlicensed operations CATT
R1-1803918 Updated Coexistence Evaluation Assumptions CableLabs
R1-1803948 Considerations for Simulation Methodology for NR-U Operation ZTE, Sanechips
R1-1804062 On simulation methodology for NR-U operation MediaTek Inc.
R1-1804109 Discussion on evaluation assumption for NR-U CMCC

R1-1804274 Simulation methodology and assumptions for NR-U evaluation Nokia, Nokia Shanghai Bell
R1-1804300 Simulation assumptions and preliminary results for NR unlicensed bands Huawei, HiSilicon
R1-1804402 Simulation Methodology for NR-U Samsung
R1-1804579 Simulation methodology for NR unlicensed operation LG Electronics
R1-1804664 Simulation assumptions and scenarios for NR Unlicensed AT&T
R1-1804749 On the simulation methodology for NR unlicensed Intel Corporation
R1-1804828 Simulation methodology for NR unlicensed Qualcomm Incorporated
R1-1804867 Consideration of NR-U Simulation Evaluation on 60 GHz Channels InterDigital, Inc.
R1-1805008 NR-U evaluation methodology Ericsson
R1-1805071 Simulation Methodology for NR-U operation NTT DOCOMO, INC.
R1-1805093 Discussion on network topology for sub-7GHz coexistence evaluations between NR-U and Wi-Fi Broadcom, Cisco, HPE
R1-1805555 Discussion on network topology for sub-7GHz coexistence evaluations between NR-U and Wi-Fi

R1-1805585 WF on Simulation Scenarios for NR-U Qualcomm, Nokia, NSB

Agreement:

- For sub7 indoor simulation evaluation:
  - Scenario: Option 2 (3+3) with indoor mixed office model
    - Target to reach 10%-15% serving links below -72dBm
    - Further layout parameter fine tuning may be needed. An example procedure for fine tuning is the following sequence.
      - Currently a-b-a=15-20-15
      - If not reaching target, try a-b-a=15-30-15 and a-b-a=20-40-20
      - If not reaching target, apply a scaling factor to the layout with a-b-a=20-40-20
  - Other parameters: Default is NR parameters in 38.901 and 38.802 with the exception of the following

Parameters	Indoor Sub-7GHz
Carrier Frequency	5GHz
Carrier Channel Bandwidth	20MHz baseline , 80MHz optional
Number of carriers	1
Number of users per operator	5 per gNB per 20MHz
SCS	To be reported together simulation results
Channel Model	NR InH Mixed Office model
BS/AP Tx Power	23dBm (total across all TX antennas)
UE/STA Tx Power	18dBm (total across all TX antennas)
BS/AP Antenna gain	0dBi
UE/STA Antenna gain	0 dBi
BS/AP Noise Figure	5dB
UE/STA Receiver Noise Figure	9dB
Minimum received power from serving cell for UE dropping	-82dBm
UE receiver	MMSE-IRC as the baseline receiver
BS/AP antenna Array configuration	(M, N, P, M_g, N_g) = (1, 2, 2, 1, 1), dH = dV = 0.5 λ
UE/STA antenna Array configuration	Baseline Tx/Rx: (M, N, P, Mg, Ng) = (1, 1, 2, 1, 1), dH = dV = 0.5 λ Optional Tx/Rx: (M, N, P, Mg, Ng) = (1, 2, 2, 1, 1), dH = dV = 0.5 λ
Traffic model	Use 36.889 Table A.1.1. Note: Results based on the mixed traffic models can be used to determine the design.
UE/STA to UE/STA link pathloss model	Directly use InH office pathloss model with proper d_3D with indoor mixed office LOS probability
gNB to gNB link pathloss model	Directly use InH office pathloss model with proper d_3D with indoor mixed office LOS probability

Email discussion on further layout parameter fine tuning until May 3, 2018 (Jing, Qualcomm)

Agreement:

- For sub7 outdoor simulation evaluation:
  - Select one of the following for the Outdoor sub-7 GHz scenario

- Alt 1: Each operator randomly drop [1 or 2] micro-layer TRPs within each macro cell with minimum dibstance between gNBs as in NR
  - Use NR dense Urban option 1 (gNB dropped at the center of the hot-spot)
  - Independent dropping between two operators
  - Use the NR current [57.9] meters intra-operator minimum distance
  - Use [10] meters as the inter-operator minimum distance
  - UE randomly dropped within [28.9] meters within the serving cell
- Alt 2: Drop [1 or 2 or 3] hot spots as in NR urban option 1
  - Within each hot-spot, randomly drop one gNB from each operator within a circle of radius [10] meters centered at the center of the hot-spot
    - The minimum inter-gNB distance is [10] meters
  - Within each hot-spot, drop UE within [28.9] meters from the hot-spot center

- Parameters: Use the indoor sub7 table as baseline, with further fine tunes possible

Agreement:

- For calibration for sub-7 GHz indoor and outdoor scenarios, companies should submit for the baseline scenario:
  - Cdf of received signal power from serving cell
  - Optional: Cdf of received signal power from each of the all non-serving cells (including the cells from the other operator)

7.6.2 Frame structure for NR-U operation

R1-1803678	NR frame structure and scheduling on unlicensed bands	Huawei, HiSilicon
R1-1803778	Frame Structure for NR Unlicencensed Operations	CATT
R1-1803855	Frame structure for NR-U operation	vivo
R1-1803947	Flexible starting transmission point for NR-U	Fujitsu
R1-1803949	Discussion on frame structure and scheduling for NR-U	ZTE, Sanechips
R1-1803973	Frame structure for NR-U	OPPO
R1-1804063	On frame structure design for NR-U operation	MediaTek Inc.
R1-1804275	Frame structure for NR-U operation	Nokia, Nokia Shanghai Bell
R1-1804403	Frame structure for NR-U	Samsung
R1-1804580	Frame structure for NR unlicensed operation	LG Electronics
R1-1804592	Frame structure and numerology for NR-U	ITL
R1-1804598	Considerations on frame structure for NR unlicensed operations	Sony
R1-1804750	On the flexibility of NR to operate in unlicensed spectrum	Intel Corporation
R1-1804766	Frame Structure Design for NR-U	Charter Communications
R1-1804829	Frame structure for NR-U operation	Qualcomm Incorporated
R1-1804868	On Frame Structure for NR-U Operation	InterDigital, Inc.
R1-1805009	On Frame Structure for NR in Unlicensed Spectrum	Ericsson
R1-1805253	Frame structure design in NR-U	CATR
R1-1805586	**WF on Frame Structure for NR-U**	**Qualcomm, Ericsson**

Agreement:

- NR-U supports both Type-A and Type-B mapping already supported in NR
  - Additional starting positions and durations are not precluded
- For sub-7 GHz, NR-U study the SCSs, 15/30/60KHz
  - Study performance difference between different SCS
  - Study if changes to UL design are needed to meet the PSD and OCB requirements
  - Study if an SS block design/RMSI/OSI with 60KHz SCS is needed
  - Impact on MIB and SIB1 content
  - Need for use of ECP for 60KHz
  - RACH design with 60KHz SCS in addition to options currently part of NR
  - Other considerations are not precluded.
  - Impact on support of different BWs with different SCS
- Study supporting more than one switching points within a TxOP
  - FFS the LBT requirement for each DL/UL data/control burst in the TxOP

Proposal:

- Study FBE (as in the ETSI BRAN specifications) based frame structure

7.6.3 Potential physical layer channel design

R1-1803624	Discusses on waveform and bandwidth of NR-U	NEC

R1-1803676	Design princples of physcial channels on NR unlicensed band	Huawei, HiSilicon
R1-1803779	Physical Channel Design for NR Unlicensed Operations	CATT
R1-1803856	Discussion on physical layer channel design in unlicensed spectrum	vivo
R1-1803951	Considerations on RS/channel design and measurement for NR-U	ZTE, Sanechips
R1-1803974	Views on physical layer channel design for NR-U	OPPO
R1-1804064	On physical later channel design for NR-U operation	MediaTek Inc.
R1-1804218	Discussion on SS/PBCH block for NR-U operation	Spreadtrum Communications
R1-1804276	On physical layer channel design for NR unlicensed	Nokia, Nokia Shanghai Bell
R1-1804404	Potential physical layer channel design for NR-U	Samsung
R1-1804581	Physical layer channel design for NR unlicensed operation	LG Electronics
R1-1804649	Considerations on SS/PBCH blocks for NR unlicensed	Xiaomi Technology
R1-1804665	Closed loop LBT for Licensed Assisted NR	AT&T
R1-1804751	Design consideration for NR unlicensed physical layer channels	Intel Corporation
R1-1804752	Enhancements to NR to operate in unlicensed spectrum	Intel Corporation
R1-1804768	NR Unlicensed physical channel design considerations	Apple Inc.
R1-1804830	Potential phy channel design for NR unlicensed	Qualcomm Incorporated
R1-1804869	On UL Physical Layer Channel Design for NR-U	InterDigital, Inc.
R1-1805010	Physical layer channel design for NR unlicensed operation	Ericsson
R1-1805092	Waveform considerations for NR-U in the 60GHz band	Mitsubishi Electric RCE
R1-1805591	**WF on PHY Channel Design for NR-U**	**Qualcomm, Ericsson**

Agreements:

- Study the design changes needed to support the following channels /signals in NR-U
  - PDCCH/PDSCH
  - PUCCH/PUSCH
  - PSS/SSS/PBCH
  - PRACH
  - DL and UL reference signals applicable to the operational frequency range

7.6.4 Potential physical layer procedures

R1-1803679	Coexistence and channel access for NR unlicensed band operations	Huawei, HiSilicon
R1-1803780	Physical Layer Procedures for NR Unlicensed Operations	CATT
R1-1803857	Discussion on the channel access procedures	vivo
R1-1803952	Design of Channel access mechanism for NR-U	ZTE, Sanechips
R1-1803975	Views on physical layer procedures for NR-U	OPPO
R1-1804037	Potential solutions and techniques for NR unlicensed	ASUSTEK COMPUTER (SHANGHAI)
R1-1804065	Discussion on potential physical layer procedures in NR-U	MediaTek Inc.
R1-1804209	HARQ-ACK transmission on unlicensed carriers	Lenovo, Motorola Mobility
R1-1804230	Considerations on the LBT procedures for NR unlicensed band	Spreadtrum Communications
R1-1804241	Discussion on NR unlicensed band operation	Potevio
R1-1804277	Physical layer procedure enhancements for NR unlicensed	Nokia, Nokia Shanghai Bell
R1-1804405	Potential physical layer procedures for NR-U	Samsung
R1-1804582	Physical layer procedures for NR unlicensed operation	LG Electronics
R1-1804591	Broadcast signals and synchronization for NR-U	ITL
R1-1804597	Considerations on physical layer procedures for NR unlicensed operations	Sony
R1-1804666	Physical layer enhancements for NR Unlicensed	AT&T
R1-1804753	Consideration for NR unlicensed channel access mechanism	Intel Corporation
R1-1804767	Design considerations for standalone NR-U	Charter Communications
R1-1804769	NR Unlicensed considerations	Apple Inc.
R1-1804831	Potential procedure design for NR unlicensed	Qualcomm Incorporated
R1-1804870	On Physical Layer Procedures for NR-U	InterDigital, Inc.
R1-1805011	Physical layer procedures for NR unlicensed operation	Ericsson
R1-1805072	Potential physical layer procedures for NR-U operation	NTT DOCOMO, INC.
R1-1805113	Channel Access Procedure for NR on Unlicensed Band	Shenzhen Coolpad Technologies
R1-1805254	Considerations on LBT in NR-based access to unlicensed spectrum	CATR

Agreement:

- Study possible enhancements for HARQ operation
- Study changes needed for Configured Grant support in NR-U
  - Baseline for study: If absence of Wi-Fi cannot be guaranteed (e.g. by regulation) in the band (sub-7 GHz) where NR-U is operating, the NR-U operating bandwidth is an integer multiple of 20MHz
- At least for band where absence of Wi-Fi cannot be guaranteed (e.g. by regulation), LBT can be performed in units of 20

MHz.
  - FFS: details on how to perform LBT for as single carrier with bandwidth greater than 20 MHz, i.e., integer multiples of 20 MHz.
- Study whether or not the following techniques enhance performance beyond the baseline LBT mechanisms
  - Techniques to cope with directional antennas/transmissions
  - Receiver assisted LBT : RTS/CTS type mechanism
    - On-demand receiver assisted LBT: For example receiver assisted LBT enabled only when needed
  - Techniques to enhance spatial reuse
  - Preamble detection
  - Enhancements to baseline LBT mechanisms above 7 GHz
- Note: LTE-LAA LBT mechanism are assumed as baseline for evaluations for 5GHz.
- Note: Other aspects are not precluded from being included

7.6.5 Other

R1-1803677	Numerology and wideband operation in NR unlicensed	Huawei, HiSilicon
R1-1803680	SSB/DRS in NR unlicensed	Huawei, HiSilicon
R1-1803681	Random access in NR unlicensed	Huawei, HiSilicon
R1-1803682	UCI transmission in NR unlicensed	Huawei, HiSilicon
R1-1803858	Design considerations for standalone operation in NR unlicensed spectrum	vivo
R1-1803976	Channel access mechanisms on NR-U	OPPO
R1-1803977	SS/PBCH block transmission on NR-U	OPPO
R1-1803978	Discussion on SS/PBCH block waveform for NR-U	OPPO
R1-1803979	Paging transmission on NR-U	OPPO
R1-1803980	HARQ procedure on NR-U	OPPO
R1-1804231	Considerations on Autonomous UL transmission for NR unlicensed band	Spreadtrum Communications
R1-1804242	Discussion on initial access based on beam sweeping in NR-U	Potevio
R1-1804313	Channel access and co-existence for NR-U operation	Nokia, Nokia Shanghai Bell
R1-1804314	Interlace structures for NR-U uplink	Nokia, Nokia Shanghai Bell
R1-1804680	BWP operation in unlicensed spectrum	InterDigital, Inc.
R1-1804754	Initial thoughts foron technology neutral design for greenfield	Intel Corporation
R1-1804832	NR-U AUL	Qualcomm Incorporated
R1-1804833	Waveform options for 60GHz band	Qualcomm Incorporated
R1-1804834	Waveform under PSD limitation for NR-U	Qualcomm Incorporated
R1-1804884	On Potential Waveform Solutions for NR-U	InterDigital, Inc.
R1-1804885	On LBT for Beam-Based Transmission for NR-U	InterDigital, Inc.
R1-1804886	On Synchronization Signal and PBCH for NR Unlicensed Spectrum	InterDigital, Inc.
R1-1804887	On Random Access for NR Unlicensed Spectrum	InterDigital, Inc.
R1-1804888	On Paging for NR Unlicensed Spectrum	InterDigital, Inc.
R1-1805012	On SRS design for NR unlicensed operation	Ericsson
R1-1805013	On the Introduction of a Discovery Reference Signal	Ericsson
R1-1805014	On NR operation in 60GHz unlicensed band	Ericsson
R1-1805015	Numerology for NR operation in unlicensed spectrum	Ericsson
R1-1805016	On Autonomous UL Transmissions for NR in Unlicensed Spectrum	Ericsson
R1-1805017	On PRACH for NR in Unlicensed Spectrum	Ericsson
R1-1805018	On interlace design for NR-U uplink	Ericsson
R1-1805247	Discussion on coexistence between NR-U and 802.11ax	Broadcom

7.7 Study on Integrated Access and Backhaul for NR - SID in RP-172290

R1-1805275 **Work plan for Integrated Access and Backhaul Study Item** **Samsung, Qualcomm, AT&T, KDDI**
(rev of R1-1804473)
Decision: The document is noted.

R1-1804476 **TR 38.874, Version 0.1.1 Samsung, Qualcomm, AT&T, KDDI**
Decision: The document is noted. For information only.
Huawei: far from being a skeleton TR – need to be revised during the week.

7.7.1 Enhancements to support NR backhaul links

R1-1804620 **Enhancements to support NR backhaul links** **Nokia, Nokia Shanghai Bell**

- Observation 1: From RAN1 point of view, NR Rel-15 provides a very good baseline for IAB operation.
- Observation 2: Depending on the allocation scheme of BH/Access slots, there could be a shortage of DL Access slots available for IAB Node's SS/PBCH block transmission.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1412 of 1750

- Observation 3: To enable monitoring between all IAB Nodes, IAB measurement gaps must be introduced: RX in a slot that is normally used for transmission or TX in a slot that is normally for reception.
- Observation 4: GC-PDCCH can enable interference coordination between DgNB cell and RN cell(s) with dynamic split between Access/BH in such that the network can be operated free from cross-link interference.
- Observation 5: Synchronization requirements can be met in typical IAB deployment scenario according to current knowledge about the specified TA adjustment granularity (separately for each numerology), UE TX timing error limits and TA adjustment accuracy.
- Proposal 1: The number of hops is determined by the propagation environment where the topology is constructed to maximize system spectral efficiency and minimize latency. There should be no specified limit on the number of hops, but instead, it should be governed by the propagation environment.
- Proposal 2: Prioritize half-duplex scenario with TDM between access and backhaul in 3GPP studies.
- Proposal 3: GC-PDCCH enhancements are needed to facilitate dynamic resource allocation between the backhaul and access links.
- Proposal 4: RN processing time capabilities need to be discussed as part of the IAB studies.
- Proposal 5: IAB Nodes are measuring link quality to candidate nodes besides the active IAB connection(s).
- Proposal 6: Cross-link interference management related to half-duplex operation with SDM/FDM between access and backhaul needs to be considered as part of NR studies.
- Proposal 7: Develop a unified cross-link interference management framework under single WI, e.g. flexible duplexing or MIMO, covering all potential use-cases, e.g. dynamic TDD and IAB, etc.
- Proposal 8. TA based synchronization can be taken as basis for IAB synchronization supporting also multi-hop scenarios.

Decision: The document is noted.

R1-1804662 Overview of Physical layer enhancements for IAB AT&T

- Proposal 1: IAB should support the same physical layer signals and procedures designed for access UEs performing initial access and link management (e.g. RLM/RRM) for IAB node discovery and topology/route management.
- Proposal 2: The multiplexing of initial access signals (e.g. SSB, RACH, and CSI-RS for RRM) should consider multi-hop topologies and half-duplex constraints at IAB nodes.
- Proposal 3: The resources and respective transmission periods for signals required for initial access and RLM/RRM of backhaul link should be separately configured from the parameters used by access UEs.
- Proposal 4: RAN1 should study mechanisms for efficient multiplexing of access/backhaul traffic across multiple hops considering a per IAB-node half-duplex constraint.
- Proposal 5: Cross link interference measurement and mitigation is critical for the operation of IAB.
- Proposal 6: IAB should make use of different interference measurement categories and components to enable CLI mitigation and cancellation.
- Proposal 7: Consider to support 8 layers of PUSCH transmission in the spec.

Decision: The document is noted.

R1-1804835 Enhancements to support NR backhaul links Qualcomm Incorporated

- Proposal 1: RAN1 should strive for a common design, as NR access, to support NR backhaul links.
- Observation 1: access and backhaul have several differences at both link-level and system-level.
- Proposal 2: RAN1 should identify the aspects of NR-IAB that require a new design or a modification of the NR access design. RAN1 should deprioritize any design optimization for NR-IAB.
- Observation 2: an IAB-node can act as a UE and follow the same initial access procedure, including cell search, SI acquisition, and random access, in order to initially integrate to an IAB network.
- Observation 3: over a BH link, an IAB-node can adopt UE functionality (UE-F) and leverage the NR access design for various control/data channels, reference signals, and procedures (e.g. RRM, RLM, beam management, mobility management).
- Proposal 3: RAN1 should further study inter-relay discovery procedure subject to half-duplex constraint.
- Proposal 4: Timing alignment across multi-hop NR-IAB network should be studied.
- Observation 4: Over-the-air (OTA) synchronization can be used to synchronize a multi-hop IAB network to the IAB-donors.
- Proposal 5: It should further be investigated if the tolerance of multi-hop OTA synchronization is acceptable.
- Proposal 6: Network should synchronize the IAB-donors using the available techniques, e.g. using GPS/GNSS, Ethernet, etc.
- Observation 5: IAB resource partitioning must be such that the UEs can continue their normal operations with no issue and no need for modifications.
  - Details of the IAB resource partitioning is outside of RAN1 scope.

Decision: The document is noted.

Wednesday's wrap-up: Discuss further offline – Thomas (AT&T)

Thursday

R1-1805673 **Summary of 7.7.1 Enhancements to support NR backhaul links** **AT&T**

Decision: The document is noted.

Agreement:

- The Release 15 NR physical layer should be the starting point for the physical layer of the IAB backhaul link.

Agreements:

- An IAB-node can follow the same initial access procedure as an access UE, including cell search, SI acquisition, and random access, in order to connect to an IAB node/donor and initially integrate to the network.
- Two cases: (1) donor and relay node share the same cell ID and (2) donor and relay maintain separate cell ID can be further studied.
  - Note: The feasibility of (1) may depend on architectures considered in RAN2/3.
- The SSB/CSI-RS based RRM measurement defined in NR R15 are considered as a starting point for IAB node discovery and measurement.
  - How to avoid conflicting SSB configurations among IAB nodes, as well as the feasibility of CSI-RS based IAB node discovery, should be studied.
- RAN1 should further study inter-relay discovery procedure subject to half-duplex constraint and multi-hop topologies.

Agreements:

- Study the feasibility of over-the-air (OTA) synchronization and the impact of timing misalignment on IAB performance (e.g. the number of supportable hops).
- Mechanisms for timing alignment across multi-hop NR-IAB networks should be studied.

Agreements:

- Measurements on multiple backhaul links for link management and route selection should be studied.
- Mechanisms for efficient route switching or transmission/reception on multiple backhaul links simultaneously (e.g. multi-TRP operation and intra-frequency dual connectivity) should be studied.
  - Note: The feasibility of (1) may depend on architectures considered in RAN2/3.
- Mechanisms for scheduling coordination, resource allocation, and route selection across IAB nodes/donors and multiple backhaul hops should be studied.
- Mechanisms for efficient TDM/FDM/SDM multiplexing of access/backhaul traffic across multiple hops considering an IAB-node half-duplex constraint should be studied.
- The impact of cross-link interference on access and backhaul links (including across multiple hops) should be studied.
- Interference measurement and management solutions should be studied.
- 1024QAM for the backhaul link should be studied.
  - FFS: whether solutions should be specified as part of an IAB WI or other NR WI

R1-1803695	Physical layer enhancement consideration on IAB	Huawei, HiSilicon
R1-1803990	Discussion of resource allocation for IAB	OPPO
R1-1804110	Discussion on deployment scenario and requirement for IAB	CMCC
R1-1804406	Necessary Enhancements for NR IAB	Samsung
R1-1804504	Multiplexing of IAB links	ZTE, Sanechips
R1-1804505	IAB enhancements overview	ZTE, Sanechips
R1-1804583	Discussions on NR IAB support	LG Electronics
R1-1804611	NR enhancements to support integrated access and backhaul	Sony
R1-1804755	RAN1 related issues in IAB	Intel Corporation
R1-1805085	Physical-layer aspects related to IAB	Nanjing Ericsson Panda Com Ltd

7.7.2 Evaluation methodology for NR IAB

Including deployment scenarios, evaluation assumptions, etc.

R1-1805274 **Evaluation Methodology for NR IAB** **Samsung** (rev of R1-1804407)

Proposal 1: IAB should be evaluated with the following assumptions.

a. Physically fixed relays (imply that the benefit of planning should be captured in modelling)
b. In-band and out-of-band scenarios
c. NR access over NR backhaul
d. 30GHz for NR backhaul

e. Support of multiple backhaul hops
f. Topology adaptation to enable robust operation, e.g., mitigate blockage and load variation on backhaul links
g. Maximize the reuse of Rel-15 NR specifications

Observation 1: A potential candidate scenario to evaluate IAB as backhaul for coverage extension solution is the "dense urban" scenario with two layers and 3-sector micro TRPs. Some of the important issues to be further studied are:

- Additonal ISDs of the macro layer (e.g. 200m (dense urban), 500m (urban), 1732m (suburban))
- Sector orientation of the IAB-capable micro TRPs

Observation 2: A potential candidate scenario to evaluate IAB as backhaul for area traffic capacity solution is the urban grid model with 4-sector micro TRPs. The channel model at >6GHz for UMi street canyon particularly for links between nodes not dropped on the same street should be further studied.

Observation 3: For the backhaul links, the LOS probability determination for the large-scale channel model and AoD/AoA modelling for the small-scale channel model need further study.

Proposal 2: For the backhaul channel model, consider "bonus" to path loss formula to capture the benefit of planned deployment for rTRP, the following alternatives are to be studied:

Alt 1: Pathloss: $PL=PL_{LOS}(R)$, if LOS; $PL_{NLOS}(R) - B$, if NLOS; where R is the 3-D distance, FFS value for B
LOS probability: $Prob(R)' = 1-(1- Prob(R))^N$, FFS value for N

Alt 2: LOS probability is set to a constant (representing the target LOS probability via planning)

Decision: The document is noted.

R1-1804584 **Discussions on evaluation methodology on NR IAB** **LG Electronics**

- Proposal 1: For the deployment scenario in IAB SLS simulation,
  - Reuse dense urban scenario in the table A.2.1-1 in TR38.802.
    - Hexagonal deployment for Macro TRP. All with fiber connection
    - RN is deployed as micro TRP
  - Simulate 2 cases:
    - Case-1: Only Macro layer
    - Case-2: Macro layer + Micro layer (using IAB for backhaul)
- Proposal 2: For the multi-hop IAB SLS simulation, 500m ISD is used in dense urban scenario.
- Proposal 3: For the relay drop, equally dropped in the simulations.
  - For the single hop IAB, 3 relays drop per sector
  - For the multi hop IAB, 8 relays drop per sector
    - To reduce the simulation burden, 7 sites can be considered.
- Proposal 4: Considering cell planning well done, the LOS probability is assumed to be '1' for Macro to Micro and Micro to Micro; it is not applied for the interference link.
- Proposal 5: For the same scatterer assumptions, Macro-to-Micro channel model is modified as
  - Below 6GHz:
    - 3D UMa O-to-O (hUE =10m); ASA and ZSA statistics updated to be the same as ASD and ZSD from 3D UMi O-to-O (hUE =25m)
  - Above 6GHz:
    - 5GCM UMa O-to-O (hUE =10m); ASA and ZSA statistics updated to be the same as ASD and ZSD from UMi-Street canyon O-to-O (hUE =25m)
- Proposal 6: For the performance metric in IAB SLS,
  - Outage probability
  - User perceived throughput

Decision: The document is noted.

R1-1805086 **IAB Simulation Evaluation Methodology and KPIs** **Nanjing Ericsson Panda Com Ltd**

- Proposal 1: The IAB simulation scenario should capture the multi-hop feature of the backhaul links.
- Proposal 2: The baseline performance of the IAB system should be evaluated when radio resources are separated 1) between access and backhaul links, or 2) between successive IAB-Ns (including IAB-DN). Other resource allocation features such as dynamic FDM/TDM/SDM between different links can be evaluated by comparing with the baseline performances.
- Proposal 3: IAB performance evaluation KPIs should include the per-link SNR and SINR, user bitrate (assigned by the scheduler), user perceived throughput, and resource utilization.

Decision: The document is noted.

Wednesday's wrap-up: Discuss further offline – Thomas (AT&T)

R1-1805672 WF on Simulation Scenarios for IAB SI AT&T, Ericsson, KDDI, Samsung, Qualcomm, ZTE

Thursday

R1-1805674 **Summary of 7.7.2 Evaluation Methodology for NR IAB** **AT&T**

Decision: The document is noted.

Agreements:

- The following two scenarios should be considered for evaluations of IAB:

	Homogeneous IAB Scenario	Heterogeneous IAB Scenario
Node deployment	All nodes (IAB donor and IAB node) are dropped on a hexagonal grid	Only IAB donor are dropped on a hexagonal grid and IAB node are dropped randomly
IAB donor	Micro	Macro
IAB node	Micro	Micro
Number of IAB donor	Ndonor: [1, 3, 7]	Ndonor = 7
Number of IAB node	19 - Ndonor	Nrelay selected from the following set of values: [1,3]*Ndonor*3
Total number of Nodes	19	Ndonor + Nrelay
Reference Network	Ndonor donor nodes with 0 relay node	7 donor nodes
Macro ISD	200m	2 values: 500m and [FFS]
Frequency and Bandwidth (total spectrum access + backhaul)	FR1: 4GHz (100MHz), FR2: 30GHz (400MHz)	FR1: 4GHz (100MHz), FR2: 30GHz (400MHz)
Duplex mode	TDD	TDD

- Note: Further prioritization of these scenarios is not precluded
- Continue discussion on remaining parameters and FFS points until the next RAN1 meeting.

Agreements:

- Take large scale parameters for flexible duplex evaluations in 38.802 as the baseline for IAB evaluations.
- For determine the pathloss for links between the IAB node and other IAB nodes/donors, the following alternatives are considered:
  - Alt. 1: Determine the pathloss for links between the IAB node and candidate serving IAB nodes/donors based on N (value FFS but <= 5) independent large-scale channel realizations (taking into account LOS/NLOS probability and shadow fading).
    - Select the realization that results in the minimum pathloss between the IAB node and the selected serving IAB node/donor.
  - Alt. 2: Determine the pathloss for links between the IAB node and candidate serving IAB nodes/donors based on a LoS probability of 1-(1- Prob(R))^N (N>1, N FFS). An additional "bonus" B (value of B is FFS) is added to the pathloss for links between the IAB node and the serving IAB nodes/donors. For the links between non-serving IAB nodes/donors the pathloss is determined based on the non-modified LoS probability and no bonus is applied.
- Continue to discuss until RAN1#93 the value of B, N, and remaining details of topology selection methodology
- Either Alt. 1 or Alt. 2 to be selected in RAN1#93.

Agreements:

- For IAB donor (UMa) -> IAB node (UMi): Apply UMa fast-fading parameters but replace ASA, ZSA using ASD and ZSD from UMi-SC separately --- follow table A.2.1-11 in TR38.802
- For IAB node/donor (UMi) –> IAB node (UMi), Apply UMi fast-fading parameters but replace ASA, ZSA using ASD and ZSD from UMi-SC separately--- follow table A.2.1-11 in TR38.802

Agreements:

- The following performance metrics should be considered in IAB evaluations:
  - Area traffic capacity
  - Outage for access UEs (details FFS)
  - Per-link SNR and Geometry
    - Detailed definition of per-link SNR FFS
  - Resource utilization (details FFS)
  - User plane latency (from the donor to the access UE)
  - User perceived throughput (UPT) for bursty traffic: the unfinished bursts should be incorporated in the UPT calculation

R1-1803694 Consideration on IAB evaluation methodology and parameters Huawei, HiSilicon
R1-1804172 IAB scenarios and evaluations ZTE, Sanechips

R1-1804621 IAB Deployment Scenarios and Evaluation Methodology Nokia, Nokia Shanghai Bell
R1-1804661 Simulation assumptions, scenarios and channel model for IAB AT&T
R1-1804756 Evaluation methodology for IAB Intel Corporation
R1-1804836 Evaluation methodology for NR IAB Qualcomm Incorporated

7.7.3 Other

R1-1804303 Evaluation on the dynamic and flexible resouce allocation in IAB Huawei, HiSilicon
R1-1804622 Dynamic resource allocation between backhaul and access link Nokia, Nokia Shanghai Bell
R1-1804623 RRM measurements in presence of IAB Nokia, Nokia Shanghai Bell
R1-1804624 IAB timing Nokia, Nokia Shanghai Bell
R1-1804625 IAB Topology Discussion Nokia, Nokia Shanghai Bell
R1-1804626 On Cross-link Interference Management in IA Nokia, Nokia Shanghai Bell
R1-1804663 System level simulation results of IAB AT&T

7.8 Study on Self Evaluation towards IMT-2020 Submission

7.8.1 Evaluation methodology

R1-1805643 Summary of discussion on mobility evaluation method and parameters Huawei
Decision: The document is noted.

Agreement: The proposals 1, 2, 3 and 4 in R1-1805643 are agreed.

R1-1805644 Summary of discussion on eMBB evaluation method and parameters for FR2 Huawei
Decision: The document is noted.

Agreement: Section 2 and its subsections in R1-1805644 are agreed.

R1-1803683 Consideration on evaluation features and parameters for IMT-2020 self evaluation Huawei, HiSilicon
R1-1803781 Discussions on evaluation methodologies for link-level and system-level simulations CATT
R1-1804029 Consideration on Evaluation methodology of IMT-2020 self-evaluation ZTE, Sanechips
R1-1804408 Evaluation methodology for IMT-2020 Submission Samsung
R1-1804757 On Simulation Assumptions, Features and Parameters for IMT-2020 self-evaluation Intel Corporation
R1-1805073 Link to System Mapping for IMT-2020 Self-evaluation NTT DOCOMO, INC.
R1-1805276 On Evaluation of the Mobility Parameter for IMT-202 Nokia, Nokia Shanghai Bell (Revision of R1-1805144)
R1-1805226 On IMT-2020 Evaluation methodology Ericsson

7.8.2 Other

Including evaluation results

R1-1803684 Initial evaluation results of eMBB spectral efficiency Huawei, HiSilicon
R1-1803685 Consideration on self evaluation of IMT-2020 for user experienced data rate Huawei, HiSilicon
R1-1803686 Consideration on self evaluation of IMT-2020 for area traffic capacity Huawei, HiSilicon
R1-1803687 Consideration on self evaluation of IMT-2020 for high mobility Huawei, HiSilicon
R1-1803688 Consideration on self evaluation of IMT-2020 for peak spectral efficiency and peak data rate Huawei, HiSilicon
R1-1803689 Consideration on self evaluation of IMT-2020 for network energy efficiency Huawei, HiSilicon
R1-1803690 Consideration on self evaluation of IMT-2020 for mMTC connection density Huawei, HiSilicon
R1-1803691 Consideration on self evaluation of IMT-2020 for reliability Huawei, HiSilicon
R1-1803692 Consideration on self evaluation of IMT-2020 for control plane latency Huawei, HiSilicon
R1-1803693 Consideration on self evaluation of IMT-2020 for user plane latency Huawei, HiSilicon
R1-1803782 Discussions on detailed link budget evaluation methodology CATT
R1-1803783 Discussions on calculation of shadow fading margin for link budget CATT
R1-1803784 Discussions on penetration margin and SD for link budget CATT
R1-1803785 Discussions on system level simulation configurations and technical features for self evaluation CATT
R1-1803786 Initial self evaluation on peak data rate and peak spectrum efficiency CATT
R1-1803787 Initial self evaluation for Indoor Hotspot-eMBB CATT
R1-1803788 Initial self evaluation for Dense Urban-eMBB CATT
R1-1803789 Initial self evaluation for Rural-eMBB CATT

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1417 of 1750

R1-1804024 Updated UMi calibration results for user experience data rate in the multi-layer network deployment ZTE, Sanechips
R1-1804025 Updated DL spectral efficiency in the eMBB usage scenario for IMT-2020 self evaluation ZTE, Sanechips
R1-1804026 Link curve performance of LDPC coding in IMT-2020 self evaluation ZTE, Sanechips
R1-1804027 Considerations on the evaluated details and parameters for IMT-2020 self evaluation ZTE, Sanechips
R1-1804028 Updated UL spectral efficiency in the eMBB usage scenario for IMT-2020 self evaluation ZTE, Sanechips
R1-1804030 Initial consideration on Evaluation of mobility and reliability of IMT-2020 self-evaluation ZTE, Sanechips
R1-1804111 Initial self evaluation results for mobility in eMBB scenario CMCC
R1-1804301 Consideration on self evaluation of IMT-2020 for UE energy efficiency Huawei, HiSilicon
R1-1804302 Consideration on self evaluation of IMT-2020 for link budget Huawei, HiSilicon
R1-1804585 Initial evaluation results of eMBB for ITU IMT-2020 self-evaluation LG Electronics
R1-1804586 Calibration results for ITU IMT-2020 self-evaluation LG Electronics
R1-1804758 On the IMT-2020 Self-Evaluation Performance Metrics and Initial Results Intel Corporation
R1-1805074 Evaluation results of rural-eMBB for IMT-2020 self-evaluation NTT DOCOMO, INC.
R1-1805075 Evaluation results of dense urban-eMBB for IMT-2020 self-evaluation NTT DOCOMO, INC.
R1-1805076 Evaluation results of Indoor Hotspot-eMBB for IMT-2020 self-evaluation NTT DOCOMO, INC.
R1-1805097 Preliminary evaluation of link level performance for LDPC coding China Telecommunications
R1-1805145 Spectral Efficiency Results for the IMT-2020 Self-Evaluation Nokia, Nokia Shanghai Bell
R1-1805227 An overview of the IMT-2020 Evaluations Ericsson
R1-1805229 IMT 2020 Evaluations: On eMBB user experienced data rate with NR Ericsson
R1-1805230 IMT 2020 Evaluations: On eMBB area traffic capacity with NR Ericsson
R1-1805231 IMT-2020 self-evaluation: mMTC non-full-buffer connection density Ericsson
R1-1805232 IMT-2020 self-evaluation: mMTC full buffer connection density Ericsson
R1-1805233 IMT-2020 self-evaluation: Mobility evaluations for NR Ericsson
R1-1805234 IMT-2020 self-evaluation: Peak data rate and peak spectrum efficiency evaluations for NR Ericsson
R1-1805235 IMT-2020 self evaluation: Radio Network Energy Performance Ericsson
R1-1805236 IMT 2020 Evaluations - CP latency in NR Ericsson
R1-1805237 IMT 2020 Evaluations - UP latency in NR Ericsson
R1-1805238 IMT 2020 Evaluations - Reliability in NR Ericsson
R1-1805503 IMT 2020 Evaluations: On eMBB spectral efficiency with NR Ericsson

7.9 Other

R1-1803671 V2X sidelink channel model Huawei, HiSilicon
R1-1803859 Measurement results and analysis on UE power consumption vivo
R1-1803860 NR UE power saving vivo
R1-1804070 Considerations of UE power saving for NR MediaTek Inc.
R1-1804112 Initial self evaluation results for connection density in mMTC scenario CMCC
R1-1804113 Initial self evaluation results for reliability in URLLC scenario CMCC
R1-1804114 Initial link-level self evaluation results for Mobility in eMBB scenario CMCC
R1-1804285 On coexistence between LTE and NR Huawei, HiSilicon
R1-1804298 V2X sidelink measurement results Huawei, HiSilicon
R1-1804299 On UE Antenna model in eV2X Evaluation Methodology Huawei, HiSilicon

8 Closing of the meeting

RAN1 chair thanked all the delegates for their great efforts, with a particular attention to the achievement made on UE features list. He also thanked all the feature leads for their implication, their work is greatly appreciated.
Finally he thanked CF3 for hosting the meeting in such a nice place as Sanya.

Meeting was closed at 16:31.
See you all in Busan.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1418 of 1750

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

Annex A: List of Tdocs at RAN1 #92bis

Please see excel file attached to this report

EX-1016, 1419 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

Annex B: **List of CRs agreed at RAN1 #92bis**

TS/TR	CR	Rev	Rel	Title	Cat	Vsn	@ Mtg	TD#	Source to WG	Work Item

EX-1016, 1420 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

Annex C-1: List of Outgoing LSs from RAN1 #92bis

TDoc #	Title	Source	Release	Related WIs	Reply to	To	Cc	Original LS	Reply in

EX-1016, 1421 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

Annex C-2: List of Incoming LSs from RAN1 #92bis

TDoc #	Title	Source	Release	Related WIs	Reply to	To	Cc	Original LS	Reply in

EX-1016, 1422 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

Annex D: List of Approved updated WIDs

None

EX-1016, 1423 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

Annex E: **List of draft TSs/TRs agreed at RAN1 #92bis**

Tdoc Number	Title	Source	Conclusion/Decision

EX-1016, 1424 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex F: List of actions

- **Outgoing LS**

[92b-NR-01]
Email discussion/approval of reply LS to R1-1803581 till 4/27 – Fred (DCM)

- **CR approval**

[92b-LTE-02-xxx]
6.2.1 sTTI & sPT, xxx – spec #
Editors to prepare CRs incorporating all the agreements and working assumptions by 4/27, to be commented and endorsed by 5/3

[92b-LTE-03-xxx]
6.2.2 Unlic, xxx-spec #
Editors to prepare CRs incorporating all the agreements and working assumptions by 4/27, to be commented and endorsed by 5/3

[92b-LTE-06-xxx]
V2X, xxx – Rapporteur or spec #
Rapporteurs to prepare the list of agreements and working assumptions by 4/23
Editors to prepare CRs incorporating all the agreements and working assumptions by 5/4, to be commented and endorsed by 5/11

[92b-LTE-07-xxx]
MTC, xxx – Rapporteur or spec #
Rapporteurs to prepare the list of agreements and working assumptions by 4/23
Editors to prepare CRs incorporating all the agreements and working assumptions by 5/4 (for 211, based on x3862/x5173; for 212, based on x4149), to be commented and endorsed by 5/11

[92b-LTE-10-xxx]
NB-IoT, xxx – Rapporteur or spec #
Rapporteurs to prepare the list of agreements and working assumptions by 4/23
Editors to prepare CRs incorporating all the agreements and working assumptions by 5/4 (for 211, based on 3863; for 212, based on x4148), to be commented and endorsed by 5/11

[92b-LTE-14]
R1-1805323 **Introduction of SRS antenna switching for 4 ports in TS36.213** **Huawei, HiSilicon, Qualcomm**
Email approval until May 9, 2018 (Le, Qualcomm)

EX-1016, 1425 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

[92b-NR-02-xxx]
xxx: spec # editors to prepare CRs capturing the agreements and working assumptions till 4/27, to be commented and endorsed by 5/3

- **Miscellaneous**

[92b-LTE-01]
Email discussion on candidate values for Maximum supported bandwidth T and scaling factors until May 3, 2018 (Alberto, Qualcomm)

[92b-LTE-04]
Email discussion until May 3, 2018 on UE capabilities for FeLAA and associated LS to RAN2 (Timo, Nokia)

[92b-LTE-05]
1024QAM
Email discussion on DL categories until May 3, 2018 (Qualcomm)

[92b-LTE-08]
MTC
Email discussion for RRC parameters including the agreements and working assumptions at RAN1#92bis meeting by 4/27(Fri)

[92b-LTE-09]
MTC
Email discussion to decide the exact table by 4/27 – Yuzheng (Huawei)

[92b-LTE-11]
NB-IoT
Email discussion for RRC parameters including the agreements and working assumptions at RAN1#92bis meeting by 4/27(Fri)

[92b-LTE-12]
NB-IoT
Email discussion to decide the details on DL/UL interlacing until 5/4 Changhwan (LGE)

[92b-LTE-13]
HRLLC
Email discussion on the set of RRC parameters/UE capability for HRLLC based on the agreements and working assumptions so far by 4/27 – Laetitia (Ericsson)

[92b-NR-03] – Fred (NTT DOCOMO)
Email discussion till May 4th to come-up with identifying necessary information (e.g., periodicities, offsets, occasions) for updating RRC signaling *searchSpace* such that it includes the set of periodicities defined for *ssb-PeriodicityServingCell*.
Aim to target providing an LS to RAN2.

EX-1016, 1426 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

3GPP TSG RAN WG1 Meeting #93 **R1-180xxxx**
Busan, South Korea, 21st – 25th May 2018

[92b-NR-04] – Daewon (Intel)
R1-1805641 Way Forward on NR Peak Data Rate Formula Intel, Samsung, MediaTek, Huawei, HiSilicon, Apple, Vivo, OPPO
Email discussion/approval including the related RAN2 LS(s) till 4/27

[92b-NR-05]
Email discussion on further layout parameter fine tuning until May 3, 2018 (Jing, Qualcomm)

EX-1016, 1427 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex G: List of participants at RAN1 #92bis

Please see excel file attached to this report

EX-1016, 1428 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex H: TSG RAN WG1 meetings in 2018 – 2019

TITLE	TYPE	DATES	LOCATION	CTRY
3GPPRAN1#93	WG	21 – 25 May 2018	Busan	Korea
3GPPRAN1#94	WG	20 – 24 Aug 2018	Gothenburg	Sweden
3GPPRAN1#94bis	WG	8 – 12 Oct 2018	Chengdu (TBC)	China
3GPPRAN1#95	WG	12 – 16 Nov 2018	TBD	US
3GPPRAN1-AH-1901-TBC	AH	21 - 25 Jan 2019	TBD	
3GPPRAN1#96	WG	25 Feb - 1 Mar 2019	Athens	Greece
3GPPRAN1#96bis	WG	8 - 12 Apr 2019	China	China
3GPPRAN1#97	WG	13 - 17 May 2019	US	
3GPPRAN1-AH-1906-TBC	AH	24 - 28 Jun 2019	TBD	
3GPPRAN1#98	WG	26 - 30 Aug 2019	Prague	CZ
3GPPRAN1#98bis	WG	14 - 18 Oct 2019	China	
3GPPRAN1#99	WG	18 - 22 Nov 2019	US	

MEETING TYPES		
AH = Ad Hoc	ST = Startup Meeting	RG = Rapporteurs Group
JM = Joint	WG = Working Group	SG = Steering Group
PM = Preparatory Meeting	CM = Chairmen's meeting	TG = Task Group
RM = Resolution Meeting	OR = Ordinary	XO = Extraordinary

End of document

EX-1016, 1429 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

APPENDIX 32

www.3gpp.org / ftp / tsg_ran / WG1_RL1 / TSGR1_AH / NR_AH_1706 / Docs

sort by name/desc	sort by date/desc	sort by size/desc
R1-1709880.zip	2017/06/08 8:07	89,9 KB
R1-1709881.zip	2017/06/22 14:16	870,4 KB
R1-1709882.zip	2017/06/19 17:58	355,1 KB
R1-1709883.zip	2017/06/19 17:58	965,8 KB
R1-1709884.zip	2017/06/17 1:46	46,8 KB
R1-1709885.zip	2017/06/17 1:47	362,9 KB
R1-1709886.zip	2017/06/19 14:05	124,9 KB
R1-1709887.zip	2017/06/17 1:47	56,4 KB
R1-1709888.zip	2017/06/17 1:47	38,6 KB
R1-1709889.zip	2017/06/19 14:06	230,7 KB
R1-1709890.zip	2017/06/17 1:48	147,3 KB
R1-1709891.zip	2017/06/17 1:48	136,4 KB
R1-1709892.zip	2017/06/17 1:48	21 KB
R1-1709893.zip	2017/06/17 1:48	279,1 KB
R1-1709894.zip	2017/06/17 1:48	297,4 KB
R1-1709895.zip	2017/06/17 1:49	263,5 KB
R1-1709896.zip	2017/06/17 1:49	45,9 KB
R1-1709897.zip	2017/06/17 1:49	83,4 KB
R1-1709898.zip	2017/06/17 1:49	58,7 KB
R1-1709899.zip	2017/06/17 1:50	51,7 KB
R1-1709900.zip	2017/06/17 1:50	106,8 KB
R1-1709901.zip	2017/06/15 15:47	880,3 KB
R1-1709902.zip	2017/06/15 15:47	335,7 KB
R1-1709903.zip	2017/06/15 19:14	22,3 KB
R1-1709904.zip	2017/06/16 9:52	54,6 KB
R1-1709905.zip	2017/06/16 9:52	91,6 KB
R1-1709906.zip	2017/06/16 9:52	653,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1709907.zip	2017/06/16 9:52	42 KB
R1-1709908.zip	2017/06/16 9:52	68,7 KB
R1-1709909.zip	2017/06/16 9:52	95,5 KB
R1-1709910.zip	2017/06/16 9:52	276,5 KB
R1-1709911.zip	2017/06/17 2:50	330,8 KB
R1-1709912.zip	2017/06/17 3:15	807,7 KB
R1-1709913.zip	2017/06/17 2:50	99,1 KB
R1-1709914.zip	2017/06/17 2:50	199,1 KB
R1-1709915.zip	2017/06/17 2:50	68,2 KB
R1-1709916.zip	2017/06/17 2:50	61,7 KB
R1-1709917.zip	2017/06/17 2:50	943,3 KB
R1-1709918.zip	2017/06/17 2:50	65,2 KB
R1-1709919.zip	2017/06/17 2:50	36,1 KB
R1-1709920.zip	2017/06/17 2:50	104,1 KB
R1-1709921.zip	2017/06/17 2:50	61,2 KB
R1-1709922.zip	2017/06/17 2:50	43,8 KB
R1-1709923.zip	2017/06/17 2:57	299,3 KB
R1-1709924.zip	2017/06/17 2:57	49,1 KB
R1-1709925.zip	2017/06/17 2:57	162,8 KB
R1-1709926.zip	2017/06/17 2:57	29,4 KB
R1-1709927.zip	2017/06/17 2:57	287,3 KB
R1-1709928.zip	2017/06/17 2:57	286,1 KB
R1-1709929.zip	2017/06/17 2:57	579,1 KB
R1-1709930.zip	2017/06/17 2:57	135,5 KB
R1-1709931.zip	2017/06/17 2:57	200,3 KB
R1-1709932.zip	2017/06/17 3:15	431,6 KB
R1-1709933.zip	2017/06/17 2:57	55,8 KB
R1-1709934.zip	2017/06/17 2:54	53,4 KB
R1-1709935.zip	2017/06/17 2:54	346,4 KB
R1-1709936.zip	2017/06/17 2:54	182,2 KB
R1-1709937.zip	2017/06/17 3:15	109 KB
R1-1709938.zip	2017/06/17 2:54	146,7 KB
R1-1709939.zip	2017/06/17 2:54	202,1 KB
R1-1709940.zip	2017/06/17 2:54	257,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1709941.zip	2017/06/17 2:54	57,2 KB
R1-1709942.zip	2017/06/17 2:54	2401,1 KB
R1-1709943.zip	2017/06/17 2:54	52,9 KB
R1-1709944.zip	2017/06/17 2:54	528,3 KB
R1-1709945.zip	2017/06/17 2:54	215,8 KB
R1-1709946.zip	2017/06/17 2:54	58,2 KB
R1-1709947.zip	2017/06/17 2:54	599,1 KB
R1-1709948.zip	2017/06/17 3:15	156,3 KB
R1-1709949.zip	2017/06/17 2:54	256,9 KB
R1-1709950.zip	2017/06/17 2:50	949,3 KB
R1-1709951.zip	2017/06/17 2:50	95,8 KB
R1-1709952.zip	2017/06/17 2:50	485,9 KB
R1-1709953.zip	2017/06/17 2:50	112,6 KB
R1-1709954.zip	2017/06/17 2:50	112,9 KB
R1-1709955.zip	2017/06/17 2:50	51,4 KB
R1-1709956.zip	2017/06/17 2:50	197,6 KB
R1-1709957.zip	2017/06/17 2:50	231,1 KB
R1-1709958.zip	2017/06/17 2:50	152,7 KB
R1-1709959.zip	2017/06/17 2:50	579,5 KB
R1-1709960.zip	2017/06/17 2:50	90,2 KB
R1-1709961.zip	2017/06/17 2:50	346,4 KB
R1-1709962.zip	2017/06/17 2:50	433,6 KB
R1-1709963.zip	2017/06/17 2:50	55,6 KB
R1-1709964.zip	2017/06/17 2:54	45,3 KB
R1-1709965.zip	2017/06/17 2:54	46,4 KB
R1-1709966.zip	2017/06/17 2:54	88,9 KB
R1-1709967.zip	2017/06/17 2:50	34,3 KB
R1-1709968.zip	2017/06/17 2:50	46,7 KB
R1-1709969.zip	2017/06/17 2:50	64,9 KB
R1-1709970.zip	2017/06/17 2:50	44,9 KB
R1-1709971.zip	2017/06/17 2:50	121,7 KB
R1-1709972.zip	2017/06/17 2:50	355,9 KB
R1-1709973.zip	2017/06/17 2:50	108,4 KB
R1-1709974.zip	2017/06/17 2:50	83,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1709975.zip	2017/06/17 2:54	42,7 KB
R1-1709976.zip	2017/06/17 2:54	49,3 KB
R1-1709977.zip	2017/06/17 2:54	34,3 KB
R1-1709978.zip	2017/06/17 2:50	188,9 KB
R1-1709979.zip	2017/06/17 2:55	316 KB
R1-1709980.zip	2017/06/17 2:55	1124,5 KB
R1-1709981.zip	2017/06/17 2:55	194,7 KB
R1-1709982.zip	2017/06/17 2:55	519,3 KB
R1-1709983.zip	2017/06/17 2:54	77,7 KB
R1-1709984.zip	2017/06/17 2:51	98,8 KB
R1-1709985.zip	2017/06/17 2:51	144,3 KB
R1-1709986.zip	2017/06/17 2:51	297,5 KB
R1-1709987.zip	2017/06/17 2:51	325,3 KB
R1-1709988.zip	2017/06/17 2:57	150,8 KB
R1-1709989.zip	2017/06/17 2:51	104,9 KB
R1-1709990.zip	2017/06/17 2:51	207,9 KB
R1-1709991.zip	2017/06/17 2:57	63,8 KB
R1-1709992.zip	2017/06/17 2:57	267,7 KB
R1-1709993.zip	2017/06/17 2:51	102,6 KB
R1-1709994.zip	2017/06/17 2:51	183,5 KB
R1-1709995.zip	2017/06/20 5:16	129,9 KB
R1-1709996.zip	2017/06/20 5:17	720,5 KB
R1-1709997.zip	2017/06/20 5:17	940,2 KB
R1-1709998.zip	2017/06/20 5:17	649,1 KB
R1-1709999.zip	2017/06/20 5:17	255,7 KB
R1-1710000.zip	2017/06/20 5:17	143,7 KB
R1-1710001.zip	2017/06/20 5:17	253,3 KB
R1-1710002.zip	2017/06/20 5:17	610,4 KB
R1-1710003.zip	2017/06/20 5:17	149 KB
R1-1710004.zip	2017/06/20 5:17	2525,9 KB
R1-1710005.zip	2017/06/17 2:57	109,5 KB
R1-1710006.zip	2017/06/19 23:09	1074,6 KB
R1-1710007.zip	2017/06/17 2:51	1497,2 KB
R1-1710008.zip	2017/06/17 2:51	392,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710009.zip	2017/06/17 3:15	215,4 KB
R1-1710010.zip	2017/06/17 2:56	57 KB
R1-1710011.zip	2017/06/17 2:56	209,6 KB
R1-1710012.zip	2017/06/17 2:56	75,9 KB
R1-1710013.zip	2017/06/17 2:51	300,8 KB
R1-1710014.zip	2017/06/17 5:55	289,5 KB
R1-1710015.zip	2017/06/17 5:55	230,8 KB
R1-1710016.zip	2017/06/17 5:55	198,2 KB
R1-1710017.zip	2017/06/17 1:51	795,5 KB
R1-1710018.zip	2017/06/17 1:51	154,5 KB
R1-1710019.zip	2017/06/17 1:51	123,7 KB
R1-1710020.zip	2017/06/17 1:51	98,9 KB
R1-1710021.zip	2017/06/16 15:44	154 KB
R1-1710022.zip	2017/06/17 3:05	86,8 KB
R1-1710023.zip	2017/06/17 3:05	134,8 KB
R1-1710024.zip	2017/06/17 3:05	81,3 KB
R1-1710025.zip	2017/06/17 3:05	52,2 KB
R1-1710026.zip	2017/06/17 3:05	49 KB
R1-1710027.zip	2017/06/17 3:05	136 KB
R1-1710028.zip	2017/06/17 3:05	119,8 KB
R1-1710029.zip	2017/06/17 3:05	61,6 KB
R1-1710030.zip	2017/06/17 3:05	56,9 KB
R1-1710031.zip	2017/06/17 3:05	64,7 KB
R1-1710032.zip	2017/06/17 3:05	91,9 KB
R1-1710033.zip	2017/06/17 3:05	733,6 KB
R1-1710034.zip	2017/06/17 3:05	103,3 KB
R1-1710035.zip	2017/06/17 3:05	87,6 KB
R1-1710036.zip	2017/06/17 3:05	201,8 KB
R1-1710037.zip	2017/06/17 3:05	44,3 KB
R1-1710038.zip	2017/06/17 3:05	106,3 KB
R1-1710039.zip	2017/06/17 3:05	86,4 KB
R1-1710040.zip	2017/06/17 3:05	53,7 KB
R1-1710041.zip	2017/06/17 3:05	214,3 KB
R1-1710042.zip	2017/06/17 3:05	80,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710043.zip	2017/06/17 3:05	289,5 KB
R1-1710044.zip	2017/06/19 7:36	88,1 KB
R1-1710045.zip	2017/06/19 7:37	572 KB
R1-1710046.zip	2017/06/19 7:37	151,5 KB
R1-1710047.zip	2017/06/19 7:37	249,6 KB
R1-1710048.zip	2017/06/19 7:38	977 KB
R1-1710049.zip	2017/06/17 3:05	219,3 KB
R1-1710050.zip	2017/06/17 3:05	342,1 KB
R1-1710051.zip	2017/06/17 3:05	56,5 KB
R1-1710052.zip	2017/06/17 3:05	48,8 KB
R1-1710053.zip	2017/06/17 3:05	47,8 KB
R1-1710054.zip	2017/06/17 3:05	32,6 KB
R1-1710055.zip	2017/06/17 3:05	34,5 KB
R1-1710056.zip	2017/06/17 3:05	56,7 KB
R1-1710057.zip	2017/06/17 3:05	58,9 KB
R1-1710058.zip	2017/06/17 3:05	29 KB
R1-1710059.zip	2017/06/28 13:45	76,4 KB
R1-1710060.zip	2017/06/17 3:05	57,1 KB
R1-1710061.zip	2017/06/17 3:05	21,9 KB
R1-1710062.zip	2017/06/17 3:05	52,5 KB
R1-1710063.zip	2017/06/17 3:05	61,1 KB
R1-1710064.zip	2017/06/17 3:05	87,1 KB
R1-1710065.zip	2017/06/17 3:05	70,9 KB
R1-1710066.zip	2017/06/17 3:05	149,1 KB
R1-1710067.zip	2017/06/17 3:05	143,3 KB
R1-1710068.zip	2017/06/17 3:05	125,6 KB
R1-1710069.zip	2017/06/17 3:05	135 KB
R1-1710070.zip	2017/06/17 3:05	65,2 KB
R1-1710071.zip	2017/06/17 3:05	47,9 KB
R1-1710072.zip	2017/06/17 3:05	28,1 KB
R1-1710073.zip	2017/06/17 3:05	244,6 KB
R1-1710074.zip	2017/06/17 3:05	148,5 KB
R1-1710075.zip	2017/06/17 3:05	230,5 KB
R1-1710076.zip	2017/06/17 3:05	33,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710077.zip	2017/06/17 3:05	75,4 KB
R1-1710078.zip	2017/06/17 3:05	215 KB
R1-1710079.zip	2017/06/17 3:05	162,1 KB
R1-1710080.zip	2017/06/17 3:05	46,7 KB
R1-1710081.zip	2017/06/17 3:05	55,7 KB
R1-1710082.zip	2017/06/17 3:05	59,9 KB
R1-1710083.zip	2017/06/17 3:05	185,6 KB
R1-1710084.zip	2017/06/17 3:05	431,2 KB
R1-1710085.zip	2017/06/17 3:04	54,8 KB
R1-1710086.zip	2017/06/17 3:04	53 KB
R1-1710087.zip	2017/06/17 3:04	125,6 KB
R1-1710088.zip	2017/06/17 3:04	54,9 KB
R1-1710089.zip	2017/06/17 3:04	46,8 KB
R1-1710090.zip	2017/06/17 3:04	49,8 KB
R1-1710091.zip	2017/06/17 3:04	45,1 KB
R1-1710092.zip	2017/06/17 3:05	50,6 KB
R1-1710093.zip	2017/06/17 3:05	47,3 KB
R1-1710094.zip	2017/06/17 3:05	69,5 KB
R1-1710095.zip	2017/06/17 3:05	44,3 KB
R1-1710096.zip	2017/06/17 3:05	61 KB
R1-1710097.zip	2017/06/17 3:05	41,3 KB
R1-1710098.zip	2017/06/17 3:05	41,6 KB
R1-1710099.zip	2017/06/17 3:05	87,8 KB
R1-1710100.zip	2017/06/17 3:05	44,3 KB
R1-1710101.zip	2017/06/17 3:05	53,3 KB
R1-1710102.zip	2017/06/17 3:05	45,5 KB
R1-1710103.zip	2017/06/17 3:05	17,7 KB
R1-1710104.zip	2017/06/17 1:52	614 KB
R1-1710105.zip	2017/06/17 1:52	445,8 KB
R1-1710106.zip	2017/06/17 1:52	43,7 KB
R1-1710107.zip	2017/06/17 1:52	103,8 KB
R1-1710108.zip	2017/06/17 1:53	198,7 KB
R1-1710109.zip	2017/06/17 1:53	139,1 KB
R1-1710110.zip	2017/06/17 1:53	111,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710111.zip	2017/06/17 1:53	74,6 KB
R1-1710112.zip	2017/06/17 1:54	327,8 KB
R1-1710113.zip	2017/06/17 1:54	703,6 KB
R1-1710114.zip	2017/06/17 1:54	57,9 KB
R1-1710115.zip	2017/06/17 1:55	47,7 KB
R1-1710116.zip	2017/06/17 1:56	37,7 KB
R1-1710117.zip	2017/06/17 1:57	111,1 KB
R1-1710118.zip	2017/06/17 1:57	107,7 KB
R1-1710119.zip	2017/06/17 1:57	94,9 KB
R1-1710120.zip	2017/06/17 1:57	114,8 KB
R1-1710121.zip	2017/06/17 1:57	46,6 KB
R1-1710122.zip	2017/06/17 1:58	96,7 KB
R1-1710123.zip	2017/06/17 1:58	166,6 KB
R1-1710124.zip	2017/06/17 1:58	40 KB
R1-1710125.zip	2017/06/17 1:58	131,7 KB
R1-1710126.zip	2017/06/17 1:58	145,3 KB
R1-1710127.zip	2017/06/16 19:16	60,7 KB
R1-1710128.zip	2017/06/16 19:16	94,8 KB
R1-1710129.zip	2017/06/16 19:16	309,5 KB
R1-1710130.zip	2017/06/16 19:16	283,9 KB
R1-1710131.zip	2017/06/16 10:13	164 KB
R1-1710132.zip	2017/06/16 10:13	20,6 KB
R1-1710133.zip	2017/06/17 7:24	97 KB
R1-1710134.zip	2017/06/16 10:13	16,4 KB
R1-1710135.zip	2017/06/16 10:13	18,2 KB
R1-1710136.zip	2017/06/16 10:13	20,1 KB
R1-1710137.zip	2017/06/16 10:13	39,8 KB
R1-1710138.zip	2017/06/16 10:13	50,4 KB
R1-1710139.zip	2017/06/16 10:13	17,9 KB
R1-1710140.zip	2017/06/16 10:13	22,3 KB
R1-1710141.zip	2017/06/16 10:13	37,3 KB
R1-1710142.zip	2017/06/16 10:13	167,5 KB
R1-1710143.zip	2017/06/16 10:13	43 KB
R1-1710144.zip	2017/06/16 10:13	77 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710145.zip	2017/06/16 10:13	43,7 KB
R1-1710146.zip	2017/06/16 10:13	129,6 KB
R1-1710147.zip	2017/06/16 10:13	151,4 KB
R1-1710148.zip	2017/06/16 10:13	29,6 KB
R1-1710149.zip	2017/06/16 10:13	25,6 KB
R1-1710150.zip	2017/06/16 10:13	32 KB
R1-1710151.zip	2017/06/16 10:14	87,7 KB
R1-1710152.zip	2017/06/16 10:14	385,7 KB
R1-1710153.zip	2017/06/16 10:14	33,6 KB
R1-1710154.zip	2017/06/16 10:14	30,3 KB
R1-1710155.zip	2017/06/16 10:14	164,8 KB
R1-1710156.zip	2017/06/16 10:14	143,5 KB
R1-1710157.zip	2017/06/16 10:14	388,1 KB
R1-1710158.zip	2017/06/16 10:14	161 KB
R1-1710159.zip	2017/06/16 10:14	40,2 KB
R1-1710160.zip	2017/06/16 10:15	110,2 KB
R1-1710161.zip	2017/06/16 10:15	131,4 KB
R1-1710162.zip	2017/06/16 10:15	46 KB
R1-1710163.zip	2017/06/16 10:15	143,4 KB
R1-1710164.zip	2017/06/16 10:15	89,3 KB
R1-1710165.zip	2017/06/16 10:15	450,8 KB
R1-1710166.zip	2017/06/16 10:15	16,4 KB
R1-1710167.zip	2017/06/16 10:15	35,6 KB
R1-1710168.zip	2017/06/16 10:15	44,6 KB
R1-1710169.zip	2017/06/16 10:15	105,8 KB
R1-1710170.zip	2017/06/16 10:15	125,4 KB
R1-1710171.zip	2017/06/16 10:16	159,6 KB
R1-1710172.zip	2017/06/16 10:16	18,7 KB
R1-1710173.zip	2017/06/16 10:16	219,2 KB
R1-1710174.zip	2017/06/16 10:16	20,8 KB
R1-1710175.zip	2017/06/17 6:02	790,8 KB
R1-1710176.zip	2017/06/17 6:02	150,2 KB
R1-1710177.zip	2017/06/17 7:34	78,6 KB
R1-1710178.zip	2017/06/17 7:59	251,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710179.zip	2017/06/17 6:02	58,2 KB
R1-1710180.zip	2017/06/17 6:02	282,2 KB
R1-1710181.zip	2017/06/17 9:49	100,2 KB
R1-1710182.zip	2017/06/17 6:02	88,8 KB
R1-1710183.zip	2017/06/17 8:38	280,8 KB
R1-1710184.zip	2017/06/17 6:02	305,7 KB
R1-1710185.zip	2017/06/17 6:03	332,3 KB
R1-1710186.zip	2017/06/17 6:03	418,8 KB
R1-1710187.zip	2017/06/17 6:03	376,3 KB
R1-1710188.zip	2017/06/17 6:03	79 KB
R1-1710189.zip	2017/06/17 6:08	79,2 KB
R1-1710190.zip	2017/06/17 6:22	107 KB
R1-1710191.zip	2017/06/17 6:27	76,3 KB
R1-1710192.zip	2017/06/17 6:34	79 KB
R1-1710193.zip	2017/06/17 6:37	101,8 KB
R1-1710194.zip	2017/06/17 9:31	207,1 KB
R1-1710195.zip	2017/06/17 6:42	54,4 KB
R1-1710196.zip	2017/06/17 6:45	151,6 KB
R1-1710197.zip	2017/06/17 6:47	182,3 KB
R1-1710198.zip	2017/06/17 6:50	300,8 KB
R1-1710199.zip	2017/06/17 6:54	286,1 KB
R1-1710200.zip	2017/06/17 6:56	146,2 KB
R1-1710201.zip	2017/06/17 7:00	119,9 KB
R1-1710202.zip	2017/06/17 8:48	193,7 KB
R1-1710206.zip	2017/06/17 9:52	227,7 KB
R1-1710207.zip	2017/06/17 9:52	587,4 KB
R1-1710208.zip	2017/06/17 9:53	63,8 KB
R1-1710209.zip	2017/06/17 7:03	88,4 KB
R1-1710210.zip	2017/06/17 7:07	81,8 KB
R1-1710211.zip	2017/06/12 7:18	11,8 KB
R1-1710212.zip	2017/06/12 7:18	13,7 KB
R1-1710213.zip	2017/06/12 7:18	11,4 KB
R1-1710214.zip	2017/06/12 7:18	14,8 KB
R1-1710215.zip	2017/06/12 7:18	11,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710216.zip	2017/06/12 7:18	9,8 KB
R1-1710217.zip	2017/06/12 7:18	12,4 KB
R1-1710218.zip	2017/06/16 0:23	168,5 KB
R1-1710219.zip	2017/06/16 0:23	69,4 KB
R1-1710220.zip	2017/06/12 9:57	10,8 KB
R1-1710221.zip	2017/06/12 9:57	11,1 KB
R1-1710222.zip	2017/06/16 14:58	220,9 KB
R1-1710223.zip	2017/06/16 9:52	157 KB
R1-1710224.zip	2017/06/16 9:52	48,6 KB
R1-1710225.zip	2017/06/16 9:52	123,2 KB
R1-1710226.zip	2017/06/16 9:52	102,4 KB
R1-1710228.zip	2017/06/16 9:17	55,3 KB
R1-1710229.zip	2017/06/13 11:58	284,2 KB
R1-1710230.zip	2017/06/16 14:58	217,8 KB
R1-1710231.zip	2017/06/16 16:40	78,6 KB
R1-1710232.zip	2017/06/16 16:40	83,6 KB
R1-1710233.zip	2017/06/16 16:40	107 KB
R1-1710234.zip	2017/06/16 16:40	172,7 KB
R1-1710235.zip	2017/06/16 16:40	50 KB
R1-1710236.zip	2017/06/16 16:40	49,9 KB
R1-1710237.zip	2017/06/16 16:40	176,9 KB
R1-1710238.zip	2017/06/16 16:40	55,1 KB
R1-1710239.zip	2017/06/16 16:40	227 KB
R1-1710240.zip	2017/06/16 16:40	31,2 KB
R1-1710241.zip	2017/06/16 16:40	303,9 KB
R1-1710242.zip	2017/06/16 16:40	215 KB
R1-1710243.zip	2017/06/16 16:40	46,4 KB
R1-1710244.zip	2017/06/17 5:46	306,2 KB
R1-1710245.zip	2017/06/17 5:46	127,2 KB
R1-1710246.zip	2017/06/17 5:46	81 KB
R1-1710247.zip	2017/06/17 5:46	88,9 KB
R1-1710248.zip	2017/06/17 5:46	34,8 KB
R1-1710249.zip	2017/06/17 5:46	308,5 KB
R1-1710250.zip	2017/06/17 5:46	65,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710251.zip	2017/06/16 8:51	148,3 KB
R1-1710255.zip	2017/06/16 8:51	40,5 KB
R1-1710256.zip	2017/06/16 8:51	43,6 KB
R1-1710257.zip	2017/06/16 8:51	217,7 KB
R1-1710258.zip	2017/06/17 5:29	1825,1 KB
R1-1710259.zip	2017/06/17 5:29	170,4 KB
R1-1710260.zip	2017/06/17 5:29	91,5 KB
R1-1710261.zip	2017/06/17 5:29	37,1 KB
R1-1710262.zip	2017/06/17 5:29	78,9 KB
R1-1710263.zip	2017/06/17 5:29	80,5 KB
R1-1710264.zip	2017/06/17 5:29	123,8 KB
R1-1710265.zip	2017/06/17 5:29	30,6 KB
R1-1710267.zip	2017/06/17 5:29	56,9 KB
R1-1710268.zip	2017/06/17 5:29	152,5 KB
R1-1710269.zip	2017/06/17 5:29	206,9 KB
R1-1710270.zip	2017/06/17 5:29	39,4 KB
R1-1710271.zip	2017/06/17 5:29	45,5 KB
R1-1710272.zip	2017/06/17 5:29	510 KB
R1-1710273.zip	2017/06/17 5:29	41,8 KB
R1-1710274.zip	2017/06/17 5:29	43 KB
R1-1710275.zip	2017/06/17 5:29	63,2 KB
R1-1710276.zip	2017/06/17 5:29	41,5 KB
R1-1710277.zip	2017/06/17 5:30	61,1 KB
R1-1710278.zip	2017/06/17 5:30	58,5 KB
R1-1710279.zip	2017/06/17 5:30	40,8 KB
R1-1710280.zip	2017/06/17 5:30	32,4 KB
R1-1710281.zip	2017/06/17 5:30	73,4 KB
R1-1710282.zip	2017/06/17 5:30	74,2 KB
R1-1710283.zip	2017/06/17 5:30	137 KB
R1-1710284.zip	2017/06/17 5:30	49,5 KB
R1-1710285.zip	2017/06/17 5:30	34,6 KB
R1-1710286.zip	2017/06/17 5:30	29,7 KB
R1-1710287.zip	2017/06/17 5:30	108,1 KB
R1-1710288.zip	2017/06/17 5:30	63,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710289.zip	2017/06/17 5:30	59,3 KB
R1-1710290.zip	2017/06/17 5:30	94,2 KB
R1-1710291.zip	2017/06/17 5:31	532,8 KB
R1-1710292.zip	2017/06/17 5:31	95,6 KB
R1-1710293.zip	2017/06/17 5:31	161,6 KB
R1-1710294.zip	2017/06/17 5:31	64,2 KB
R1-1710295.zip	2017/06/17 5:31	33,3 KB
R1-1710296.zip	2017/06/17 5:31	232,4 KB
R1-1710297.zip	2017/06/17 5:31	223 KB
R1-1710298.zip	2017/06/17 5:31	298,6 KB
R1-1710299.zip	2017/06/17 5:31	179,2 KB
R1-1710300.zip	2017/06/17 5:31	82,6 KB
R1-1710301.zip	2017/06/17 5:32	55,5 KB
R1-1710302.zip	2017/06/17 5:32	41,2 KB
R1-1710303.zip	2017/06/17 5:32	101,6 KB
R1-1710304.zip	2017/06/17 5:32	89,5 KB
R1-1710305.zip	2017/06/17 5:32	120,7 KB
R1-1710306.zip	2017/06/17 5:32	793,1 KB
R1-1710307.zip	2017/06/17 5:32	51,8 KB
R1-1710308.zip	2017/06/17 5:32	64,5 KB
R1-1710309.zip	2017/06/17 5:32	94,7 KB
R1-1710310.zip	2017/06/17 5:32	108,8 KB
R1-1710311.zip	2017/06/17 5:32	34,2 KB
R1-1710312.zip	2017/06/17 5:32	66,5 KB
R1-1710313.zip	2017/06/17 5:32	635,8 KB
R1-1710314.zip	2017/06/17 5:32	45,3 KB
R1-1710315.zip	2017/06/17 5:32	107,9 KB
R1-1710316.zip	2017/06/17 5:32	126,8 KB
R1-1710317.zip	2017/06/17 5:32	72 KB
R1-1710318.zip	2017/06/17 5:32	30,8 KB
R1-1710319.zip	2017/06/17 5:32	79,2 KB
R1-1710320.zip	2017/06/17 5:32	39,1 KB
R1-1710321.zip	2017/06/17 5:44	109,6 KB
R1-1710322.zip	2017/06/17 5:44	51,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710323.zip	2017/06/17 5:44	194,3 KB
R1-1710324.zip	2017/06/17 5:44	62,4 KB
R1-1710325.zip	2017/06/17 5:44	37,3 KB
R1-1710326.zip	2017/06/17 5:44	51,2 KB
R1-1710327.zip	2017/06/17 5:44	54,6 KB
R1-1710328.zip	2017/06/27 15:17	150,7 KB
R1-1710329.zip	2017/06/17 5:44	38,2 KB
R1-1710330.zip	2017/06/17 5:44	89,5 KB
R1-1710331.zip	2017/06/17 5:44	79,6 KB
R1-1710332.zip	2017/06/17 5:44	79,7 KB
R1-1710333.zip	2017/06/17 5:44	61,3 KB
R1-1710334.zip	2017/06/17 5:44	41,2 KB
R1-1710335.zip	2017/06/17 5:44	40 KB
R1-1710336.zip	2017/06/17 5:44	67,3 KB
R1-1710337.zip	2017/06/17 5:44	50 KB
R1-1710338.zip	2017/06/17 5:44	49,4 KB
R1-1710339.zip	2017/06/17 5:44	340,8 KB
R1-1710340.zip	2017/06/17 5:44	63,8 KB
R1-1710341.zip	2017/06/20 5:33	88,6 KB
R1-1710342.zip	2017/06/20 5:33	228,6 KB
R1-1710343.zip	2017/06/20 5:33	195 KB
R1-1710344.zip	2017/06/20 5:33	108,8 KB
R1-1710345.zip	2017/06/27 15:17	79,5 KB
R1-1710346.zip	2017/06/20 5:33	95,1 KB
R1-1710347.zip	2017/06/20 5:34	985,1 KB
R1-1710348.zip	2017/06/20 5:34	390,6 KB
R1-1710349.zip	2017/06/20 5:34	68,8 KB
R1-1710350.zip	2017/06/17 5:45	81 KB
R1-1710351.zip	2017/06/17 5:45	62,1 KB
R1-1710352.zip	2017/06/17 5:45	124,3 KB
R1-1710353.zip	2017/06/17 5:45	61,1 KB
R1-1710354.zip	2017/06/17 5:45	67,2 KB
R1-1710355.zip	2017/06/17 5:45	78,9 KB
R1-1710356.zip	2017/06/17 5:45	68,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710357.zip	2017/06/17 5:45	70,2 KB
R1-1710358.zip	2017/06/17 5:45	74,8 KB
R1-1710359.zip	2017/06/16 8:17	142,6 KB
R1-1710360.zip	2017/06/16 10:30	105,5 KB
R1-1710361.zip	2017/06/16 10:30	72,2 KB
R1-1710362.zip	2017/06/16 10:30	76,6 KB
R1-1710363.zip	2017/06/16 10:30	85,7 KB
R1-1710364.zip	2017/06/16 10:30	72,7 KB
R1-1710365.zip	2017/06/16 10:30	706,8 KB
R1-1710366.zip	2017/06/16 10:30	56,5 KB
R1-1710367.zip	2017/06/16 10:30	667,6 KB
R1-1710368.zip	2017/06/16 10:30	80,5 KB
R1-1710369.zip	2017/06/16 10:30	202,9 KB
R1-1710370.zip	2017/06/19 14:13	68,4 KB
R1-1710371.zip	2017/06/16 10:30	67,5 KB
R1-1710372.zip	2017/06/17 6:42	85,8 KB
R1-1710373.zip	2017/06/20 5:37	361,4 KB
R1-1710374.zip	2017/06/17 6:42	75,7 KB
R1-1710375.zip	2017/06/17 6:42	38,7 KB
R1-1710376.zip	2017/06/20 5:37	114,2 KB
R1-1710378.zip	2017/06/17 6:42	1039,5 KB
R1-1710379.zip	2017/06/17 6:42	114 KB
R1-1710380.zip	2017/06/17 6:42	85,2 KB
R1-1710381.zip	2017/06/17 6:42	58,8 KB
R1-1710382.zip	2017/06/17 6:42	203,4 KB
R1-1710383.zip	2017/06/17 6:42	135,5 KB
R1-1710384.zip	2017/06/17 6:42	1073,2 KB
R1-1710385.zip	2017/06/17 6:42	340,5 KB
R1-1710386.zip	2017/06/17 6:56	80,9 KB
R1-1710387.zip	2017/06/17 6:56	106,9 KB
R1-1710389.zip	2017/06/17 6:42	103,9 KB
R1-1710390.zip	2017/06/17 6:42	82,7 KB
R1-1710391.zip	2017/06/17 6:42	67,3 KB
R1-1710392.zip	2017/06/17 6:42	100,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710393.zip	2017/06/17 6:42	49,3 KB
R1-1710394.zip	2017/06/17 6:42	64,4 KB
R1-1710395.zip	2017/06/17 6:42	72,1 KB
R1-1710396.zip	2017/06/17 6:42	131,9 KB
R1-1710397.zip	2017/06/17 6:42	76,9 KB
R1-1710398.zip	2017/06/17 6:42	148,5 KB
R1-1710399.zip	2017/06/17 6:42	118,3 KB
R1-1710400.zip	2017/06/17 6:42	255,5 KB
R1-1710401.zip	2017/06/17 6:43	685,7 KB
R1-1710402.zip	2017/06/17 6:43	2421,2 KB
R1-1710403.zip	2017/06/17 6:43	365,4 KB
R1-1710404.zip	2017/06/17 6:43	436,1 KB
R1-1710405.zip	2017/06/17 6:43	201,8 KB
R1-1710406.zip	2017/06/17 6:43	763,3 KB
R1-1710407.zip	2017/06/17 6:43	93,4 KB
R1-1710408.zip	2017/06/16 14:58	139,3 KB
R1-1710409.zip	2017/06/16 9:52	140,4 KB
R1-1710410.zip	2017/06/16 9:52	46,8 KB
R1-1710411.zip	2017/06/16 9:52	85 KB
R1-1710412.zip	2017/06/17 3:17	78,4 KB
R1-1710413.zip	2017/06/17 3:17	18,5 KB
R1-1710414.zip	2017/06/17 3:17	31 KB
R1-1710415.zip	2017/06/17 3:17	371,3 KB
R1-1710416.zip	2017/06/17 3:17	55 KB
R1-1710417.zip	2017/06/17 3:17	26,7 KB
R1-1710418.zip	2017/06/17 3:17	35,9 KB
R1-1710419.zip	2017/06/17 3:17	17,7 KB
R1-1710420.zip	2017/06/17 3:17	18,2 KB
R1-1710421.zip	2017/06/17 3:17	18,7 KB
R1-1710422.zip	2017/06/17 3:17	94,8 KB
R1-1710423.zip	2017/06/17 3:17	18,2 KB
R1-1710424.zip	2017/06/17 3:17	14,4 KB
R1-1710425.zip	2017/06/17 3:17	379,2 KB
R1-1710426.zip	2017/06/17 3:17	116,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710427.zip	2017/06/17 3:17	24,4 KB
R1-1710428.zip	2017/06/17 3:17	84,8 KB
R1-1710429.zip	2017/06/17 3:17	27,9 KB
R1-1710430.zip	2017/06/17 3:17	24,4 KB
R1-1710431.zip	2017/06/17 3:17	287,8 KB
R1-1710432.zip	2017/06/17 3:17	25,9 KB
R1-1710433.zip	2017/06/17 3:17	38,7 KB
R1-1710434.zip	2017/06/17 3:17	41,9 KB
R1-1710435.zip	2017/06/17 3:17	99 KB
R1-1710436.zip	2017/06/17 3:17	24,5 KB
R1-1710437.zip	2017/06/17 3:17	81,5 KB
R1-1710438.zip	2017/06/17 3:17	47,5 KB
R1-1710439.zip	2017/06/17 3:17	25,8 KB
R1-1710440.zip	2017/06/17 3:17	24,1 KB
R1-1710442.zip	2017/06/17 3:17	26,6 KB
R1-1710443.zip	2017/06/17 3:17	27,3 KB
R1-1710444.zip	2017/06/17 3:17	63,7 KB
R1-1710445.zip	2017/06/17 2:51	65 KB
R1-1710446.zip	2017/06/17 2:57	378,4 KB
R1-1710447.zip	2017/06/17 2:57	412,7 KB
R1-1710448.zip	2017/06/17 2:57	190,7 KB
R1-1710449.zip	2017/06/17 2:57	179,1 KB
R1-1710450.zip	2017/06/17 2:57	70,6 KB
R1-1710451.zip	2017/06/17 2:57	866,3 KB
R1-1710452.zip	2017/06/17 2:57	100,8 KB
R1-1710453.zip	2017/06/17 2:57	153,4 KB
R1-1710454.zip	2017/06/17 2:57	83,5 KB
R1-1710455.zip	2017/06/17 2:56	75,3 KB
R1-1710456.zip	2017/06/17 2:56	48,6 KB
R1-1710457.zip	2017/06/17 2:56	77,2 KB
R1-1710458.zip	2017/06/17 2:56	32,3 KB
R1-1710459.zip	2017/06/17 2:56	420,1 KB
R1-1710460.zip	2017/06/17 2:56	358,9 KB
R1-1710461.zip	2017/06/17 2:56	76,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710462.zip	2017/06/17 2:56	34,5 KB
R1-1710463.zip	2017/06/17 2:56	412,6 KB
R1-1710464.zip	2017/06/17 2:56	71,1 KB
R1-1710465.zip	2017/06/17 2:51	142,5 KB
R1-1710466.zip	2017/06/17 2:57	437,9 KB
R1-1710467.zip	2017/06/17 2:57	140,8 KB
R1-1710468.zip	2017/06/17 2:57	163,6 KB
R1-1710469.zip	2017/06/17 2:57	130,7 KB
R1-1710470.zip	2017/06/20 5:17	466,1 KB
R1-1710471.zip	2017/06/20 5:17	175,4 KB
R1-1710472.zip	2017/06/20 5:17	295,5 KB
R1-1710473.zip	2017/06/17 2:57	190,1 KB
R1-1710474.zip	2017/06/17 2:57	339,8 KB
R1-1710475.zip	2017/06/17 2:56	581,1 KB
R1-1710476.zip	2017/06/17 2:56	106,2 KB
R1-1710477.zip	2017/06/17 2:51	76,3 KB
R1-1710478.zip	2017/06/17 2:51	97,2 KB
R1-1710479.zip	2017/06/20 5:17	186,5 KB
R1-1710480.zip	2017/06/20 7:05	72,5 KB
R1-1710481.zip	2017/06/20 7:05	122 KB
R1-1710482.zip	2017/06/20 7:05	78,4 KB
R1-1710483.zip	2017/06/20 7:05	71,7 KB
R1-1710484.zip	2017/06/20 7:05	86,3 KB
R1-1710485.zip	2017/06/20 7:05	203,3 KB
R1-1710486.zip	2017/06/20 7:05	76,4 KB
R1-1710487.zip	2017/06/27 15:17	99,5 KB
R1-1710488.zip	2017/06/27 15:17	84,3 KB
R1-1710489.zip	2017/06/20 7:05	83,2 KB
R1-1710490.zip	2017/06/20 7:05	1929,8 KB
R1-1710491.zip	2017/06/20 7:05	1387,2 KB
R1-1710493.zip	2017/06/20 7:05	419,6 KB
R1-1710494.zip	2017/06/20 7:05	295,5 KB
R1-1710495.zip	2017/06/20 7:05	355,9 KB
R1-1710496.zip	2017/06/20 7:05	2079,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710497.zip	2017/06/20 7:05	140,3 KB
R1-1710498.zip	2017/06/20 7:05	1277 KB
R1-1710499.zip	2017/06/20 7:05	209 KB
R1-1710500.zip	2017/06/17 6:15	13,5 KB
R1-1710501.zip	2017/06/17 6:15	121,3 KB
R1-1710502.zip	2017/06/17 6:15	238,5 KB
R1-1710503.zip	2017/06/20 4:44	100,6 KB
R1-1710504.zip	2017/06/17 10:18	64 KB
R1-1710505.zip	2017/06/17 6:14	84,9 KB
R1-1710506.zip	2017/06/20 4:44	340,9 KB
R1-1710507.zip	2017/06/17 8:09	72,3 KB
R1-1710508.zip	2017/06/17 6:14	86,7 KB
R1-1710509.zip	2017/06/17 6:14	104 KB
R1-1710510.zip	2017/06/17 6:14	86,7 KB
R1-1710511.zip	2017/06/27 15:17	690,2 KB
R1-1710512.zip	2017/06/17 6:14	98,9 KB
R1-1710513.zip	2017/06/17 6:14	99,9 KB
R1-1710514.zip	2017/06/17 7:10	66,9 KB
R1-1710515.zip	2017/06/17 7:10	87,1 KB
R1-1710516.zip	2017/06/17 6:14	65,1 KB
R1-1710517.zip	2017/06/17 6:14	207,4 KB
R1-1710518.zip	2017/06/17 6:14	94,5 KB
R1-1710519.zip	2017/06/17 6:14	100,1 KB
R1-1710520.zip	2017/06/17 6:14	93,5 KB
R1-1710521.zip	2017/06/17 6:14	229 KB
R1-1710522.zip	2017/06/17 6:14	104,9 KB
R1-1710523.zip	2017/06/17 6:14	43,9 KB
R1-1710524.zip	2017/06/17 6:14	42 KB
R1-1710525.zip	2017/06/17 6:14	351,8 KB
R1-1710526.zip	2017/06/17 6:14	348,2 KB
R1-1710527.zip	2017/06/17 6:14	154,1 KB
R1-1710528.zip	2017/06/17 6:14	120,9 KB
R1-1710529.zip	2017/06/17 6:14	76,2 KB
R1-1710530.zip	2017/06/17 6:14	424,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710531.zip	2017/06/17 6:14	43 KB
R1-1710532.zip	2017/06/17 6:14	122,9 KB
R1-1710533.zip	2017/06/17 6:14	83,8 KB
R1-1710534.zip	2017/06/17 6:14	102,7 KB
R1-1710535.zip	2017/06/17 6:14	142,9 KB
R1-1710536.zip	2017/06/17 6:14	195,3 KB
R1-1710537.zip	2017/06/17 6:14	72,7 KB
R1-1710538.zip	2017/06/17 6:14	88,7 KB
R1-1710539.zip	2017/06/17 6:14	46,2 KB
R1-1710540.zip	2017/06/17 6:14	117,3 KB
R1-1710541.zip	2017/06/17 8:50	463,2 KB
R1-1710542.zip	2017/06/17 6:14	230,8 KB
R1-1710543.zip	2017/06/17 6:15	83 KB
R1-1710544.zip	2017/06/17 6:15	374,1 KB
R1-1710545.zip	2017/06/17 6:15	141 KB
R1-1710546.zip	2017/06/17 6:15	142,6 KB
R1-1710547.zip	2017/06/17 6:24	70,4 KB
R1-1710548.zip	2017/06/17 6:24	124,2 KB
R1-1710549.zip	2017/06/17 6:24	57,2 KB
R1-1710550.zip	2017/06/17 6:15	58 KB
R1-1710551.zip	2017/06/17 6:15	735,2 KB
R1-1710552.zip	2017/06/17 6:15	88,6 KB
R1-1710553.zip	2017/06/17 6:15	410,4 KB
R1-1710554.zip	2017/06/17 6:15	61,5 KB
R1-1710555.zip	2017/06/17 9:30	159,3 KB
R1-1710556.zip	2017/06/17 6:15	105,2 KB
R1-1710557.zip	2017/06/17 6:15	109,2 KB
R1-1710558.zip	2017/06/17 6:15	81,1 KB
R1-1710559.zip	2017/06/17 6:15	103,9 KB
R1-1710560.zip	2017/06/17 6:15	192,4 KB
R1-1710561.zip	2017/06/17 6:15	65,2 KB
R1-1710562.zip	2017/06/17 6:15	116 KB
R1-1710563.zip	2017/06/17 6:15	122 KB
R1-1710564.zip	2017/06/17 6:15	284,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710565.zip	2017/06/17 9:35	67,6 KB
R1-1710566.zip	2017/06/17 6:24	58,7 KB
R1-1710567.zip	2017/06/17 6:15	121,2 KB
R1-1710568.zip	2017/06/17 6:15	126,1 KB
R1-1710569.zip	2017/06/17 6:24	55,5 KB
R1-1710570.zip	2017/06/17 6:15	114,3 KB
R1-1710571.zip	2017/06/17 6:15	279,4 KB
R1-1710572.zip	2017/06/17 6:15	114,4 KB
R1-1710573.zip	2017/06/17 6:15	16,2 KB
R1-1710574.zip	2017/06/17 6:15	23,7 KB
R1-1710575.zip	2017/06/17 6:15	392,6 KB
R1-1710576.zip	2017/06/17 6:15	460,5 KB
R1-1710577.zip	2017/06/17 6:15	166 KB
R1-1710578.zip	2017/06/17 6:24	203,6 KB
R1-1710579.zip	2017/06/17 7:00	54,5 KB
R1-1710580.zip	2017/06/17 6:24	72,2 KB
R1-1710581.zip	2017/06/17 6:15	256,2 KB
R1-1710582.zip	2017/06/17 6:15	201,9 KB
R1-1710583.zip	2017/06/17 6:15	89,3 KB
R1-1710584.zip	2017/06/17 6:15	66,6 KB
R1-1710585.zip	2017/06/17 6:24	111,1 KB
R1-1710586.zip	2017/06/17 6:15	144,4 KB
R1-1710587.zip	2017/06/20 3:41	369,5 KB
R1-1710588.zip	2017/06/16 22:04	96,2 KB
R1-1710589.zip	2017/06/16 22:22	32,8 KB
R1-1710590.zip	2017/06/16 22:36	32,8 KB
R1-1710591.zip	2017/06/20 3:42	415,3 KB
R1-1710592.zip	2017/06/16 21:25	35 KB
R1-1710593.zip	2017/06/16 10:16	91,9 KB
R1-1710594.zip	2017/06/16 18:49	167,1 KB
R1-1710595.zip	2017/06/16 18:49	66 KB
R1-1710596.zip	2017/06/16 18:49	67,5 KB
R1-1710597.zip	2017/06/16 18:49	88,6 KB
R1-1710598.zip	2017/06/16 18:49	161,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710599.zip	2017/06/16 18:49	171,5 KB
R1-1710600.zip	2017/06/16 18:49	88,2 KB
R1-1710601.zip	2017/06/16 18:49	43,4 KB
R1-1710602.zip	2017/06/16 18:49	348,6 KB
R1-1710603.zip	2017/06/16 18:49	121,1 KB
R1-1710604.zip	2017/06/16 18:49	126,1 KB
R1-1710605.zip	2017/06/16 18:49	64,2 KB
R1-1710606.zip	2017/06/16 18:49	91 KB
R1-1710607.zip	2017/06/17 6:15	44,9 KB
R1-1710608.zip	2017/06/17 2:51	61,1 KB
R1-1710609.zip	2017/06/17 2:51	88,7 KB
R1-1710610.zip	2017/06/17 2:51	127,7 KB
R1-1710611.zip	2017/06/17 2:51	136,8 KB
R1-1710612.zip	2017/06/17 2:51	261,8 KB
R1-1710613.zip	2017/06/17 2:51	79,5 KB
R1-1710614.zip	2017/06/17 2:51	192 KB
R1-1710615.zip	2017/06/17 2:51	240,7 KB
R1-1710616.zip	2017/06/17 2:51	69,9 KB
R1-1710617.zip	2017/06/17 2:51	82,7 KB
R1-1710618.zip	2017/06/17 2:52	327,3 KB
R1-1710619.zip	2017/06/17 2:52	79,9 KB
R1-1710620.zip	2017/06/17 2:52	22,4 KB
R1-1710621.zip	2017/06/17 2:52	239,2 KB
R1-1710622.zip	2017/06/17 2:52	43,9 KB
R1-1710623.zip	2017/06/16 20:00	269,4 KB
R1-1710624.zip	2017/06/17 1:00	306,9 KB
R1-1710625.zip	2017/06/20 4:47	110,8 KB
R1-1710626.zip	2017/06/16 16:24	165,8 KB
R1-1710627.zip	2017/06/16 21:00	50,3 KB
R1-1710628.zip	2017/06/20 4:50	176,7 KB
R1-1710629.zip	2017/06/16 20:00	100,7 KB
R1-1710630.zip	2017/06/16 12:28	127,7 KB
R1-1710631.zip	2017/06/16 12:28	121,3 KB
R1-1710632.zip	2017/06/17 0:42	98,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710633.zip	2017/06/16 7:57	467,3 KB
R1-1710634.zip	2017/06/16 10:50	63,1 KB
R1-1710635.zip	2017/06/16 10:50	49,7 KB
R1-1710636.zip	2017/06/16 10:50	438,9 KB
R1-1710637.zip	2017/06/16 19:58	36,2 KB
R1-1710638.zip	2017/06/16 19:58	107,2 KB
R1-1710639.zip	2017/06/16 19:58	42,2 KB
R1-1710640.zip	2017/06/17 1:49	57,9 KB
R1-1710641.zip	2017/06/16 10:50	263,4 KB
R1-1710642.zip	2017/06/16 21:22	205 KB
R1-1710643.zip	2017/06/16 20:15	208,7 KB
R1-1710644.zip	2017/06/16 21:22	216,2 KB
R1-1710645.zip	2017/06/16 6:57	124,2 KB
R1-1710646.zip	2017/06/16 6:57	154 KB
R1-1710647.zip	2017/06/16 7:43	304,4 KB
R1-1710648.zip	2017/06/16 7:43	1103,3 KB
R1-1710649.zip	2017/06/16 19:59	37,9 KB
R1-1710650.zip	2017/06/16 6:57	29,3 KB
R1-1710651.zip	2017/06/16 19:15	149,7 KB
R1-1710652.zip	2017/06/16 23:44	147,3 KB
R1-1710653.zip	2017/06/16 21:31	47,2 KB
R1-1710654.zip	2017/06/16 22:13	130,3 KB
R1-1710655.zip	2017/06/17 1:50	210,5 KB
R1-1710656.zip	2017/06/16 21:31	41,2 KB
R1-1710657.zip	2017/06/16 21:31	1081,8 KB
R1-1710658.zip	2017/06/16 21:31	724,5 KB
R1-1710659.zip	2017/06/16 21:31	101,1 KB
R1-1710660.zip	2017/06/16 6:57	74,7 KB
R1-1710661.zip	2017/06/16 22:13	38,9 KB
R1-1710662.zip	2017/06/16 22:13	38,2 KB
R1-1710663.zip	2017/06/16 22:13	128,3 KB
R1-1710664.zip	2017/06/16 22:13	87,1 KB
R1-1710665.zip	2017/06/16 23:44	50,5 KB
R1-1710666.zip	2017/06/16 0:17	270,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710667.zip	2017/06/16 21:22	52,2 KB
R1-1710668.zip	2017/06/16 6:57	56,9 KB
R1-1710669.zip	2017/06/16 21:22	50 KB
R1-1710670.zip	2017/06/16 20:15	148,2 KB
R1-1710671.zip	2017/06/16 6:57	45,8 KB
R1-1710672.zip	2017/06/16 21:22	52 KB
R1-1710673.zip	2017/06/16 20:15	268,5 KB
R1-1710674.zip	2017/06/16 20:15	40,5 KB
R1-1710675.zip	2017/06/16 21:22	156,2 KB
R1-1710676.zip	2017/06/16 6:57	258,1 KB
R1-1710677.zip	2017/06/16 18:47	87,4 KB
R1-1710678.zip	2017/06/16 7:44	45,5 KB
R1-1710679.zip	2017/06/16 7:44	35 KB
R1-1710680.zip	2017/06/16 7:44	94,9 KB
R1-1710681.zip	2017/06/16 10:13	65,7 KB
R1-1710682.zip	2017/06/16 7:25	34,1 KB
R1-1710683.zip	2017/06/16 7:46	444,3 KB
R1-1710684.zip	2017/06/16 7:46	35,6 KB
R1-1710685.zip	2017/06/16 7:46	305,7 KB
R1-1710686.zip	2017/06/16 7:58	412,9 KB
R1-1710687.zip	2017/06/16 7:58	209,2 KB
R1-1710688.zip	2017/06/16 21:31	297 KB
R1-1710689.zip	2017/06/16 7:44	124,5 KB
R1-1710690.zip	2017/06/16 19:58	198,3 KB
R1-1710691.zip	2017/06/16 12:28	352,6 KB
R1-1710692.zip	2017/06/16 12:28	95,3 KB
R1-1710693.zip	2017/06/17 1:25	59,9 KB
R1-1710694.zip	2017/06/16 12:28	189,6 KB
R1-1710695.zip	2017/06/16 12:28	1100,6 KB
R1-1710696.zip	2017/06/16 12:28	113,9 KB
R1-1710697.zip	2017/06/17 1:25	50,5 KB
R1-1710698.zip	2017/06/17 1:25	54,9 KB
R1-1710699.zip	2017/06/17 1:25	49,7 KB
R1-1710700.zip	2017/06/16 7:16	52,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710701.zip	2017/06/17 0:42	659,4 KB
R1-1710702.zip	2017/06/17 1:25	51,1 KB
R1-1710703.zip	2017/06/17 2:42	2281,3 KB
R1-1710704.zip	2017/06/17 2:42	2186,2 KB
R1-1710705.zip	2017/06/17 1:25	54,5 KB
R1-1710706.zip	2017/06/17 1:25	54,8 KB
R1-1710707.zip	2017/06/16 12:29	27,7 KB
R1-1710708.zip	2017/06/17 2:42	618 KB
R1-1710709.zip	2017/06/16 10:51	59,3 KB
R1-1710710.zip	2017/06/17 1:25	56,9 KB
R1-1710711.zip	2017/06/17 1:25	51,2 KB
R1-1710712.zip	2017/06/16 7:16	50,8 KB
R1-1710713.zip	2017/06/17 2:42	452,8 KB
R1-1710714.zip	2017/06/17 2:42	834,2 KB
R1-1710716.zip	2017/06/17 1:25	50,5 KB
R1-1710717.zip	2017/06/16 23:44	59 KB
R1-1710718.zip	2017/06/17 0:42	33,4 KB
R1-1710719.zip	2017/06/16 10:51	48,8 KB
R1-1710720.zip	2017/06/16 7:36	54,2 KB
R1-1710721.zip	2017/06/16 7:39	54,7 KB
R1-1710722.zip	2017/06/16 7:39	56,1 KB
R1-1710723.zip	2017/06/16 7:39	54,4 KB
R1-1710724.zip	2017/06/16 10:50	77,8 KB
R1-1710725.zip	2017/06/16 7:36	67,8 KB
R1-1710726.zip	2017/06/16 10:51	275 KB
R1-1710727.zip	2017/06/16 10:51	169,8 KB
R1-1710728.zip	2017/06/16 10:50	51,1 KB
R1-1710729.zip	2017/06/16 10:51	167,5 KB
R1-1710730.zip	2017/06/16 7:36	50,2 KB
R1-1710731.zip	2017/06/17 1:25	49,8 KB
R1-1710732.zip	2017/06/16 7:16	92,8 KB
R1-1710733.zip	2017/06/16 12:29	99,6 KB
R1-1710734.zip	2017/06/16 7:16	52,4 KB
R1-1710735.zip	2017/06/16 7:39	101,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710736.zip	2017/06/17 1:25	50,5 KB
R1-1710737.zip	2017/06/16 6:51	89,2 KB
R1-1710738.zip	2017/06/16 6:51	107,8 KB
R1-1710739.zip	2017/06/17 1:25	178,7 KB
R1-1710740.zip	2017/06/17 1:25	49,9 KB
R1-1710741.zip	2017/06/17 1:25	49,8 KB
R1-1710742.zip	2017/06/19 10:54	93,7 KB
R1-1710743.zip	2017/06/19 10:54	80,5 KB
R1-1710744.zip	2017/06/20 6:35	276,4 KB
R1-1710745.zip	2017/06/20 6:35	293,2 KB
R1-1710746.zip	2017/06/20 6:35	131,8 KB
R1-1710747.zip	2017/06/20 6:35	455,8 KB
R1-1710748.zip	2017/06/20 6:36	142,9 KB
R1-1710749.zip	2017/06/20 6:36	1888,7 KB
R1-1710750.zip	2017/06/20 6:36	331,8 KB
R1-1710751.zip	2017/06/20 6:36	283,8 KB
R1-1710752.zip	2017/06/20 6:36	166 KB
R1-1710753.zip	2017/06/17 1:58	19 KB
R1-1710754.zip	2017/06/16 22:13	100,3 KB
R1-1710755.zip	2017/06/16 7:53	1244,7 KB
R1-1710756.zip	2017/06/16 22:13	74,6 KB
R1-1710757.zip	2017/06/16 7:53	457,7 KB
R1-1710758.zip	2017/06/16 7:53	307,7 KB
R1-1710759.zip	2017/06/16 19:15	132,5 KB
R1-1710760.zip	2017/06/16 8:09	27,7 KB
R1-1710761.zip	2017/06/16 12:28	248 KB
R1-1710762.zip	2017/06/16 12:29	56,6 KB
R1-1710763.zip	2017/06/16 9:36	447,9 KB
R1-1710764.zip	2017/06/22 3:09	51,8 KB
R1-1710765.zip	2017/06/17 2:42	39 KB
R1-1710766.zip	2017/06/16 10:50	345,7 KB
R1-1710767.zip	2017/06/17 2:42	16,2 KB
R1-1710768.zip	2017/06/17 1:58	451,6 KB
R1-1710769.zip	2017/06/16 13:47	29,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710770.zip	2017/06/19 14:13	186,8 KB
R1-1710771.zip	2017/06/16 9:22	89,5 KB
R1-1710772.zip	2017/06/16 9:22	68,2 KB
R1-1710773.zip	2017/06/17 2:38	701,7 KB
R1-1710774.zip	2017/06/17 2:38	55,1 KB
R1-1710776.zip	2017/06/17 2:38	275,2 KB
R1-1710777.zip	2017/06/17 2:38	2168,3 KB
R1-1710778.zip	2017/06/17 2:38	474,6 KB
R1-1710779.zip	2017/06/17 2:38	41,2 KB
R1-1710780.zip	2017/06/17 2:38	107,7 KB
R1-1710781.zip	2017/06/17 2:38	38,1 KB
R1-1710782.zip	2017/06/17 2:38	75,1 KB
R1-1710783.zip	2017/06/17 2:38	354,6 KB
R1-1710784.zip	2017/06/17 2:38	194,2 KB
R1-1710785.zip	2017/06/17 2:38	125,3 KB
R1-1710786.zip	2017/06/17 2:39	45,2 KB
R1-1710787.zip	2017/06/15 9:57	88,9 KB
R1-1710788.zip	2017/06/17 5:15	386,3 KB
R1-1710789.zip	2017/06/17 5:15	1315,4 KB
R1-1710790.zip	2017/06/17 5:15	51,4 KB
R1-1710791.zip	2017/06/17 5:15	228,4 KB
R1-1710792.zip	2017/06/17 5:15	61,2 KB
R1-1710793.zip	2017/06/17 5:15	65,3 KB
R1-1710794.zip	2017/06/17 5:15	17,2 KB
R1-1710795.zip	2017/06/17 5:15	44,4 KB
R1-1710796.zip	2017/06/17 5:15	78,7 KB
R1-1710797.zip	2017/06/17 5:15	36,1 KB
R1-1710798.zip	2017/06/20 6:01	48,4 KB
R1-1710799.zip	2017/06/17 5:15	50,9 KB
R1-1710800.zip	2017/06/20 6:02	234,3 KB
R1-1710801.zip	2017/06/17 5:47	34,4 KB
R1-1710802.zip	2017/06/17 5:15	88,1 KB
R1-1710803.zip	2017/06/20 6:01	580,6 KB
R1-1710804.zip	2017/06/17 5:15	33,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710805.zip	2017/06/17 5:15	53,1 KB
R1-1710806.zip	2017/06/17 5:15	51,2 KB
R1-1710807.zip	2017/06/17 5:15	40,8 KB
R1-1710808.zip	2017/06/17 5:15	172 KB
R1-1710809.zip	2017/06/17 5:15	439,1 KB
R1-1710810.zip	2017/06/17 5:15	166,7 KB
R1-1710811.zip	2017/06/17 5:15	114,3 KB
R1-1710812.zip	2017/06/17 5:15	51,8 KB
R1-1710813.zip	2017/06/17 5:15	69,6 KB
R1-1710814.zip	2017/06/23 20:31	17,5 KB
R1-1710815.zip	2017/06/17 5:15	253,8 KB
R1-1710816.zip	2017/06/17 5:15	105,2 KB
R1-1710817.zip	2017/06/23 20:31	26,7 KB
R1-1710818.zip	2017/06/17 5:15	417,4 KB
R1-1710819.zip	2017/06/17 5:16	1586,8 KB
R1-1710820.zip	2017/06/17 5:16	595,6 KB
R1-1710821.zip	2017/06/17 5:16	372,9 KB
R1-1710822.zip	2017/06/17 5:16	224,4 KB
R1-1710823.zip	2017/06/17 5:16	198,5 KB
R1-1710824.zip	2017/06/17 5:16	495,2 KB
R1-1710825.zip	2017/06/20 6:01	1529,6 KB
R1-1710826.zip	2017/06/20 6:01	675 KB
R1-1710827.zip	2017/06/20 6:00	2479,9 KB
R1-1710828.zip	2017/06/20 5:59	207,5 KB
R1-1710829.zip	2017/06/20 5:59	136,7 KB
R1-1710830.zip	2017/06/17 5:16	339,6 KB
R1-1710831.zip	2017/06/17 5:16	152,9 KB
R1-1710832.zip	2017/06/17 5:17	1743 KB
R1-1710833.zip	2017/06/17 5:17	122,5 KB
R1-1710834.zip	2017/06/17 5:17	116,9 KB
R1-1710835.zip	2017/06/17 5:17	324,3 KB
R1-1710836.zip	2017/06/17 5:17	107,7 KB
R1-1710837.zip	2017/06/17 5:17	438,3 KB
R1-1710838.zip	2017/06/17 5:17	100,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710839.zip	2017/06/17 5:17	117,6 KB
R1-1710840.zip	2017/06/16 12:39	37,8 KB
R1-1710841.zip	2017/06/16 9:52	30,5 KB
R1-1710842.zip	2017/06/16 21:38	292,9 KB
R1-1710843.zip	2017/06/16 21:38	330,2 KB
R1-1710844.zip	2017/06/20 6:38	172,4 KB
R1-1710845.zip	2017/06/20 6:34	338,5 KB
R1-1710846.zip	2017/06/20 6:35	210,3 KB
R1-1710847.zip	2017/06/20 6:36	337,9 KB
R1-1710848.zip	2017/06/20 6:36	290,5 KB
R1-1710849.zip	2017/06/20 6:37	429,8 KB
R1-1710850.zip	2017/06/20 6:38	112 KB
R1-1710851.zip	2017/06/16 16:57	117,4 KB
R1-1710852.zip	2017/06/16 16:57	29,1 KB
R1-1710853.zip	2017/06/16 16:57	65,8 KB
R1-1710854.zip	2017/06/16 16:57	95,2 KB
R1-1710855.zip	2017/06/16 16:57	44 KB
R1-1710856.zip	2017/06/16 16:57	17,3 KB
R1-1710857.zip	2017/06/16 16:57	16,8 KB
R1-1710858.zip	2017/06/19 20:01	110,4 KB
R1-1710859.zip	2017/06/19 20:01	205,4 KB
R1-1710860.zip	2017/06/16 16:57	89,4 KB
R1-1710861.zip	2017/06/16 16:57	46,5 KB
R1-1710862.zip	2017/06/16 16:57	67,1 KB
R1-1710863.zip	2017/06/16 16:57	37,4 KB
R1-1710864.zip	2017/06/16 16:57	37,6 KB
R1-1710865.zip	2017/06/16 16:57	139,1 KB
R1-1710866.zip	2017/06/16 16:57	46,4 KB
R1-1710867.zip	2017/06/16 16:57	18,5 KB
R1-1710870.zip	2017/06/16 20:54	36 KB
R1-1710871.zip	2017/06/16 20:54	295,2 KB
R1-1710872.zip	2017/06/16 20:54	110,2 KB
R1-1710873.zip	2017/06/16 20:54	31,1 KB
R1-1710874.zip	2017/06/16 20:54	985 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710875.zip	2017/06/16 20:54	40,5 KB
R1-1710876.zip	2017/06/16 20:54	94 KB
R1-1710877.zip	2017/06/16 20:54	42,6 KB
R1-1710878.zip	2017/06/16 20:54	35,8 KB
R1-1710879.zip	2017/06/16 20:54	122,6 KB
R1-1710880.zip	2017/06/16 21:30	42,7 KB
R1-1710881.zip	2017/06/16 21:30	38,1 KB
R1-1710882.zip	2017/06/16 21:30	55,1 KB
R1-1710883.zip	2017/06/16 16:34	127,9 KB
R1-1710884.zip	2017/06/16 16:34	163,6 KB
R1-1710885.zip	2017/06/16 16:34	77,8 KB
R1-1710886.zip	2017/06/16 14:58	428,9 KB
R1-1710887.zip	2017/06/17 6:15	58,2 KB
R1-1710889.zip	2017/06/16 21:12	386,2 KB
R1-1710890.zip	2017/06/16 21:12	185,1 KB
R1-1710891.zip	2017/06/16 21:12	50 KB
R1-1710892.zip	2017/06/16 21:12	105,4 KB
R1-1710893.zip	2017/06/16 21:23	57,7 KB
R1-1710894.zip	2017/06/16 21:23	175,8 KB
R1-1710895.zip	2017/06/16 21:23	59,5 KB
R1-1710896.zip	2017/06/16 21:23	78,8 KB
R1-1710897.zip	2017/06/16 21:23	43,1 KB
R1-1710898.zip	2017/06/16 21:23	42,4 KB
R1-1710899.zip	2017/06/16 21:23	62,7 KB
R1-1710900.zip	2017/06/16 21:23	90,2 KB
R1-1710901.zip	2017/06/16 21:23	35,4 KB
R1-1710902.zip	2017/06/16 21:23	39,1 KB
R1-1710903.zip	2017/06/17 5:46	262,4 KB
R1-1710904.zip	2017/06/17 4:13	342,9 KB
R1-1710905.zip	2017/06/17 4:14	237 KB
R1-1710906.zip	2017/06/17 4:13	30,7 KB
R1-1710907.zip	2017/06/17 4:13	74,3 KB
R1-1710908.zip	2017/06/17 4:13	28,7 KB
R1-1710909.zip	2017/06/17 2:55	142,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710910.zip	2017/06/17 2:55	110,4 KB
R1-1710911.zip	2017/06/17 2:55	82 KB
R1-1710912.zip	2017/06/16 21:30	58,9 KB
R1-1710913.zip	2017/06/17 2:41	242,7 KB
R1-1710914.zip	2017/06/17 2:41	303,2 KB
R1-1710915.zip	2017/06/20 4:20	61 KB
R1-1710916.zip	2017/06/17 2:41	144,2 KB
R1-1710917.zip	2017/06/20 4:20	452,1 KB
R1-1710918.zip	2017/06/17 2:41	685,6 KB
R1-1710919.zip	2017/06/17 2:41	122,5 KB
R1-1710920.zip	2017/06/16 23:50	147,2 KB
R1-1710921.zip	2017/06/16 23:50	151,1 KB
R1-1710922.zip	2017/06/16 23:50	93,6 KB
R1-1710923.zip	2017/06/16 23:50	126,2 KB
R1-1710924.zip	2017/06/16 23:50	493,6 KB
R1-1710925.zip	2017/06/16 23:50	75,2 KB
R1-1710926.zip	2017/06/16 23:50	83,1 KB
R1-1710927.zip	2017/06/16 23:50	30,5 KB
R1-1710928.zip	2017/06/16 23:51	30,6 KB
R1-1710929.zip	2017/06/16 10:01	124,9 KB
R1-1710930.zip	2017/06/16 10:01	140,9 KB
R1-1710931.zip	2017/06/16 23:51	1206,7 KB
R1-1710932.zip	2017/06/16 10:01	97,6 KB
R1-1710933.zip	2017/06/16 23:51	87,2 KB
R1-1710934.zip	2017/06/16 10:01	64,6 KB
R1-1710935.zip	2017/06/16 10:01	89,9 KB
R1-1710936.zip	2017/06/16 23:51	292,8 KB
R1-1710937.zip	2017/06/16 10:01	67,6 KB
R1-1710938.zip	2017/06/16 23:51	52,9 KB
R1-1710939.zip	2017/06/16 10:01	60,6 KB
R1-1710940.zip	2017/06/16 10:01	64 KB
R1-1710941.zip	2017/06/16 23:51	53,5 KB
R1-1710942.zip	2017/06/16 10:01	67,4 KB
R1-1710943.zip	2017/06/16 10:01	108,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710944.zip	2017/06/16 23:51	178,5 KB
R1-1710945.zip	2017/06/16 23:51	75,1 KB
R1-1710946.zip	2017/06/16 23:51	74,3 KB
R1-1710947.zip	2017/06/16 23:51	53,6 KB
R1-1710948.zip	2017/06/16 23:51	50,1 KB
R1-1710949.zip	2017/06/16 23:51	177,5 KB
R1-1710950.zip	2017/06/17 5:36	460,8 KB
R1-1710951.zip	2017/06/16 23:52	127,3 KB
R1-1710952.zip	2017/06/16 23:52	137,8 KB
R1-1710953.zip	2017/06/16 23:52	136,5 KB
R1-1710954.zip	2017/06/16 23:52	55,9 KB
R1-1710955.zip	2017/06/16 23:52	51,2 KB
R1-1710956.zip	2017/06/16 23:52	122,8 KB
R1-1710957.zip	2017/06/16 23:52	50,3 KB
R1-1710958.zip	2017/06/16 23:52	98,8 KB
R1-1710959.zip	2017/06/16 23:52	406,2 KB
R1-1710960.zip	2017/06/16 23:52	263 KB
R1-1710961.zip	2017/06/16 23:52	713 KB
R1-1710962.zip	2017/06/16 23:52	328,4 KB
R1-1710963.zip	2017/06/16 6:28	56,7 KB
R1-1710964.zip	2017/06/16 6:28	28,9 KB
R1-1710965.zip	2017/06/16 6:28	29,2 KB
R1-1710966.zip	2017/06/16 2:14	72,6 KB
R1-1710967.zip	2017/06/16 9:27	40,1 KB
R1-1710968.zip	2017/06/28 13:45	131,9 KB
R1-1710969.zip	2017/06/16 8:11	57,1 KB
R1-1710970.zip	2017/06/16 8:11	23,7 KB
R1-1710971.zip	2017/06/16 8:11	51,7 KB
R1-1710972.zip	2017/06/16 8:11	294,1 KB
R1-1710973.zip	2017/06/16 8:52	1060,3 KB
R1-1710974.zip	2017/06/16 8:52	106,8 KB
R1-1710975.zip	2017/06/16 8:52	723,7 KB
R1-1710976.zip	2017/06/17 2:39	55,9 KB
R1-1710977.zip	2017/06/17 2:39	223 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1710978.zip	2017/06/17 3:28	71,8 KB
R1-1710979.zip	2017/06/17 3:28	55,3 KB
R1-1710980.zip	2017/06/17 3:28	70,6 KB
R1-1710981.zip	2017/06/17 3:28	50,2 KB
R1-1710982.zip	2017/06/17 3:28	83,8 KB
R1-1710983.zip	2017/06/17 3:28	47,8 KB
R1-1710984.zip	2017/06/17 3:28	34,7 KB
R1-1710985.zip	2017/06/17 3:28	35,5 KB
R1-1710986.zip	2017/06/17 3:28	37,9 KB
R1-1710987.zip	2017/06/17 3:28	48,7 KB
R1-1710988.zip	2017/06/17 3:28	59,8 KB
R1-1710989.zip	2017/06/17 3:28	47,3 KB
R1-1710990.zip	2017/06/17 3:28	102,6 KB
R1-1710991.zip	2017/06/17 3:28	41,8 KB
R1-1710992.zip	2017/06/17 3:28	44,6 KB
R1-1710993.zip	2017/06/17 3:28	36,1 KB
R1-1710994.zip	2017/06/17 3:28	122,1 KB
R1-1710995.zip	2017/06/17 3:28	175,3 KB
R1-1710996.zip	2017/06/17 3:28	39,1 KB
R1-1710997.zip	2017/06/17 3:28	42,7 KB
R1-1710998.zip	2017/06/17 3:28	93,1 KB
R1-1710999.zip	2017/06/17 3:28	64,7 KB
R1-1711000.zip	2017/06/17 3:28	45,9 KB
R1-1711001.zip	2017/06/17 3:28	39,5 KB
R1-1711002.zip	2017/06/17 3:28	36,1 KB
R1-1711003.zip	2017/06/17 3:28	62,5 KB
R1-1711004.zip	2017/06/17 3:28	106,8 KB
R1-1711005.zip	2017/06/17 4:36	90,8 KB
R1-1711006.zip	2017/06/16 20:22	27,4 KB
R1-1711007.zip	2017/06/17 5:26	123,6 KB
R1-1711008.zip	2017/06/17 5:26	209,7 KB
R1-1711009.zip	2017/06/17 5:26	89 KB
R1-1711010.zip	2017/06/17 5:26	97,1 KB
R1-1711011.zip	2017/06/17 5:26	256,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711012.zip	2017/06/17 5:26	121,3 KB
R1-1711013.zip	2017/06/17 5:26	33,2 KB
R1-1711014.zip	2017/06/17 5:26	38 KB
R1-1711015.zip	2017/06/17 5:26	225,5 KB
R1-1711016.zip	2017/06/17 5:26	66,4 KB
R1-1711017.zip	2017/06/17 5:26	437,8 KB
R1-1711018.zip	2017/06/17 5:26	49,7 KB
R1-1711019.zip	2017/06/17 5:26	127,9 KB
R1-1711020.zip	2017/06/17 5:26	113,2 KB
R1-1711021.zip	2017/06/17 5:26	407,5 KB
R1-1711022.zip	2017/06/17 5:26	49,2 KB
R1-1711023.zip	2017/06/17 5:26	238,5 KB
R1-1711024.zip	2017/06/17 5:26	150,7 KB
R1-1711025.zip	2017/06/17 5:26	68 KB
R1-1711026.zip	2017/06/17 5:26	41,4 KB
R1-1711027.zip	2017/06/17 5:26	63 KB
R1-1711028.zip	2017/06/17 5:26	61,3 KB
R1-1711029.zip	2017/06/17 5:26	45,3 KB
R1-1711030.zip	2017/06/17 5:26	35,9 KB
R1-1711031.zip	2017/06/17 5:26	91,3 KB
R1-1711032.zip	2017/06/17 5:26	105,1 KB
R1-1711033.zip	2017/06/17 5:26	107,2 KB
R1-1711034.zip	2017/06/17 5:26	552,1 KB
R1-1711035.zip	2017/06/17 5:26	196,7 KB
R1-1711036.zip	2017/06/17 5:26	68,7 KB
R1-1711037.zip	2017/06/17 5:26	88,7 KB
R1-1711038.zip	2017/06/17 5:26	42,8 KB
R1-1711039.zip	2017/06/17 5:26	114,7 KB
R1-1711040.zip	2017/06/17 5:26	35,4 KB
R1-1711041.zip	2017/06/17 5:56	123,7 KB
R1-1711042.zip	2017/06/17 5:26	399,1 KB
R1-1711043.zip	2017/06/17 5:26	276,5 KB
R1-1711044.zip	2017/06/17 5:26	751,3 KB
R1-1711045.zip	2017/06/17 5:26	133,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711046.zip	2017/06/17 5:26	468,1 KB
R1-1711047.zip	2017/06/17 5:26	574,2 KB
R1-1711048.zip	2017/06/17 5:26	219,9 KB
R1-1711049.zip	2017/06/17 5:26	302,4 KB
R1-1711050.zip	2017/06/17 5:26	4441,6 KB
R1-1711051.zip	2017/06/17 5:26	639,5 KB
R1-1711052.zip	2017/06/17 5:26	93,7 KB
R1-1711053.zip	2017/06/17 5:26	271,3 KB
R1-1711054.zip	2017/06/17 5:26	53,3 KB
R1-1711055.zip	2017/06/17 4:13	61,5 KB
R1-1711056.zip	2017/06/17 3:26	73,1 KB
R1-1711057.zip	2017/06/17 3:26	73,6 KB
R1-1711058.zip	2017/06/20 5:34	102,9 KB
R1-1711059.zip	2017/06/17 3:26	141 KB
R1-1711060.zip	2017/06/17 3:26	56,4 KB
R1-1711061.zip	2017/06/20 5:34	144,1 KB
R1-1711062.zip	2017/06/17 3:26	87 KB
R1-1711063.zip	2017/06/17 3:26	103,6 KB
R1-1711064.zip	2017/06/17 3:26	189,5 KB
R1-1711065.zip	2017/06/17 3:27	145,2 KB
R1-1711066.zip	2017/06/17 3:27	107 KB
R1-1711067.zip	2017/06/17 3:27	47,5 KB
R1-1711068.zip	2017/06/17 3:27	68,1 KB
R1-1711069.zip	2017/06/17 3:27	34 KB
R1-1711070.zip	2017/06/17 3:27	36,7 KB
R1-1711071.zip	2017/06/17 3:27	70 KB
R1-1711072.zip	2017/06/17 5:25	110,2 KB
R1-1711073.zip	2017/06/17 3:27	94,3 KB
R1-1711074.zip	2017/06/17 3:27	115 KB
R1-1711075.zip	2017/06/17 5:25	250,5 KB
R1-1711076.zip	2017/06/17 5:25	307,7 KB
R1-1711077.zip	2017/06/17 5:25	486,2 KB
R1-1711078.zip	2017/06/17 5:25	749,2 KB
R1-1711079.zip	2017/06/17 5:25	135,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711080.zip	2017/06/17 5:25	52,5 KB
R1-1711081.zip	2017/06/17 5:25	122 KB
R1-1711082.zip	2017/06/17 5:25	79,3 KB
R1-1711083.zip	2017/06/17 5:25	75,1 KB
R1-1711084.zip	2017/06/16 16:33	1005 KB
R1-1711085.zip	2017/06/16 16:33	130,5 KB
R1-1711086.zip	2017/06/16 16:33	82 KB
R1-1711087.zip	2017/06/17 5:25	83,8 KB
R1-1711088.zip	2017/06/17 4:13	148,2 KB
R1-1711089.zip	2017/06/17 4:13	142,5 KB
R1-1711090.zip	2017/06/17 4:13	64,7 KB
R1-1711091.zip	2017/06/17 4:13	94,7 KB
R1-1711092.zip	2017/06/17 4:13	78,8 KB
R1-1711093.zip	2017/06/17 4:13	140,2 KB
R1-1711094.zip	2017/06/17 4:13	73,8 KB
R1-1711095.zip	2017/06/17 4:13	94,2 KB
R1-1711096.zip	2017/06/17 4:13	82 KB
R1-1711097.zip	2017/06/17 4:13	64,9 KB
R1-1711098.zip	2017/06/17 4:13	1039,7 KB
R1-1711099.zip	2017/06/17 4:13	541,2 KB
R1-1711100.zip	2017/06/17 4:13	144,2 KB
R1-1711101.zip	2017/06/17 4:13	102,1 KB
R1-1711102.zip	2017/06/17 4:13	66 KB
R1-1711103.zip	2017/06/17 4:13	73,3 KB
R1-1711104.zip	2017/06/17 4:13	98,6 KB
R1-1711105.zip	2017/06/17 4:13	99,1 KB
R1-1711106.zip	2017/06/17 4:13	60,4 KB
R1-1711107.zip	2017/06/17 4:13	69,6 KB
R1-1711108.zip	2017/06/17 4:13	138,9 KB
R1-1711109.zip	2017/06/17 4:13	56,2 KB
R1-1711110.zip	2017/06/17 4:13	213,2 KB
R1-1711111.zip	2017/06/17 4:13	82,3 KB
R1-1711112.zip	2017/06/17 4:13	111,3 KB
R1-1711113.zip	2017/06/17 4:13	70,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711114.zip	2017/06/17 4:13	151,7 KB
R1-1711115.zip	2017/06/17 4:13	71,9 KB
R1-1711116.zip	2017/06/17 4:13	77,1 KB
R1-1711117.zip	2017/06/17 4:13	120,1 KB
R1-1711118.zip	2017/06/17 4:13	60 KB
R1-1711119.zip	2017/06/17 4:13	60,6 KB
R1-1711120.zip	2017/06/17 4:13	90,8 KB
R1-1711121.zip	2017/06/17 4:13	60,9 KB
R1-1711122.zip	2017/06/17 4:13	59 KB
R1-1711123.zip	2017/06/17 4:13	60,2 KB
R1-1711124.zip	2017/06/20 3:00	407,9 KB
R1-1711125.zip	2017/06/20 3:00	633 KB
R1-1711126.zip	2017/06/20 3:00	376,7 KB
R1-1711127.zip	2017/06/20 3:00	415,4 KB
R1-1711128.zip	2017/06/20 3:00	563,4 KB
R1-1711129.zip	2017/06/17 4:13	183,9 KB
R1-1711130.zip	2017/06/17 4:13	40,1 KB
R1-1711131.zip	2017/06/16 16:33	163 KB
R1-1711132.zip	2017/06/16 10:05	199,5 KB
R1-1711133.zip	2017/06/17 3:27	80,8 KB
R1-1711134.zip	2017/06/17 3:27	54,8 KB
R1-1711135.zip	2017/06/17 6:58	166,6 KB
R1-1711136.zip	2017/06/17 6:58	147,3 KB
R1-1711137.zip	2017/06/20 4:56	3038,1 KB
R1-1711138.zip	2017/06/17 6:58	100,4 KB
R1-1711139.zip	2017/06/17 6:58	69,7 KB
R1-1711140.zip	2017/06/20 4:56	212 KB
R1-1711141.zip	2017/06/17 6:58	104,2 KB
R1-1711142.zip	2017/06/17 6:58	97,1 KB
R1-1711143.zip	2017/06/17 6:58	53,2 KB
R1-1711144.zip	2017/06/17 6:58	89 KB
R1-1711145.zip	2017/06/17 6:58	109,3 KB
R1-1711146.zip	2017/06/17 6:58	177,6 KB
R1-1711147.zip	2017/06/17 6:58	43,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711148.zip	2017/06/17 6:58	358,9 KB
R1-1711149.zip	2017/06/17 6:58	71 KB
R1-1711150.zip	2017/06/17 6:58	20,6 KB
R1-1711151.zip	2017/06/17 7:04	78,5 KB
R1-1711152.zip	2017/06/17 5:16	1813,8 KB
R1-1711153.zip	2017/06/17 5:58	70,3 KB
R1-1711154.zip	2017/06/17 5:59	65,1 KB
R1-1711155.zip	2017/06/17 5:32	202,1 KB
R1-1711156.zip	2017/06/17 5:16	614,1 KB
R1-1711157.zip	2017/06/17 5:16	112,8 KB
R1-1711158.zip	2017/06/17 6:01	121,9 KB
R1-1711159.zip	2017/06/17 6:02	24,6 KB
R1-1711160.zip	2017/06/17 5:16	262,8 KB
R1-1711161.zip	2017/06/17 5:16	51,8 KB
R1-1711162.zip	2017/06/17 6:05	125,3 KB
R1-1711163.zip	2017/06/17 6:05	92,8 KB
R1-1711164.zip	2017/06/17 5:50	108,3 KB
R1-1711165.zip	2017/06/17 5:51	167 KB
R1-1711166.zip	2017/06/17 5:52	66,5 KB
R1-1711167.zip	2017/06/17 5:16	287,2 KB
R1-1711168.zip	2017/06/17 5:54	466,8 KB
R1-1711169.zip	2017/06/17 5:32	238,4 KB
R1-1711170.zip	2017/06/17 5:16	342,2 KB
R1-1711171.zip	2017/06/17 5:16	714,1 KB
R1-1711172.zip	2017/06/17 5:16	2079,2 KB
R1-1711173.zip	2017/06/17 5:16	382,8 KB
R1-1711174.zip	2017/06/17 5:16	115,7 KB
R1-1711175.zip	2017/06/17 6:09	1140,6 KB
R1-1711176.zip	2017/06/17 6:09	90,9 KB
R1-1711177.zip	2017/06/17 6:48	1707,4 KB
R1-1711178.zip	2017/06/17 6:48	654,5 KB
R1-1711179.zip	2017/06/17 6:48	57,4 KB
R1-1711180.zip	2017/06/17 6:48	341,2 KB
R1-1711182.zip	2017/06/17 6:48	65,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711183.zip	2017/06/17 6:48	66,5 KB
R1-1711184.zip	2017/06/17 6:48	201,9 KB
R1-1711185.zip	2017/06/17 6:48	67,2 KB
R1-1711186.zip	2017/06/17 6:40	512,9 KB
R1-1711187.zip	2017/06/17 6:40	337 KB
R1-1711188.zip	2017/06/17 5:16	189,1 KB
R1-1711189.zip	2017/06/17 5:32	171,1 KB
R1-1711190.zip	2017/06/17 5:16	312,3 KB
R1-1711191.zip	2017/06/17 6:37	115,3 KB
R1-1711192.zip	2017/06/17 5:16	135,9 KB
R1-1711193.zip	2017/06/17 5:34	258,1 KB
R1-1711194.zip	2017/06/17 5:16	71,5 KB
R1-1711195.zip	2017/06/17 5:16	80,3 KB
R1-1711196.zip	2017/06/17 5:38	541,9 KB
R1-1711197.zip	2017/06/17 5:16	248,6 KB
R1-1711198.zip	2017/06/17 5:16	93,1 KB
R1-1711199.zip	2017/06/17 5:16	51,1 KB
R1-1711200.zip	2017/06/17 5:16	282,4 KB
R1-1711201.zip	2017/06/17 5:16	68,2 KB
R1-1711202.zip	2017/06/18 23:49	110,7 KB
R1-1711203.zip	2017/06/18 23:49	128,3 KB
R1-1711204.zip	2017/06/18 23:49	89,9 KB
R1-1711205.zip	2017/06/17 5:17	688,5 KB
R1-1711206.zip	2017/06/18 23:50	220,8 KB
R1-1711207.zip	2017/06/17 6:12	221,8 KB
R1-1711208.zip	2017/06/17 5:17	63,8 KB
R1-1711209.zip	2017/06/23 20:31	67,8 KB
R1-1711210.zip	2017/06/20 5:19	120,2 KB
R1-1711211.zip	2017/06/20 5:19	147,1 KB
R1-1711212.zip	2017/06/20 5:19	149,9 KB
R1-1711213.zip	2017/06/20 5:19	1007 KB
R1-1711214.zip	2017/06/20 6:50	234,8 KB
R1-1711215.zip	2017/06/20 6:50	790 KB
R1-1711216.zip	2017/06/20 6:50	100,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711217.zip	2017/06/20 6:25	286 KB
R1-1711218.zip	2017/06/20 6:50	567,9 KB
R1-1711219.zip	2017/06/20 6:25	282,6 KB
R1-1711220.zip	2017/06/20 6:25	291,3 KB
R1-1711221.zip	2017/06/20 6:25	162,3 KB
R1-1711222.zip	2017/06/20 6:25	665,8 KB
R1-1711223.zip	2017/06/20 5:24	158,9 KB
R1-1711224.zip	2017/06/18 23:49	151,5 KB
R1-1711225.zip	2017/06/17 6:20	64,4 KB
R1-1711226.zip	2017/06/17 6:20	297,9 KB
R1-1711227.zip	2017/06/17 6:20	139,4 KB
R1-1711228.zip	2017/06/17 6:20	232,8 KB
R1-1711229.zip	2017/06/17 6:20	111,6 KB
R1-1711230.zip	2017/06/17 5:17	143,5 KB
R1-1711232.zip	2017/06/17 1:26	63,7 KB
R1-1711233.zip	2017/06/17 1:26	47,3 KB
R1-1711234.zip	2017/06/17 1:26	63,8 KB
R1-1711235.zip	2017/06/17 1:26	61,1 KB
R1-1711236.zip	2017/06/17 1:26	248,4 KB
R1-1711237.zip	2017/06/17 1:26	58,8 KB
R1-1711238.zip	2017/06/17 1:26	63,1 KB
R1-1711239.zip	2017/06/17 1:26	59,1 KB
R1-1711240.zip	2017/06/17 1:26	66,5 KB
R1-1711241.zip	2017/06/17 1:26	64,6 KB
R1-1711242.zip	2017/06/17 1:26	69,8 KB
R1-1711243.zip	2017/06/17 1:26	71 KB
R1-1711244.zip	2017/06/17 1:26	69,4 KB
R1-1711245.zip	2017/06/17 1:26	430,7 KB
R1-1711246.zip	2017/06/17 5:17	517 KB
R1-1711247.zip	2017/06/23 20:31	242,4 KB
R1-1711251.zip	2017/06/17 5:24	76,1 KB
R1-1711252.zip	2017/06/17 5:25	97,1 KB
R1-1711253.zip	2017/06/16 11:03	55,4 KB
R1-1711254.zip	2017/06/16 12:14	181,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711255.zip	2017/06/17 3:37	44,9 KB
R1-1711256.zip	2017/06/17 3:37	86,4 KB
R1-1711257.zip	2017/06/17 1:28	52,7 KB
R1-1711258.zip	2017/06/17 1:28	36,1 KB
R1-1711259.zip	2017/06/17 1:28	34,7 KB
R1-1711260.zip	2017/06/16 18:12	125,4 KB
R1-1711261.zip	2017/06/16 18:12	407,9 KB
R1-1711262.zip	2017/06/16 18:13	95,8 KB
R1-1711263.zip	2017/06/16 18:13	129,1 KB
R1-1711264.zip	2017/06/16 18:13	199,1 KB
R1-1711265.zip	2017/06/16 18:13	107 KB
R1-1711266.zip	2017/06/16 18:13	60,5 KB
R1-1711267.zip	2017/06/16 18:12	62,9 KB
R1-1711268.zip	2017/06/16 18:12	51,9 KB
R1-1711269.zip	2017/06/16 18:12	40,7 KB
R1-1711270.zip	2017/06/16 21:18	284,6 KB
R1-1711271.zip	2017/06/16 18:12	87,7 KB
R1-1711272.zip	2017/06/16 10:58	69,9 KB
R1-1711273.zip	2017/06/16 10:59	180,1 KB
R1-1711274.zip	2017/06/18 3:18	95,1 KB
R1-1711275.zip	2017/06/17 6:12	385,6 KB
R1-1711276.zip	2017/06/20 6:28	62,8 KB
R1-1711277.zip	2017/06/19 3:12	30,2 KB
R1-1711278.zip	2017/06/20 6:28	75,1 KB
R1-1711279.zip	2017/06/17 5:58	77,1 KB
R1-1711280.zip	2017/06/19 6:24	18 KB
R1-1711281.zip	2017/06/19 3:12	25,4 KB
R1-1711282.zip	2017/06/26 9:06	474 KB
R1-1711283.zip	2017/06/19 3:12	67,1 KB
R1-1711284.zip	2017/06/16 21:14	846,7 KB
R1-1711285.zip	2017/06/16 21:15	112,9 KB
R1-1711286.zip	2017/06/16 21:15	36,1 KB
R1-1711287.zip	2017/06/16 21:14	38,9 KB
R1-1711288.zip	2017/06/16 21:14	152,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711289.zip	2017/06/16 21:14	35,6 KB
R1-1711290.zip	2017/06/16 21:14	112,7 KB
R1-1711291.zip	2017/06/16 21:14	263,7 KB
R1-1711292.zip	2017/06/16 21:14	332,8 KB
R1-1711293.zip	2017/06/17 5:30	137,1 KB
R1-1711294.zip	2017/06/16 21:13	154 KB
R1-1711295.zip	2017/06/16 21:15	99,9 KB
R1-1711296.zip	2017/06/16 21:15	152,1 KB
R1-1711297.zip	2017/06/16 21:15	147,4 KB
R1-1711298.zip	2017/06/16 21:15	38,9 KB
R1-1711299.zip	2017/06/16 21:15	435,7 KB
R1-1711300.zip	2017/06/16 21:15	38,7 KB
R1-1711301.zip	2017/06/16 21:15	46,2 KB
R1-1711302.zip	2017/06/17 5:31	132,5 KB
R1-1711303.zip	2017/06/16 21:15	46,1 KB
R1-1711304.zip	2017/06/16 21:16	489,3 KB
R1-1711305.zip	2017/06/16 21:16	150,6 KB
R1-1711306.zip	2017/06/16 21:16	419,7 KB
R1-1711307.zip	2017/06/16 21:16	47,8 KB
R1-1711308.zip	2017/06/16 21:16	154,3 KB
R1-1711309.zip	2017/06/16 21:16	40,6 KB
R1-1711310.zip	2017/06/16 21:16	61,8 KB
R1-1711311.zip	2017/06/16 21:16	340,3 KB
R1-1711312.zip	2017/06/16 21:16	120,5 KB
R1-1711313.zip	2017/06/16 18:18	70,8 KB
R1-1711314.zip	2017/06/16 18:18	163,6 KB
R1-1711315.zip	2017/06/16 18:18	43,3 KB
R1-1711316.zip	2017/06/16 9:58	55,5 KB
R1-1711317.zip	2017/06/16 12:44	21,8 KB
R1-1711318.zip	2017/06/16 11:31	60,7 KB
R1-1711319.zip	2017/06/16 11:32	99 KB
R1-1711320.zip	2017/06/16 11:54	75,4 KB
R1-1711321.zip	2017/06/16 11:33	53,6 KB
R1-1711322.zip	2017/06/16 11:36	54,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711323.zip	2017/06/16 11:37	52,7 KB
R1-1711324.zip	2017/06/16 11:47	59 KB
R1-1711325.zip	2017/06/16 11:48	56,2 KB
R1-1711326.zip	2017/06/16 11:37	53,9 KB
R1-1711327.zip	2017/06/16 11:49	200,1 KB
R1-1711328.zip	2017/06/16 11:50	69,5 KB
R1-1711329.zip	2017/06/16 11:51	77,6 KB
R1-1711330.zip	2017/06/16 11:39	423,5 KB
R1-1711331.zip	2017/06/16 11:40	74,1 KB
R1-1711332.zip	2017/06/16 11:41	82,5 KB
R1-1711333.zip	2017/06/16 11:52	129,5 KB
R1-1711334.zip	2017/06/16 17:56	23 KB
R1-1711335.zip	2017/06/16 17:56	22,6 KB
R1-1711336.zip	2017/06/17 5:45	441 KB
R1-1711337.zip	2017/06/17 5:46	249,9 KB
R1-1711338.zip	2017/06/16 9:11	32,4 KB
R1-1711339.zip	2017/06/16 9:11	92,9 KB
R1-1711340.zip	2017/06/16 9:11	117,6 KB
R1-1711341.zip	2017/06/16 9:11	20,6 KB
R1-1711342.zip	2017/06/16 9:11	19,6 KB
R1-1711343.zip	2017/06/16 10:33	107,6 KB
R1-1711344.zip	2017/06/20 5:18	55,2 KB
R1-1711345.zip	2017/06/20 5:20	94,2 KB
R1-1711346.zip	2017/06/20 5:20	137,3 KB
R1-1711347.zip	2017/06/20 6:23	813,8 KB
R1-1711348.zip	2017/06/20 6:23	507,2 KB
R1-1711349.zip	2017/06/20 5:20	25 KB
R1-1711350.zip	2017/06/17 10:46	136,5 KB
R1-1711351.zip	2017/06/19 6:27	231,5 KB
R1-1711352.zip	2017/06/17 10:46	136,2 KB
R1-1711353.zip	2017/06/17 10:46	81,4 KB
R1-1711354.zip	2017/06/17 8:03	126,8 KB
R1-1711355.zip	2017/06/17 8:04	83,8 KB
R1-1711356.zip	2017/06/17 8:04	182,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711357.zip	2017/06/17 8:04	194 KB
R1-1711358.zip	2017/06/17 8:04	163,9 KB
R1-1711359.zip	2017/06/17 8:04	63,5 KB
R1-1711360.zip	2017/06/17 8:04	87,6 KB
R1-1711361.zip	2017/06/17 8:04	88,3 KB
R1-1711362.zip	2017/06/17 8:04	161,6 KB
R1-1711363.zip	2017/06/17 2:48	20,8 KB
R1-1711364.zip	2017/06/17 2:49	20,4 KB
R1-1711365.zip	2017/06/16 15:23	67,6 KB
R1-1711366.zip	2017/06/19 7:47	506,3 KB
R1-1711367.zip	2017/06/16 15:16	75,6 KB
R1-1711368.zip	2017/06/16 11:53	70,2 KB
R1-1711369.zip	2017/06/16 11:53	71,3 KB
R1-1711371.zip	2017/06/17 5:46	80,5 KB
R1-1711372.zip	2017/06/17 5:46	143,7 KB
R1-1711373.zip	2017/06/19 21:15	297,8 KB
R1-1711374.zip	2017/06/17 5:46	72,6 KB
R1-1711375.zip	2017/06/19 21:15	158 KB
R1-1711376.zip	2017/06/17 5:46	116,9 KB
R1-1711377.zip	2017/06/17 5:46	136,4 KB
R1-1711378.zip	2017/06/17 5:46	52,1 KB
R1-1711379.zip	2017/06/17 5:46	72,9 KB
R1-1711380.zip	2017/06/17 5:46	203,9 KB
R1-1711381.zip	2017/06/17 5:46	465,6 KB
R1-1711382.zip	2017/06/17 5:46	58,3 KB
R1-1711383.zip	2017/06/17 5:46	1483,9 KB
R1-1711384.zip	2017/06/17 5:46	348,6 KB
R1-1711385.zip	2017/06/17 5:46	471,7 KB
R1-1711386.zip	2017/06/17 5:46	135,3 KB
R1-1711387.zip	2017/06/17 5:46	78,3 KB
R1-1711388.zip	2017/06/17 5:46	56,8 KB
R1-1711389.zip	2017/06/17 5:46	41,9 KB
R1-1711390.zip	2017/06/16 11:53	90,4 KB
R1-1711391.zip	2017/06/19 11:19	54,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711392.zip	2017/06/16 18:12	194,2 KB
R1-1711393.zip	2017/06/17 4:32	200,7 KB
R1-1711394.zip	2017/06/17 3:55	401,7 KB
R1-1711395.zip	2017/06/17 3:56	127,3 KB
R1-1711396.zip	2017/06/16 16:22	120,5 KB
R1-1711397.zip	2017/06/16 16:22	390,1 KB
R1-1711398.zip	2017/06/16 18:22	110,5 KB
R1-1711399.zip	2017/06/16 18:44	524,6 KB
R1-1711400.zip	2017/06/16 18:44	76,5 KB
R1-1711401.zip	2017/06/17 3:15	105,7 KB
R1-1711402.zip	2017/06/17 3:15	41,9 KB
R1-1711403.zip	2017/06/17 3:15	53,6 KB
R1-1711404.zip	2017/06/17 4:46	207,2 KB
R1-1711405.zip	2017/06/17 3:15	51 KB
R1-1711406.zip	2017/06/17 3:15	29,5 KB
R1-1711407.zip	2017/06/17 5:30	109,7 KB
R1-1711408.zip	2017/06/17 3:15	41,6 KB
R1-1711409.zip	2017/06/17 3:15	180,6 KB
R1-1711410.zip	2017/06/17 3:15	325,9 KB
R1-1711411.zip	2017/06/17 2:56	388 KB
R1-1711412.zip	2017/06/17 2:56	543,4 KB
R1-1711413.zip	2017/06/17 2:56	801,7 KB
R1-1711414.zip	2017/06/17 2:56	314,4 KB
R1-1711415.zip	2017/06/17 2:56	203,1 KB
R1-1711416.zip	2017/06/17 2:56	390 KB
R1-1711417.zip	2017/06/17 2:56	166,4 KB
R1-1711418.zip	2017/06/17 2:56	30,4 KB
R1-1711419.zip	2017/06/17 2:56	210 KB
R1-1711420.zip	2017/06/17 2:56	169,7 KB
R1-1711421.zip	2017/06/17 2:56	67,3 KB
R1-1711422.zip	2017/06/17 2:56	93,2 KB
R1-1711423.zip	2017/06/17 2:56	119,1 KB
R1-1711424.zip	2017/06/17 2:51	111,1 KB
R1-1711425.zip	2017/06/17 2:56	41 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711426.zip	2017/06/17 2:57	37,4 KB
R1-1711427.zip	2017/06/17 2:57	117 KB
R1-1711428.zip	2017/06/17 2:57	62,6 KB
R1-1711429.zip	2017/06/17 2:57	55,4 KB
R1-1711430.zip	2017/06/17 2:57	172,7 KB
R1-1711431.zip	2017/06/17 2:57	103,5 KB
R1-1711432.zip	2017/06/17 2:57	202,6 KB
R1-1711433.zip	2017/06/17 3:15	108,6 KB
R1-1711434.zip	2017/06/17 3:15	106,7 KB
R1-1711435.zip	2017/06/17 3:15	253,8 KB
R1-1711436.zip	2017/06/27 15:17	421 KB
R1-1711437.zip	2017/06/27 15:17	337,3 KB
R1-1711438.zip	2017/06/20 5:18	292,7 KB
R1-1711439.zip	2017/06/20 5:18	83,7 KB
R1-1711441.zip	2017/06/18 14:26	73,1 KB
R1-1711442.zip	2017/06/20 5:17	2909,2 KB
R1-1711443.zip	2017/06/20 5:17	109,9 KB
R1-1711444.zip	2017/06/16 19:58	1347,4 KB
R1-1711445.zip	2017/06/16 19:58	149,3 KB
R1-1711446.zip	2017/06/16 19:58	157,2 KB
R1-1711447.zip	2017/06/16 19:58	44,6 KB
R1-1711448.zip	2017/06/16 19:58	46,7 KB
R1-1711449.zip	2017/06/16 19:58	330,4 KB
R1-1711450.zip	2017/06/17 1:58	44 KB
R1-1711451.zip	2017/06/17 1:59	55,5 KB
R1-1711452.zip	2017/06/17 1:59	124,2 KB
R1-1711453.zip	2017/06/16 19:58	64,1 KB
R1-1711454.zip	2017/06/17 1:59	449,9 KB
R1-1711455.zip	2017/06/16 19:58	57,6 KB
R1-1711456.zip	2017/06/16 19:58	82 KB
R1-1711457.zip	2017/06/17 1:59	101,3 KB
R1-1711458.zip	2017/06/17 1:59	62,4 KB
R1-1711459.zip	2017/06/17 1:59	137,9 KB
R1-1711460.zip	2017/06/17 2:00	44,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711461.zip	2017/06/17 2:00	660,8 KB
R1-1711462.zip	2017/06/17 2:00	117 KB
R1-1711463.zip	2017/06/17 2:00	326 KB
R1-1711464.zip	2017/06/17 2:51	111,9 KB
R1-1711465.zip	2017/06/17 2:51	408,5 KB
R1-1711466.zip	2017/06/17 2:51	595,2 KB
R1-1711467.zip	2017/06/17 2:51	115,2 KB
R1-1711468.zip	2017/06/16 13:21	93,3 KB
R1-1711469.zip	2017/06/17 2:51	31,3 KB
R1-1711470.zip	2017/06/17 2:51	136 KB
R1-1711471.zip	2017/06/16 13:21	242,6 KB
R1-1711472.zip	2017/06/16 13:21	130,7 KB
R1-1711473.zip	2017/06/16 13:21	34,3 KB
R1-1711474.zip	2017/06/16 13:21	21,6 KB
R1-1711475.zip	2017/06/16 13:21	71,9 KB
R1-1711476.zip	2017/06/17 5:59	43,2 KB
R1-1711477.zip	2017/06/17 5:59	450,1 KB
R1-1711478.zip	2017/06/17 5:59	184,4 KB
R1-1711479.zip	2017/06/17 5:59	48,1 KB
R1-1711480.zip	2017/06/17 5:59	55,7 KB
R1-1711481.zip	2017/06/17 5:59	47,1 KB
R1-1711482.zip	2017/06/17 5:59	86,1 KB
R1-1711483.zip	2017/06/17 6:05	47,5 KB
R1-1711484.zip	2017/06/17 6:05	50,7 KB
R1-1711485.zip	2017/06/17 6:05	48,7 KB
R1-1711486.zip	2017/06/17 5:59	287 KB
R1-1711487.zip	2017/06/17 5:59	407,4 KB
R1-1711488.zip	2017/06/17 5:59	596,4 KB
R1-1711489.zip	2017/06/17 5:59	119,9 KB
R1-1711490.zip	2017/06/17 5:59	222,7 KB
R1-1711491.zip	2017/06/17 5:59	326,9 KB
R1-1711492.zip	2017/06/17 5:59	27 KB
R1-1711493.zip	2017/06/17 5:59	44,9 KB
R1-1711494.zip	2017/06/17 5:59	243 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711495.zip	2017/06/17 5:59	182,3 KB
R1-1711496.zip	2017/06/17 5:59	93,1 KB
R1-1711497.zip	2017/06/17 5:59	39,6 KB
R1-1711498.zip	2017/06/17 5:59	458,8 KB
R1-1711499.zip	2017/06/17 5:59	66,5 KB
R1-1711500.zip	2017/06/17 5:59	39,8 KB
R1-1711501.zip	2017/06/17 5:59	104,3 KB
R1-1711502.zip	2017/06/17 5:59	44,5 KB
R1-1711503.zip	2017/06/17 5:59	42,4 KB
R1-1711504.zip	2017/06/17 5:59	43,3 KB
R1-1711505.zip	2017/06/17 5:59	81,8 KB
R1-1711506.zip	2017/06/17 5:59	79,1 KB
R1-1711507.zip	2017/06/17 5:59	46,5 KB
R1-1711508.zip	2017/06/17 5:59	40,1 KB
R1-1711509.zip	2017/06/17 6:00	30,2 KB
R1-1711510.zip	2017/06/17 5:59	86,4 KB
R1-1711511.zip	2017/06/17 5:59	43,9 KB
R1-1711512.zip	2017/06/17 5:59	32,8 KB
R1-1711513.zip	2017/06/17 5:59	41,1 KB
R1-1711514.zip	2017/06/17 5:59	38,9 KB
R1-1711515.zip	2017/06/17 5:59	48,4 KB
R1-1711516.zip	2017/06/17 5:59	26,6 KB
R1-1711517.zip	2017/06/17 5:59	78,6 KB
R1-1711518.zip	2017/06/17 5:59	33,2 KB
R1-1711519.zip	2017/06/17 5:59	21,3 KB
R1-1711520.zip	2017/06/17 5:59	68 KB
R1-1711521.zip	2017/06/17 5:59	66,8 KB
R1-1711522.zip	2017/06/17 5:59	66,9 KB
R1-1711523.zip	2017/06/17 5:59	165,8 KB
R1-1711524.zip	2017/06/17 5:59	68,2 KB
R1-1711525.zip	2017/06/17 5:59	67,6 KB
R1-1711526.zip	2017/06/17 5:59	16,5 KB
R1-1711527.zip	2017/06/17 3:52	108 KB
R1-1711528.zip	2017/06/16 18:49	18 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711529.zip	2017/06/16 18:50	18,6 KB
R1-1711530.zip	2017/06/16 13:39	192,3 KB
R1-1711531.zip	2017/06/16 13:39	147,3 KB
R1-1711532.zip	2017/06/19 20:30	56,1 KB
R1-1711533.zip	2017/06/19 20:30	87,8 KB
R1-1711534.zip	2017/06/19 20:30	157,9 KB
R1-1711535.zip	2017/06/19 20:30	76,7 KB
R1-1711536.zip	2017/06/19 20:30	153 KB
R1-1711537.zip	2017/06/27 15:17	232,8 KB
R1-1711538.zip	2017/06/19 20:30	537,5 KB
R1-1711539.zip	2017/06/19 20:30	149,9 KB
R1-1711540.zip	2017/06/19 20:30	135 KB
R1-1711541.zip	2017/06/25 11:52	110,2 KB
R1-1711542.zip	2017/06/19 20:30	450,5 KB
R1-1711543.zip	2017/06/19 20:30	224,3 KB
R1-1711544.zip	2017/06/19 20:30	79 KB
R1-1711545.zip	2017/06/19 20:30	78,8 KB
R1-1711546.zip	2017/06/19 20:30	126,8 KB
R1-1711547.zip	2017/06/16 13:39	116,9 KB
R1-1711548.zip	2017/06/16 13:39	167,3 KB
R1-1711549.zip	2017/06/16 16:38	36,1 KB
R1-1711550.zip	2017/06/16 17:39	54,6 KB
R1-1711551.zip	2017/06/16 14:06	53,4 KB
R1-1711552.zip	2017/06/17 5:17	69,3 KB
R1-1711553.zip	2017/06/17 5:17	149,5 KB
R1-1711554.zip	2017/06/17 5:17	185,4 KB
R1-1711555.zip	2017/06/17 5:17	99,9 KB
R1-1711556.zip	2017/06/17 5:17	233,1 KB
R1-1711557.zip	2017/06/20 6:25	132 KB
R1-1711558.zip	2017/06/17 5:26	36,5 KB
R1-1711560.zip	2017/06/16 15:22	2888,3 KB
R1-1711561.zip	2017/06/17 4:31	99,8 KB
R1-1711562.zip	2017/06/17 4:31	222,2 KB
R1-1711563.zip	2017/06/17 4:31	75,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711564.zip	2017/06/17 4:31	24,2 KB
R1-1711565.zip	2017/06/16 21:30	41,6 KB
R1-1711566.zip	2017/06/16 21:13	54,4 KB
R1-1711567.zip	2017/06/27 15:17	29,4 KB
R1-1711568.zip	2017/06/16 16:39	144,6 KB
R1-1711569.zip	2017/06/16 21:32	157,3 KB
R1-1711570.zip	2017/06/20 2:58	285,1 KB
R1-1711571.zip	2017/06/20 2:58	116,3 KB
R1-1711573.zip	2017/06/28 13:45	577,5 KB
R1-1711574.zip	2017/06/17 10:09	52,8 KB
R1-1711575.zip	2017/06/19 8:58	220,5 KB
R1-1711576.zip	2017/06/20 7:43	43,6 KB
R1-1711577.zip	2017/06/20 7:43	68,9 KB
R1-1711578.zip	2017/06/27 15:17	57,8 KB
R1-1711579.zip	2017/06/21 16:29	50,6 KB
R1-1711580.zip	2017/06/27 15:17	306,3 KB
R1-1711581.zip	2017/06/28 13:45	108,4 KB
R1-1711582.zip	2017/06/21 16:29	886,4 KB
R1-1711583.zip	2017/06/23 20:31	225,9 KB
R1-1711584.zip	2017/06/23 20:31	69,3 KB
R1-1711585.zip	2017/06/23 20:31	121,7 KB
R1-1711586.zip	2017/06/21 16:29	69,3 KB
R1-1711587.zip	2017/06/27 15:17	339,9 KB
R1-1711588.zip	2017/06/27 15:17	210,2 KB
R1-1711589.zip	2017/06/23 20:31	231,8 KB
R1-1711590.zip	2017/06/22 8:57	355,7 KB
R1-1711591.zip	2017/06/23 20:31	223,8 KB
R1-1711592.zip	2017/06/23 20:31	278,8 KB
R1-1711593.zip	2017/06/23 20:31	27,8 KB
R1-1711594.zip	2017/06/23 20:31	423,2 KB
R1-1711595.zip	2017/06/27 15:17	115,8 KB
R1-1711596.zip	2017/06/23 20:31	74,1 KB
R1-1711597.zip	2017/06/23 20:31	131,2 KB
R1-1711598.zip	2017/06/23 20:31	481,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711599.zip	2017/06/23 20:31	159,8 KB
R1-1711600.zip	2017/06/22 14:56	961,1 KB
R1-1711601.zip	2017/06/22 14:15	93,5 KB
R1-1711602.zip	2017/06/22 14:56	331 KB
R1-1711603.zip	2017/06/23 20:31	185,4 KB
R1-1711604.zip	2017/06/23 20:31	169,4 KB
R1-1711605.zip	2017/06/27 15:17	208,2 KB
R1-1711606.zip	2017/06/25 11:52	914,3 KB
R1-1711607.zip	2017/06/25 11:52	353 KB
R1-1711608.zip	2017/06/25 11:52	80,8 KB
R1-1711609.zip	2017/06/26 3:03	48,2 KB
R1-1711610.zip	2017/06/26 9:06	199,3 KB
R1-1711611.zip	2017/06/25 2:48	250 KB
R1-1711612.zip	2017/06/25 2:48	807,1 KB
R1-1711613.zip	2017/06/26 1:09	3141,2 KB
R1-1711614.zip	2017/06/24 6:59	54 KB
R1-1711615.zip	2017/06/24 6:59	3034,9 KB
R1-1711616.zip	2017/06/24 6:59	26,9 KB
R1-1711617.zip	2017/06/24 6:59	103,8 KB
R1-1711618.zip	2017/06/26 1:09	720,3 KB
R1-1711619.zip	2017/06/24 6:59	157 KB
R1-1711620.zip	2017/06/24 6:59	272,9 KB
R1-1711621.zip	2017/06/24 6:59	465,3 KB
R1-1711622.zip	2017/06/27 15:16	147,4 KB
R1-1711623.zip	2017/06/28 13:44	44,8 KB
R1-1711624.zip	2017/06/28 13:44	86,8 KB
R1-1711625.zip	2017/06/24 6:59	199,5 KB
R1-1711626.zip	2017/06/24 6:59	41,7 KB
R1-1711627.zip	2017/06/27 15:16	222,6 KB
R1-1711628.zip	2017/06/27 15:16	219,5 KB
R1-1711629.zip	2017/06/27 15:16	438 KB
R1-1711630.zip	2017/06/27 15:16	438,7 KB
R1-1711631.zip	2017/06/24 14:35	218,1 KB
R1-1711632.zip	2017/06/25 11:52	391,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711633.zip	2017/06/25 2:49	1707,8 KB
R1-1711634.zip	2017/06/25 2:49	801,7 KB
R1-1711636.zip	2017/06/25 11:52	171,7 KB
R1-1711637.zip	2017/06/25 11:52	54,3 KB
R1-1711638.zip	2017/06/25 11:52	265,1 KB
R1-1711639.zip	2017/06/27 15:16	533,8 KB
R1-1711641.zip	2017/06/27 15:16	1498,9 KB
R1-1711642.zip	2017/06/26 9:06	11,9 KB
R1-1711643.zip	2017/06/27 15:16	192,7 KB
R1-1711644.zip	2017/06/27 15:16	1004 KB
R1-1711645.zip	2017/06/27 15:15	382,7 KB
R1-1711646.zip	2017/06/27 15:16	3065,5 KB
R1-1711647.zip	2017/06/27 15:15	301,1 KB
R1-1711648.zip	2017/06/27 15:15	871,4 KB
R1-1711649.zip	2017/06/27 15:15	412,1 KB
R1-1711650.zip	2017/06/27 15:15	247,4 KB
R1-1711652.zip	2017/06/27 15:15	57,6 KB
R1-1711653.zip	2017/06/27 15:15	111,4 KB
R1-1711654.zip	2017/06/27 15:15	203,4 KB
R1-1711655.zip	2017/06/27 15:15	562,6 KB
R1-1711657.zip	2017/07/01 0:57	15,1 KB
R1-1711658.zip	2017/06/27 15:15	163,9 KB
R1-1711659.zip	2017/06/27 15:15	205,1 KB
R1-1711660.zip	2017/06/28 13:44	66,2 KB
R1-1711661.zip	2017/06/27 15:14	63,5 KB
R1-1711662.zip	2017/06/28 13:44	52,6 KB
R1-1711664.zip	2017/07/01 0:57	25,4 KB
R1-1711665.zip	2017/07/01 0:57	24,8 KB
R1-1711666.zip	2017/06/29 12:37	24,7 KB
R1-1711667.zip	2017/06/28 13:44	27,3 KB
R1-1711668.zip	2017/06/29 12:37	24,4 KB
R1-1711669.zip	2017/06/27 15:14	171,8 KB
R1-1711671.zip	2017/06/27 15:14	98,6 KB
R1-1711672.zip	2017/06/27 15:14	59,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711674.zip	2017/06/28 13:44	42,5 KB
R1-1711675.zip	2017/06/27 15:14	44,6 KB
R1-1711677.zip	2017/06/28 13:44	356,6 KB
R1-1711678.zip	2017/06/29 12:37	61,5 KB
R1-1711679.zip	2017/06/28 13:44	295,9 KB
R1-1711681.zip	2017/06/27 15:14	31,1 KB
R1-1711682.zip	2017/06/27 15:14	35,5 KB
R1-1711683.zip	2017/07/01 0:57	16,6 KB
R1-1711684.zip	2017/06/29 12:37	18,7 KB
R1-1711685.zip	2017/07/01 0:57	14,5 KB
R1-1711686.zip	2017/08/12 9:40	17,8 KB
R1-1711688.zip	2017/06/29 12:37	33,7 KB
R1-1711689.zip	2017/07/03 14:01	36,4 KB
R1-1711690.zip	2017/06/28 13:44	95,6 KB
R1-1711691.zip	2017/06/28 13:44	51,3 KB
R1-1711692.zip	2017/06/27 15:14	17,1 KB
R1-1711693.zip	2017/06/27 15:14	158,2 KB
R1-1711694.zip	2017/06/27 15:14	186,2 KB
R1-1711695.zip	2017/06/27 15:14	51,9 KB
R1-1711696.zip	2017/06/27 15:14	254,2 KB
R1-1711697.zip	2017/06/29 12:37	33,1 KB
R1-1711698.zip	2017/06/29 12:37	29,7 KB
R1-1711699.zip	2017/06/29 12:37	34,7 KB
R1-1711700.zip	2017/06/27 15:14	35,3 KB
R1-1711701.zip	2017/06/27 15:14	114,9 KB
R1-1711702.zip	2017/06/28 13:44	434,6 KB
R1-1711705.zip	2017/06/27 15:14	24,3 KB
R1-1711707.zip	2017/06/27 15:14	39,8 KB
R1-1711708.zip	2017/06/27 15:14	38,3 KB
R1-1711709.zip	2017/06/27 15:14	29 KB
R1-1711710.zip	2017/06/29 12:37	26,4 KB
R1-1711711.zip	2017/06/27 15:14	255,4 KB
R1-1711712.zip	2017/07/01 0:57	91 KB
R1-1711714.zip	2017/06/28 13:44	110,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711715.zip	2017/07/01 0:57	111,9 KB
R1-1711716.zip	2017/07/01 0:57	111,7 KB
R1-1711717.zip	2017/07/01 0:57	119,2 KB
R1-1711719.zip	2017/07/01 0:57	104,6 KB
R1-1711720.zip	2017/07/01 0:57	100,9 KB
R1-1711721.zip	2017/06/29 12:37	100,8 KB
R1-1711722.zip	2017/06/29 12:37	106,3 KB
R1-1711723.zip	2017/06/28 13:44	166,1 KB
R1-1711724.zip	2017/06/29 12:37	101,1 KB
R1-1711725.zip	2017/07/01 0:57	20,5 KB
R1-1711727.zip	2017/06/27 15:14	421,5 KB
R1-1711728.zip	2017/06/28 13:44	31,7 KB
R1-1711729.zip	2017/07/01 0:57	64,6 KB
R1-1711730.zip	2017/06/28 13:44	506,9 KB
R1-1711731.zip	2017/07/01 0:57	29,8 KB
R1-1711747.zip	2017/07/01 0:57	675,1 KB
R1-1711748.zip	2017/07/01 0:57	382,6 KB
R1-1711749.zip	2017/07/01 0:57	611,9 KB
R1-1711750.zip	2017/07/01 0:56	61 KB
R1-1711751.zip	2017/06/28 13:44	312,2 KB
R1-1711752.zip	2017/06/28 13:44	658,4 KB
R1-1711753.zip	2017/06/29 12:37	33,4 KB
R1-1711754.zip	2017/06/28 13:44	43,6 KB
R1-1711755.zip	2017/06/28 13:44	76,5 KB
R1-1711757.zip	2017/06/28 13:44	1305,2 KB
R1-1711758.zip	2017/07/01 0:56	18,8 KB
R1-1711759.zip	2017/06/28 13:43	53,6 KB
R1-1711760.zip	2017/07/01 0:56	76,1 KB
R1-1711761.zip	2017/06/28 13:43	47,2 KB
R1-1711762.zip	2017/06/28 13:43	49,6 KB
R1-1711763.zip	2017/06/28 13:43	45,7 KB
R1-1711764.zip	2017/06/28 13:43	139,6 KB
R1-1711765.zip	2017/06/29 12:37	44 KB
R1-1711766.zip	2017/07/01 0:56	37,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711767.zip	2017/06/29 12:37	37,1 KB
R1-1711768.zip	2017/06/28 13:43	39 KB
R1-1711769.zip	2017/07/01 0:56	133,6 KB
R1-1711770.zip	2017/06/28 13:43	107,1 KB
R1-1711771.zip	2017/06/28 13:43	106,5 KB
R1-1711772.zip	2017/06/29 12:37	130,3 KB
R1-1711773.zip	2017/06/29 12:37	33,4 KB
R1-1711774.zip	2017/06/28 13:43	81,1 KB
R1-1711775.zip	2017/06/28 13:43	59,2 KB
R1-1711776.zip	2017/07/01 0:56	39,3 KB
R1-1711777.zip	2017/07/01 0:56	37,4 KB
R1-1711778.zip	2017/06/29 12:37	68,8 KB
R1-1711779.zip	2017/06/28 13:43	23,7 KB
R1-1711780.zip	2017/06/28 13:43	25,3 KB
R1-1711781.zip	2017/06/29 12:37	311 KB
R1-1711782.zip	2017/06/28 13:43	41,4 KB
R1-1711783.zip	2017/06/28 13:43	38,6 KB
R1-1711784.zip	2017/06/29 12:37	33,5 KB
R1-1711785.zip	2017/07/01 0:56	43,5 KB
R1-1711786.zip	2017/07/01 0:56	169,5 KB
R1-1711787.zip	2017/06/29 12:36	60,4 KB
R1-1711788.zip	2017/06/28 13:43	38,8 KB
R1-1711789.zip	2017/06/28 13:43	33,3 KB
R1-1711790.zip	2017/06/28 13:43	433,5 KB
R1-1711791.zip	2017/06/29 12:36	53,5 KB
R1-1711792.zip	2017/07/01 0:56	37,5 KB
R1-1711793.zip	2017/07/01 0:56	38,7 KB
R1-1711794.zip	2017/06/29 12:36	71 KB
R1-1711795.zip	2017/06/28 13:43	40 KB
R1-1711796.zip	2017/06/28 13:43	29,5 KB
R1-1711797.zip	2017/06/29 12:36	61 KB
R1-1711798.zip	2017/06/28 13:43	54,4 KB
R1-1711799.zip	2017/06/29 12:36	60,8 KB
R1-1711800.zip	2017/06/29 12:36	37,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711801.zip	2017/06/28 13:43	47,7 KB
R1-1711802.zip	2017/06/28 13:43	31 KB
R1-1711803.zip	2017/06/28 13:43	34,6 KB
R1-1711804.zip	2017/06/28 13:43	33,2 KB
R1-1711805.zip	2017/06/28 13:43	122,1 KB
R1-1711806.zip	2017/06/28 13:43	36,4 KB
R1-1711807.zip	2017/06/28 13:43	50,7 KB
R1-1711808.zip	2017/06/28 13:43	34,9 KB
R1-1711809.zip	2017/07/01 0:56	39,6 KB
R1-1711810.zip	2017/06/28 13:43	76,8 KB
R1-1711811.zip	2017/07/01 0:56	48,8 KB
R1-1711812.zip	2017/06/29 12:36	41 KB
R1-1711813.zip	2017/06/29 12:36	39,7 KB
R1-1711814.zip	2017/06/29 12:36	42,8 KB
R1-1711815.zip	2017/06/29 12:36	41,1 KB
R1-1711816.zip	2017/06/29 12:36	107 KB
R1-1711817.zip	2017/06/29 12:36	84,7 KB
R1-1711818.zip	2017/06/29 12:36	36,9 KB
R1-1711819.zip	2017/06/29 12:36	37,4 KB
R1-1711820.zip	2017/06/29 12:35	10,3 KB
R1-1711822.zip	2017/06/29 12:36	2019,3 KB
R1-1711823.zip	2017/07/03 14:01	369,9 KB
R1-1711824.zip	2017/06/28 13:43	23,4 KB
R1-1711825.zip	2017/06/28 13:43	63,7 KB
R1-1711827.zip	2017/06/29 12:35	86,6 KB
R1-1711828.zip	2017/06/29 12:35	32,4 KB
R1-1711829.zip	2017/06/28 13:43	51,2 KB
R1-1711830.zip	2017/06/29 12:35	41,3 KB
R1-1711831.zip	2017/06/29 12:35	38 KB
R1-1711832.zip	2017/06/29 12:35	35,3 KB
R1-1711833.zip	2017/06/29 12:35	35,3 KB
R1-1711834.zip	2017/06/28 13:43	31,8 KB
R1-1711835.zip	2017/06/28 13:42	30,5 KB
R1-1711836.zip	2017/07/01 0:56	48,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711837.zip	2017/06/29 12:35	76,6 KB
R1-1711838.zip	2017/07/01 0:56	36 KB
R1-1711839.zip	2017/06/28 13:42	23,5 KB
R1-1711840.zip	2017/07/01 0:56	28,6 KB
R1-1711841.zip	2017/07/01 0:56	32,6 KB
R1-1711842.zip	2017/06/29 12:35	47,3 KB
R1-1711843.zip	2017/06/29 12:35	58,6 KB
R1-1711844.zip	2017/06/29 12:35	97 KB
R1-1711845.zip	2017/07/01 0:56	52,8 KB
R1-1711846.zip	2017/07/01 0:56	43,5 KB
R1-1711847.zip	2017/07/01 0:56	42,1 KB
R1-1711848.zip	2017/06/29 12:35	26,3 KB
R1-1711849.zip	2017/06/29 12:35	86,9 KB
R1-1711850.zip	2017/06/29 12:35	37,9 KB
R1-1711851.zip	2017/06/29 12:35	40 KB
R1-1711852.zip	2017/07/01 0:56	44,5 KB
R1-1711853.zip	2017/06/29 12:35	27,5 KB
R1-1711854.zip	2017/06/29 12:35	123 KB
R1-1711855.zip	2017/06/29 12:35	35,4 KB
R1-1711856.zip	2017/06/29 12:35	130,3 KB
R1-1711857.zip	2017/06/29 12:35	51,2 KB
R1-1711858.zip	2017/06/29 12:35	35,9 KB
R1-1711859.zip	2017/06/29 12:35	35,9 KB
R1-1711860.zip	2017/06/29 12:35	203,5 KB
R1-1711861.zip	2017/06/29 12:34	35,7 KB
R1-1711862.zip	2017/06/29 12:34	34,2 KB
R1-1711863.zip	2017/06/29 12:34	31,2 KB
R1-1711864.zip	2017/06/29 12:34	36,2 KB
R1-1711865.zip	2017/06/29 12:34	34,5 KB
R1-1711866.zip	2017/06/29 12:34	51,9 KB
R1-1711868.zip	2017/06/29 12:34	61,4 KB
R1-1711869.zip	2017/07/01 0:56	34,5 KB
R1-1711870.zip	2017/07/01 0:56	41,3 KB
R1-1711871.zip	2017/06/29 12:34	37,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711872.zip	2017/06/29 12:34	29,3 KB
R1-1711873.zip	2017/06/29 12:34	38,9 KB
R1-1711874.zip	2017/07/01 0:56	36,2 KB
R1-1711875.zip	2017/06/29 12:34	45,3 KB
R1-1711876.zip	2017/06/29 12:34	53,5 KB
R1-1711877.zip	2017/06/29 12:34	16,5 KB
R1-1711878.zip	2017/06/29 12:34	16,4 KB
R1-1711879.zip	2017/06/29 12:34	19 KB
R1-1711880.zip	2017/06/29 12:34	18 KB
R1-1711881.zip	2017/07/01 0:56	42,5 KB
R1-1711883.zip	2017/06/29 12:34	40,4 KB
R1-1711884.zip	2017/07/01 0:56	35,2 KB
R1-1711885.zip	2017/06/29 12:34	128 KB
R1-1711886.zip	2017/07/01 0:56	482,9 KB
R1-1711887.zip	2017/07/01 0:56	39,1 KB
R1-1711888.zip	2017/06/29 12:34	174,8 KB
R1-1711889.zip	2017/06/29 12:34	37,3 KB
R1-1711890.zip	2017/07/01 0:56	52,3 KB
R1-1711891.zip	2017/06/29 12:34	41,3 KB
R1-1711892.zip	2017/06/29 12:34	13,8 KB
R1-1711893.zip	2017/06/29 12:34	27,1 KB
R1-1711894.zip	2017/06/29 12:34	70,6 KB
R1-1711895.zip	2017/06/29 12:34	72 KB
R1-1711896.zip	2017/07/01 0:56	38,4 KB
R1-1711897.zip	2017/07/01 0:55	57,7 KB
R1-1711898.zip	2017/06/29 12:34	16,3 KB
R1-1711899.zip	2017/06/29 12:34	69,2 KB
R1-1711900.zip	2017/06/29 12:33	45,7 KB
R1-1711901.zip	2017/06/29 12:33	42,9 KB
R1-1711902.zip	2017/06/29 12:33	44 KB
R1-1711903.zip	2017/07/01 0:55	47,7 KB
R1-1711904.zip	2017/07/01 0:55	125 KB
R1-1711905.zip	2017/07/01 0:55	61,6 KB
R1-1711906.zip	2017/06/29 12:33	135,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711907.zip	2017/07/01 0:55	23,4 KB
R1-1711908.zip	2017/07/01 0:55	27 KB
R1-1711909.zip	2017/07/01 0:55	17,1 KB
R1-1711910.zip	2017/06/29 12:33	16 KB
R1-1711911.zip	2017/06/29 12:33	369,7 KB
R1-1711912.zip	2017/06/29 12:33	31,7 KB
R1-1711913.zip	2017/06/29 12:33	34,3 KB
R1-1711914.zip	2017/06/29 12:33	231,5 KB
R1-1711915.zip	2017/07/01 0:55	125,9 KB
R1-1711916.zip	2017/07/01 0:55	191,9 KB
R1-1711917.zip	2017/07/01 0:55	211 KB
R1-1711918.zip	2017/06/29 12:33	154,4 KB
R1-1711919.zip	2017/06/29 12:33	140,6 KB
R1-1711920.zip	2017/06/29 12:33	34,7 KB
R1-1711921.zip	2017/07/01 0:55	45,1 KB
R1-1711922.zip	2017/06/29 12:33	38,7 KB
R1-1711923.zip	2017/06/29 12:33	37,9 KB
R1-1711924.zip	2017/07/01 0:55	54,4 KB
R1-1711926.zip	2017/06/29 12:33	39,6 KB
R1-1711927.zip	2017/07/01 0:55	60,1 KB
R1-1711928.zip	2017/07/01 0:55	71,1 KB
R1-1711929.zip	2017/07/03 14:01	27 KB
R1-1711930.zip	2017/07/01 0:55	47 KB
R1-1711931.zip	2017/07/01 0:55	17,4 KB
R1-1711932.zip	2017/07/01 0:55	40 KB
R1-1711933.zip	2017/07/01 0:55	28,9 KB
R1-1711934.zip	2017/07/01 0:55	28,7 KB
R1-1711935.zip	2017/07/01 0:55	62,5 KB
R1-1711936.zip	2017/06/29 12:33	31,8 KB
R1-1711939.zip	2017/07/01 0:55	42,1 KB
R1-1711940.zip	2017/07/01 0:55	11,3 KB
R1-1711941.zip	2017/07/01 0:54	30,6 KB
R1-1711942.zip	2017/07/01 0:54	43,5 KB
R1-1711943.zip	2017/07/01 0:54	33 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711944.zip	2017/07/01 0:54	113,1 KB
R1-1711945.zip	2017/07/01 0:54	29,1 KB
R1-1711946.zip	2017/07/01 0:54	56,5 KB
R1-1711947.zip	2017/07/01 0:54	154,2 KB
R1-1711948.zip	2017/07/01 0:54	58,1 KB
R1-1711949.zip	2017/07/01 0:54	18,2 KB
R1-1711950.zip	2017/07/01 0:54	16 KB
R1-1711951.zip	2017/07/01 0:54	77,9 KB
R1-1711952.zip	2017/07/01 0:54	131,5 KB
R1-1711956.zip	2017/07/01 0:54	32 KB
R1-1711957.zip	2017/07/01 0:54	59,1 KB
R1-1711958.zip	2017/07/01 0:54	41,2 KB
R1-1711959.zip	2017/07/01 0:54	30,5 KB
R1-1711960.zip	2017/07/01 0:54	24,8 KB
R1-1711962.zip	2017/07/01 0:54	170,8 KB
R1-1711963.zip	2017/07/01 0:54	699,8 KB
R1-1711964.zip	2017/07/01 0:54	646,5 KB
R1-1711965.zip	2017/07/01 0:54	41 KB
R1-1711966.zip	2017/07/01 0:54	23,1 KB
R1-1711967.zip	2017/07/01 0:54	153,7 KB
R1-1711968.zip	2017/07/01 0:54	21,9 KB
R1-1711969.zip	2017/07/01 0:54	43,3 KB
R1-1711970.zip	2017/07/01 0:54	75,7 KB
R1-1711971.zip	2017/07/01 0:54	102 KB
R1-1711972.zip	2017/07/01 0:54	17,9 KB
R1-1711973.zip	2017/07/01 0:53	38,1 KB
R1-1711974.zip	2017/07/01 0:53	54,8 KB
R1-1711975.zip	2017/07/01 0:53	12,5 KB
R1-1711976.zip	2017/07/01 0:53	32,1 KB
R1-1711978.zip	2017/07/01 0:53	1061,3 KB
R1-1711980.zip	2017/07/01 0:53	53,1 KB
R1-1711981.zip	2017/07/01 0:53	344,7 KB
R1-1711982.zip	2017/07/01 0:53	186,8 KB
R1-1711983.zip	2017/07/01 0:53	130 KB

sort by name/desc	sort by date/desc	sort by size/desc
R1-1711984.zip	2017/07/01 0:53	22,6 KB
R1-1711985.zip	2017/07/01 0:53	265,5 KB
R1-1711986.zip	2017/07/01 0:53	102,2 KB
R1-1711987.zip	2017/07/01 0:53	22 KB
R1-1711988.zip	2017/07/01 0:53	43 KB
R1-1711989.zip	2017/07/01 0:53	58,6 KB
R1-1711990.zip	2017/07/01 0:53	31 KB
R1-1711991.zip	2017/07/01 0:53	39 KB
R1-1711992.zip	2017/07/01 0:53	18,3 KB
R1-1711993.zip	2017/07/01 0:53	50,5 KB
R1-1711994.zip	2017/07/01 0:53	32,5 KB
R1-1711995.zip	2017/07/01 0:53	31,3 KB
R1-1711996.zip	2017/07/01 0:53	162,6 KB
R1-1711997.zip	2017/07/01 0:53	14,9 KB
R1-1711998.zip	2017/08/12 9:38	18,3 KB
R1-1711999.zip	2017/07/01 0:53	16,2 KB
R1-1712000.zip	2017/07/01 0:53	10,2 KB
R1-1712001.zip	2017/07/01 0:53	22,6 KB
R1-1712002.zip	2017/07/01 0:53	265,4 KB
R1-1712003.zip	2017/07/01 0:53	270,6 KB
R1-1712004.zip	2017/07/01 17:35	465,4 KB
R1-1712005.zip	2017/07/01 0:52	16,3 KB
R1-1712006.zip	2017/07/01 0:52	51,1 KB
R1-1712007.zip	2017/08/12 9:30	17,3 KB
R1-1712008.zip	2017/08/12 9:34	15,5 KB
R1-1712009.zip	2017/08/12 9:34	289,5 KB
R1-1712010.zip	2017/08/12 9:34	13,4 KB
R1-1712011.zip	2017/08/12 9:37	727,7 KB
R1-1712012.zip	2017/08/12 9:36	151,7 KB
R1-1712013.zip	2017/08/12 9:36	45,1 KB
R1-1712014.zip	2017/08/12 9:36	221,5 KB
R1-1712015.zip	2017/08/12 9:36	62,7 KB
R1-1712016.zip	2017/08/12 9:36	299,5 KB
R1-1712017.zip	2017/08/12 9:36	39,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
TDoc_List_Meeting_RAN1-NR#2.xlsm	2017/09/04 9:17	457 KB
TDoc_List_Meeting_RAN1-NR#2.xlsx	2022/01/10 16:43	454,7 KB
TDoc_List_Meeting_RAN1-NR#2.zip	2018/01/10 16:45	794,9 KB

2070 items.

APPENDIX 33

3GPP_TSG_RAN_WG1 Archives

July 2017, Week 1

3GPP_TSG_RAN_WG1@LIST.ETSI.ORG

Options: Use Monospaced Font
Show Text Part by Default
Show All Mail Headers

Message: [<< First] [< Prev] [Next >] [Last >>]
Topic: [<< First] [< Prev] [Next >] [Last >>]
Author: [<< First] [< Prev] [Next >] [Last >>]

Subject: [RAN1#AH_NR2]: Preliminary report from Qingdao
From: Patrick Merias <[log in to unmask]>
Reply To: Patrick Merias <[log in to unmask]>
Date: Mon, 3 Jul 2017 14:06:47 +0000
Content-Type: multipart/mixed
Parts/Attachments: text/plain (789 bytes) , text/html (4 kB) ,
Draft_Minutes_report_RAN1#AH_NR2_v010.zip (823 kB)

Dear all,

Hope you all had a safe journey back…
Enclosed is a preliminary version of last week meeting.
Contributions have been uploaded to the 3GPP ftp web site – I'm going now to start checking them all and report the actual status into 3GU Tdoc_list
BR
P

Patrick Merias– Mobile Competence Center Technical Officer
ETSI • www.etsi.org • [log in to unmask]
Phone: +33 (0)4 92 94 42 06 • Mobile: +33 (0)6 07 59 08 47
This email may contain confidential information and is intended for the use of the addressee only. Any unauthorized use may be unlawful. If you receive this email by mistake, please advise the sender immediately by using the reply facility in your email software.

ATOM RSS1 RSS2

APPENDIX 34

3GPP TSG RAN WG1 Meeting #90 **R1-171xxxx**
Prague, Czech Rep, 21st – 25th August 2017

Source: **MCC Support**

Title: **Draft Report of 3GPP TSG RAN WG1 #AH_NR2 v0.1.0 (Qingdao, China, 27th – 30th June 2017)**

Document for: **Comments**



Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1496 of 1750

3GPP TSG RAN WG1 Meeting #90 **R1-171xxxx**
Prague, Czech Rep, 21st – 25th August 2017

Table of contents

1 OPENING OF THE MEETING 6

1.1 CALL FOR IPR 6
1.2 COMPETITION LAW STATEMENT 6
1.3 NETWORK USAGE CONDITIONS 6

2 APPROVAL OF AGENDA 6

3 APPROVAL OF MINUTES FROM PREVIOUS MEETINGS 7

4 INCOMING LIAISON STATEMENTS 7

5 NR 9

5.1 NEW RADIO ACCESS TECHNOLOGY - WID IN RP-171485 9
5.1.1 Initial access and mobility 11
5.1.1.1 Synchronization signal and initial access procedure 11
5.1.1.1.1 Remaining details on SS sequence design 11
5.1.1.1.2 SS burst set composition 13
5.1.1.1.3 Timing indication based on SS block 16
5.1.1.1.4 Remaining details on multiple SS block transmissions in wideband CC 19
5.1.1.2 Broadcast signal/channel 19
5.1.1.2.1 NR-PBCH contents and payload size 19
5.1.1.2.2 NR-PBCH RE mapping and SS block composition 19
5.1.1.2.3 Sequence design of DMRS for NR-PBCH 20
5.1.1.2.4 Remaining minimum system information delivery 21
5.1.1.2.5 Other system information delivery 21
5.1.1.3 Paging design 22
5.1.1.4 Physical random access channel and random access procedure 22
5.1.1.4.1 PRACH preamble format details for long/short sequence length 22
5.1.1.4.2 PRACH preamble format details for capacity enhancement and beam management 23
5.1.1.4.3 Power ramping and power control during RA procedure 25
5.1.1.4.4 4-step RA procedure 25
5.1.1.5 Mobility procedure 27
5.1.1.5.1 Measurement based on SS block 27
5.1.1.5.2 Measurement based on CSI-RS for L3 mobility 28
5.1.1.5.3 Radio link monitoring 30
5.1.1.6 Other 31
5.1.2 MIMO 31
5.1.2.1 Multi-antenna scheme 32
1.1.1.1.1 Codeword mapping ..... Error! Bookmark not defined.
1.1.1.1.2 Codebook based transmission for UL ..... Error! Bookmark not defined.
1.1.1.1.3 Non-codebook based transmission for UL ..... Error! Bookmark not defined.
1.1.1.1.4 Diversity transmission for UL ..... Error! Bookmark not defined.
1.1.1.1.5 PRB bundling for DL ..... Error! Bookmark not defined.
1.1.1.1.6 Multi-TRP and Multi-panel transmission ..... Error! Bookmark not defined.
1.1.1.1.7 Rate matching ..... Error! Bookmark not defined.
1.1.1.1.8 Other ..... Error! Bookmark not defined.
1.1.1.2 Beam management ..... Error! Bookmark not defined.
1.1.1.2.1 Beam management details ..... Error! Bookmark not defined.
1.1.1.2.2 Mechanism to recover from beam failure ..... Error! Bookmark not defined.
1.1.1.2.3 Other ..... Error! Bookmark not defined.
1.1.1.3 CSI acquisition ..... Error! Bookmark not defined.
1.1.1.3.1 CSI framework ..... Error! Bookmark not defined.
1.1.1.3.2 Details of CSI acquisition ..... Error! Bookmark not defined.
1.1.1.3.3 CSI acquisition for reciprocity based operation ..... Error! Bookmark not defined.
1.1.1.3.4 CSI feedback ..... Error! Bookmark not defined.
1.1.1.3.5 Other ..... Error! Bookmark not defined.
1.1.1.4 Reference signals and QCL ..... Error! Bookmark not defined.
1.1.1.4.1 Multiplexing of different types of RSs ..... Error! Bookmark not defined.
1.1.1.4.2 CSI-RS ..... Error! Bookmark not defined.
1.1.1.4.3 DMRS ..... Error! Bookmark not defined.
1.1.1.4.4 PT-RS ..... Error! Bookmark not defined.
1.1.1.4.5 SRS ..... Error! Bookmark not defined.
1.1.1.4.6 TRS ..... Error! Bookmark not defined.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1497 of 1750

1.1.1.4.7 QCL ..... **Error! Bookmark not defined.**
1.1.1.4.8 Other ..... **Error! Bookmark not defined.**
1.1.1.5 Other ..... **Error! Bookmark not defined.**
5.1.3 Scheduling/HARQ aspects *32*
5.1.3.1 Physical downlink control channel 52
5.1.3.1.1 PDCCH structure 52
5.1.3.1.2 Search space 54
5.1.3.1.3 Resource sharing between PDCCH and PDSCH 56
5.1.3.1.4 Group-common PDCCH 56
5.1.3.1.5 Ultra-reliable part of URLLC for DL control 58
5.1.3.1.6 Other 59
5.1.3.2 Physical uplink control channel 59
5.1.3.2.1 PUCCH in short-duration 59
5.1.3.2.2 PUCCH in long-duration 60
5.1.3.2.3 Transmit diversity for PUCCH 62
5.1.3.2.4 Resource allocation for PUCCH 63
5.1.3.2.5 UCI multiplexing 63
5.1.3.2.6 Ultra-reliable part of URLLC for UL control 64
5.1.3.2.7 Other 64
5.1.3.3 DL/UL data scheduling and HARQ procedure 64
5.1.3.3.1 DL/UL resource allocation 65
5.1.3.3.2 UL data transmission procedure with grant 67
5.1.3.3.3 UL data transmission procedure without grant 67
5.1.3.3.4 CBG-based (re)transmission 70
5.1.3.3.5 HARQ-ACK feedback 72
5.1.3.3.6 Processing time and HARQ process number 72
5.1.3.3.7 Multiplexing data with different transmission durations 73
5.1.3.3.8 Ultra-reliable part of URLLC for scheduling/HARQ procedure 75
5.1.3.3.9 Other 75
5.1.3.4 Scheduling/HARQ aspects for carrier aggregation and dual connectivity 75
5.1.3.4.1 Carrier aggregation 75
5.1.3.4.2 Dual connectivity 76
5.1.4 Channel coding *77*
1.1.1.6 LDPC code ..... **Error! Bookmark not defined.**
1.1.1.6.1 Coding chain ..... **Error! Bookmark not defined.**
1.1.1.6.2 LDPC code design ..... **Error! Bookmark not defined.**
1.1.1.7 Polar code ..... **Error! Bookmark not defined.**
1.1.1.7.1 Code construction ..... **Error! Bookmark not defined.**
1.1.1.7.2 Sequence design ..... **Error! Bookmark not defined.**
1.1.1.7.3 Other ..... **Error! Bookmark not defined.**
1.1.1.8 PBCH ..... **Error! Bookmark not defined.**
1.1.1.9 Other ..... **Error! Bookmark not defined.**
5.1.5 Modulation *77*
5.1.6 Duplexing *87*
1.1.1.10 Cross-link interference management ..... **Error! Bookmark not defined.**
1.1.1.11 Other ..... **Error! Bookmark not defined.**
5.1.7 Wider bandwidth operations *88*
5.1.8 NR-LTE co-existence *91*
5.1.9 UL power control *93*
1.1.1.12 Power sharing mechanism ..... **Error! Bookmark not defined.**
1.1.1.13 NR power control framework ..... **Error! Bookmark not defined.**
5.1.10 Channel model *93*
5.1.11 Other *94*
5.2 OTHER 95
6 CLOSING OF THE MEETING **95**
ANNEX A: LIST OF TDOCS AT RAN1 #AH_NR2 ..... **96**
ANNEX B: LIST OF CRS AGREED AT RAN1 #AH_NR2 ..... **97**
ANNEX C-1: LIST OF OUTGOING LSS FROM RAN1 #AH_NR2 ..... **98**
ANNEX C-2: LIST OF INCOMING LSS FROM RAN1 #AH_NR2 ..... **99**
ANNEX D: LIST OF APPROVED UPDATED WIDS **100**
ANNEX E: LIST OF DRAFT TSS/TRS AGREED AT RAN1 #AH_NR2 ..... **101**

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1498 of 1750

ANNEX F: LIST OF ACTIONS **102**
ANNEX G: LIST OF PARTICIPANTS AT RAN1 #AH_NR2 ..... **104**
ANNEX H: TSG RAN WG1 MEETINGS IN 2017 – 2018 ..... **105**

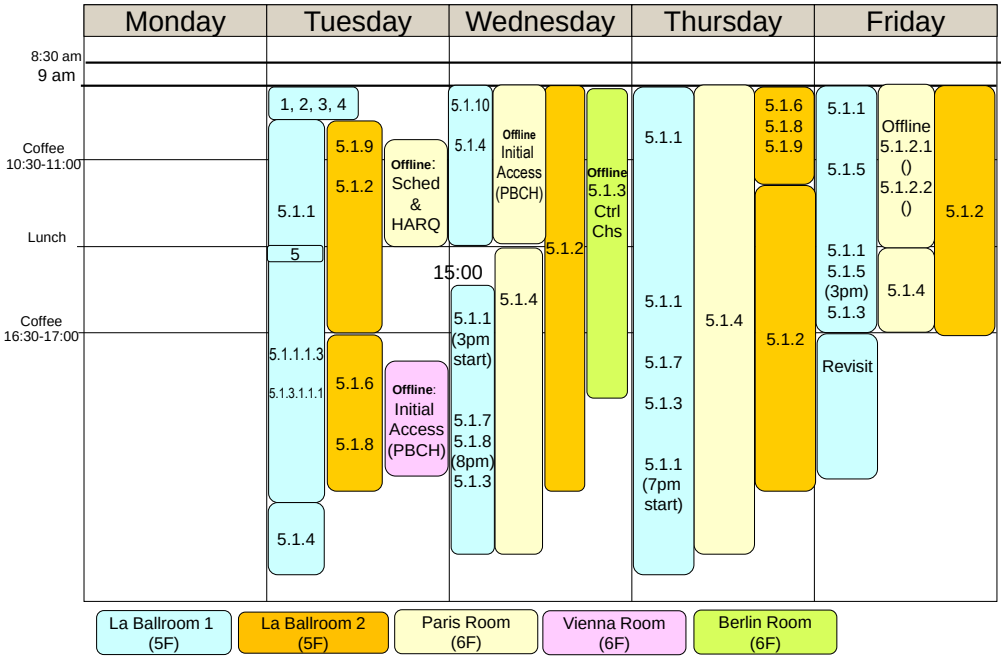
Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1499 of 1750

3GPP TSG RAN WG1 Meeting #90 **R1-171xxxx**
Prague, Czech Rep, 21st – 25th August 2017

Main facts summary

The second 3GPP TSG WG RAN1 ad-hoc meeting on NR, hosted by ZTE Corporation, was held at the Meridien Qingdao, China.
The meeting started at 9:00 on Tuesday 27th June and finished at 20:15 on Friday 30th June 2017.
The number of attending delegates, having confirmed their participation through the electronic check-in application, was **394.**
Note that the number of registered was 557.

The schedule of the week was as follows:



Note: The empty slots are devoted to offline sessions.

The list of action points that required RAN1 close follow-up is listed in Annex F (end of document).

The number of contributions for this meeting was xxxx, and those documents were categorized as followed.

Agenda Item	Input Document	Treated Document
All		

Note: The amount of documents includes those discussed during the email discussion session post meeting.

	Contribution is agreed/approved
	Contribution is not pursued (no consensus)
	Further discussion is required – come-back needed
	Working assumption
	Specific action needed from MCC
	Contribution is for email discussion/approval

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1500 of 1750

3GPP TSG RAN WG1 Meeting #90 **R1-171xxxx**
Prague, Czech Rep, 21st – 25th August 2017

1 Opening of the meeting

Mr Matthew Baker (Vice Chairman) welcomed the participants of the RAN WG1 ad-hoc meeting and opened the meeting at 09:00.
Mr Xinhui Wang on behalf of ZTE welcomed the delegates, and detailed the domestic arrangements for the full week.

1.1 Call for IPR

The attention of the members of this Technical Specification Group was drawn to the fact ***that 3GPP Individual Members have the obligation*** *under the IPR Policies of their respective Organizational Partners to* ***inform their respective*** *Organizational Partners* ***of Essential IPRs they become aware of****.*
The members take note that they are hereby invited:

- *to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.*
- *to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Information Statement and the Licensing declaration forms (e.g. see the ETSI IPR forms http://webapp.etsi.org/Ipr/).*

1.2 Competition law statement

The Chairman also drew Member's attention to the fact that 3GPP activities are subject to antitrust and competition laws and that compliance with said laws is therefore required of any participant of this WG meeting including the Chairman and Vice Chairmen.
In case of question, please contact your legal counsel.
The present meeting will be conducted with strict impartiality and in the interests of 3GPP.
Furthermore, the Chairman reminded Members that timely submission of work items/contributions in advance of WG meetings is important to allow for full and fair consideration of such matters.

1.3 Network usage conditions

The PCG has laid down the following network usage conditions:

Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws.

Users shall not engage in non-work related activities that consume excessive bandwidth or cause significant degradation of the performance of the network.
Since the **network is a shared resource**, users should exercise some basic etiquette when using the 3GPP network at a meeting. It is understood that high bandwidth applications such as downloading large files or video streaming might be required for business purposes, but delegates should be strongly discouraged in performing these activities for personal use. Downloading a movie or doing something in an interactive environment for personal use essentially wastes bandwidth that others need to make the meeting effective. The meeting chairman should remind end users that the network is a shared resource; the more one user grabs, the less there is for another. Email and its attachments already take up significant bandwidth (certain email programs are not very bandwidth efficient). In case of need the chair can ask the delegates to restrict IT usage to things that are essential for the meeting itself.

1. DON'T place your WiFi device in ad-hoc mode
2. DON'T set up a personal hotspot in the meeting room
3. DO try 802.11a if your WiFi device supports it
4. DON'T manually allocate an IP address
5. DON'T be a bandwidth hog by streaming video, playing online games, or downloading huge files
6. DON'T use packet probing software which clogs the local network (e.g., packet sniffers or port scanners)

2 Approval of Agenda

R1-1711601 **Draft Agenda of RAN1#AH_NR2 meetingRAN1 Chair**
Matthew Baker (Vice Chairman) proposed the agenda for the meeting, as well the schedule of the week.
Decision: The agenda is approved.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1501 of 1750

3 Approval of Minutes from previous meetings

R1-1709881 Report of RAN1#89 meeting ETSI
The document was presented by Patrick Merias from MCC (ETSI Mobile Competence Center) and provides a draft of the report from last RAN1#89 meeting in Hangzhou.
Discussion: MCC recalled that the report is a draft for information, with focus on the NR part – final report will be presented for approval at the next ordinary meeting (RAN1#90).
Decision: The document is approved.

R1-1711586 Selected highlights from RAN#76 of relevance to RAN1 RAN1 Chair
The document (slide 3 relevant to NR) was presented by Matthew Baker (Vice Chairman) on behalf of RAN1 Chair and provides highlights relevant to RAN1 from the last plenary.
Discussion: Confirmation of one additional ad-hoc meeting in January 2018.
Panasonic understanding is that RAN1 works for eMBB low latency (December 2017), no need to work the solution satisfying URLLC at this meeting
Ericsson: the low latency part should be specified until December, independently of use cases (eMMB or URLLC). No need to limit our work to eMBB use case only for December. If clarification needed, should be a RAN discussion/decision
Decision: The document is noted.

4 Incoming Liaison Statements

NR Rel-15
R1-1710211 LS on SR design principles in NR RAN2, Samsung
The document was presented by … from Samsung and informs RAN1 of RAN2 most recent agreements on SR design principles for NR. RAN2 would like to inform RAN1 that it does not see the need for multi-bit SR support and ask RAN1 to take all this information into account in its own work on SR design.
Decision: The document is noted.

R1-1710212 LS on UE measurement capabilities across LTE and NR RAN2, NTT DOCOMO
The document was presented by Hiroki Harada from NTT DOCOMO and asks RAN4 to investigate the UE measurement capabilities and answer the 5 questions listed in the LS.
Discussion: No action to RAN1.
Decision: The document is noted.

R1-1710215 Response LS on reading time index indication for RRM measurements RAN2, Intel
The document was presented by Daewon Lee from Intel and is a reply to R1-1706707:

- From RAN2 point of view, the UE should be able to perform beam/cell measurement and identification quickly and reliably with minimal need for measurement gaps. Therefore, if there is considerable delay due to reading the time index from PBCH, RAN2 observes that this may impact handover performance and UE power consumption. RAN2 would like to ask RAN1 to consider the above information in RAN1 design.
- In addition, RAN2 would like to ask RAN1 if the time index indication needs to be acquired by the UE for every measurement sample and if the UE also need to acquire the time index indication in the idle/inactive mode.

Discussion: Suggested reply in R1-1710500.
Decision: The document is noted.

R1-1710500 Draft Reply LS on reading time index indication for RRM measurements Intel Corporation
The document was presented by Daewon Lee from Intel and is a reply to R2-1706160 (R1-1710215).

- For UEs in CONNECTED mode, UE may be able to infer the SS block time index indication for detected NR PSS/SSS of neighbour cell, if the UE has successfully retrieve the SS block time index of any SS block from the neighbour cell. However, depending of network deployment scenario, configured SS burst set periodicity, and mobility situation of the UE, the UE may need to re-retrieve the SS block time index of neighbour cells time to time and possibly in every few measurement samples when SS burst set periodicity is configured to be very long (e.g. 160 msec). The frequency and instances in which the UE is required to read the SS block time index of the detected SS block is implementation specific. In case of inter-frequency RRM measurements, UE may be required to read the SS block time index within the measurement gap at least once.
- For UEs in IDLE/INACTIVE mode, UEs may not necessarily need the SS block time index for the cell re-selection process. UEs will be able to uniquely identify whether two SS blocks from a cell are from the same beam or not by interval between the two SS blocks. If the SS blocks are separately by integer multiple of the configured SS burst set periodicity, the two SS blocks are from the same beam. Otherwise, they are from different beam. Given that the UE is able to uniquely identify SS blocks (although it may not have the SS block time index information), it can perform per beam filtering of the measurements and ultimately derive the cell level quality. It should be noted that when the UE needs to camp on a cell, it will be required to successfully read the SS block time index information (as well as SFN in NR PBCH) to derive the slot and radio frame boundaries.

Decision: The document is noted. To be treated under 5.1.1.1.3 for the preparation of the final answer.
Friday:
R1-1711907 [DRAFT] Reply LS response on reading time index indication for RRM measurements Intel
Decision: The document is noted and final LS is approved in R1-1711966.

R1-1710216 LS on Emergency Support in NR SA2, Nokia
The document was presented by Karri Ranta-aho from Nokia and asks RAN to clarify and confirm the support for emergency services including regulatory requirements in NR for Rel-15.
Discussion: No action to RAN1.
Decision: The document is noted.

R1-1710220 Reply LS on Emergency Support in NR RAN, T-Mobile
The document was presented by Scott Migaldi from T-Mobile and is the reply to R1-1710216.

- RAN confirms that support for Emergency Services and the corresponding support for Location Services is included in the scope for release 15 work. Support for Emergency Services and the corresponding support for Location Services will be specified by June 2018, and will be applicable for both a non-standalone NR UE that is supported with a LTE PCell and for a standalone NR UE. This work will not delay the previously approved December 2017 completion goal deadline for non-standalone NR.
- The regulatory performance targets in any radio access technology are specified in the US by the FCC as shown below:

FCC BENCHMARK	ACCURACY REQUIREMENT
APRIL 2017	40% of all 911 Calls <= 50m
APRIL 2018	50% of all 911 Calls <= 50m
APRIL 2020	70% of all 911 Calls <= 50m
APRIL 2021	80% of all 911 Calls <= 50m

Decision: The document is noted.

R1-1710217 LS on Support for fake gNB detection mechanisms SA3, Nokia
The document was presented by Karri Ranta-aho from Nokia.
Discussion: .Nokia suggested RAN1 looking at questions 4 and 5.
T-Mobile → make sure our reply won't have impact to roaming
Decision: The document is noted. Draft a reply in R1-1711657 – (Nokia)
Friday:
R1-1711657 [DRAFT] Response LS on Support for fake gNB detection mechanisms Nokia
Decision: The document is noted and final LS is approved in R1-1711997.

R1-1710213 LS on UE categories for NR and LTE-NR Dual Connectivity RAN2, NTT DOCOMO
The document was presented by Fred Takeda from NTT DOCOMO and asks RAN1 to provide input for Layer 1 parameter set today associated with UE category for LTE-NR DC and the NR standalone operation.
Decision: The document is noted.

R1-1710221 Reply LS on UE categories for NR and LTE-NR Dual Connectivity RAN, NTT DOCOMO
The document was presented by Fred Takeda from NTT DOCOMO and is a preliminary reply to R1-1710213.
Regrarding item 1) The necessity of UE categories for UE in the LTE-NR DC (Opt. 3/4/7) as well as the NR standalone (Opt. 2)
RAN foresees industrial demand that LTE-NR DC (Option 3/4/7 series) enables operators to provide a certain peak data rate, as well as the NR standalone (Option 2). RAN would like to let RAN WGs to decide how the target peak data rate can be supported for LTE-NR DC and NR standalone in the specifications, e.g. whether the existing concept of UE category is inherited or a new concept in defining the target peak data rate is introduced. RAN sees that it is important that practical UE constraints are also taken into account in the UE capabilities and categories e.g. UE constraints due to hardware sharing during LTE – NR DC operations. It is also up to RAN WGs how the UE categories and capabilities are defined for LTE-NR DC as well as NR standalone.

Regarding item 2) The target peak data rate in DL and UL to be supported for Option 3 until December 2017 and item 3) The target peak data rate in DL and UL to be supported for the other options until June 2018.
RAN will discuss these items by email until TSG-RAN #77 and aim to decide the target value(s) at the #77 meeting.
Decision: The document is noted.

R1-1710214 LS reply to SA2 on maximum data rate RAN2, MediaTek
The document was presented by … from MediaTek and inform RAN1 of RAN2's conclusion that Options 3 also targets the same maximum data rate as NR SA, i.e. 20Gbps for downlink and 10Gbps for uplink per UE.
Decision: The document is noted.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1503 of 1750

R1-1711055 Initial views on UE category NTT DOCOMO, INC.
The document was presented by Fred Takeda from NTT DOCOMO.
Proposal 1: Define UE category based on the maximum number of DL/UL-SCH transport block bits transmitted/received within a fixed/reference time duration (e.g., 1ms).
- Difference in subcarrier-spacing is not visible in the UE category.
- FFS: different capabilities of MIMO/MCS results in different UE categories or in the same UE category with different values on some parameters.

One list of UE category is used for the use-cases of eMBB, URLLC, and mMTC.
Proposal 2: Identify soft-buffer definition for the LTE-NR dual connectivity, and inform RAN1's understanding to RAN2.
- Option 1: Soft-buffer sizes are defined for LTE operation and NR operation, respectively.
- Option 2: Soft-buffer size is defined as the sum of LTE and NR, and the soft-buffer is shared by LTE and NR in semi-static or dynamic manner.

Discussion: Panasonic → hard to downselect between option 1 & 2 in a timely manner (likely not before Dec 17).
Qualcomm → RAN1 should not worry too much at this meeting, mainly RAN2 issues.
Ericsson → no sure whether different UE categories are needed for eMBB, URLLC, and mMTC
Decision: The document is noted.

R1-1711476 On UE Categories/Capabilities Ericsson
The document was presented by Daniel Larsson from Ericsson.
- Proposal 1: In NR, the number of supported MIMO layers is signalled as explicit capability (possibly per band) and not part of a UE category.
- Proposal 2: In NR, the modulation schemes is signalled as explicit UE capability and not part of a UE category.
- Proposal 3: Discuss whether NR capability signalling should allow the UE to indicate a peak data rate being lower than the peak L1 data rate derived from the supported scheduling bandwidth and modulation and MIMO schemes.
- Proposal 4: If it is agreed that UEs should be able to indicate a baseband processing restriction (see Proposal 2), the UEs indicate the total number of supported code blocks separately for UL and DL instead of a L1-bit-rate.
- Proposal 5: If Proposal 3 is agreed, the NW derives the UE's amount of supported soft buffer from the total number of supported code blocks in DL (hence, there is no need to specify and signal the soft-buffer size explicitly).
- Proposal 6: NR UEs should be able to advertise also a maximum scheduling bandwidth. The details need to be further studied
- Proposal 7: Discuss whether the total number of code block does not need to be signalled and this property can be derived from the maximum scheduling BW in addition to the other throughput affecting capabilities that the UE indicates

Decision: The document is noted.

LSs received during the meeting from other WGs
R1-1711892 Reply LS on PBCH content RAN2, Huawei
Decision: The document is noted.

R1-1711940 LS to RAN1 on NR basic handover RAN2, Ericsson
Decision: The document is noted. Prepare draft LS to RAN2 in R1-1711968 – Dhiraj (Samsung)
R1-1711968 [DRAFT] Reply LS response on NR basic handover Samsung
Decision: The document is noted and final LS is approved in R1-1711987 with the addition of the following sentence in Section 1
RAN1 will inform RAN2 when more details on RACH resources and the corresponding associations are available.

R1-1711950 LS to RAN1 on Random Access RAN2, Samsung
Decision: The document is noted.

Not treated.
R1-1711949 Reply LS to RAN1 on UL data transmission without UL grant for NR RAN2, Huawei

5 NR

5.1 New Radio Access Technology - WID in RP-171485

R1-1711642 NR topics requiring coordination between RAN1 and RAN2 RAN2 Chair
The document was presented by RAN1 Vice Chair on behalf of RAN2.
1. Beam management / recovery procedures: RAN2 assume that RAN1 is leading this topic and RAN2 will wait for RAN1 to make progress before discussing in detail. Once RAN1 has started to make progress then RAN2 will look at implications to RAN2 specifications. Input from RAN1 before the August WG meeting is preferable.
2. Beam aspects of random access procedures: Input from RAN1 before the August WG meeting is preferable.
3. UL/DL HARQ: RAN2 would like to receive input on e.g. the impact due to multiple numerologies, HARQ retransmission across numerologies, any other differences compared to LTE, etc. Initial input from RAN1 before the August WG meeting is preferable

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1504 of 1750

4. UL grant free transmission and relation to UL SPS: Based on LS R1-1709805, RAN2 understands that discussion in RAN1 is still ongoing and expects to receive further information from a future meeting about any differences between UL SPS and grant free. Until such information is received RAN2 will continue to progress on RAN2 aspects of UL SPS, agreed to be as LTE as baseline. Additionally RAN2 will discuss some aspects of UL grant free and SPS, e.g. if any difference between them from RAN2 point of view, and will aim to provide input to RAN1 this meeting. Input from RAN1 before the August WG meeting is preferable
5. Impact of PDCCH design (e.g. 'core set') on PDCCH monitoring and DRX: RAN2 would like to receive input on e.g. the impact of the 'core set', beam related aspects, etc. Input from RAN1 before the August WG meeting is preferable.
6. PHR: RAN2 assume that RAN1 is leading this topic and we will implement any MAC signalling aspects as required (i.e. similar working arrangement as for LTE). Input from RAN1 before the October WG meeting is preferable.
7. UL power sharing between LTE/NR: RAN2 will need to be informed regarding the conclusions of RAN1 discussions on UL power sharing between LTE and NR.
8. Transport block sizes: RAN2 assume that RAN1 is leading this topic but that some coordination will be needed between RAN1 and RAN2.
9. L1 parameters to be configured by RRC: Initial input from RAN1 in advance of October WG meeting is preferable (in advance means enough time to enable the parameters to be analysed and contributions to be submitted to the October WG meeting). This implies the initial input should be available at the end of the September RAN1 ad hoc. It is acceptable if there is some degree of revision to the parameter set after the October WG meeting.
10. UE capabilities: RAN2 assume that we will lead the discussion of the UE category question delegated from RAN plenary (i.e. " RAN WGs to decide how the target peak data rate can be supported for LTE-NR DC and NR standalone in the specifications, e.g. whether the existing concept of UE category is inherited or a new concept in defining the target peak data rate is introduced" from LS RP-171480). RAN2 also has ongoing discussion on capability sharing and coordination between LTE and NR, where the exact capabilities for will require coordination with RAN1 and RAN4. RAN1 can begin discussions of the L1 capability parameters in parallel.

Discussion: Suggestion by VC to provide a reply per point (through an LS – at least for some of the bullets)
Ericsson: Make sure RAN1 is not starting email discussions during the upcoming summer period.
CATT: concern regarding RAN2's intention on point 4 (expecting info from RAN1, but has already decided to progress further).
CATT: also has concern of the impact to RAN2 if RAN1 cannot draw a clear answer to each of RAN2's questioning.
Huawei: let's continue RAN1 discussion on UL grant free transmission/UL SPS and later in the week liaise to RAN2.
Decision: The document is noted.

Coordinators for LSs to RAN2 (review status on Friday):

1. Beam management: Sundar (Qualcomm) R1-1711683
2. Beam aspects of Random Access: Teck Hu (Huawei) R1-1711684
3. UL/DL HARQ: Karri Ranta-aho (Nokia) R1-1711685
4. UL SPS / grant free: Fred (NTT DOCOMO) R1-1711686
5. PDCCH monitoring and DRX: Tony (CATT) R1-1711687 - see 5.1.3.1

Friday

R1-1711879 **[Draft] LS on Beam Aspects of NR RACH** **Huawei**
Decision: The document is noted and final LS is approved in R1-1711880 with following updates
NR RACH procedures support ~~multiple beams~~ using a PRACH preamble format (Option 1) whereby the CP is inserted at the beginning of the single or consecutive multiple/repeated RACH sequences, the CP/GT between RACH sequences is omitted and the GT is reserved at the end of the single or consecutive multiple/repeated RACH sequences e.g. potentially used for gNB R~~r~~x beam sweeping.~~.~~

A~~n~~ 4-step RACH procedure is supported in NR and~~,~~ a RACH transmission occasion is defined as the time-frequency resource on which a PRACH message 1 is transmitted using the configured PRACH preamble format with a single particular tx beam. The random access configuration is included in the remaining minimum SI. In NR, the RACH configuration provides at least the RACH time/freq. information and the RACH preamble format. gNB can configure an association between one or multiple occasion for SS Block and a subset of RACH resources and/or a subset of preamble indices. Tx Beam for Msg 1 and Msg 3 transmissions (for UE in IDLE mode) is selected by the UE and downlink Tx beam for Msg 2 can be obtained by the detected preamble and/or the RACH resource.

Email approval of the LS on beam management until July 10th – Qualcomm
Email approval of the LS on UL/DL HARQ until July 6th – Nokia

R1-1711318 Discussion on the options in NR design Panasonic
R1-1711366 "TS38.211 v0.0.1 NR; Physical channels and modulation" Ericsson LM
R1-1711886 **"TS38.211 v0.0.2 NR; Physical channels and modulation"** **Ericsson LM**

Discussion: Panasonic → as already commented earlier in the week, RAN1 should strive to endorse specs on day one of a meeting as the review of the specs during the meeting is very challenging and difficult.
Decision: The document is endorsed as v0.1.0 in R1-1712004 as basis for further updates.

Email discussion until August meeting about all specs

- 1st step: All spec editors will provide new draft specs (including all agreements and WA) until July 14th
- 2nd step: All spec editors will provide further updated specs (including all agreements and WA) until August 4th
- All companies are recommended checking these specs and comment via the reflector
- All spec editors will update specs via the reflector and submit them to the August meeting (RAN1#90)
- Objective is to get the updated specs endorsed on Monday on Monday (day 1 of RAN1#90)

Email discussion until the August meeting w.r.t the RRC parameters list for NR

- Daniel (Ericsson) will provide an initial RRC parameters list until August 9th
- All companies are recommended checking it and comment via the reflector
- Daniel (Ericsson) will update it via the reflector and submit it to the August meeting (RAN1#90)
- Objective is to get the (updated) RRC parameters list agreed on Monday (day 1 of RAN1#90)

5.1.1 Initial access and mobility

Refer to R1-1709821 for work plan.

Friday
R1-1711984 **[Draft] LS on NR initial access and mobility** **NTT DOCOMO**
Decision: The document is noted and final LS to RAN2 is approved in R1-1712001.

R1-1711985 **[Draft] LS on NR initial access and mobility** **NTT DOCOMO**
Decision: The document is noted and final LS to RAN4 is approved in R1-1712002 with following updates
Confirm Working Assumption for NR-SSS design from RAN1#89, with following updates~~except for~~:

- Ordering of initial state:
  - NR-SSS, initial value x(0) = 1, x(1) = 0, x(2) = 0, x(3) = 0, x(4) = 0, x(5) = 0, x(6) = 0

5.1.1.1 Synchronization signal and initial access procedure

5.1.1.1.1 Remaining details on SS sequence design

Include confirmation of WA of NR-SSS, and other details on NR-SSS such as sequence to RE mapping
Note that NR-PSS and NR-SSS sequence design and RE mapping need to be finalized in this meeting

R1-1710501 **NR PSS and SSS design Intel Corporation**

- Proposal 1: Confirm the WA on NR-SSS made in RAN1#89 meeting.
- Proposal 2: Capture in the specification the text proposed in Section 3.

Decision: The document is noted.

R1-1710807 **On the Robustness of NR SSS in Frequency Offset MediaTek Inc.**

- Observation 1: Due to the selection of m_0, current NR-SSS design is quite vulnerable to frequency offset.
- Proposal 1: NR-SSS should adopt the following m_0 and m_1 mapping:

$$m_0 = \left(3\left\lfloor \frac{N_{ID}^{(1)}}{112} \right\rfloor + N_{ID}^{(2)}\right) \times 5; \quad m_1 = \left(N_{ID}^{(1)} \mod 112\right) + 1$$

Discussion: Huawei → no evaluations have motivated this proposal
Decision: The document is noted.

~~Agreement~~: Confirm Working Assumption for NR-SSS design from RAN1#89, except for:

- Ordering of initial state:
  - NR-SSS, initial value x(0) = 1, x(1) = 0, x(2) = 0, x(3) = 0, x(4) = 0, x(5) = 0, x(6) = 0
- Cyclic shift values m0 and m1:
  - FFS between formulae in the RAN1#89 working assumption and the following formulae, to be evaluated during this week and confirmed by Friday:

$$m_0 = \left(3\left\lfloor \frac{N_{ID}^{(1)}}{112} \right\rfloor + N_{ID}^{(2)}\right) \times 5; \quad m_1 = \left(N_{ID}^{(1)} \mod 112\right)$$

Thursday
Above agreement is modified as follows:

Agreement: Confirm Working Assumption for NR-SSS design from RAN1#89, with the following updates:

- Ordering of initial state:
  - NR-SSS, initial value x(0) = 1, x(1) = 0, x(2) = 0, x(3) = 0, x(4) = 0, x(5) = 0, x(6) = 0
- Cyclic shift values m0 and m1 (as defined in R1-1711888)

R1-1711810 **Analysis of SSS Proposals** **Intel Corporation**
Decision: The document is noted.
R1-1711860 **Evaluation of NR-SS** **Huawei, HiSilicon**
Decision: The document is noted.
R1-1711888 **WF on m_0 and m_1 for NR-SSS** **NTT DOCOMO, ITL, Intel, Samsung, InterDigital, Motorola Mobility, Lenovo**

- The cyclic shift values m_0 and m_1 are jointly determined by the cell IDs carried by NR PSS (i.e., $N_{\mathrm{ID}}^{(2)} = 0,\ 1,\ 2$) and NR SSS (i.e., $N_{\mathrm{ID}}^{(1)} = 0,\ 1,\ \ldots,\ 335$)), where the cell ID is given by $N_{\mathrm{ID}}^{\mathrm{cell}} = 3N_{\mathrm{ID}}^{(1)} + N_{\mathrm{ID}}^{(2)}$
  - $m_0 = \left(3\left\lfloor \frac{N_{\mathrm{ID}}^{(1)}}{112} \right\rfloor + N_{\mathrm{ID}}^{(2)}\right)5$
  - $m_1 = \left(N_{ID}^{(1)} \mod 112\right)$

Discussion: Also supported by Mediatek, LGE, ZTE.
Decision: The document is agreed.

Agreement: For NR-PSS:

- initial value x(0) = 0, x(1) = 1, x(2) = 1, x(3) = 0, x(4) = 1, x(5) = 1, x(6) = 1

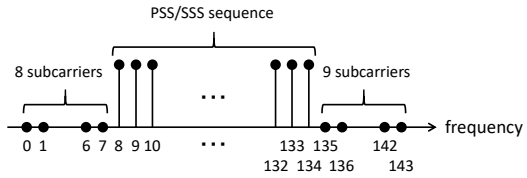
R1-1711654 **WF on NR-SS sequence design** **NTT DOCOMO, ZTE, InterDigital**

- Update agreements on NR-PSS with following change
  - Number of PSS sequences: 3
    - PSS sequence details:
      - Frequency domain-based pure BPSK M sequence (fixing the time/freq. offset ambiguity)
        - 1 polynomial: Decimal 145 (i.e. g(x) = x7 + x4 + 1)
        - In freq. domain 3 cyclic shifts (0, 43, 86) to get the 3 PSS signals
        - Initial poly shift register value: x(0) = 0, x(1) = 1, x(2) = 1, x(3) = 0, x(4) = 1, x(5) = 1, x(6) = 1
- Confirm working assumptions on NR-SSS with following changes
  - NR-SSS sequence design is 1 polynomial with 127 cyclic shifts, and 1 another polynomial with 9 cyclic shifts
    - Two generator polynomials will be defined for m-sequences, and cyclic shift according to NR-cell ID is applied to each m-sequence
    - Two polynomials are generated by g0(x) = x7 + x4 + 1 and g1(x) = x7 + x + 1
      - Initial poly shift register value: x(0) = 1, x(1) = 0, x(2) = 0, x(3) = 0, x(4) = 0, x(5) = 0, x(6) = 0
      - The cyclic shift values m_0 and m_1 are jointly determined by the cell IDs carried by NR PSS (i.e., $N_{\mathrm{ID}}^{(2)} = 0,\ 1,\ 2$) and NR SSS (i.e., $N_{\mathrm{ID}}^{(1)} = 0,\ 1,\ \ldots,\ 335$)), where the cell ID is given by $N_{\mathrm{ID}}^{\mathrm{cell}} = 3N_{\mathrm{ID}}^{(1)} + N_{\mathrm{ID}}^{(2)}$
        - Option 1
          - $m_0 = 3\left\lfloor \frac{N_{ID}^{(1)}}{112} \right\rfloor + N_{ID}^{(2)}$
          - $m_1 = \left(N_{ID}^{(1)} \mod 112\right) + m_0 + 1$
        - Option 2
          - $m_0 = \left(3\left\lfloor \frac{N_{\mathrm{ID}}^{(1)}}{112} \right\rfloor + N_{\mathrm{ID}}^{(2)}\right)K$, where K > 1 (e.g., 5)
          - $m_1 = \left(N_{ID}^{(1)} \mod 112\right)$
        - Down-selection of above options will be done within this meeting
- NR-SSS sequence is mapped to consecutive 127 subcarriers as well as NR-PSS
- Frequency center of NR-PSS/SSS is aligned with frequency center of NR-PBCH
- Update agreements on number of NR-SSS signals with following change
  - Number of SSS signals: 1008 post-scrambling
    - Note that number of NR physical cell IDs is 1008

Decision: The document is noted.

Agreements:

- NR-SSS sequence is mapped to consecutive 127 subcarriers as well as NR-PSS as follows:



- Centre frequency of NR-PSS/SSS is aligned with centre frequency of NR-PBCH
  - i.e. mapped on the 7th to 18th PRBs of the 24 PRBs used for the SS block
- Update agreements on number of NR-SSS signals with following change
  - Number of SSS signals: 1008 post-scrambling
- The number of NR physical cell IDs is 1008

Not treated.

R1-1709884 NR-SS sequence design ZTE
R1-1709911 Finalization of the NR-SSS Huawei, HiSilicon
R1-1710022 Remaining detail of NR-PSS and NR-SSS Sequence Design and RE mapping CATT
R1-1710258 Remaining issue on SS Sequence Design LG Electronics
R1-1710623 Remaining details on SS sequence design Samsung
R1-1710913 On Design of Synchronization Signal Sequences in NR InterDigital, Inc.
R1-1710975 Considerations and Evaluation on SS Sequence Design for New Radio ITRI
R1-1711056 Discussion on remaining details on SS sequence design for NR NTT DOCOMO, INC.
R1-1711135 Synchronization signal sequence design Qualcomm Incorporated
R1-1711260 Remaining open issues on NR Synchronisation signal design Nokia, Alcatel-Lucent Shanghai Bell
R1-1711275 Discussion on NR-SSS working assumption Motorola Mobility, Lenovo
R1-1711371 Remaining details on NR-SS sequence design Ericsson

5.1.1.1.2 SS burst set composition

Include candidate locations of SS block within a slot

R1-1711372 SS burst set composition Ericsson

- Proposal 1: The network decides whether a SS block position should be allocated or not.
- Proposal 2: For compositions with two SS blocks per a slot, for 15, 30 and 120 kHz, the SS blocks start at the 3rd and 9th symbols.
- Proposal 3: For 15 kHz subcarrier spacing and below 3 GHz carrier frequency, an SS block may be initiated at the 3rd symbol in a 14 symbol slot. SS blocks are transmitted in consecutive slots.
- Proposal 4: For 15 kHz subcarrier spacing and between 3 and 6 GHz carrier frequency, an SS block may be initiated at the 3rd and 9th symbols per 14 symbol slot.
- Proposal 5: For 30 kHz subcarrier spacing, an SS block may be initiated at the 3rd and 9th symbols in a 14 symbol slot. SS blocks are transmitted in every 2nd slot.
- Proposal 6: For 120 kHz, an SS burst is composed by up to 8 SS blocks.
- Proposal 7: For 120 kHz, the SS burst set is composed by up to 8 SS bursts with 1 DL/UL slot in-between SS bursts.
- Proposal 8: For 240 kHz, an SS slot pair is composed by SS blocks every 5th symbol, starting at the 5th symbol.
- Proposal 9: For 240 kHz, an SS burst is composed by up to 16 SS blocks (4 SS slot pairs).
- Proposal 10: For 240 kHz, the SS burst set is composed by up to 4 SS bursts with 8 DL/UL slots in-between bursts.

Decision: The document is noted.

R1-1710412 NR SS block and burst set composition AT&T

- Proposal 1: For 15kHz, 30kHz, and 120kHz SS Block SCS, the two candidate SS Block positions within a 14 symbol slot are symbols 4-7 and 8-11.
- Proposal 2: For 240kHz SS Block SCS, the four candidate SS Block positions within two consecutive slots of 14 symbols are symbols 4-7 and 8-11 of the first slot, and symbols 2-5 and 6-9 of the second slot.
- Proposal 3: NR should support dedicated signalling for UE-specific indication of valid SS block time locations within a given SS burst set which accommodate different SS burst set periodicities.

Decision: The document is noted.

R1-1711580 SS burst set composition Samsung (Revision of R1-1710624)

- Proposal 1: For each frequency band, the NR-SS block mapping pattern is fixed/predefined.
- Proposal 2: For below 6GHz NR, the SS block mapping patterns shown in FIGURE 1 should be considered for SS burst set composition.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1508 of 1750

- Proposal3: For above 6GHz NR, the SS block mapping patterns shown in FIGURE 3 should be considered for SS burst set composition.
- Proposal 4: SS blocks comprising an SS burst set shall be mapped in max 2~4ms duration, starting from a beginning of a frame or a half-frame.

Decision: The document is noted.

R1-1711645 **SS burst set composition consideration** **Qualcomm Incorporated** (Revision of R1-1711136)

- Proposal 1: For burst-set with $L = 4$ SS blocks, the blocks start in OFDM symbols {2,8,17,21}. Burst-set pattern with $L \in \{8, 64\}$ SS blocks is obtained by further tiling the burst-set pattern for $L = 4$.
- Observation 1: For burst-set with $L = 4$ blocks, each pair of blocks has a unique inter-block distance. These 4-choose-2 unique distances are $\{4, 6, 9, 13, 15, 19\}$.
- Observation 2: In burst-set pattern with $L \leq 8$ blocks, for any two pairs of blocks $\{l_1, l_2\}$ and $\{l_3, l_4\}$ such that $\Delta(\{l_1, l_2\}) = \Delta(\{l_3, l_4\})$, we have that $l_1 + l_2 = l_3 + l_4$ and thus $\delta(\{l_1, l_2\}) = \delta(\{l_3, l_4\})$. In words, all blocks pairs with the same inter-block distance have the same bit-difference between their indices (and thus the same bit-difference between their PBCH payloads.)
- Proposal 2: When UE assumes SS burst set periodicity of x ms (e.g. x = 20ms), UE assumes the same set of SS blocks within SS burst set are transmitted with periodicity of x ms
- Proposal 3: When UE assumes SS burst set periodicity of x ms (e.g. x = 20ms), if NW transmits the SS burst set with a smaller periodicity y ms (y < x, e.g. y=10ms), UE can assume that the same set of SS blocks within SS burst set are transmitted with periodicity of y ms
- Proposal 4: UE assumes that the transmitted SS blocks in a SS burst set are always logically consecutive, i.e. between any two transmitted SS blocks in a SS burst set, there are no gaps of non-transmitted SS block(s)

Decision: The document is noted.

- FFS offline (Jorma Kaikkonen, Nokia):
  a. 7 symbol slot is only considered for 15 kHz subcarrier spacing?
  b. 1 or 2 SS blocks within a 14 symbol slot?
  c. If 2 SS blocks, is there a need for gaps between SS blocks in a 14 symbol slot?
  d. Which are the starting symbols for SS blocks for each subcarrier spacing?

Revisit on Wednesday afternoon - R1-1711678

Thursday

R1-1711678 **Way forward on the mapping of SS blocks** **Nokia**
R1-1711899 **Way forward on the mapping of SS blocks** **Nokia**

Agreements:

- Agree on pages 5, 7, 8 (30 kHz subcarrier spacing case) in R1-1711899
- Working assumption on pages 9, 10 (120, 240 kHz subcarrier spacing cases) in R1-1711899
  - Working assumption can be revisited if there are serious implications to UE AGC operation.

Agreements:

- For 15 kHz subcarrier spacing case,
  - Map two SS blocks candidate locations to the slot of 14 symbols as follows
    - First candidate location is at symbols 2-5
    - Second candidate location is at symbols 8-11

R1-1711939 **Way forward on the mapping of SS blocks with 30kHz SCS** **Huawei, HiSilicon, CATT, CATR, OPPO, MediaTek, Vivo**

Possible agreements:

- For 30 kHz subcarrier spacing case, try to agree on Option 1 or Option 3 until Friday, but if not, RAN1 will conclude that no consensus in RAN1 about the second SS block mapping pattern

– Option 1:
  – Map two SS blocks candidate locations to the slot of 14 symbols as follows
    - First candidate location is at symbols 2-5
    - Second candidate location is at symbols 8-11
  – Supported by Intel, LGE, Qualcomm, DOCOMO, ETRI, Samsung, ZTE, Ericsson, ITL (9)
– Option 3:
  - For slot of 14 symbols, two SS blocks are mapped within 14 symbols
    – First candidate SS block location is at symbols 1-4
    – Second candidate SS block location is at symbols 8-11
  - For slot of 7 symbols, one SS block is mapped within 7 symbols

  - Candidate SS block location is at symbols 1-4
- Supported by Huawei, HiSilicon, CATT, CATR, OPPO, MediaTek, vivo (7)

Friday

R1-1711939 Way forward on the mapping of SS blocks with 30kHz SCS Huawei, HiSilicon, CATT, CATR, OPPO, MediaTek, Vivo

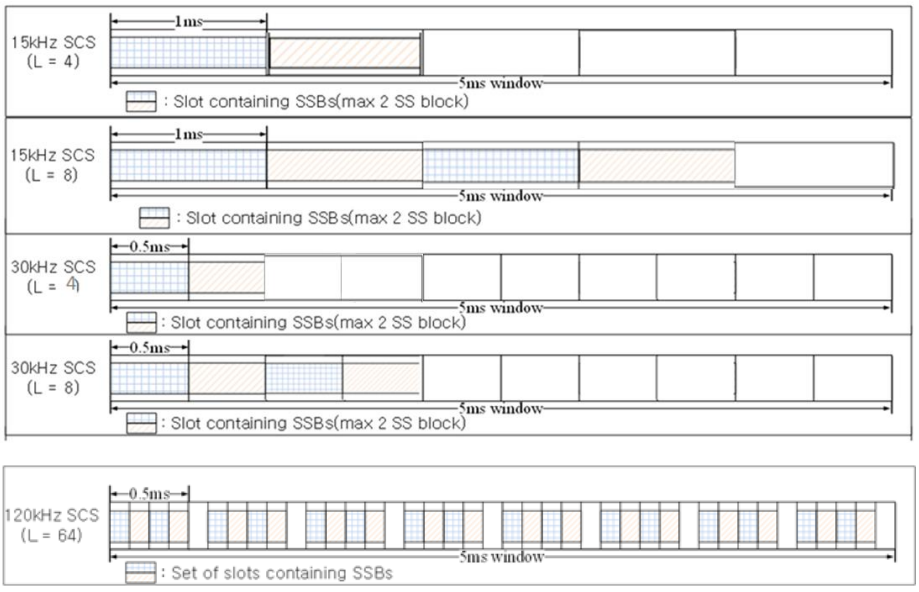
Agreements:

- For 30 kHz subcarrier spacing case, the second SS block mapping pattern is
  - Map two SS blocks candidate locations to the slot of 14 symbols as follows
    - First candidate location is at symbols 2-5
    - Second candidate location is at symbols 8-11
- Note: In the case of NR-LTE coexistence, the first SS block mapping pattern (i.e., page 7 in R1-1711899) can be used
- Note: It is up to RAN4 to decide the SS block mapping pattern for each frequency band

R1-1711854 SS burst set composition LG Electronics, Nokia
Updated in **R1-1711906**

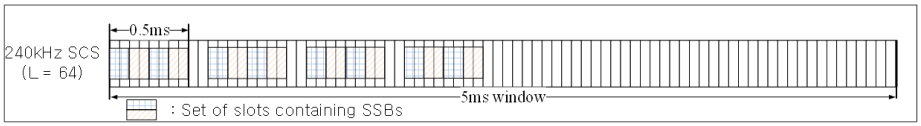
Agreements:

- For 15k Hz, 30 kHz, and 120 kHz subcarrier spacing, the following mapping to slots in a half radio frame is agreed
  - Note: For NR and LTE coexistence, duplex direction alignment can be achieved by subframe offset



Agreement:

- For 240 kHz subcarrier spacing, the following mapping slot in a half radio frame is agreed



Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1510 of 1750

Not treated.

R1-1710372	Remaining issues on SS block and SS burst set composition	vivo
R1-1709885	The composition of SS burst sets	ZTE
R1-1709912	SS Burst Set and Block Composition	Huawei, HiSilicon
R1-1710023	SS Burst Set Composition and SS Block Configuration	CATT
R1-1710131	Discussion on design of SS block	Guangdong OPPO Mobile Telecom.
R1-1710259	Discussion on SS burst set composition	LG Electronics
R1-1710371	Remaining issues on the subcarrier spacing of SS block	Spreadtrum Communications
R1-1710502	SS Burst Set Composition	Intel Corporation
R1-1710798	Discussion on SS burst set composition	MediaTek Inc.
R1-1710914	On SS Burst Set Composition and Multiplexing	InterDigital, Inc.
R1-1711057	Discussion on SS burst set composition for NR	NTT DOCOMO, INC.
R1-1711232	Indication of actually transmitted SS blocks	Sharp
R1-1711261	On SS Burst Set Composition	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711394	Discussion on SS Burst Set Design	Convida Wireless LLC

5.1.1.1.3 Timing indication based on SS block

Include discussion and evaluation based on email discussion [89-15] such as SS block time index indication mechanism, identification of radio frame boundary and identification of SFN
Note that SS block time index indication mechanism needs to be finalized in this meeting

R1-1711646 **Timing indication based on SS block consideration** **Qualcomm Incorporated** (Revision of R1-1711137)

- Proposal 1: PBCH payload carries the synchronization signal block index and 5ms timing boundary.
- Proposal 2: For 10-bit SFN $(s_9, s_8, \dots, s_2, s_1, s_0)$, all bits except (s_2, s_1) are sent in PBCH payload. Furthermore, two bits (s_2, s_1) are signalled in PBCH scrambling or in SSS/DMRS.
- Observation 1: Multi-cell interference should be considered in deriving the number of bits that can be carried over PBCH DMRS, as cross-correlation between DMRS sequences across cells significantly impacts DMRS detection performance.
- Observation 2: For single-shot DMRS detection at -6dB SINR, only 2 bits are reliably delivered with 1/3 DMRS while less than 2 bits are reliably delivered with 1/4 DMRS for any PCI combinations.
- Observation 3: The capability of carrying information in DMRS reduces significantly if a high DMRS detection requirement is required e.g., 0.1% DMRS detection error.

Decision: The document is noted.

R1-1711589 **Timing indication based on SS block** **Samsung** (Revision of R1-1710625)

Proposal 1: 7-bit MSB of SFN explicitly indicated in MIB and 3-bit LSB of SFN implicitly indicated by using scrambling.
Proposal 2: Multiple NR-DMRS sequences are introduced to indicate the SS block index within an SS burst set.
- 1st preference: DMRS to indicate SS block indices in order to avoid additional latency and power consumption of reading PBCH payload.
- 2nd preference: DMRS to indicate partial SS block indices and offload remaining SS block indices in explicit bits of PBCH payload, if this design can satisfy the reliability and latency issues addressed by LS R2-1706160.

Observations:
- NR-DMRS sequence detection for NR-SS block index identification is much more robust than PBCH explicit indication, even more robust against interference in multi-cell scenarios.
- NR-DMRS sequence detection has no impact on the channel estimation for NR-PBCH detection.
- NR-DMRS uneven RE mapping cannot improve PBCH detection but only results in DMRS performance loss, compared with even mapping assuming similar DMRS overhead.

Proposal 3: NR-DMRS with even RE mapping is preferred for SS block index indication.

Decision: The document is noted.

R1-1710905 **Signaling of SS block index** **Apple Inc.**

- Proposal 1: SS block should avoid the 1st symbol of every 0.5ms, which has longer duration compared to other OFDM symbols, to avoid ambiguity in UE detection.
- Proposal 2: nominal SS blocks are partitioned into SS bursts (or groups). Which SS blocks/bursts are actually transmitted can be configured by the network, although the indexing is based on the nominal SS blocks.
- Proposal 3: SS burst index is included in information bits of PBCH, while SS block index within a SS burst is signaled through PBCH implicitly, e.g., with different scrambling codes.
- Proposal 4: SS blocks within each SS burst can be combined to improve PBCH decoding reliability.
- Proposal 5: the set of K different scrambling codes can be selected from existing class of LFSR based sequences, such as M-sequence, Gold sequence, etc.
- Proposal 6: the number of SS blocks per SS burst (or group) K should be pre-determined, and can be band dependent.

- Observation 1: gNB beam mapping to SS blocks is transparent to UEs, regardless of the selection of Kand M

Decision: The document is noted.

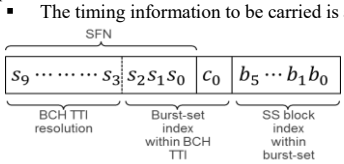
R1-1711373 **Timing indication based on SS block** **Ericsson**

- Proposal 1: The timing indication includes half-frame indication, slot/slot pair indication within a half-frame and the SS block indication within a slot/slot pair.
- Proposal 2: The slot group with consecutive or nonconsecutive slots to cover four possible SS block locations is proposed to unify the time indication design for all frequency ranges.
- Proposal 3: The half-frame specific scramble sequence is applied on the coded bits of NR-PBCH payload to indicate the half frame number $n_{\text{half sfn}} = \{0, \ldots, 15\}$.
- Proposal 4: The explicit bits attached with the NR-PBCH MIB are used to indicate the slot group location.
- Proposal 5: The cover sequence can be used to implicitly indicate the four possible SS block positions within a slot group.

Decision: The document is noted.

Proposal:

- The timing information to be carried is as follows:



- This information is carried at least partly explicitly on the PBCH
- Options for a hybrid solution:
  - SS block index within burst set is carried by DMRS
    - 2 bits below 3 GHz, 3 bits for 3-6 GHz, 6 bits above 6 GHz
      - Achieves latency gain by enabling reception without decoding
      - Concerns on ability to carry so many bits on DMRS, and would require the DMRS to be invariant
  - SS block index (2/3 bits) within burst is carried by DMRS
    - 4/3 bits to indicate the burst in the burst set are carried in NR-PBCH payload
    - Can achieve latency gain below 3/6 GHz
    - Can enable the UE to obtain the beam index for inclusion in SS block measurement reporting without NR-PBCH decoding
    - But would still require the DMRS to be invariant
  - 2 bits of SFN carried by DMRS
    - Achieves complexity gain but not latency gain
  - SS block index (2 bits) within burst is carried by scrambling of both NR-PBCH and DMRS
    - 4 bits to indicate the burst in the burst set are carried in NR-PBCH payload
    - Achieves latency gain below 3 GHz
  - 3 bits of SFN carried by NR-PBCH payload scrambling

~~Agreement:~~

- One of the following two alternatives will be adopted (It is not precluded to adopt a different one of these alternatives below and above 6 GHz):
  - Alt1: 3 bits of SS block index are carried by changing the DMRS sequence within each 5ms period
    - It can be further considered to limit the number of bits carried in this way to 2 if carrying 3 bits is shown to cause problems
  - Alt2: 2 bits of SFN are carried by changing the DMRS sequence every 20ms
  - Check on Friday whether a decision can already be made between Alt 1 and Alt 2
- It can be further considered whether, in addition to the above, 3 bits of the SFN can be carried by scrambling of the PBCH
- Remaining bits of the timing indication are carried explicitly in the NR-PBCH payload
- Note that it is suggested that the above 2 bullets are actually equivalent.

Thursday

Alt.1 supported by ZTE, Samsung, NTT DOCOMO, Intel, vivo, Fujitsu, Nokia, InterDigital, Sharp, LGE, Sony

- Objected by Motorola mobility, Mediatek, Qualcomm, Huawei, HiSilicon, OPPO, Lenovo

Alt.2 supported by Qualcomm, MotM, CATT, Huawei, HiSilicon, Ericsson, Lenovo, OPPO

- Objected by Samsung, LGE, NTT DOCOMO, vivo, Fujitsu, Interdigital, ZTE, Nokia

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1512 of 1750

Conclusion: RAN1 will definitely select either Alt. 1 or Alt. 2 until Friday (11am), and all proponents are recommended to have following additional evaluations

- Individual pair of cell ID with the condition of worst case
- Random cell ID association with the separation of worst case DMRS pairs to different frequency shift position

Continue discussions until Friday – Samsung (Le)/Qualcomm (Peter)

Friday
Situation unchanged

Ericsson: Ok with either way – everyone should compromise, do not understandand the companies objecting to these proposals
Qualcomm: decision should not be taken on counting the number of supporting companies and would like to see evaluation (asynchronous networks) and performance results of alternative 1. Suggested that the synchronization indication is included in the system information and RRM configuration.
Ericsson: could RAN1 decide first on synch indication and then make the choice between Alt 1 & 2?

Agreements:

- An indication related to the synchronization information is provided to the UE
  - When there is the indication for a carrier, UE can utilize serving cell timing to derive the index of SS block transmitted by neighbour cell (e.g., radio frame or SFN or symbol level synchronization)
  - Note that it is up to RAN2 how to provide this indication
  - Note that it is up to RAN4 about the feasibility of synchronization and its requirement

Chair : new round of show of hands
Alt.1 supported by ITL, vivo, Sony, Samsung, ZTE, DOCOMO, LGE, Sharp, ETRI, Fujitsu, Interdigital, Nokia, Intel (13)

- Objected by Qualcomm, Apple, Motorola Mobility (3)

Alt.2 supported by Qualcomm, Mediatek, OPPO, Huawei, HiSilicon, Xiaomi, Sequans, Motorola mobility, Lenovo, Apple, CATT (11)

- Objected by LGE, Samsung (2)

Qualcomm: still objecting to Alt.1 – has not got a technical answer showing the benefit of Alt 1 vs Alt 2
Samsung: RAN1 agreed synch indication, Alt 1 should be agreeable - very disappointed by Qualcomm
Let's revisit in the afternoon.

For sake of making progress, MotM and Apple withdrew their objection to Alt.1
Qualcomm could agree to take it as a working assumption

Agreements:

- Working assumption: 3 bits of SS block index are carried by changing the DMRS sequence within each 5ms period
  - It can be further considered to limit the number of bits carried in this way to 2 if carrying 3 bits is shown to cause problems
- FFS: details of scrambling of the PBCH which may or may not carry a part of timing information
- FFS: 5 ms half radio frame interval indication
- Remaining bits of the timing information are carried explicitly in the NR-PBCH payload

R1-1711868 WF on DMRS indication Samsung
R1-1711946 WF on DMRS indication Samsung
R1-1711967 Timing information indicated by DMRS ZTE
R1-1711952 Performance evaluation of interference randomization Qualcomm Incorporated

Not treated.

R1-1709886	Timing indication based on SS blocks	ZTE
R1-1709901	Scrambling pattern for timing indication over PBCH	Sequans Communications
R1-1709913	Time Index Indication	Huawei, HiSilicon
R1-1710024	SS-block time index indication	CATT
R1-1710132	Discussion on the timing indication of SS block	Guangdong OPPO Mobile Telecom.
R1-1710223	Discussion on timing indication based on SS block	Beijing Xinwei Telecom Techn.
R1-1710231	Consideration on timing indication based on SS block	Fujitsu
R1-1710260	Discussion on SS block time index indication	LG Electronics
R1-1710370	Discussion on time index indication	Spreadtrum Communications
R1-1710373	Discussion on SS block time index indication	vivo
R1-1710419	SS block time index indication	AT&T

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1513 of 1750

R1-1710503	Time Index Signaling for SS Blocks	Intel Corporation
R1-1710799	Further discussion on SS block index indication	MediaTek Inc.
R1-1710858	Discussion on SS block time index indication	Sony
R1-1710915	On SS Block Based Timing Indication in NR	InterDigital, Inc.
R1-1711058	Discussion on timing indication based on SS block for NR	NTT DOCOMO, INC.
R1-1711262	SS block time index indication	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711274	Discussion on location and timing indication of SS block	Xiaomi Technology
R1-1711276	Indication of SS block timing information	Motorola Mobility, Lenovo
R1-1711351	On timing indication for NR	ITL

5.1.1.1.4 Remaining details on multiple SS block transmissions in wideband CC

Include number of SS blocks in wideband CC, RRM measurement with multiple SS blocks in wideband CC, and how to inform UE about presence/parameters of SS block(s)

R1-1709887	Multiple SS blocks in wideband CC	ZTE
R1-1709973	On initial access for wideband carrier	Huawei, HiSilicon
R1-1710025	Multiple SS block Transmission in wideband	CATT
R1-1710133	Remaining details on multiple SS block transmissions in wideband CC	Guangdong OPPO Mobile Telecom.
R1-1710261	Remaining issues on Multiple SS block transmissions in wideband CC	LG Electronics
R1-1710374	SS block transmissions and RRM measurement in wideband CC	vivo
R1-1710420	SS block transmissions in a wideband CC	AT&T
R1-1710504	SS Block(s) in Wideband Operation	Intel Corporation
R1-1710626	Remaining details on mulitple SS block transmissions in wideband CC	Samsung
R1-1710882	Multiple SS Blocks in wideband carrier	Ericsson AB
R1-1711059	Discussion on remaining details on multiple SS block transmissions in wideband CC for NR	NTT DOCOMO, INC.
R1-1711138	Multiple SS block transmissions design in wideband CC	Qualcomm Incorporated
R1-1711263	SS-block transmission in multi CC deployments	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711352	Multiple SS block indication in wideband CC	ITL
R1-1711364	Multiple SS block transmissions in a wideband CC	ASUSTEK COMPUTER (SHANGHAI)

5.1.1.2 Broadcast signal/channel

5.1.1.2.1 NR-PBCH contents and payload size

Include NR-PBCH contents, required number of bits for each content and corresponding payload size

R1-1709888	NR-PBCH contents	ZTE
R1-1709914	NR-PBCH contents and payload size	Huawei, HiSilicon
R1-1710026	NR PBCH Contents and Payload Size	CATT
R1-1710262	Consideration on NR-PBCH contents and payload size	LG Electronics
R1-1710375	Views on NR-PBCH contents and payload size	vivo
R1-1710421	Details of NR-PBCH contents	AT&T
R1-1710505	NR PBCH Design	Intel Corporation
R1-1710627	NR-PBCH contents and payload size	Samsung
R1-1710797	Discussion on PBCH Contents	MediaTek Inc.
R1-1710916	On Physical Broadcast Channel in NR	InterDigital, Inc.
R1-1711060	Discussion on NR-PBCH contents and payload size	NTT DOCOMO, INC.
R1-1711139	PBCH contents and payload size consideration	Qualcomm Incorporated
R1-1711264	NR-PBCH content	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711277	Discussion on NR-PBCH contents	Motorola Mobility, Lenovo
R1-1711374	NR-PBCH Content and payload size	Ericsson

5.1.1.2.2 NR-PBCH RE mapping and SS block composition

Include discussion and evaluation based on email discussion [89-15] such as SS block composition, NR-PBCH RE mapping, etc. Note that SS block composition needs to be finalized in this meeting

From Wednesday morning offline

Agreements:

- For the case of 2 PBCH symbols within the SS block: PSS-PBCH-SSS-PBCH
- PBCH RE mapping: Alt. 1, NR-PBCH coded bits of the NR-PBCH code block(s) are mapped across REs in N PBCH symbols, where N is the number of PBCH symbols in a NR-SS block

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1514 of 1750

R1-1711140	SS bock composition and PBCH RE mapping design	Qualcomm Incorporated
R1-1710376	NR-PBCH RE mapping and evaluation	vivo
R1-1710628	NR-PBCH RE mapping and SS block composition	Samsung
R1-1710369	NR-PBCH RE mapping and SS block composition	Spreadtrum Communications
R1-1710506	SS Block Composition	Intel Corporation
R1-1710800	Performance evaluation for RE mapping and SS block composition	MediaTek Inc.
R1-1710917	On NR-PBCH RE Mapping and SS Block Composition	InterDigital, Inc.
R1-1709889	NR-PBCH RE mapping and SS block composition	ZTE
R1-1710006	Discussion and evaluation on NR-PBCH design	Huawei, HiSilicon
R1-1710027	NR PBCH RE mapping in SS Block	CATT
R1-1710224	Discussion and evaluation on SS block composition	Beijing Xinwei Telecom Techn.
R1-1710263	Discussion on NR-PBCH RE mapping and SS block composition	LG Electronics
R1-1710859	Considerations on SS block compositions	Sony
R1-1711061	Discussion on NR-PBCH design and SS block composition	NTT DOCOMO, INC.
R1-1711265	SS block composition	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711278	NR-PBCH RE mapping	Motorola Mobility, Lenovo
R1-1711375	NR-PBCH RE mapping and SS block composition	Ericsson

5.1.1.2.3 Sequence design of DMRS for NR-PBCH

Include DMRS sequence generation, sequence to RE mapping, etc.
Note that DMRS sequence design and RE mapping need to be finalized in this meeting

From Wednesday morning offline

Proposed working assumption (from Wednesday morning offline):
- Sequence type: Gold sequence
  - If cross correlation issues are found, other sequences can be considered
- Sequence initialization from cell ID, and 2 or 3 bits from time identification
- Different sequences in the N NR-PBCH symbols
  - Using longer sequence, different mapping, different initialization etc.

Working assumption:
- Sequence type: Gold sequence
  - If cross correlation issues are found, other sequences can be considered
- Sequence initialization from cell ID, and 2 or 3 bits from time identification
- Different sequences in the N NR-PBCH symbols
  - FFS: Using longer sequence, different mapping, different initialization etc.

Conclusion: Discuss further until Thursday and downselect from:
- Alt 1: Equal DMRS density across NR-PBCH with 3 RE/PRB/Symbol
  - Supported by NTT DOCOMO, Huawei, HiSilicon, vivo, ITL, LGE, OPPO, Intel, Mediatek, Ericsson, Fujitsu, ETRI, Samsung
- Alt 2: Equal DMRS density across NR-PBCH with 4 RE/PRB/Symbol
  - Supported by Samsung, ZTE, CATT, LGE
- Alt 3: Unequal DMRS density with 4 RE/PRB/Symbol outside the NR-PSS/SSS bandwidth and 2 RE/PRB/symbol inside the NR-PSS/SSS bandwidth
  - Supported by Qualcomm, Sony, Interdigital, Sierra

Thursday
CATT, ZTE (for compromise) also support Alt.1
Nokia can also go to Alt.1 although no evaluations have been performed (only Alt.2 and 3 were evaluated)

Agreement: Equal DMRS density across NR-PBCH with 3 RE/PRB/Symbol

Agreement: DMRS have the same RE position in all NR-PBCH symbols

Continue discussion on further details (Daewon, Intel)
Friday
R1-1711943 Discussion on DMRS sequence for NR PBCH Intel

Conclusions:

- Companies are encouraged to provide the following information on NR PBCH DMRS sequence until 28th July in order to finalize the design – Daewon (Intel)
  - Sequence generation related parameters
    - Gold Code LFSR size
    - Gold Code Polynomials
    - initial state configuration
    - output shift offset (e.g. Nc in LTE)
  - Sequence Modulation
  - Sequence mapping to NR PBCH DMRS RE positions
  - Exact NR PBCH DMRS RE positions within the NR PBCH resource
  - Some examples of the information are shown in R1-1711943

Not treated.

R1-1709890	NR-PBCH DMRS design	ZTE
R1-1710007	DMRS for NR-PBCH	Huawei, HiSilicon
R1-1710028	NR PBCH DM RS sequence design and RE mapping	CATT
R1-1710225	Discussion and evaluation on DMRS design for NR-PBCH	Beijing Xinwei Telecom Techn.
R1-1710232	Discussion on DMRS for NR-PBCH	Fujitsu
R1-1710264	Discussion on DMRS design for NR-PBCH	LG Electronics
R1-1710507	DMRS Sequence for NR PBCH	Intel Corporation
R1-1710629	Sequence design of DMRS for NR-PBCH	Samsung
R1-1710918	On DMRS Designs for NR-PBCH	InterDigital, Inc.
R1-1711062	Discussion on sequence design of DMRS for NR-PBCH	NTT DOCOMO, INC.
R1-1711141	DMRS design for NR-PBCH	Qualcomm Incorporated
R1-1711266	NR-PBCH DMRS design	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711353	DMRS sequence design for NR-PBCH	ITL
R1-1711376	NR-PBCH DMRS design	Ericsson

5.1.1.2.4 Remaining minimum system information delivery

Include numerology used for RMSI delivery
Limit to 1 contribution per 1 company/organization/university

R1-1709891	RMSI delivery	ZTE
R1-1709915	Discussion on NR RMSI delivery	Huawei, HiSilicon
R1-1710029	RMSI Delivery	CATT
R1-1710134	Discussion on the numerology of the RMSI	Guangdong OPPO Mobile Telecom.
R1-1710233	Discussion on the CORESET for RMSI delivery	Fujitsu
R1-1710244	PRB indexing for RMSI in NR	NEC
R1-1710265	Remaining minimum system information delivery	LG Electronics
R1-1710508	RMSI Delivery Mechanisms	Intel Corporation
R1-1710608	Delivery of remaining minimum system information	ETRI
R1-1710630	Remaining minimum system information delivery	Samsung
R1-1710773	CORESET configuration for RMSI scheduling	CMCC
R1-1710801	Further discussion on Remaining minimum system information delivery	MediaTek Inc.
R1-1710841	Discussion on remaining system information delivery	Beijing Xinwei Telecom Techn.
R1-1710919	On Minimum System Information Delivery	InterDigital, Inc.
R1-1711063	Discussion on remaining minimum system information delivery for NR	NTT DOCOMO, INC.
R1-1711142	Remaining system information delivery consideration	Qualcomm Incorporated
R1-1711267	On Remaining System Information Delivery	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711319	Relation among NR-PBCH, SIBs and subcells	Panasonic
R1-1711377	NR delivery of remaining minimum system information	Ericsson

5.1.1.2.5 Other system information delivery

Include how to deliver other system information
Limit to 1 contribution per 1 company/organization/university

R1-1709892	Other SI delivery	ZTE
R1-1710030	Delivery of Other System Information	CATT
R1-1710135	Discussion on the on-demand SI	Guangdong OPPO Mobile Telecom.
R1-1710266	Other system information delivery	LG Electronics
R1-1710379	Identification NSA mode during initial access	vivo
R1-1710477	Discussion on other system information delivery	Huawei, HiSilicon

R1-1710609	Delivery of other system information	ETRI
R1-1710631	Other system information delivery	Samsung
R1-1710802	Further discussion on OSI delivery	MediaTek Inc.
R1-1711143	Other system information delivery consideration	Qualcomm Incorporated
R1-1711378	NR delivery of other system information	Ericsson
R1-1711391	On Other System Information Delivery	Nokia, Alcatel-Lucent Shanghai Bell

5.1.1.3 Paging design

Include PO/PF definition, whether/how to multiplex paging DCI and/or message with other signal/channel, spatial QCL assumption with other signal/channel, and paging indication mechanism
Limit to 1 contribution per 1 company/organization/university

R1-1709893	Paging design in NR	ZTE
R1-1709916	Multi-beam Paging for NR	Huawei, HiSilicon
R1-1710031	NR Paging Channel	CATT
R1-1710136	On NR paging design and transmission	Guangdong OPPO Mobile Telecom.
R1-1710267	Paging design in NR	LG Electronics
R1-1710509	NR Paging Design	Intel Corporation
R1-1710632	Paging design	Samsung
R1-1710803	Further discussion on paging design	MediaTek Inc.
R1-1711064	Discussion on paging design for NR	NTT DOCOMO, INC.
R1-1711144	Paging design consideration	Qualcomm Incorporated
R1-1711254	Discussion on Paging Design	III
R1-1711271	Paging in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711379	On NR paging design	Ericsson

5.1.1.4 Physical random access channel and random access procedure

5.1.1.4.1 PRACH preamble format details for long/short sequence length

Include discussion and evaluation based on email discussion [89-16], whether/how to support restricted set, etc.

From Wednesday morning offline

R1-1709894	NR-PRACH formats for long/short sequences	ZTE
R1-1710510	NR PRACH Preamble design	Intel Corporation
R1-1710633	PRACH preamble format details for long/short sequence length	Samsung
R1-1710268	Discussion on PRACH preamble format details	LG Electronics
R1-1711527	PRACH Preamble Format Design	Cohere Technologies
R1-1711547	Discussion on PRACH designs for short sequence	Sequans Communications

Agreements:

- Confirm the working assumption on supporting format 3
- For formats with L=839
  - Unrestricted sets are supported
  - For restricted sets
    - 1.25 kHz: Restricted set A supported, Restricted set B is FFS
    - 5 kHz: Restricted set is supported with FFS if Restricted set A, B or both are supported
- For L=127/139 with option 1, formats with 1,2,4,6, and 12 OFDM symbols are supported
  - Discuss further until Friday actual format definitions with CP and GP (LGE)
    - Number of symbols can be adjusted if problems are identified

---

Thursday

R1-1711875 WF on PRACH Preamble Format for Short sequence with Option 1 LG Electronics, NTT DOCOMO
Also supported by ZTE, Ericsson

Possible agreements:

- For 15kHz subcarrier spacing,
  - Agree at least followings

Preamble format	# of Sequence	TCP	TSEQ	TGP	Path profile (Ts)	Path profile (us)	Maximum Cell radius (meter)	Use case

A	0	1	144	2048	0	48	1.56	[469]	TA is already known or Very small cell
	1	2	288	4096	0	96	3.13	[469]	Small cell
	2	4	576	8192	0	144	4.69	[1,055]	Normal cell
	3	6	864	12288	0	144	4.69	[1,758]	Normal cell
B	4	12	936	24576	792	144	4.69	[3,867]	Normal cell

- Note 1: Unit is Ts, where Ts = 1/30.72MHz
- Note 2: PRACH preamble are aligned with OFDM symbol boundary for data with same numerology
- Note 3: Additional 16Ts for every 0.5ms should be included in T_{CP} when RACH preamble is transmitted across 0.5ms boundary or from 0.5ms boundary
- Note 4: Note that cell radius can be changed later
- Note 5: For format A, GP can be defined within the last RACH preamble among consecutively transmitted RACH preambles

Continue offline discussions until Friday – Hyunsoo (LGE)

Friday

Agreements:

- For 15 kHz subcarrier spacing,
  - Agree on following preamble formats A2, A3, B4
  - **Working assumption** on following preamble formats A0, A1, B0, B1, B2, B3, C0, C1

Preamble format	# of Sequence	TCP	TSEQ	TGP	Path profile (Ts)	Path profile (us)	Maximum Cell radius (meter)	Use case
A	0	1	144	2048	0	48	1.56	469	TA is already known or Very small cell
	1	2	288	4096	0	96	3.13	938	Small cell
	2	4	576	8192	0	144	4.69	2,109	Normal cell
	3	6	864	12288	0	144	4.69	3,516	Normal cell
B	0	1	144	2048	0	48	1.56	469	TA is already known or Very small cell
	1	2	192	4096	96	96	3.13	469	Small cell
	2	4	360	8192	216	144	4.69	1,055	Normal cell
	3	6	504	12288	360	144	4.69	1,758	Normal cell
	4	12	936	24576	792	144	4.69	3,867	Normal cell
C	0	1	1240	2048	0	144	4.69	5300	Normal cell
	1	2	1384	4096	0	144	4.69	6000	Normal cell

  - Note 1: Unit is Ts, where Ts = 1/30.72MHz
  - Note 2: PRACH preamble are aligned with OFDM symbol boundary for data with same numerology
  - Note 3: Additional 16Ts for every 0.5ms should be included in TCP when RACH preamble is transmitted across 0.5ms boundary or from 0.5ms boundary
  - Note 4: For format A, GP can be defined within the last RACH preamble among consecutively transmitted RACH preambles
- For 30/60/120 kHz subcarrier spacing, preamble format can be scaled according to subcarrier spacing.
  - Ts =1/(2*30720) ms for 30 kHz subcarrier spacing
  - Ts =1/(4*30720) ms for 60 kHz subcarrier spacing
  - Ts =1/(8*30720) ms for 120 kHz subcarrier spacing
  - Note that some of the formats may not be applicable to all subcarrier spacings

Not treated.

R1-1711270 [89-16] Email discussion on NR-PRACH preamble formats based on short sequence length ZTE Corporation

R1-1710008 PRACH preamble format details for long/short sequence length Huawei, HiSilicon
R1-1710032 NR RACH Long and Short Preamble Sequence Length CATT
R1-1710229 [89-16] Email discussion on NR-PRACH preamble formats based on short sequence length ZTE Corporation
R1-1710889 NR Physical Random Access Channel Nokia, Alcatel-Lucent Shanghai Bell
R1-1711065 Discussion on PRACH preamble format details for long/short sequence length for NR NTT DOCOMO, INC.
R1-1711145 PRACH preamble format design for long/short sequence length Qualcomm Incorporated
R1-1711270 [89-16] Email discussion on NR-PRACH preamble formats based on short sequence length ZTE Corporation
R1-1711380 NR-RACH preamble format details Ericsson

5.1.1.4.2 PRACH preamble format details for capacity enhancement and beam management

Include necessity and detailed solution for PRACH capacity enhancement, and PRACH design for beam management/recovery

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1518 of 1750

R1-1711865 **Multiple/Repeated PRACH Preamble Transmission with OCC across Preambles** **Qualcomm, Interdigital, Samsung, AT&T, Verizon**
R1-1711827 **WF on Capacity Enhancement for option 1 of PRACH preamble** **LGE, ITL**
R1-1711849 **WF on Preamble sequence for capacity enhancement** **Huawei, HiSilicon**

Possible agreements:
- NR should support PRACH preambles with ZC sequences of length L=127
- NR should support at least 64 PRACH preamble sequences per cell constructed from a single-root ZC sequence with m-sequence cover sequences.
  - The m-sequence cover sequences have length L=127 and are obtained by cyclic-shifts of a single m-sequence generated from the generator polynomial $g(D) = D^7 + D^3 + 1$.

Friday
R1-1711870 **WF on NR PRACH capacity enhancement** **CATT, Huawei, TCL**
- *Support RACH format design for Option 4.*

Discussion: Also supported by Nokia.
Decision: The document is noted.

R1-1710890 **NR Physical Random Access Channel Capacity** **Nokia, Alcatel-Lucent Shanghai Bell**
- Proposal 1: RACH sequence capacity should consider the on-demand SI RACH requests.
- Proposal 2: Use the same PRACH preamble format for FDM multiplexed PRACH resources for initial access and PRACH resources for beam recovery requests.
- Proposal 3: In multiplexing resources for beam recovery requests in TDM manner with RACH slots, support SR like resource of PUCCH for beam recovery requests.
- Proposal 4: As capacity need to due handovers depend on network load and deployment, the NR should support flexible PRACH resource allocation both in time and frequency domain.
- Proposal 5: NR to consider dedicated PRACH preamble sequences for paging driven response.
- Proposal 6: RACH sequence capacity should consider paging indicator response.
- Proposal 7: Support 139 sequence length for short PRACH preamble sequence.
- Proposal 8: Consider preamble format 4 as a method to increase the PRACH preamble sequence capacity.
- Proposal 9: RACH configuration supports both option 1 and option 4.

Decision: The document is noted.

R1-1711600 **PRACH preamble sequences and formats for capacity enhancement and beam management** **Huawei, HiSilicon** (Revision of R1-1709917)
- Proposal 1: NR should support PRACH preambles with ZC sequences of length L=127.
- Proposal 2: NR should support at least 64 PRACH preamble sequences per cell constructed from a single-root ZC sequence with m-sequence cover sequences.
  - The m-sequence cover sequences have length L=127 and are obtained by cyclic-shifts of a single m-sequence generated from the generator polynomial $g(D) = D^7 + D^3 + 1$.
- Proposal 3: 2-stage PRACH with proper UE grouping should be supported as an option to reduce detection complexity for the much higher PRACH spectral efficiency in NR.
- Proposal 4: NR supports option 4 for gNB sweeping.

Decision: The document is noted.

Not treated.
R1-1709895 NR-PRACH formats: capacity enhancements and other use cases ZTE
R1-1709917 PRACH preamble sequences and formats for capacity enhancement and beam management Huawei, HiSilicon
R1-1710033 NR RACH Preamble Format for capacity enhancement, CATT
R1-1710269 Discussion on PRACH preamble for capacity enhancement LG Electronics
R1-1710511 Discussions on PRACH Capacity Intel Corporation
R1-1710610 NR-PRACH for various use cases ETRI
R1-1710634 PRACH preamble format details for capacity enhancement and beam management Samsung
R1-1710822 On PRACH design to support uplink requests MediaTek Inc.
R1-1710890 NR Physical Random Access Channel Capacity Nokia, Alcatel-Lucent Shanghai Bell
R1-1711066 Discussion on PRACH preamble format details for capacity enhancement and beam management for NR NTT DOCOMO, INC.
R1-1711146 PRACH preamble design for capacity enhancement Qualcomm Incorporated
R1-1711381 NR-RACH preamble format details for capacity enhancement and beam management Ericsson
R1-1711569 PRACH Design TCL Communication Ltd.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1519 of 1750

5.1.1.4.3 Power ramping and power control during RA procedure

Include remaining details on PRACH power ramping and Msg.3 power control mechanism
Note that all remaining aspects related to power ramping/control during RA procedure need to be finalized in this meeting

From Wednesday evening offline
Agreements:

- The UE calculates the PRACH transmit power for the retransmission at least based on the most recent estimate pathloss and power ramping
  - The pathloss is measured at least on the SS block associated with the PRACH resources/preamble subset
- UE behavior when reaching the maximum power
  - If the recalculated power is still at or above the Pc,max
    - The UE can transmit at maximum power even if it changes its TX beam

To be discussed further:

- Is the UE required to select the PRACH resources based on the SS block received with the highest SS block RSRP?
- Is the UE is allowed to change SS block used for the pathloss estimate for retransmission?

Thursday: Above questions should not have an impact to RAN4 progress.
Continue discussion until Friday – Nazmul (Qualcomm)
Friday: Continue discussions at the next meeting.

R1-1711861 **WF on RACH Power Control Mechanism for Msg.1 Transmission LGE, NTT DOCOMO**
Also supported by Huawei, HiSilicon

Possible agreements:

- Configure the number of beam switching N for power ramping in Msg.1 (re)transmission, where,
  - when UE conducts beam switching and the number of beam switching is equal to or lower than the number N
    - The counter of power ramping remains unchanged,
  - when UE conducts beam switching and the number of beam switching is N+1
    - If UE doesn't reaches maximum power, the counter of power ramping increases
    - Otherwise, UE reports random access problem to upper layer
  - when the counter of power ramping increases
    - The number of beam switching is reset.
- Configure the maximum count of continuously increasing power ramping in a certain beam, where,
  - when the configured number is exceeded,
    - UE should change its beam for PRACH preamble retransmission.

Not treated.

R1-1709896	Power control during random access procedure	ZTE
R1-1709918	Discussion on power ramping and power control during RA procedure	Huawei, HiSilicon
R1-1710034	RACH power control and power ramping procedure	CATT
R1-1710137	Discussion on Power ramping and power control during RA procedure	Guangdong OPPO Mobile Telecom.
R1-1710252	Discussion on preamble transmitting power	NEC Corporation
R1-1710270	Discussion on Power Control issue for Message 1 and 3	LG Electronics
R1-1710512	PRACH Power ramping procedure	Intel Corporation
R1-1710635	Power ramping and power control during RA procedure	Samsung
R1-1710823	PRACH Msg1 retransmission	MediaTek Inc.
R1-1710870	Power ramping for Msg1 preamble re-transmission	InterDigital, Inc.
R1-1710891	Preamble Power Ramping and RACH Message 3 Power Control	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711067	Discussion on power ramping and power control during RA procedure for NR	NTT DOCOMO, INC.
R1-1711147	Power ramping and power control for RA procedure	Qualcomm Incorporated
R1-1711233	Remaining issues on power ramping in NR	Sharp
R1-1711382	Power ramping and power control during RA procedure	Ericsson

5.1.1.4.4 4-step RA procedure

Include Msg.2/3/4 channel design, RACH configuration, non-contention based random access procedure, etc.

R1-1711866 **WF on RACH configuration in RMSI** **Huawei, HiSilicon**

Agreement:

- All random access configuration information is broadcasted in all beams used for RMSI within a cell
  - i.e, RMSI information is common for all beams

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1520 of 1750

R1-1711936 **WF on CSI-RS based RACH Configuration** **Samsung, Ericsson, ZTE, Mediatek Mitsubishi, MTI**
Also supported by Nokia, Huawei, HiSilicon

Agreements:

- At least for handover case, a source cell can indicate in the handover command,
  - Association between RACH resources and CSI-RS configuration(s)
  - Association between RACH resources and SS blocks
  - A set of dedicated RACH resources (FFS: time/frequency/sequence)
  - Note that above CSI-RS configuration is UE-specifically configured

Formatted: English (United States)

R1-1711876 **WF on multiple Msg.1 transmission for contention free case** **Samsung, Huawei, Hisilicon, MediaTek, ZTE**

Possible agreements:

- For contention free case, a UE can be configured to transmit multiple Msg.1 over multiple RACH transmission occasions before the end of a monitored RAR window

Friday

Agreements:

- For contention free case, a UE can be configured to transmit multiple Msg.1 over dedicated multiple RACH transmission occasions in time domain before the end of a monitored RAR window if the configuration of dedicated multiple RACH transmission occasions in time domain is supported.
  - Note: The time resource used for 'dedicated RACH in time domain' is different from the time resources of contention based random access
  - Note: Multiple Msg1 can be transmitted with same or different UE TX beams

R1-1711799 **WF on random access association configuration** **ZTE**

Possible agreements:

- The subsets of PRACH resources/indices are defined using the following parameters
  - W: Number of preamble indices per subset of preamble indices
  - X: Number of preamble subsets per PRACH resource
  - Y: Number of associations per preamble subset per PRACH time instance
- The SS blocks are consecutively associated with the subsets of PRACH resources/indices using the following parameter
  - Z: Association time period
    - The number of PRACH time instances after which an association from an SS block occurs again

Friday

R1-1711945 **WF on random access association configuration** **ZTE**

Agreements:

- For contention-based random access, an association between an SS block in the SS burst set and a subset of RACH resources and/or preamble indices is configured by a set of parameters in RMSI.
  - RAN1 strives to use the same set of parameters for different cases, e.g. analog/hybrid/digital beamforming at gNB, level of gNB beam correspondence, number of SS blocks, number of frequency multiplexed PRACH resources, PRACH resource density in time etc.
  - RAN1 strives to minimize the set of parameters.
  - FFS the set of parameters
  - FFS the number of SS blocks (if indicated in RMSI or MIB), e.g. the actually transmitted SS blocks or the maximum number (L).

Not treated.

R1-1709897	4-step random access procedure	ZTE
R1-1710035	Further details on NR 4-step RA Procedure	CATT
R1-1710138	NR 4-Step Random Access Procedure	Guangdong OPPO Mobile Telecom.
R1-1710218	RACH transmission count	Mitsubishi Electric Co.
R1-1710234	Discussion on 4-step RA procedure	Fujitsu
R1-1710271	RACH Procedure	LG Electronics
R1-1710422	DL Tx beam reporting in msg. 3	AT&T
R1-1710478	RACH procedures and resource configuration	Huawei, HiSilicon
R1-1710513	4-step PRACH Procedures	Intel Corporation
R1-1710636	4-step RACH procedure	Samsung

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1521 of 1750

R1-1710774	Discussion on RACH configuration	CMCC
R1-1710824	On 4-step RACH procedure	MediaTek Inc.
R1-1710860	Considerations on 4-step RA procedure	Sony
R1-1710871	Multiple Msg1 transmissions for one monitored RAR window	InterDigital, Inc.
R1-1710892	NR 4-step RACH procedure	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711068	Discussion on 4-step RA procedure for NR	NTT DOCOMO, INC.
R1-1711148	4-step RACH procedure consideration	Qualcomm Incorporated
R1-1711279	RACH configuration and procedure	Motorola Mobility, Lenovo
R1-1711383	4-step random access procedure	Ericsson

5.1.1.5 Mobility procedure

5.1.1.5.1 Measurement based on SS block

Include whether/how to handle power offset between NR-SSS and PBCH-DMRS, one or multiple information on periodicity and timing for RRM measurement per carrier, etc.

R1-1710977 Discussion on RRM measurement on SS blocks CMCC

Alt 1: Network indicates one single shortest periodicity for RRM measurement in the same carrier frequency.
Alt 2: Network indicates one single longest periodicity for RRM measurement in the same carrier frequency.
Alt 3: Network indicates two periodicities, one for the camping cell and the other for the neighboring cells in the same carrier frequency.

- Observation 1: For IDLE mode UE RRM measurement, one single indication of the *longest* SS burst set periodicity of all the cells in the same carrier frequency can work, as long as the SS block timing locations within the SS burst set with longer periodicity is a subset of SS block timing locations within the SS burst set with shorter periodicity, i.e., *subset alignment of all SS blocks in the same carrier frequency.*
- Observation 2: From network operating perspective, subset alignment of SS blocks is necessary since it ensures the simple indication of SSBS periodicity for RRM measurement and that UE can also detect cells that are not configured in the neighbor cell list.
- Observation 3: For IDLE mode UE, both Alt 2 and Alt 3 can work.
- Proposal 1: It is slightly preferred that Alt 2, i.e., one periodicities and one information regarding SS block timing locations is indicated to IDLE mode UE for intra-frequency measurement.
- Proposal 2: For CONNECTED mode UE, two SSBS periodicities and two information regarding SS block timing locations are indicated for intra-frequency measurement.
- Proposal 3: Only one SSBS periodicity regarding inter-frequency measurement is preferred to be indicated.

Decision: The document is noted.

R1-1709919 SS Burst Periodicities and timing for UE RRM measurement Huawei, HiSilicon

- Proposal 1: In addition to NR-SSS, UE may optionally use DMRS for PBCH to derive SS block RSRP as cell level quality for L3 mobility. Whether and how to use DMRS for PBCH is up to UE implementation.
- Proposal 2: NR should support fixed power offset between NR-SSS and PBCH-DMRS to use PBCH-DMRS to derive SS block RSRP for L3 mobility.
- Proposal 3: NR should support to indicate multiple SS burst set periodicities and information regarding measurement timing/duration to connected mode UE.
- Proposal 4: NR should support to indicate one SS burst set periodicity and one information regarding measurement timing/duration for all cells or non-serving cells to idle mode UE.

Decision: The document is noted.

R1-1710637 Measurement based on SS block Samsung

- Proposal 1: A fixed EPRE power ratio shall be adopted between SSS and PBCH DMRS. The fixed ratio shall be 3.5dB.
- Proposal 2: Only a single SS burst set periodicity value shall be configured per carrier

Decision: The document is noted.

R1-1711761 WF on measurement based on SS block NTT DOCOMO, Ericsson, Huawei, HiSilicon, AT&T

- Regarding the measurement timing configuration i.e., SS burst set periodicity/timing/duration information for UE RRM measurement per frequency carrier,
  - Only single measurement timing configuration is configured per frequency carrier to UE for IDLE mode measurement.
  - Multiple measurement timing configurations can be configured to UE in CONNECTED mode.
    - Different measurement timing configurations are applied to different group of cells on the frequency carrier
    - FFS maximum number of measurement timing configurations per frequency carrier

Decision: The document is noted.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1522 of 1750

Agreements:

- Regarding the SS block based RRM measurement timing configuration (SMTC) i.e., measurement window periodicity/duration/offset information for UE RRM measurement per frequency carrier,
  - For intra-frequency CONNECTED mode measurement, up to two measurement window periodicities can be configured
    - UE can be informed of which cell(s) is associated with which measurement window periodicity
      - For cell(s) that is not listed, longer measurement window periodicity is used
    - Single measurement window offset and duration are configured per frequency carrier
  - For IDLE mode measurements, only single SMTC is configured per frequency carrier
  - For inter-frequency CONNECTED mode measurements, only single SMTC is configured at least per frequency carrier
  - RAN1 asks RAN4 if there is any concern for inter-frequency measurement based on single SMTC or multiple SMTCs across different frequency carriers

R1-1711801 WF on power offset of NR-PBCH DMRS and NR-SSS MediaTek, Huawei, HiSilicon, NTT DOCOMO

- A fixed power offset defined in the specification shall be adopted between SSS and PBCH DMRS.
  - FFS: 0 dB, 3 dB, or 3.5 dB power offset

Decision: The document is noted and the folowing is agreed:

Agreement: A fixed power offset defined in the specification shall be adopted between SSS and PBCH DMRS per frequency band

Not treated.

R1-1711800 WF on SS block repetition ZTE, Sierra Wireless
R1-1709898 RRM measurements on IDLE mode RS ZTE
R1-1710036 IDLE and CONNECTED mode UE mobility based on SS-block measurements CATT
R1-1710139 On RRM measurement based on SS block Guangdong OPPO Mobile Telecom.
R1-1710272 SS block based RRM Measurement LG Electronics
R1-1710377 SS block time index for idle/inactive measurement vivo
R1-1710423 Measurement based on SS block AT&T
R1-1710514 SS Block based RRM Measurements Intel Corporation
R1-1710804 Discussion on measurement based on SS block MediaTek Inc.
R1-1711069 Discussion on NR RRM measurement based on SS block NTT DOCOMO, INC.
R1-1711149 Measurement based on SS block consideration Qualcomm Incorporated
R1-1711268 SS block measurements and procedures Nokia, Alcatel-Lucent Shanghai Bell
R1-1711384 Mobility measurements based on SS block Ericsson

5.1.1.5.2 Measurement based on CSI-RS for L3 mobility

Include candidate periodicity values, whether/how transmission and/or measurement bandwidth is indicated, numerology of CSI-RS for L3 mobility, spatial QCL assumption, methods to obtain parameters of CSI-RS for L3 mobility, etc.
Note that CSI-RS configuration parameters for L3 mobility need to be finalized in this meeting

R1-1710273 CSI-RS based RRM Measurement for L3 Mobility LG Electronics

- Proposal 1: Considering the UE behaviour of L3 mobility, CSI-RS for L3 mobility should be transmitted periodically, and the periodicity of CSI-RS is configured to be at least less than 20ms.
- Proposal 2: Transmission bandwidth of CSI-RS is signalled by UE-dedicated RRC message and how much part is used as measurement bandwidth is an implementation issue.
- Proposal 3: Symbol duration of CSI-RS is based on SCS of data channel and it is configured per frequency through UE-dedicated RRC configuration message. IFDMA is proposed for sub-time unit transmission within an OFDM symbol.
- Proposal 4: A part of spatial information can be exploited from a SS block if the beam width of SS block is super set but limited set of the beam width of CSI-RS.
- Proposal 5: When a UE detects SS block of a cell, which is not in the neighbour cell list or whose CSI-RS configuration is not given to the UE, UE may request CSI-RS configuration for that cell using measurement report.

Decision: The document is noted.

R1-1710805 Discussion on CSI-RS for L3 mobility MediaTek Inc.

- Proposal 1: Candidate periodicity values of CSI-RS for L3 mobility is 5, 10, 20, 40, 80, 160 ms.
- Proposal 2: CSI-RS for L3 mobility and SS block burst are transmitted in TDM manner.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1523 of 1750

- Proposal 3: The CSI-RS for L3 mobility and the measurement gap should be aligned, and the entire CSI-RS for L3 mobility should be contained in the measurement gap.
- Proposal 4: NR supports measurement configuration of CSI-RS for L3 mobility, including
  - measurement bandwidth per carrier frequency
  - numerology
  - QCL assumption
- Observation 1: The numerologies of CSI-RS from different cells could be different, so it is unlikely all configuration parameters are valid for all CSI-RS resources on a carrier frequency (Method 2).
- Proposal 5: As a baseline, configuration parameters of CSI-RS for L3 mobility are valid for one CSI-RS resource. Certain parameters can be cell-specific/frequency-specific, e.g. periodicity.
- Observation 2: If the configuration parameters can be obtained from detected cell-ID (e.g. Method 3 & Method 5), then it is cell-specific configuration, and RAN1 does not see the need to support cell-specific configuration for CSI-RS for RRM measurement.
- Observation 3: Measuring CSI-RS with parameters derived from detected cells will increase UE complexity.

Decision: The document is noted.

R1-1711762 WF on measurement based on CSI-RS NTT DOCOMO, Ericsson, AT&T

- Following CSI-RS properties for RRM measurement for L3 mobility are supported in NR
  - Configurable periodicity (as already agreed)
    - {5, 10, 20, 40, [80, 160]} ms are supported
  - Configurable transmission bandwidth (as already agreed)
    - FFS candidate values
  - Configurable measurement bandwidth (as already agreed) and frequency location
    - At least minimum carrier bandwidth for each frequency band/range and at least one additional wider bandwidth for each SCS (e.g., maximum UE bandwidth) are supported
      - FFS other candidate values for wider bandwidth for each SCS
    - Measurement of CSI-RS in subband/bandwidth part which may or may not contain SS Blocks is supported
  - Configurable parameters for sequence generation
  - Configurable numerology
    - For each frequency range, subcarrier spacing values applicable to data, CSI-RS for beam management and SS block in the frequency range are supported
  - FFS: Configurable spatial QCL with SS block
    - It is assumed that property of spatial QCL between SS block and CSI-RS for beam management will be reused
  - Configurable CSI-RS time/frequency resource (as already agreed)
    - CSI-RS design including RE mapping and density for beam management is assumed as baseline

Decision: The document is noted, modified and agreed as follows:

Agreements:

- Following CSI-RS properties for RRM measurement for L3 mobility are supported in NR
  - Configurable periodicity (as already agreed)
    - {5, 10, 20, 40, [80, 160]} ms are supported
    - This does not mean periodicity will be configured per CSI-RS resource
  - Configurable transmission bandwidth (as already agreed)
    - FFS candidate values
  - Configurable measurement bandwidth (as already agreed) and frequency location
    - At least minimum carrier bandwidth for each frequency band/range and at least one additional wider bandwidth for each SCS (e.g., maximum UE bandwidth) are supported
      - FFS other candidate values for wider bandwidth for each SCS
    - Measurement of CSI-RS in subband/bandwidth part which may or may not contain SS Blocks is supported
  - Configurable parameters for sequence generation
  - Configurable numerology
    - For each frequency range, subcarrier spacing values applicable to data, CSI-RS for beam management and SS block in the frequency range are supported
  - Association between CSI-RS for RRM measurement and SS block
    - It is assumed that property of spatial QCL between SS block and CSI-RS for beam management will be reused
  - Configurable CSI-RS time/frequency resource (as already agreed)
    - CSI-RS design including RE mapping and density for beam management is assumed as baseline
  - Note that above properties are relevant for RAN4 RRM measurement evaluations and not intended to be an exhaustive list of properties

R1-1711864 **Measurement window periodicity, duration and offset of CSI-RS for L3 mobility** **Qualcomm**

Possible agreements:

- For DRX operation,
  - For the CSI-RS based RRM measurement timing configuration (i.e., measurement window periodicity/duration/offset information), only a single measurement window periodicity, duration and offset for all CSI-RS resources are configured per frequency carrier
    - This applies to both intra-frequency and inter-frequency measurements

Not treated.

R1-1709899	RRM measurements on CSI-RS for L3 mobility	ZTE
R1-1709920	CSI-RS configuration parameters for L3 mobility	Huawei, HiSilicon
R1-1710037	L3 Mobility based on CSI-RS based measurments	CATT
R1-1710378	CSI-RS configuration for L3 mobility	vivo
R1-1710424	Measurement based on CSI-RS for L3 mobility	AT&T
R1-1710515	CSI-RS based RRM Measurements	Intel Corporation
R1-1710638	Measurement based on CSI-RS for L3 mobility	Samsung
R1-1710775	Discussion on RRM measurement on SS blocks	CMCC
R1-1711070	Discussion on NR RRM measurement based on CSI-RS for L3 mobility	NTT DOCOMO, INC.
R1-1711150	Measurement based on CSI-RS for L3 mobility consideration	Qualcomm Incorporated
R1-1711385	Measurements based on CSI-RS for L3 mobility	Ericsson
R1-1711392	CSI-RS configuration for L3 mobility purposes	Nokia, Alcatel-Lucent Shanghai Bell

5.1.1.5.3 Radio link monitoring

Include RS used to derive SINR like metric for RLM
Note that RS used for radio link monitoring needs to be finalized in this meeting

R1-1711151 **Radio link monitoring consideration** **Qualcomm Incorporated**

- Proposal 1: In Idle/RRC connected inactive/RRC connected active states, cell detection and measurements are based on cell-specific PSS and SSS for both the serving cell and neighboring cells.
- Proposal 2: Choice of RLM RS should consider the following aspects
  - RLM RS should be QCL with NR-PDCCH to reflect the channel experienced by NR-PDCCH
  - UE should be able to estimate the interference level experienced by NR-PDCCH
  - RLM RS should have guaranteed existence with lower enough periodicity, i.e. 10-20ms or DRX cycle if DRX cycle is longer than 10-200ms
  - Consider reuse RLM RS for other purposes to reduce overhead, i.e. beam management, tracking RS, etc.
- Proposal 3: LTE Radio Link Failure triggering procedure can be a starting pointing for NR radio link monitoring design
- Proposal 4: In addition to RLM based IS/OOS, beam failure recovery procedure can provide periodic/aperiodic IS and OOS indications to upper layers for the RLF procedure.

Decision: The document is noted.

R1-1711763 **WF on radio link monitoring** **NTT DOCOMO, Ericsson, AT&T**

- The RS used for RLM should have following properties
  - Periodic transmission with short enough periodicity
  - Wideband transmission relative to bandwidth of active bandwidth part
  - Supporting both single beam and multi-beam operations
  - Representing control channel quality, e.g., by QCL with PDCCH
- CSI-RS can be periodic and can be transmitted in wideband. CSI-RS has enough flexibility not only on periodicity and bandwidth but also on transmission beam/scheme to represent control channel quality and so on. Therefore, at least periodic CSI-RS can be used for RLM. In some case, CSI-RS for RLM and CSI-RS for RRM measurement and/or for beam management may share the same physical resources to reduce RS overhead.
- SS block can be also considered for RLM as SS block is the always-on signal to provide cell coverage. But there may be a case where SS block cannot provide some properties required for RLM, e.g., QCL with PDCCH.

Decision: The document is noted, modified as follows:

Agreements:

- The RS used for RLM should have following properties
  - Periodic transmission with short enough periodicity
  - Wideband transmission relative to bandwidth of active bandwidth part
  - Supporting both single beam and multi-beam operations
  - Representing control channel quality
- Both CSI-RS based RLM and SS block based RLM are supported

- FFS: whether or not only a single type of RS is configured to UE for RLM at a time

R1-1711806 WF on radio link monitoring in NR Huawei, HiSilicon, Qualcomm, ATT

- NR should support aperiodic indication from beam failure recovery to assist RLF procedure.
  - Example 1: aperiodic IS indication(s) from beam failure recovery can stop/reset T310
    - RAN2 can decide specific procedure
  - Example 2: aperiodic OOS indication from failure of beam recovery procedure
    - How to use aperiodic OOS indication can be decided in RAN2

Decision: The document is noted.

Thursday

- NR should strive to provide aperiodic indication based on beam failure recovery procedure to assist RLF procedure if the same RS is used for beam failure recovery and RLM procedure
  - Example 1: aperiodic IS indication(s) from beam failure recovery can stop/reset T310
    - RAN2 can decide specific procedure
  - Example 2: aperiodic OOS indication from failure of beam recovery procedure
    - How to use aperiodic OOS indication can be decided in RAN2

Friday

R1-1711889 WF on Radio Link Monitoring in NR Huawei, HiSilicon, Qualcomm, ATT, DOCOMO, Intel, Vivo, LGE

Agreements:

- NR should strive to provide aperiodic indication(s) based on beam failure recovery procedure to assist radio link failure (RLF) procedure, if same RS is used for beam failure recovery and RLM procedures.
  - Example 1: aperiodic indication(s) based on beam failure recovery procedure can reset/stop T310
    - RAN2 can decide specific procedure
  - Example 2: aperiodic indication(s) based on failure of beam recovery procedure
    - How to use aperiodic indication can be decided in RAN2
  - FFS: aperiodic indication(s) based on beam failure recovery procedure to assist RLF procedure if different RS is used

R1-1711850 WF on RLM CATT

Not treated.

R1-1709900 Radio link monitoring in NR ZTE
R1-1709921 Discussion on remaining issues of radio link monitoring Huawei, HiSilicon
R1-1710038 NR Radio Link Monitoring CATT
R1-1710274 Discussion on Radio Link Monitoring in NR LG Electronics
R1-1710425 Radio link monitoring AT&T
R1-1710516 NR Radio Link Monitoring Intel Corporation
R1-1710639 Radio link monitoring Samsung
R1-1710806 Discussion on Radio Link Monitoring MediaTek Inc.
R1-1711071 Discussion on NR RLM and RLF NTT DOCOMO, INC.
R1-1711269 NR Radio link monitoring Nokia, Alcatel-Lucent Shanghai Bell
R1-1711386 Radio link monitoring Ericsson

5.1.1.6 Other

R1-1709922 On numerology determination during initial access Huawei, HiSilicon
R1-1710445 Minimum UE bandwidth in NR Huawei, HiSilicon
R1-1710640 Discussion on SS periodicity and PBCH TTI Samsung
R1-1710641 Considerations on PRACH design in high-mobility scenario Samsung
R1-1711387 Consideration of PRACH Configuration in NR Ericsson
R1-1711388 Additional synchronization provision Ericsson

5.1.2 MIMO

R1-1711916 Chairman's notes of AI 5.1.2 MIMO Ad-Hoc chair (Qualcomm)

The document was presented by Wanshi Chen from Qualcomm.

Decision: The document is endorsed and content is incorporated as below, with the add-on regarding the conclusion on beam management details (see 5.1.2.2.1).

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1526 of 1750

5.1.2.1 Multi-antenna scheme

Physical control channel related issues are to be discussed in the agenda item for scheduling/HARQ aspects.

5.1.2.1.1 Codeword mapping

Including codeword-to-layer mapping, codeword to resource mapping and interleaving

R1-1710642 **Finalizing Layer Mapping** **Samsung**
R1-1710446 **Codeword to layer mapping in NR** **Huawei, HiSilicon**
R1-1711007 **Codeword to layer mapping for DL and UL** **Ericsson**
R1-1711152 **CW to layer mapping and frequency domain interleaving** **Qualcomm Incorporated**
R1-1710426 **Remaining details of codeword mapping for NR MIMO** **AT&T**
R1-1710517 **Remaining details on CW to MIMO layer mapping** **Intel Corporation**

Continue discussion offline – Youngwoo (Samsung)/Leiming (Huawei)
R1-1711935 **Summary of Open Issues on Layer Mapping** **Samsung**

Agreements:

- Companies are encouraged to provide evaluation results especially for URLLC, intra-slot frequency hopping, dynamic TDD and high speed train scenarios
  - Practical simulation assumptions e.g. CBG based HARQ, pre-emption indication, DMRS, interleaver should be considered.
  - For both CP-OFDM and DFT-S waveforms
  - Evaluation should be done considering both slot and mini-slot.

Agreements:

- NR supports higher layer signalling for the maximum number of MCS/RV/NDI in DCI for PDSCH
  - FFS HARQ ID
  - Unless indicated otherwise, UE assumes single MCS/RV/NDI in DCI, i.e. up to four MIMO layers
- NR supports higher layer signalling for the maximum number of CQIs in UCI
  - Unless indicated otherwise, UE assumes single CQI in UCI, i.e. up to four MIMO layers in RI report
    - FFS subband CQI
  - FFS Whether or not the actual number of CQIs is also RI dependent
  - Note: This higher layer signalling can be the other signalling related to RI/PMI reporting (e.g. RI restriction)
  - FFS applicability on single/multi TRP

Not treated.
R1-1711665 WF on MIMO layer to CW correspondence Intel
R1-1709904 Discussion on Remaining Details of Codeword Mapping Beijing Xinwei Telecom Techn.
R1-1710050 On codeword mapping CATT
R1-1710175 Codeword mapping and interleaving ZTE
R1-1710255 Remaining details on DMRS ports and number of layers indication NEC Corporation
R1-1710275 Discussion on codeword mapping LG Electronics
R1-1710594 On codeword to RE mapping scheme Lenovo, Motorola Mobility
R1-1710611 Discussion on codeword mapping ETRI
R1-1710815 codeword mapping in NR MediaTek Inc.
R1-1711072 Discussion on codeword mapping NTT DOCOMO, INC.

5.1.2.1.2 Codebook based transmission for UL

R1-1710643 **Codebook-Based UL Transmission** **Samsung**
R1-1710518 **On codebook based UL tansmission** **Intel Corporation**
R1-1710051 **Considerations on codebook based UL transmission** **CATT**
R1-1711610 **UL MIMO for codebook based transmission** **Ericsson** (Revision of R1-1711008)
R1-1711073 **Codebook design for uplink** **NTT DOCOMO, INC.**

Continue discussion offline – Yushu (Intel)
R1-1711674 Summary of Issues and WFs on Codebook based transmission for UL Intel
R1-1711881 **Summary of Issues and WFs on Codebook based transmission for UL** **Intel**

Conclusion:

- To better understand the tradeoff of uplink cell throughput gain vs. the overhead of control signalling for down-selection, determine the control signalling for frequency-selective precoding after the codebook is defined

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1527 of 1750

R1-1711874 **NR UL MIMO Signaling Mechanism** **Ericsson, Nokia, Alcatel-Lucent Shanghai Bell, Qualcomm, CATT, ZTE**
R1-1711792 **WF on codebook based UL transmission** **MediaTek, Nokia, Shanghai Bell**

Not treated.
R1-1710140 On uplink codebook design Guangdong OPPO Mobile Telecom.
R1-1710176 Codebook based UL transmission ZTE
R1-1710276 Discussion on codebook based transmission for UL LG Electronics
R1-1710447 Codebook based transmission for UL MIMO Huawei, HiSilicon
R1-1710816 Codebook based transmission in UL MediaTek Inc.
R1-1710920 TPMI Indication for Frequency Selective UL Precoding InterDigital, Inc.
R1-1711153 Codebook based UL transmission Qualcomm Incorporated
R1-1711284 Codebook Based Transmission and Codebook Design for UL MIMO Nokia, Alcatel-Lucent Shanghai Bell

5.1.2.1.3 Non-codebook based transmission for UL

R1-1709923 **Non-codebook based transmission for UL MIMO** **Huawei, HiSilicon**
R1-1710177 **Non-Codebook based and Hybrid based UL transmission** **ZTE**
R1-1710644 **Discussion on Non-Codebook-Based UL Transmission** **Samsung**
R1-1711154 **Non-codebook based UL transmission** **Qualcomm Incorporated**

Continue discussion offline – Jun (Nokia)
R1-1711884 **Summary of issues on UL non-codebook based transmissions** **Nokia, ASB**
R1-1711750 **WF on UL non-codebook based transmission** **Huawei, HiSilicon, DOCOMO, Sharp, LGE, Ericsson, China Telecom, Deutsche Telekom, Xinwei, Vodafone, CeWiT, China Unicom, Tejas Networks, CATR, IITH, IITM, Panasonic, ZTE, InterDigital, AT&T, SoftBank, KDDI**
Also supported by Fujitsu, Mitsubishi

Agreements:
- For PUSCH precoder determination in non-codebook-based UL MIMO, support at least one of the followings:
  - Alt.1: Signalling of SRI(s) only, without TPMI indication in the UL grant
  - Alt.2: Signalling of TRI only, without TPMI indication in the UL grant
  - Alt.3: Signalling of TRI and a single SRI, without TPMI indication in the UL grant
  - Alt. 4: signalling of a single TRI, a single CRI without TPMI indication in the UL grant
  - To down-select in the next meeting considering single- vs. multi-panel (companies are encouraged to perform more evaluations)
  - Note: this may depend UE's capability in terms of calibration

R1-1710052 On non-codebook based UL transmission CATT
R1-1710277 Discussion on non-codebook based transmission for UL LG Electronics
R1-1710519 On non-codebook based UL transmission Intel Corporation
R1-1711009 UL MIMO for non-codebook based transmission Ericsson
R1-1711074 Beam determination for non-codebook based transmission for uplink NTT DOCOMO, INC.
R1-1711285 Non-codebook based UL-MIMO transmission Nokia, Alcatel-Lucent Shanghai Bell

5.1.2.1.4 Diversity transmission for UL

R1-1710427 **UL diversity transmision for NR** **AT&T**
R1-1710178 **Diversity based uplink transmission schemes** **ZTE**

Continue offline discussion – Cristina (Mitsubishi)
R1-1711845 **Summary of AI 5.1.2.1.4 Diversity transmission for UL** **Mitsubishi**

Conclusion:
- Companies are strongly encouraged to perform analysis and simulations for diversity transmission for both CP-OFDM and DFT-s-OFDM based UL considering various scenarios
- Aim to conclude in the next meeting

R1-1710921 STBC-based Transmission for Uplink Transmit Diversity InterDigital, Inc.
R1-1711286 UL-MIMO diversity-based transmission Nokia, Alcatel-Lucent Shanghai Bell
R1-1710053 Considerations on transmission diversity scheme in UL CATT

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1528 of 1750

R1-1710278 Discussion on diversity transmission for UL LG Electronics
R1-1710448 Diversity-based transmission for UL Huawei, HiSilicon
R1-1710520 On diversity based UL transmission Intel Corporation
R1-1710645 Diversity transmission for UL Samsung
R1-1710886 UL diversity transmission for DFTsOFDM Mitsubishi Electric RCE
R1-1711010 Robust Transmission Scheme for PUSCH Ericsson
R1-1711155 On UL diversity transmission scheme Qualcomm Incorporated

5.1.2.1.5 PRB bundling for DL

R1-1709905 Further Discussion on DL PRB Bundling Beijing Xinwei Telecom Techn.
R1-1711287 On details of PRB Bundling Nokia, Alcatel-Lucent Shanghai Bell
R1-1711156 Discussion on PRB bundling for DL Qualcomm Incorporated

Continue offline discussion – Peng (Xinwei)
R1-1711960 Summary of Issues on DL PRB bundling Xinwei
R1-1711990 WF on DL PRB Bundling Xinwei, Huawei, HiSilicon, Qualcomm

Agreements:
- For DL data transmission:
  - PRB bundling size values include
    - Case 1: one or more values down-selected from the following set
      - {[1], 2, 4, 8 and 16};
      - FFS the relationship with RBG size;
    - Case 2: values equal to consecutively scheduled bandwidth in frequency;
  - For UE-specific PRB bundling size indication, support dynamically indicated PRB bundling size with up to 1 bit overhead;
    - FFS implicit indication to reduce configuration overhead, e.g., based on DMRS configuration etc;
    - FFS the usage of above 1 bit, e.g. whether to switch between Case 1 and Case 2 or between two configured Case 1 values;
    - FFS other aspects related to MU-MIMO pairing and higher-layer signaling

Not treated.
R1-1710521 On PRB bundling for DL Intel Corporation
R1-1709925 PRB bundling size for DL data precoding Huawei, HiSilicon
R1-1710054 PRB bundling for DL transmission CATT
R1-1710179 On PRB Bundling ZTE
R1-1710360 Discussion on PRB bundling size for NR DL Spreadtrum Communications
R1-1710646 PRB bundling for NR DMRS Samsung
R1-1710922 PRG Size Indication in NR InterDigital, Inc.
R1-1711011 PRB bundling Ericsson

5.1.2.1.6 Multi-TRP and Multi-panel transmission

DL
R1-1711013 DL multi-TRP and multi-panel transmission Ericsson

Agreements:
- The maximum supported number of unicast and dynamically scheduled NR-PDSCHs a UE can be expected to simultaneously receive is 2 on a per component carrier basis in case of one bandwidth part for the component carrier
  - FFS in case of two or more bandwidth parts for the component carrier
  - FFS the max number of corresponding NR-PDCCHs

R1-1710180 Multi-TRP Transmission and interference coordination ZTE

UL
R1-1710648 Discussions on NR UL multi-panel/multi-TRP Samsung
R1-1710522 Discussion on uplink multi-panel and multi-TRP operation Intel Corporation

R1-1711667 WF on multiple PDSCH approach of supporting NC-JT Intel

Agreements:
- Send LS to RAN2 (cc RAN3) to inform about RAN1 agreement from RAN1#89 on the support of multiple PDSCHs transmission to the UE to support NC-JT operation

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1529 of 1750

- Include in the LS the following content
  - RAN1 agreement from RAN1#89
  - RAN1 is considering different scenarios including TRPs connected with ideal and non-ideal backhaul link, TRPs with same and different cell IDs, etc. to provide an increased throughput for users covered by different TRPs, and greater radio link reliability through dual connectivity-like operation
  - RAN1 thinks that the above agreement may have impact on RAN2 specification
  - Actions: RAN1 asks RAN2 to take into account the above agreement in RAN2's work and provide any information that may be relevant for future RAN1's work on this topic

Draft LS is endorsed in R1-1711820. Final LS is approved in R1-1712000.

Continue discussion offline – Xin (CATT)
R1-1711857 Summary of views on multi-TRP & multi-panel transmission CATT

Not treated.
R1-1709924 Multiple NR-PDCCH for Multiple TRP transmission Huawei, HiSilicon
R1-1710055 Considerations on multi-panel/multi-TRP transmission CATT
R1-1710141 Considerations on the multi-TRP/Multi-pannel design to support the reception of multiple PDCCHGuangdong OPPO Mobile Telecom.
R1-1710235 Discussion on multiple NR-PDCCHs in NC-JT scheme Fujitsu
R1-1710279 Discussion on cooperative transmission LG Electronics
R1-1710428 On the details of multi-TRP and multi-panel transmission AT&T
R1-1710451 CSI acquisition details for NCJT Huawei, HiSilicon
R1-1710523 Support of downlink NC-JT in NR Intel Corporation
R1-1710647 Discussions on NR DL network coordination Samsung
R1-1710814 Multi-TRP and panel transmission MediaTek Inc.
R1-1710923 DCI Design for Multi-TRP/Panel Transmission for DL InterDigital, Inc.
R1-1710969 NR-PDCCH for multi-TRP transmission China Telecommunications
R1-1711012 UL multi-panel transmission Ericsson
R1-1711157 On multi-TRP and multi-panel transmission Qualcomm Incorporated
R1-1711288 On the maximum number of PDSCH/PDSCHs to be supported for multi-TRP transmission Nokia, Alcatel-Lucent Shanghai Bell

5.1.2.1.7 Rate matching

R1-1710649 On PDSCH rate matching for NR Samsung
R1-1711014 On rate matching Ericsson

Agreements:
- A UE is configured with resources for PDSCH rate matching
  - FFS details
- A UE is configured with resources for PUSCH rate matching
  - FFS details

Continue discussion offline – Kunil (LGE)
R1-1711841 Summary of views on resource for PDSCH and PUSCH rate matching LGE

Not treated.
R1-1710181 Discussion on rate matching ZTE
R1-1710280 Discussion on rate matching LG Electronics
R1-1709933 Rate matching for data channel Huawei, HiSilicon
R1-1710429 On the need of per RE level PDSCH rate-matching and RE mapping signalling AT&T
R1-1710524 Rate matching for NR Intel Corporation
R1-1711158 On PDSCH and PUSCH RE mapping Qualcomm Incorporated

5.1.2.1.8 Other

R1-1711159 Transmission scheme for broadcast PDSCH Qualcomm Incorporated

Agreement: For NR in Rel-15, DL transmission scheme 2 is not explicitly supported for broadcast PDSCH in specification

Not treated.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1530 of 1750

R1-1709926	Discussion on transmission parameter sets	Huawei, HiSilicon
R1-1710182	On transmission setting	ZTE
R1-1710650	Discussion on transmission parameter sets	Samsung
R1-1710651	Discussion of number of PDSCHs in NR-CoMP	Samsung
R1-1710652	Multi-TA procedures for Multi-TRP	Samsung
R1-1711441	On the feedback overhead reduction for multi-subband UL MIMO	Huawei, HiSilicon
R1-1711444	Continuous precoding for NR DMRS in time domain	Samsung

5.1.2.2 Beam management

5.1.2.2.1 Beam management details

R1-1710654	**DL beam management for NR**	**Samsung**
R1-1711160	**Beam management for NR**	**Qualcomm Incorporated**
R1-1710183	**DL beam management for NR MIMO**	**ZTE**
R1-1709928	**UL beam management**	**Huawei, HiSilicon**
R1-1711016	**UL beam management details**	**Ericsson**

Continue offline discussion – Sundar (Qualcomm)

R1-1711965	**Beam management offline summary**	**Qualcomm**

Agreements:

- RAN1 to study the relation (if any) between a measurement and/or reporting on a reference signal and a subsequent beam indication for beam management purposes
  - Study the indicator(s) used for PDCCH and PDSCH
  - Study whether there is a relationship between the indicator types e.g. same type of indicator or different types
- Study L1-RSRP reporting of multiple beams considering
  - Differential L1-RSRP for multiple beams
    - Reference RSRP for L1-RSRP differential report,e.g., predefined or configurable
  - Bit-width of reporting,
  - Number of groups/beams per group
  - UCI design of the beam reporting,
  - FFS: Other issues

Agreements:

- RAN1 agrees that the certain number of beam failure recovery request transmissions is NW configurable by using some parameters
  - Parameters used by the NW could be:
    - Number of transmissions
    - Solely based on timer
    - Combination of above
- FFS: whether beam failure recovery procedure is influenced by the RLF event

Agreements:

- In case of unsuccessful recovery from beam failure, UE sends an indication to higher layers, and refrains from further beam failure recovery
  - Relationship between RLF and unsuccessful beam failure recovery indication (if any) e.g. whether beam failure recovery procedure influences or is influenced by the RLF event
  - Send LS to inform RAN2 – to be done next meeting

Proposals:

- Support L1-RSRP reporting of measurements on SS block for beam management procedures
  - Supported by: Qualcomm, Samsung, Ericsson, vivo, NTT DOCOMO, Lenovo, MotM, OPPO, Spreadtrum, LGE, Sharp, Nokia, ASB, MediaTek, ZTE, AT&T, CEWiT, Panasonic
  - Objected by: InterDigital, Intel, Huawei, HiSilicon, CATT

~~Conclusion:~~
No consensus to support L1-RSRP reporting of measurements on SS block for beam management procedures in Rel-15

Friday:
Qualcomm: strongly requested to remove the above conclusion – and suggested to leave the topic opened for the next meeting

Formatted: Strikethrough

Formatted: Font: Bold

Intel: concern with the process of deleting what was already agreed during the MIMO session – RAN1 spent a lot of time to reach and write down that conclusion
InterDigital: similar view as Intel
Samsung/Ericsson/Panasonic: ok to delete it
Qualcomm: Can "in Rel-15" be replaced by "in this meeting"
Ericsson: do not agree – it has a complete different meaning

Final conclusion:

- No consensus at this meeting to support L1-RSRP reporting of measurements on SS block for beam management procedures in Rel-15

Note: Any company/university/organization is free to contribute to this topic in future meetings

Formatted: List Paragraph, Bulleted + Level: 1 + Aligned at: 0.63 cm + Indent at: 1.27 cm

Not treated.

R1-1709906	Discussion on DL Beam Management	Beijing Xinwei Telecom Techn.
R1-1710056	Further consideration on downlink beam management	CATT
R1-1710057	Considerations on UL beam management	CATT
R1-1710142	Discussion on the DL Beam Management	Guangdong OPPO Mobile Telecom.
R1-1710143	Discussion on the UL Beam Management	Guangdong OPPO Mobile Telecom.
R1-1710184	UL beam management for NR MIMO	ZTE
R1-1710281	Discussion on DL beam management	LG Electronics
R1-1710282	Discussion on UL beam management	LG Electronics
R1-1710361	Differential RSRP report for beam management	Spreadtrum Communications
R1-1710399	Beam management and beam reporting	vivo
R1-1710430	DL beam management details	AT&T
R1-1710449	General views on DL beam management	Huawei, HiSilicon
R1-1710525	Details for UL Beam Management	Intel Corporation
R1-1710526	Details for DL Beam Management	Intel Corporation
R1-1710595	Discussion of RS for DL beam management	Lenovo, Motorola Mobility
R1-1710653	UL beam management	Samsung
R1-1710776	Comparisons on Beam Reporting in NR	CMCC
R1-1710808	Discussions on NR DL beam management	MediaTek Inc.
R1-1710809	Efficient UL beam management with imperfect beam correspondence	MediaTek Inc.
R1-1710851	Considerations on DL beam management	Sony
R1-1710852	Considerations on UL beam management	Sony
R1-1710924	On Beam Management for DL Control and Data Channels	InterDigital, Inc.
R1-1710925	On Efficient UL Beam Management	InterDigital, Inc.
R1-1711015	On DL beam indication	Ericsson
R1-1711075	View on Beam Management Details	NTT DOCOMO, INC.
R1-1711289	On the utilization of SS block for beam management	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711290	SRS transmission for beam management	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711334	Considerations on UE Beamforming Management	ASUSTEK COMPUTER (SHANGHAI)
R1-1711336	Discussion on group based beam reporting	China Unicom
R1-1711473	View on Multi-Beam Management	KT Corp.

5.1.2.2.2 Mechanism to recover from beam failure

R1-1710810	**Mechanism for flexible beam failure recovery**	**MediaTek Inc.**
R1-1710527	**Discussion for Mechanism to Recover from Beam Failure**	**Intel Corporation**
R1-1711291	**Beam Recovery in NR**	**Nokia, Alcatel-Lucent Shanghai Bell**
R1-1710283	**Discussion on beam failure recovery**	**LG Electronics**
R1-1711076	**Further views on mechanism to recover from beam failure**	**NTT DOCOMO, INC.**

Discuss discussion offline – Chia-Hao (MTK)

R1-1711897 **Offline Discussion Summary on Beam Recovery MediaTek**
R1-1711717 **WF on using SS block for beam recovery ZTE, Ericsson, NTT DOCOMO, MediaTek, Spreadtrum, vivo, OPPO, Qualcomm, Xinwei, LG Electronics, AT&T, Lenovo, CMCC, China Unicom, China Telecom, ASTRI, Samsung, Nokia, ASB, III, MTI, Sharp, National Instruments**

Proposals:

- In addition to periodic CSI-RS, SS-block within the serving cell can be used for new candidate beam identification

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1532 of 1750

- Supported by: ZTE, Ericsson, NTT DOCOMO, MediaTek, Spreadtrum, vivo, OPPO, Qualcomm, Xinwei, LG Electronics, AT&T, Lenovo, CMCC, China Unicom, China Telecom, ASTRI, Samsung, Nokia, ASB, III, MTI, Sharp, National Instruments
- Objected by: IDC, HW, HiSi, Intel

Continue discussion next meeting

Not treated.

R1-1709907	Discussion on Beam Failure Recovery	Beijing Xinwei Telecom Techn.
R1-1709929	General views on beam failure recovery	Huawei, HiSilicon
R1-1710058	Consideration on DL beam failure and recovery	CATT
R1-1710144	On Beam Recovery Mechanism	Guangdong OPPO Mobile Telecom.
R1-1710185	Discussion on beam recovery mechanism	ZTE
R1-1710236	Discussion on beam failure recovery procedure	Fujitsu
R1-1710251	Discussion on beam failure recovery request	NEC Corporation
R1-1710364	Discussion on beam failure recovery	Spreadtrum Communications
R1-1710400	Beam failure recovery procedure	vivo
R1-1710431	Considerations on beam failure recovery mechanism	AT&T
R1-1710596	Discussion of beam recovery procedure	Lenovo, Motorola Mobility
R1-1710655	Beam failure recovery	Samsung
R1-1710926	On Remaining Details of Beam Failure Recovery	InterDigital, Inc.
R1-1711017	Mechanism to recover from beam failure	Ericsson
R1-1711161	Beam recovery procedures	Qualcomm Incorporated
R1-1711234	Discussion on mechanisms for beam failure recovery	Sharp

5.1.2.2.3 Other

R1-1710186	**Beam grouping evaluation for beam management**	**ZTE**
R1-1710662	**On SS-block based beam management**	**Samsung**
R1-1711292	**BPL definition and Spatial QCL time indication**	**Nokia, Alcatel-Lucent Shanghai Bell**

Not treated.

R1-1709927	Beam indication for DL control channel	Huawei, HiSilicon
R1-1709930	Procedure details for beam failure recovery	Huawei, HiSilicon
R1-1710005	Considerations on timing advance design in NR	Huawei, HiSilicon
R1-1710145	Beam association relationship between data and control channels	Guangdong OPPO Mobile Telecom.
R1-1710228	Further discussion on channel reciprocity and beam correspondence	MTI
R1-1710450	Multi-beam transmission for DL control channel	Huawei, HiSilicon
R1-1710459	Discussion on UL SRS transmission power	Huawei, HiSilicon
R1-1710473	Network-based mechanism for millimeter-wave link recovery	Huawei, HiSilicon
R1-1710528	On Timing Advance for multi-beam operation	Intel Corporation
R1-1710656	Measurement and reporting for beam management	Samsung
R1-1710657	Discussion on Group based reporting	Samsung
R1-1710658	Discusssion on Tx beam grouping configuration	Samsung
R1-1710659	Discussion on beam indication for PDSCH	Samsung
R1-1710660	L1 RSRP reporting for beam management	Samsung
R1-1710661	L1-RSRP measurement duration	Samsung
R1-1710663	DL beam management configuration	Samsung
R1-1710664	QCL associations for beam management RS	Samsung
R1-1710665	Aperiodic BSI reporting	Samsung
R1-1710666	Beam management for PDCCH	Samsung
R1-1711018	Beam management in C-DRX	Ericsson
R1-1711019	On the use of SS for beam management	Ericsson
R1-1711020	Further results on beam management without beam indication	Ericsson
R1-1711021	Performance of beam grouping	Ericsson
R1-1711022	On beam grouping	Ericsson
R1-1711023	Analysis of beam indication signalling options	Ericsson
R1-1711293	On beam grouping and reporting	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711294	On Multi-beam Downlink Control Channel Operation	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711295	Multi-beam Uplink Control Channel Operation	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711401	Measurement RS for beam management	Huawei, HiSilicon
R1-1711402	Relationship between beam failure recovery and RLF	Huawei, HiSilicon

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1533 of 1750

R1-1711403 Robust transmission for UL control channel Huawei, HiSilicon
R1-1711410 Cross-carrier beam management Huawei, HiSilicon
R1-1711445 System level evaluation results for beam management Samsung
R1-1711446 Link level evaluation results for beam management Samsung
R1-1711447 Link level simulation assumptions for beam management Samsung
R1-1711448 System level simulation assumptions for beam management Samsung

5.1.2.3 CSI acquisition

5.1.2.3.1 CSI framework

Including beam management framework

R1-1709931 Discussion on CSI Framework Design Huawei, HiSilicon
R1-1711024 Further details of CSI framework Ericsson
R1-1710059 Summary of email discussion [89-17] NR CSI framework CATT
Offline to come up with overhead numbers based on R1-1710059 – Rakesh (CATT)

Continue offline discussion – Xiaoyi (AT&T)
R1-1711893 Offline discussion summary on CSI framework AT&T

Agreements:

- For aperiodic CSI-RS triggering offset X, X is fixed to zero.
- For aperiodic CSI reporting on PUSCH, Y is indicated by DCI.
  - DCI to be used for indicating the timing for PUSCH is also used to indicate Y.
    - This applies to both UCI only and UCI+Data PUSCH
  - The set of values is configured by higher layer
    - The candidate set of values of Y is selected according to restricted conditions inferred from configuration of CSI related settings.
    - The condition include at least;
      - CSI parameter
      - Number of CSI-RS antenna ports if PMI is included
      - CSI-RS location
      - Frequency granularity of CSI
    - FFS: number of simultaneous CSI calculations
    - FFS on mechanisms to relax CSI report timing according to number of simultaneous CSI calculations
    - FFS different or same candidate Y value for the cases of UCI multiplexed with data and UCI only

Not treated.
R1-1711077 Discussion on CSI framework NTT DOCOMO, INC.
R1-1711296 On the CRI definition and usability in NR Nokia, Alcatel-Lucent Shanghai Bell
R1-1709908 Discussion on CSI Framework and Semi-persistent CSI-RS Resources and Reports Activation Beijing Xinwei Telecom Techn.
R1-1710060 Views on CSI framework CATT
R1-1710187 On CSI framework details ZTE
R1-1710284 Discussion on CSI framework LG Electronics
R1-1710432 Discussion on the channels to carry CSI report AT&T
R1-1710529 On NR CSI framework Intel Corporation
R1-1710667 CSI Acquisition and Beam Management Framework Samsung
R1-1710927 On CSI framework for NR InterDigital, Inc.
R1-1711162 Details of CSI framework Qualcomm Incorporated

5.1.2.3.2 Details of CSI acquisition

Including channel and interference measurement and reporting

R1-1710530 On Details of CSI acquisition Intel Corporation
R1-1711297 Remaining aspects on interference estimation options and configuration Nokia, Alcatel-Lucent Shanghai Bell

Continue discussion offline – Yuichi (DCM)
R1-1711924 Summary of CSI Acquisition Details NTT DoCoMo

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1534 of 1750

Not treated.

R1-1709932	Channel and interference measurement for CSI acquisition	Huawei, HiSilicon
R1-1711025	On CSI acquisition and reporting	Ericsson
R1-1710061	Discussion on details of CSI acquisition	CATT
R1-1710188	Details of CSI acquisition	ZTE
R1-1710285	Discussion on interference measurement	LG Electronics
R1-1710433	On the details of CSI acquisition	AT&T
R1-1710668	Discussions on CSI measurements and reporting for NR	Samsung
R1-1710854	Considerations on interference measurement	Sony
R1-1710928	On CSI acquisition for NR	InterDigital, Inc.
R1-1711078	On CSI measurement for NR	NTT DOCOMO, INC.
R1-1711163	Details of CSI acquisition	Qualcomm Incorporated

5.1.2.3.3 CSI acquisition for reciprocity based operation

R1-1710669	**CSI Reporting for Reciprocity Operation**	**Samsung**
R1-1711298	**On the channel reciprocity support for CSI acquisition**	**Nokia, Alcatel-Lucent Shanghai Bell**

Continue offline discussion – Ruyue (ZTE)

R1-1711725	**Summary of CSI acquisition for reciprocity based operation**	**ZTE**

Not treated.

R1-1710189	On reciprocity based CSI acquisition	ZTE
R1-1711026	Further discussion on CSI acquisition for reciprocity-based operation	Ericsson
R1-1710062	Views on reciprocity based CSI acquisition	CATT
R1-1710286	Discussion on CSI acquisition for reciprocity based operation	LG Electronics
R1-1710812	CSI acquisition for reciprocity based operation	MediaTek Inc.
R1-1711164	CSI acquisition for reciprocity based operation	Qualcomm Incorporated
R1-1711404	Discussion on reciprocity based CSI acquisition mechanism	Huawei, HiSilicon

5.1.2.3.4 CSI feedback

Including type I/II codebook based scheme and other potential use cases, e.g., semi-open-loop

R1-1710190	**CSI feedback mechanism on PUCCH**	**ZTE**
R1-1710672	**CSI parameters and multiplexing**	**Samsung**

Continue discussion offline – Mark (Ericsson)

R1-1711904	**Summary of views on CSI feedback for Type I and Type II**	**Ericsson**

Agreement:

- Periodic CSI reporting is carried at least on
  - Short PUCCH
  - Long PUCCH
  - FFS whether in single-slot only or in multiple slots

Agreements:

- Type I CSI feedback is supported for P/SP/A-CSI and can be carried on either one of PUCCH and PUSCH
- Type I subband CSI can be carried on either one of PUSCH and long PUCCH
- Type II CSI is carried at least on PUSCH
  - FFS CSI on PUCCH

CSF for TS2

R1-1711300	**CSI feedback in support of semi-open loop transmission**	**Nokia, Alcatel-Lucent Shanghai Bell**
R1-1711405	**CSI acquisition for DL robust transmission**	**Huawei, HiSilicon**

Continue discussion offline – Mark (Ericsson)

R1-1711905	**Summary of CSI Feedback for Open-loop/Semi-open-loop**	**Ericsson**

Not treated.

R1-1711029	Type I & II CSI reporting	Ericsson

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1535 of 1750

R1-1711079 CSI Feedback Design for NR MIMO NTT DOCOMO, INC.
R1-1710063 Discussion on periodic and aperiodic CSI feedback CATT
R1-1710191 CSI feedback mechanism on PUSCH ZTE
R1-1710192 Overhead reduction for Type II CSIZTE
R1-1710287 Discussion on overhead reduction for Type II codebook LG Electronics
R1-1710288 Discussions on CSI reporting contents LG Electronics
R1-1710289 CSI feedback for OL and semi-OL MIMO LG Electronics
R1-1710290 UL channel utilization for CSI reporting LG Electronics
R1-1710434 CSI feedback for closed loop and semi open loop transmission schemes AT&T
R1-1710452 CSI acquisition details for hybrid CSI Huawei, HiSilicon
R1-1710453 The remaining issues for Type I codebook Huawei, HiSilicon
R1-1710454 The remaining issues for Type II codebook Huawei, HiSilicon
R1-1710670 Remaining details of Type I and Type II CSI codebooks Samsung
R1-1710671 CSI support for transparent precoder cycling Samsung
R1-1710673 Differential reporting of Type II CSI Samsung
R1-1710674 On higher rank (3 and 4) Type II CSI Samsung
R1-1710813 Remaining issues in NR CSI feedback MediaTek Inc.
R1-1711027 CSI feedback and Transparent PDSCH TxD Ericsson
R1-1711028 Codebook subset restriction Ericsson
R1-1711030 Encoding and mapping of CSI parameters Ericsson
R1-1711031 CSI feedback for multi-TRP Ericsson
R1-1711080 Feedback Design for CSI Type I NTT DOCOMO, INC.
R1-1711081 Feedback Design for CSI Type II NTT DOCOMO, INC.
R1-1711165 On Type I and Type II CSI feedback using PUCCH Qualcomm Incorporated
R1-1711166 On CSI feedback for open- or semi-open-loop transmission Qualcomm Incorporated
R1-1711299 Feedback transmission of type II codebook Nokia, Alcatel-Lucent Shanghai Bell
R1-1711407 Multiple-panel codebook Huawei, HiSilicon
R1-1711408 Category 2 codebook design for type II codebook Huawei, HiSilicon
R1-1711409 Codebook design for beamformed CSI-RS Huawei, HiSilicon
R1-1711566 On semi-persistent CSI reporting on PUSCHEricsson

5.1.2.3.5 Other

R1-1710675 Discussion on CSI-RS Resource Activation Samsung
R1-1710676 Discussions on channel and interference measurements for NR Samsung
R1-1710677 Discussions on CSI Feedback Signalling Overhead Reduction Samsung
R1-1711032 On Dynamic Triggering for CSI Reports and CSI-RS Ericsson
R1-1711033 A comparison of CSI-RS activation schemes based on MAC CE and DCI Ericsson
R1-1711034 Identifying bounds on parameters in CSI framework Ericsson
R1-1711035 Frequency parametrization for Type II CSI codebook Ericsson
R1-1711036 Further details of measurement restriction configuration Ericsson
R1-1711037 Performance impact of inactive antenna ports Ericsson
R1-1711038 On partial bands and CSI acquistion Ericsson
R1-1711039 NR CSI Computation Capability Ericsson
R1-1711301 On the CSI timing relationhips Nokia, Alcatel-Lucent Shanghai Bell
R1-1711406 Other remaining issues for CSI framework Huawei, HiSilicon
R1-1711449 Discussions on service specific CSI for NR Samsung

5.1.2.4 Reference signals and QCL

5.1.2.4.1 Multiplexing of different types of RSs

Including multiplexing and RE mapping of RSs

R1-1710193 Discussion on multiplexing of different RSs ZTE
R1-1710064 Discussion on RS multiplexing CATT
R1-1710435 Multiplexing of CSI-RS with PDSCH in mixed numerology scenarios AT&T

Agreement:

- In NR, for a given BWP, support the case where CSI-RS for CSI acquisition and beam management is always transmitted with the same numerology as the PDSCH of the UE if PDSCH is present
  - FFS the case when PDSCH is not present

R1-1710678 Discussions on multiplexing of different types of RSs for DL Samsung

Discuss further offline – Leiming (Huawei)
R1-1711974 **Summary of views on multiplexing of different types of RS Huawei, HiSilicon**

Not treated.
R1-1710009 Multiplexing different types of DL RS Huawei, HiSilicon
R1-1710010 Multiplexing different types of UL RS Huawei, HiSilicon
R1-1710291 On collision avoidance for PTRS and other RSs LG Electronics
R1-1710531 On multiplexing of different RS types Intel Corporation
R1-1710679 Discussions on multiplexing of different types of RSs for UL Samsung
R1-1711040 On Multiplexing of RS types for downlink Ericsson
R1-1711167 On multiplexing of different types of RSs Qualcomm Incorporated
R1-1711302 On multiplexing of different RS types Nokia, Alcatel-Lucent Shanghai Bell
R1-1711558 Multiplexing of different types of RS for uplink Ericsson

5.1.2.4.2 CSI-RS

R1-1711041 **On CSI-RS for CSI-acquisition Ericsson**
R1-1711759 **Summary of offline discussion on CSI-RS Samsung**

Agreements:
- At least for CSI acquisition, for N=4 OFDM symbols,
  - Support two pairs of adjacent OFDM symbols for one CSI-RS resource where the two pairs can be adjacent or non-adjacent
    - For each pair, support a uniform RE mapping pattern in the time domain wherein the same sub-carriers are occupied in the two adjacent OFDM symbols
    - Note: CDM pattern will be discussed separately

Agreements:
- Support for CSI-RS sequence design:
  - (Working assumption) PN sequence at least for CSI-RS for CSI acquisition
  - UE specifically configured CSI-RS sequence seed
  - FFS, sequence design, e.g. PN sequence, ZC sequence, M sequence, etc., for other use cases such as beam management and fine time/frequency tracking

Agreements:
- For beam management, CSI-RS with sub-time units smaller than an OFDM symbol in a reference numerology is not supported in Rel-15

Continue discussion offline – Lu (Huawei)

R1-1711922 **WF on CSI-RS for BM Intel, Ericsson, CATT, Samsung, MediaTek, AT&T, NTT Docomo, KT**
Also supported by Spreadtrum, Qualcomm
R1-1711923 **WF on CSI-RS for BM Samsung, Intel, AT&T, NTT DOCOMO, ZTE**

R1-1711787 **WF on CSI-RS Samsung, Ericsson, NTT DOCOMO, CATT, LGE**

Agreements:
- Regarding CSI-RS RE Patterns for CSI Acquisition, support at least the following CSI-RS RE patterns for CSI acquisition for OCC based CDM

X	Density [RE/RB/port]	N	(Y,Z)	CDM	Remark
1	>1, 1	1	N.A.	No CDM	
2	1	1	(2,1)	FD-CDM2	
4	1	2	(2,2)	FD-CDM2, CDM4(FD2,TD2)	
8	1	2	(2,2)	FD-CDM2, CDM4(FD2,TD2)	
16	1	2	(2,2)	FD-CDM2, CDM4(FD2,TD2)	
32	1, 1/2	4	(2,2)	FD-CDM2, CDM4(FD2,TD2)	FFS, CDM8 details

- Note: The RE pattern for an X-port CSI-RS resource spans N ≥ 1 OFDM symbols in the same slot and is comprised of one or multiple component CSI-RS RE patterns, where a component CSI-RS RE pattern is defined within a single PRB as Y adjacent REs in the frequency domain and Z adjacent REs in the time domain (agreements in RAN1#88)
- Note: Density 1/2 is based on a PRB-level comb with the same comb offset value for all ports.
- Note: REs for CDM2 and CDM4(FD2,TD2) comprise adjacent REs
- Note: RAN1 will continue discussing adding more entries to the above table

Agreement:
- For partial-band CSI-RS, partial-band can be the same as bandwidth part
  - FFS whether or not to have small values than the bandwidth of bandwidth part

Agreements:
- Confirm the WA with the following revision
  - Support PN sequence for CSI-RS for CSI acquisition and beam management
- FFS detailed sequence generation and initialization methods
  - E.g. function of slot number, OFDM symbol number, CP length, UE ID, cell ID, virtual cell ID, function of PRB position of configured CSI-RS resource, etc.

Agreement:
- Down-select among the following two options in the next meeting
  - Option 1-1: From a UE perspective, CSI-RS is not multiplexed on SS block OFDM symbol(s)
  - Option 1-2: From a UE perspective, CSI-RS can be multiplexed on SS block symbol(s)

Agreements:
- Down-select among the following two options in the next meeting:
  - Option 2-1: From a UE perspective, CSI-RS is not multiplexed on PDCCH OFDM symbol(s) for a slot
  - Option 2-2: From a UE perspective, CSI-RS can be multiplexed on PDCCH OFDM symbol(s) for a slot
    - Note: PDCCH decoding behavior at UE side will not be changed by Option 2-2.
  - Note: up to each company to define PDCCH OFDM symbols based on the max possible number of symbols or the configured PDCCH OFDM symbols for the slot

R1-1711804 **WF on CDM-8 in CSI-RS for CSI acquisition** **LG Electronics, Samsung, CATT, NTT DOCOMO**

Agreements:
- For CDM-8 in CSI-RS for CSI acquisition, support at least one of the following:
  - Alt 1: Distributed across multiple of the component CSI-RS RE patterns
  - Alt 2: Fully contained within one component CSI-RS RE pattern
- For CDM-4, study further whether to support the ports being distributed across multiple of the component CSI-RS RE patterns

R1-1711803 **WF on configuration of CSI-RS for CSI acquisition** **LGE, Samsung**

Agreements:
- For CSI acquisition, at least the following parameters associated with a CSI-RS resource can be indicated to be a UE based on higher-layer configuration:
  - Number of CSI-RS ports
  - Density (RE/PRB/port)
    - For density = 1/2, comb offset
  - CDM (Length, Type)
  - Locations of the component RE patterns for the corresponding CSI-RS resource
    - FFS on signaling details
  - Scrambling ID
- Note: the detailed approach for the above signaling is FFS

R1-1711976 **WF on CSI-RS for beam management** **NTT DoCoMo, Ericsson, Samsung**
R1-1711973 WF on CSI-RS for BM Intel, Ericsson, Spreadtrum, MediaTek, Samsung, Verizon

Agreements:
- CSI-RS resource with 1-port and 2-port for one OFDM symbol can be used for beam management
  - Value of D>=1 represents RE/RB/port within a OFDM symbol.
  - For the case of 1-port
    - No CDM

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1538 of 1750

- Subcarrier spacing within a PRB for D>1
  - Even spacing
- Constant subcarrier spacing across PRB(s)
- Constant subcarrier spacing within a BWP
- FFS the values of D

- For the case of 2-port:
  - Reuse the same pattern as that of for CSI acquisition at least for D=1 (if supported)

- FFS: the potential number of CSI-RS OFDM symbols for beam management
- FFS: other values of X and D for beam management
- In the LS to RAN4, add "RAN1 are discussing the respective possible limited set values of D for 1-port and 2-port CSI-RS resource, e.g., taking from {1, 2, 3, 4, 6}. RAN4 is also welcome to provide inputs to select the values of D for 1-port and 2-port CSI-RS resources, respectively"

LS to be prepared in **R1-1712003** (Yuichi, DCM)
Email approval for the LS in R1-1712003 until 7/7 (Yuichi, DoCoMo)

R1-1709946	CSI-RS design in NR	Huawei, HiSilicon
R1-1709947	CSI-RS design for beam management	Huawei, HiSilicon
R1-1710065	Design of CSI-RS for CSI acquisition	CATT
R1-1710066	Design of CSI-RS for beam management	CATT
R1-1710146	Disussion on CSI-RS design for beam management	Guangdong OPPO Mobile Telecom.
R1-1710194	On CSI-RS for beam management	ZTE
R1-1710195	On CSI-RS for CSI acquisition	ZTE
R1-1710256	CSI-RS design for beam management and interference measurement	NEC Corporation
R1-1710292	On CSI-RS design for beam management	LG Electronics
R1-1710293	On CSI-RS design for CSI acquisition	LG Electronics
R1-1710365	Discussion on CSI-RS design for CSI acquisition	Spreadtrum Communications
R1-1710401	On CSI-RS design for beam management	vivo
R1-1710436	Remaining details of CSI-RS	AT&T
R1-1710532	**On CSI-RS for beam management**	**Intel Corporation**
R1-1710533	On CSI-RS for CSI acquisition	Intel Corporation
R1-1710680	Discussions on CSI-RS design for NR MIMO	Samsung
R1-1710681	CSI-RS for beam management	Samsung
R1-1710811	**IFDMA Based Beam Management CSI-RS for Flexible TX/RX Beam Sweeping**	**MediaTek Inc.**
R1-1710833	On CSI-RS configuration for fine time and frequency tracking support	MediaTek Inc.
R1-1710931	**CSI-RS Design for Beam Management**	**InterDigital, Inc.**
R1-1710974	Discussion on using sub-time unit for CSI-RS of beam management	ITRI
R1-1711042	**On CSI-RS for beam management**	**Ericsson**
R1-1711082	CSI-RS for beam managmenent	NTT DOCOMO, INC.
R1-1711083	CSI-RS for CSI acquisition	NTT DOCOMO, INC.
R1-1711168	Discussion on CSI-RS design	Qualcomm Incorporated
R1-1711303	On the CSI-RS configurations for NR CSI acquisition	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711304	On CSI-RS Design for DL Beam Management	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711339	Consideration on the CSI-RS design for NR	CATR
R1-1711468	On CSI-RS design for DL beam management	KT Corp.

5.1.2.4.3 DMRS

Limit to maximum 2 contributions (one for discussion, another for evaluation) per 1 company/organization/university for DL and UL, independently

R1-1709909	**Further Evaluation and Discussion on DMRS Design Details**	**Beijing Xinwei Telecom Techn.**
R1-1710196	**Discussion on downlink DMRS design**	**ZTE**
R1-1711043	**On DL DMRS design**	**Ericsson**
R1-1710831	**On downlink DMRS design**	**MediaTek Inc.**

Continue discussion offline – Alex (Qualcomm)
R1-1711778 **Remaining issues on NR DM-RS Qualcomm**
R1-1711797 **WF on DMRS sequence, Samsung, Ericsson, Qualcomm Incorporated, CATT, Nokia, Alcatel-Lucent Shanghai Bell, Intel, AT&T, NTT DOCOMO, INC., LG Electronics, KT Corp., MediaTek Inc., Mitsubishi Electric Co., Spreadtrum, Fujitsu, Xinwei, KDDI, Panasonic, ITL**
Also supported SONY, KRRI

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1539 of 1750

Agreement: Both in DL and UL DMRS for CP-OFDM, only PN sequence is supported

R1-1711784 WF on DMRS design MediaTek, Huawei, HiSilicon, China Telecom, ZTE, ASUSTek, CeWiT, Spreadtrum, Tejas Networks, CATR, Deutsche Telekom, IITH, Xinwei, MTI, CHTTL, China Unicom, IITM, ITRI

Agreements:

- The working assumption made in RAN1#89 for DM-RS is updated and agreed as follows for CP-OFDM:
  - A UE is configured by higher layers with DMRS pattern either from the front-loaded DMRS Configuration type 1 or from the front-loaded DMRS Configuration type 2 for DL/UL:
    - Configuration type 1:
      - One symbol:
        - Comb 2 + 2 CS, up to 4 ports
      - Two symbols:
        - Comb 2 + 2 CS + TD-OCC ({1 1} and {1 -1}), up to 8 ports
          - Note: It should be possible to schedule up to 4 ports without using both {1,1} and {1,-1}.
    - Configuration type 2:
      - One symbol:
        - 2-FD-OCC across adjacent REs in the frequency domain, up to 6 ports
      - Two symbols:
        - 2-FD-OCC across adjacent REs in the frequency domain + TD-OCC (both {1,1} and {1,-1}) up to 12 ports
          - Note: It should be possible to schedule up to 6 ports without using both {1,1} and {1,-1}.
    - From UE perspective, frequency domain CDMed DMRS ports are QCLed.
    - FFS: Whether the front-load DMRS configuration type for a UE for UL and DL can be different or not.
    - Note: If there are significant complexity/performance issues involved in the above agreements, down-selection can still be discussed

R1-1711813 WF on DM-RS NTT DOCOMO, Ericsson, Nokia, ASB, ZTE, KT Corp, Sharp, Qualcomm

Proposals:

- In configuration 1 for DL, at least for SU-MIMO,
  - For 1-symbol, DM-RS N<=2 layer reception are multiplexed without any CDM in frequency for a UE
  - For 2-symbol, DM-RS N<=4 layer reception are multiplexed without any CDM in frequency for a UE
- FFS the case of UL MU-MIMO

Discuss till next meeting

R1-1711783 WF on UL DMRS pattern for DFT-S-OFDM LG Electronics, ZTE, Ericsson, NEC, NTT DOCOMO

Agreements:

- For DFT-S-OFDM based PUSCH DMRS
  - DMRS are mapped to resource elements using a comb structure (IFDMA).
    - DMRS and associated PUSCH are multiplexed in time domain
    - At least the following (repetition factor, CS) combinations is supported
      - (2, 2)
  - Front load DMRS is allocated to 1 or 2 OFDM symbols
    - When 2 OFDM symbols are allocated, TD-OCC ({1 1} and {1 -1}) are supported for orthogonal DMRS port multiplexing.
    - FFS the detailed applicability of 1 vs. 2 OFDM symbols
    - FFS the location of the DMRS symbol(s)

R1-1711816 WF on front-loaded DMRS design for slot aggregation vivo, Huawei, HiSilicon

Further discussion till next meeting

R1-1711770 WF on DL DMRS for broadcast/multicast PDSCH LG Electronics, Qualcomm

Agreements:

- For broadcast/multicast PDSCH (other than PBCH), the PDSCH is transmitted with a single DMRS port:
  - Support using only one front-load DMRS Configuration from Configuration 1 and Configuration 2. To down-select from:
    - Alt 1: Configuration 1 (FFS 1 or 2 symbols)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1540 of 1750

- Alt 2: Configuration 2 with 2 symbols
- Support additional DM-RS. To down-select from:
  - Alt 1: Additional DMRS is always present
  - Alt 2: Additional DMRS is configurable
  - FFS the number of additional DMRS symbol(s)

R1-1711722 **WF on multiplexing between DMRS and data** **ZTE, Qualcomm, KT Corp., DOCOMO**

Agreements:
- Study further aspects related to DMRS and data multiplexing in DL and UL considering 14 and 7 symbol slots/mini-slots, 1 vs. 2 front loaded DM-RS symbols, additional DM-RS, etc.
- Study further aspects related to possibly power boosting DM-RS (performance, complexity, spec impact)

R1-1711714 **WF on DMRS multiplexing scheme in time domain** **ZTE, Xinwei, ASTRI, Spreadtrum**

R1-1711666 **WF on SS block and DM-RS collision handling** **Intel**

Agreements:
- Study further how to handle DM-RS and SS block collision (if any)
  - E.g., changing DM-RS symbol(s) position in time domain, no PDSCH transmission on the collided PRBs, dropping the DM-RS symbol in collision, etc.

R1-1711771 **WF on signalling DMRS configuration** **LG Electronics, ZTE**

Agreements:
- The number of front-load DMRS symbols can be 1 or 2 when the number of DMRS ports allocated to UE is equal or less than N
  - N is 4 for Configuration 1 and 6 for Configuration 2.
  - FFS the details to determine 1 or 2 symbols

Not treated.

R1-1709941	Design of DL DMRS for data transmission	Huawei, HiSilicon
R1-1709942	Evaluation results of DMRS design for DL data channel	Huawei, HiSilicon
R1-1709943	UL DMRS design for data transmission	Huawei, HiSilicon
R1-1709944	Evaluation results of DMRS design for UL data channel	Huawei, HiSilicon
R1-1710067	On DMRS design for DL	CATT
R1-1710068	On DMRS design for UL	CATT
R1-1710197	Evaluation results on DL DMRS	ZTE
R1-1710198	Discussion on uplink DMRS design	ZTE
R1-1710257	Considerations on the design of DMRS	NEC Corporation
R1-1710294	On DL DMRS design	LG Electronics
R1-1710295	On UL DMRS design	LG Electronics
R1-1710362	DMRS configurations for CP-OFDM.	Spreadtrum Communications
R1-1710402	On DL DMRS design	vivo
R1-1710410	Evaluation of DL DMRS designs	Mitsubishi Electric Co.
R1-1710411	Views on DL DMRS designs	Mitsubishi Electric Co.
R1-1710534	On the remaining details of DM-RS design	Intel Corporation
R1-1710607	On DM-RS for NR	Intel Corporation
R1-1710612	Discussion on downlink DMRS design	ETRI
R1-1710613	Discussion on uplink DMRS design	ETRI
R1-1710682	Discussion on DL DMRS design for NR	Samsung
R1-1710683	Evaluation results on DL DMRS for NR	Samsung
R1-1710684	Discussion on UL DMRS design for NR	Samsung
R1-1710685	Evaluation results on UL DMRS for NR	Samsung
R1-1710933	On DM-RS design for NR	InterDigital, Inc.
R1-1710970	On front-load DMRS design	China Telecommunications
R1-1711044	On DL DMRS evaluations	Ericsson
R1-1711045	On UL DMRS design	Ericsson
R1-1711046	On UL DMRS evaluations	Ericsson
R1-1711084	Evaluation results of DM-RS	NTT DOCOMO, INC.

R1-1711085	Discussion on DM-RS design	NTT DOCOMO, INC.
R1-1711169	Discussion on UL DMRS design	Qualcomm Incorporated
R1-1711170	Discussion on DL DMRS design	Qualcomm Incorporated
R1-1711171	Evaluation of UL DMRS design	Qualcomm Incorporated
R1-1711172	Evaluation of DL DMRS design	Qualcomm Incorporated
R1-1711305	On design of DL DM-RS for NR physical data channels	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711306	DL DM-RS patterns link performance evaluation	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711307	On design of UL DM-RS for NR physical data channels	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711340	Consideration on the font loaded DM RS design for NR	CATR
R1-1711350	DMRS pattern configuration for NR	ITL

5.1.2.4.4 PT-RS

R1-1710296	**On DL PT-RS design**	**LG Electronics**
R1-1709940	**PTRS for DFT-s-OFDM**	**Huawei, HiSilicon**
R1-1710936	**Remaining Issues on PTRS for NR**	**InterDigital, Inc.**

Continue offline discussion – Mattias (Ericsson)

R1-1711914	**Overview of WFs on PTRS**	**Ericsson**
R1-1711815	**WF on PT-RS for DFT-S-OFDM**	**NTT DOCOMO, Mitsubishi Electric, Huawei, HiSilicon, Nokia, ASB**

Agreements:

- For PT-RS insertion for UL DFT-S-OFDM
  - Companies are encouraged to perform simulations with realistic simulation assumptions comparing pre-DFT vs. post-DFT PT-RS insertion
    - For pre-DFT, companies are encouraged to compare chunk-based distribution vs. non-chunk based distribution

Agreements:

- Support at least full symbol-level time density for time-domain PT-RS for DFT-S-OFDM (every PUSCH carrying symbol)
  - FFS: whether to support configurable symbol-level time density for time-domain PT-RS density reduction for DFT-S-OFDM
    - Note: If supported, the configuration can be implicit (associated with scheduled MCS and/or BW and/or DM-RS port(s)/position) or explicit, which is to be decided in next meeting

R1-1711891	**WF on PT-RS for DFT-S-OFDM**	**Samsung, Intel, CATT**
R1-1711814	**WF on PT-RS for CP-OFDM**	**NTT DOCOMO, Ericsson, Nokia, ASB, Panasonic, Spreadtrum, ZTE**

Agreements:

- If one DL PT-RS port is configured for a DL DM-RS port group, the DL PT-RS port and one DL DM-RS port in the DL DM-RS port group are associated for phase tracking, the association is determined in the specification
  - FFS details for the association
- If one DL PT-RS port is configured for a DL DM-RS port group, the DL PT-RS port is associated with:
  - Alt 1: the lowest DL DM-RS port in the DL DM-RS port group.
  - Alt 2: one DL DM-RS port in the DL DM-RS port group in a RB, where the one DL DM-RS port may vary across RBs
  - Other alternatives are not precluded
  - To conclude with one alternative next meeting
- FFS the case of two codewords

R1-1711688	Way Forward on PTRS	Intel, Huawei, HiSilicon, National Instruments, MediaTek
R1-1711941	**Way Forward on PTRS**	**Intel, Huawei, HiSilicon, National Instruments, MediaTek**

Agreements:

- Study further whether or not to support power boosting for PT-RS considering different or same number of ports compared with DM-RS
- Down-selection among the following for CP-OFDM DL & UL for PTRS:
  - Opt-1: a single association table pair per subcarrier spacing
  - Opt-2: UE recommends the preferred thresholds in tables and/or gNB to update/confirm

- Opt-3: multiple association tables for each subcarrier spacing, to reflect different phase noise models resulting from different carrier frequencies, subcarrier spacings, UE implementations
- Opt-4: a single association table pair per subcarrier spacing based on UE capability

R1-1711895 **WF on Remaining Issues on PTRS for CP-OFDM – Part II** **Huawei, HiSilicon, InterDigital, Xinwei, Intel, NI, Panasonic, Spreadtrum**
R1-1711932 **WF on PT-RS pattern in frequency domain** **LG Electronics**

Agreements:
- For PTRS for CP-OFDM, study further how to handle mapping PTRS in case of non-consecutive scheduling
  - Alt 1: based on PRBs
  - Alt 2: based on VRBs
  - Other alternatives are not precluded
  - Note: consecutive scheduling can be considered as a special case
- For PTRS for CP-OFDM, study further whether or not there is need for interference randomization for PT-RS and if so, how
  - Companies are encouraged to provide simulation results
- To continue study to finalize the PT-RS density tables w.r.t. to MCS and scheduled bandwidth

R1-1711773 **WF on PT-RS collision avoidance** **LG Electronics, Huawei, CATT, ZTE**

Agreement: Study further how to handle PT-RS collision with CSI-RS

R1-1711894 **WF on Remaining Issues on PTRS for CP-OFDM – Part I** **Huawei, HiSilicon, InterDigital, Xinwei, NI, Panasonic**

Agreements:
- For PTRS for CP-OFDM, NR supports
  - Information related to UE to facilitate PTRS port configuration
    - FFS details, e.g., UE to report information (if so, details), or re-using UE information available for other purposes

Not treated.
R1-1709939 PTRS for CP-OFDM Huawei, HiSilicon
R1-1710069 Considerations on RS for phase tracking CATT
R1-1710199 Discussion on RS for phase tracking ZTE
R1-1710227 Further Discussion on PTRS Design Details Beijing Xinwei Telecom Techn.
R1-1710230 **UL PTRS for DFTsOFDM waveform** **Mitsubishi Electric RCE**
R1-1710297 On UL PT-RS design LG Electronics
R1-1710359 PT-RS design Panasonic Corporation
R1-1710363 Considerations on PT-RS for CP-OFDM Spreadtrum Communications
R1-1710403 On PT-RS design for CP-OFDM vivo
R1-1710535 **On PT-RS for CP-OFDM** **Intel Corporation**
R1-1710536 **On PT-RS for DFT-s-OFDM** **Intel Corporation**
R1-1710686 On DL PTRS design Samsung
R1-1710687 On UL PTRS for DFT-s-OFDM Samsung
R1-1710777 Discussion on PT-RS design CMCC
R1-1711047 On PTRS DL design Ericsson
R1-1711048 On PTRS UL design Ericsson
R1-1711086 Discussion on PT-RS design NTT DOCOMO, INC.
R1-1711173 Phase and frequency tracking reference signal considerations Qualcomm Incorporated
R1-1711308 Discussion on PT-RS design for CP-OFDM Nokia, Alcatel-Lucent Shanghai Bell
R1-1711309 On Details of the PT-RS Design for DFT-s-OFDM Nokia, Alcatel-Lucent Shanghai Bell

5.1.2.4.5 SRS

R1-1710855 **Considerations on SRS design** **Sony**
R1-1711049 **On SRS design** **Ericsson**
R1-1711087 **Discussions on NR SRS Design** **NTT DOCOMO, INC.**
R1-1711174 **Discussion on SRS design** **Qualcomm Incorporated**

Agreement: For NR SRS, support sounding bandwidth in multiple of 4 PRBs
- FFS the detailed set of SRS sounding bandwidths to be supported
- At least 4 PRBs as SRS sounding bandwidth is supported

Continue offline discussion – Takano (SONY)
R1-1711951 **Open issues on SRS design** **SONY**
R1-1711791 **Way Forward on SRS Switching** **Huawei, HiSilicon, Softbank, CMCC, Deutsche Telekom, CATR, Tejas Networks, OPPO, Qualcomm, CeWiT, Sony, ZTE, Xinwei, IITM, China Unicom, IITH, Ericsson, InterDigital, China Telecom, MediaTek**

Agreement**:** Support antenna switching for SRS transmission within a carrier:
- FFS: Support at least [2Tx, 4Tx] switching

R1-1711869 **WF_config_collision_SRS_PUCCH_L** **Mitsubishi Electric, AT&T, Panasonic, Samsung, Huawei, HiSilicon, ZTE**

Agreements:
- From a UE perspective, NR supports one or both of the following options on a given carrier:
  - Option 1 : Support only one of the following options for avoiding collisions between NR-SRS and short PUCCH
    - Option 1-1 : symbol level TDM
    - Option 1-2 : FDM
    - Option 1-3 : both symbol level TDM and FDM
    - FFS : details
    - Note : other options are not precluded
  - Option 2: Prioritize SRS or short PUCCH transmission, i.e., drop SRS or short PUCCH in case of collision
    - FFS whether to have one prioritization rule, or configurable prioritization

R1-1711852 **WF on SRS Sequence Design** **Ericsson, Huawei, HiSilicon, Nokia, ASB, Panasonic, NTT DOCOMO**
R1-1711668 **WF on SRS sequence for NR** **Intel, Samsung, Qualcomm**
Also supported by LGE, KT, CATT
R1-1711767 **WF on SRS sequence generation for partial overlapping** **LG Electronics, Intel Corporation, ZTE**

Agreements:
- NR supports at least the following SRS sequences
  - LTE SRS sequences
- Study further whether or not to additionally support the following for NR SRS sequence design:
  - Opt-1: Truncated ZC design
    - Set of [60] long ZC sequences designed for each of [5] different reference carrier bandwidths where the sequence length exceeds the carrier bandwidth before truncation
      - The portion of the truncated sequence corresponds to the SRS PRB location assigned to the UE
    - Ports on the same comb are separated by cyclic shifts which are repeated every n SRS REs, e.g. n=[8,12]
  - Opt-2: block-wise concatenation based ZC sequence generation.
    - The number of blocks (e.g. 1, 2, …) and/or block length (e.g. 4RBs, 8RBs, …) per each block is informed to UE
      - Alt1. the number of blocks and/or block length are configured by network. If 1 block is configured, SRS sequence for NR is the same as LTE SRS sequence
      - Alt2. Implicit signaling e.g. the number of blocks and block length are dependent on waveform. When DFT-S-OFDM is configured to UE, the number of block is one and the block length is equal to SRS BW; When CP-OFDM is configured, the number of blocks can be larger than 1.
  - Opt-3: Same LTE SRS sequence generation mechanism with additional roots
- To conclude during the next meeting
  - Evaluations to consider at least CM/PAPR and sequence cross-correlation for the case of fully and partially overlapping SRS allocations
  - Evaluations to further consider CM/PAPR for carrier bandwidths different than the reference ones

R1-1711920 **WF on SRS design in NR** **LG Electronics, CATT, Intel Corp., KT Corp., Qualcomm**

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1544 of 1750

R1-1711930 **WF on SRS Configuration** **Huawei, HiSilicon, OPPO**

Agreement: Support gNB to configure one or more groups where each group contains one or more SRS resource(s) to UE
- Note: different groups may be for different purposes, e.g., one or more groups for beam management, one for DL CSI acquisition, one for UL CSI acquisition, etc.

Not treated.

R1-1709936	UL SRS design for beam management and CSI acquisition	Huawei, HiSilicon
R1-1710070	Further considerations on SRS design	CATT
R1-1710147	On SRS design for NR	Guangdong OPPO Mobile Telecom.
R1-1710200	Discussion on SRS design for NR	ZTE
R1-1710298	On SRS design and related operations	LG Electronics
R1-1710409	Views on SRS designs	Mitsubishi Electric Co.
R1-1710537	Discussion on SRS for NR	Intel Corporation
R1-1710688	SRS design for NR	Samsung
R1-1710817	SRS design in NR	MediaTek Inc.
R1-1710929	Discussion on SRS sequence generation for NR	Panasonic Corporation
R1-1710938	On SRS for NR	InterDigital, Inc.
R1-1711310	UL SRS design considerations in NR	Nokia, Alcatel-Lucent Shanghai Bell

5.1.2.4.6 TRS

R1-1709934 **Reference signal for fine time and frequency tracking** **Huawei, HiSilicon**
R1-1710832 **On TRS design requirement** **MediaTek Inc.**
R1-1711175 **Further analysis on fine time/frequency tracking RS design** **Qualcomm Incorporated**

Further discussion offline, especially to narrow-down (possibly selecting) the possible range/set of values for the following parameters for TRS:
- **X**: the length of TRS burst in terms of number of slots
- **Y**: the TRS burst periodicity in terms of number of slots
- $\mathbf{S_f}$: TRS subcarrier spacing
- $\mathbf{S_t}$: TRS symbol spacing within a slot
- **N**: Number of OFDM symbols per TRS within a slot
- **B**: TRS bandwidth in terms of number of RBs

Revisit later this week – Chiao-yao (MTK) (including possible other aspects for TRS)

R1-1711765 **Summary of views on TRS** **MediaTek**
R1-1711766 **WF on TRS** **MediaTek, Huawei, HiSilicon, Ericsson, Qualcomm**

Agreements:
- Slide 3 and slide 4 in R1-1711766 are agreed with the following updates:
  - N: add value of 1
  - B: 50 RBs assuming SCS=15KHz (FFS, for other SCS values)

Agreements:
- TRS is UE-specifically managed
- NR supports TRS for multi-TRP transmission
  - Details FFS
- FFS how to handle the case of initial access and idle mode (e.g., the necessity of TRS or not, default value if TRS is necessary, etc)
- FFS how to handle multi-beam transmission
- FFS: whether the tracking performance enhancement is needed for long DRX

Not treated.

R1-1710201	Discussion on fine time/frequency tracking of channel	ZTE
R1-1710299	Discussion on fine time/frequency tracking of channel	LG Electronics
R1-1710538	Discussion on TRS	Intel Corporation
R1-1710689	Discussions on fine time/frequency tracking for NR	Samsung
R1-1710853	Considerations on fine time/frequency tracking	Sony
R1-1711050	On time and frequency tracking of the channel	Ericsson
R1-1711311	Views on the fTFT-RS in NR	Nokia, Alcatel-Lucent Shanghai Bell

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1545 of 1750

5.1.2.4.7 QCL

R1-1710202 QCL design for UL and DL MIMO ZTE
R1-1710539 On QCL for different BW parts and other QCL details Intel Corporation
R1-1711176 Discussion on QCL Qualcomm Incorporated
R1-1711312 On QCL Framework and Configurations in NR Nokia, Alcatel-Lucent Shanghai Bell

Agreements:

- For QCL, NR supports:
  - At least one or two DM-RS antenna port groups per PDSCH
    - FFS other number of groups
  - QCL assumption across carriers and bandwidth parts for DL
    - FFS details for indication, the applicable RS(s), the applicable QCL parameters, and configurability
    - FFS whether or not to have UE assisted management

Continue offline discussion – Mihai (Nokia)

Not treated.

R1-1709935 Details of QCL assumptions and related RS design considerations Huawei, HiSilicon
R1-1710071 On QCL for NR CATT
R1-1710300 Discussion on QCL for NR LG Electronics
R1-1710690 On QCL for NR Samsung
R1-1710941 On QCL for NR InterDigital, Inc.
R1-1711051 The QCL framework in NR Ericsson

5.1.2.4.8 Other

R1-1709937 UL SRS sequence design in NR Huawei, HiSilicon
R1-1709945 Common UL/DL DMRS design Huawei, HiSilicon
R1-1710455 Signaling of DMRS ports for SU/MU-MIMO Huawei, HiSilicon
R1-1710456 DMRS design for URLLC Huawei, HiSilicon
R1-1710457 Considerations on UE-specific RS Sequence Design Huawei, HiSilicon
R1-1710458 Discussion on UL DMRS power boosting Huawei, HiSilicon
R1-1711052 On the number of antenna ports for CSI-RS Ericsson
R1-1711053 On the collision between DMRS and DC subcarrier Ericsson
R1-1711246 Discussion on Bursty Interference Measurement Resources Qualcomm Incorporated

5.1.2.5 Other

Including MIMO calibration

R1-1709938 SRS antenna switching Huawei, HiSilicon

R1-1709910 NR MIMO System Level Phase 3 Calibration Results Beijing Xinwei Telecom Techn.
R1-1710072 System level calibration results for NR MIMO CATT
R1-1710073 Link level calibration results for NR MIMO CATT
R1-1710203 Calibration results for Phase 1 NR MIMO link level calibration ZTE
R1-1710204 Calibration results for Phase 1 NR MIMO system level calibration ZTE
R1-1710205 Calibration results for Phase 2 NR MIMO link level calibration ZTE
R1-1710206 Calibration results for Phase 2 NR MIMO system level calibration ZTE
R1-1710207 Calibration results for Phase 3 NR MIMO calibration ZTE
R1-1710208 Further clarification on Phase 3 NR MIMO calibration ZTE
R1-1710301 Phase 3 SLS Calibration Results for NR MIMO LG Electronics
R1-1710302 Phase 2 LLS Calibration Results for NR MIMO LG Electronics
R1-1710540 Calibration results for Phase 2 NR MIMO system level calibration Intel Corporation
R1-1711393 Calibration results for Phase 1 NR MIMO system level calibration MOTOROLA MOBILITY LLC
R1-1711450 MIMO Phase-2 SLS calibration results on 30GHz frequency band Samsung
R1-1711451 MIMO Phase-2 LLS calibration results on 30GHz frequency band Samsung
R1-1711452 Evaluation results for dense urban on 30GHz frequency band Samsung

5.1.3 Scheduling/HARQ aspects

The document was presented by … from ...
Discussion: .
Decision: The document is noted.

5.1.3.1 Physical downlink control channel

R1-1711567 Summary of e-mail discussion on DCI content Ericsson LM

R1-1711910 [DRAFT] Reply LS on PDCCH design Ericsson
R1-1711972 [DRAFT] Reply LS on PDCCH design Ericsson, CATT
R1-1711992 [DRAFT] Reply LS on PDCCH design Ericsson, CATT
Decision: The document is noted and final LS is approved in R1-1712005 by deleting a sentence **"**RAN1 may downselect between 7 and 14 symbols in the future." and capture past agreements related to it in RAN1 #86bis (in Lisbon) as it is in Section 1.

5.1.3.1.1 PDCCH structure

R1-1711961 WF on PDCCH CRC Panasonic

R1-1712006 WF on UE behaviour for reserved resource Samsung

5.1.3.1.1.1 CCE-to-REG mapping and PDCCH-to-CCE mapping

Including REG bundle size/structure.

R1-1711411 Evaluation on REG bundle sizes for 1-symbol CORESET duration Huawei, HiSilicon

Observation 1: For 1-symbol CORESET configured with REG-to-CCE mapping without interleaving, same precoder across multiple CCEs, i.e., higher REG bundling size such as 12 REGs, will improve PDCCH performance.
Observation 2: for 1-symbol CORESET configured with REG-to-CCE mapping with interleaving,
- using smaller REG bundling size hence finer cycling granularity, precoder cycling can obtain more diversity gain, i.e., the performance curve of BLER vs SNR will have a steeper slope, especially for the case of low Delay spread(hence low frequency selectivity)and in high SNR region, where channel estimation performance can be ensured with smaller REG bundling size, e.g.,2;
- using larger REG bundling size such as 3 or 6, channel estimation performance can be improved, especially for the case of high Delay spread(hence high frequency selectivity)and in low SNR region, where PDCCH performance will be ensured by high PDCCH aggregation level;
- higher PDCCH aggregation level will benefit from larger bundling size;

Proposal: Configurable REG bundling size should be supported for 1-symbol CORESE configured with REG-to-CCE mapping with interleaving, and bundle size 2, 3 or 6 can be configured.

Decision: The document is noted.

R1-1711412 Evaluation on REG bundle sizes for more than 1 symbol CORESET duration Huawei, HiSilicon

Observation 1: for 2- or 3-symbol CORESET configured with REG-to-CCE mapping without interleaving, same precoder across multiple CCEs, i.e., higher REG bundling size such as 12 REGs, will improve PDCCH performance.
Observation 2: for 2- or 3-symbol CORESET configured with REG-to-CCE mapping with interleaving:
- using lower REG bundling size (REG bundle pattern 0) have finer cycling granularity, precoder cycling can obtain more diversity gain, especially for the case high SNR region;
- using higher REG bundling size (REG bundle pattern 1), channel estimation performance can be improved, especially for the case of low SNR region;
- higher PDCCH aggregation level will benefit from larger bundling size;

Proposal: For Option2 in 2 and 3 OFDM symbol CORESET, the following REG bundle patterns can be configured:
- 1 symbol in time domain and {3,6} consecutive REGs in frequency domain;
- 1 symbol in time domain and {2,6} consecutive REGs in frequency domain;
- 2 symbols in time domain and 1 REG per symbol in frequency domain;
- 2 symbols in time domain and 3 consecutive REGs per symbol in frequency domain; Or
- 3 symbols in time domain and 1 REG per symbol in frequency domain;
- 3 symbols in time domain and 2 consecutive REGs per symbol in frequency domain.

Decision: The document is noted.

R1-1710541 NR PDCCH physical structure Intel Corporation

- Observation 1: In case of CORESET of 1 OS and 48 RBs, REGBs of 3 and 6 REGs exhibit similar performance. While REGB of 6 REGs shows slightly better performance than REGB of 3 REGs for high AL NR-PDCCH in low SNR, the performance of REGB of 3 REGs is slightly better than that of REGB of 6 REGs for low AL NR-PDCCH in high SNR.
- Observation 2: In case of CORESET of 2(3) OS and 24(16) RBs, REGBs of 2(3) and 6 REGs exhibit similar performance. Specifically REGB of 6 REGs shows slightly better performance than REGB of 2(3) REGs for high AL NR-PDCCH in low SNR.

- Proposal 1: For non-interleaved REG-to-CCE mapping in 1-symbol CORESET, UE assumption of same precoding over multiple REG bundles can be configured by the gNB.
- Proposal 2: For interleaved REG-to-CCE mapping in 1-symbol CORESET, REG bundle size is 3REGs and UE assumption of same precoding over multiple REG bundles can be configured by the gNB.
- Proposal 3: For non-interleaved REG-to-CCE mapping in CORESET of more than 1 symbol with time-first mapping of REG-to-CCE, UE assumption of same precoding over multiple REG bundles can be configured by the gNB.
- Proposal 4: For interleaved REG-to-CCE mapping in CORESET of more than 1-symbol with time-first mapping of REG-to-CCE, REG bundle size is 2 REGs and 3 REGs for 2-symbol and 3-symbol CORESETs respectively, and UE assumption of same precoding over multiple REG bundles can be configured by the gNB.
- Proposal 5: At least for interleaved REG-to-CCE mapping in 1-symbol and multi-symbol CORESETs with time-first mapping, when configured, the same precoding may be assumed across no more than [2] REG bundles.
- Proposal 6: For multi-symbol PDCCH CORESET, adopt the following additional REG-to-CCE mapping option:
  - (Option 2) Support of frequency-first mapping such that:
    - REG-to-CCE mapping is exactly same as the case where a CORESET with 1 symbol
    - A PDCCH candidate can be mapped across OFDM symbols.

Decision: The document is noted.

R1-1711708 **WF on REG bundle size in a CORESET with interleaving LG Electronics, ETRI, NTT DOCOMO, Ericsson, InterDigital**

- The REG bundle size in a CORESET with interleaving is
  - [2 or 3] for 1-symbol CORESET
  - 2 for 2-symbol CORESET when time-first REG-to-CCE mapping is applied
  - 3 for 3-symbol CORESET when time-first REG-to-CCE mapping is applied

Decision: The document is noted.

Proposed agreement

- The REG bundle size in a CORESET with interleaving is
  - Configurable between 2 and 6 for 1-symbol CORESET
  - Configurable between 2 and 6 for 2-symbol CORESET when time-first REG-to-CCE mapping is applied
  - Configurable between 3 and 6 for 3-symbol CORESET when time-first REG-to-CCE mapping is applied

For 2 and 3 symbols CORESET

- Option 1 REG bundle size = CORESET length
  - Supported by Sansung, LGE, Panasonic, NTT DOCOMO, Ericsson, ETRI, OPPO, ZTE, InterDigital
- Option 2 REG bundle size = 6
  - Nokia, ASB, Qualcomm

Agreements:

For a 1-symbol CORESET with interleaving,

- At least REG bundle size = 2 is supported
- Working assumption:
  - REG bundle size = 6 is also supported
  - FFS whether configuration between 2 and 6 is explicit or implicit
  - Precoder granularity in frequency domain is equal to the REG bundle size in the frequency domain

For a 2 or 3 symbol CORESET with interleaving,

- At least REG bundle size = CORESET length is supported
- Working assumption:
  - REG bundle size = 6 is also supported
  - FFS whether configuration between CORESET length and 6 is explicit or implicit
  - Precoder granularity in frequency domain is equal to the REG bundle size in the frequency domain

(Note: REG bundle size = REGs in frequency domain x symbols in time domain)

The document was presented by … from ...
Discussion: .
Decision: The document is noted.

R1-1710011	Overview of PDCCH-CCE-REG mapping and REG bundling	Huawei, HiSilicon
R1-1710074	NR-PDCCH mapping structure	CATT
R1-1710104	CCE mapping with REG bundling	ZTE
R1-1710148	NR-PDCCH CCE-to-REG mapping with REG bundling	Guangdong OPPO Mobile Telecom.
R1-1710303	Discussion on NR-PDCCH structure	LG Electronics
R1-1710366	Discussion on NR-REG to NR-CCE time-/frequency mapping	Spreadtrum Communications
R1-1710390	Discussion on REG bundling size/structure	vivo
R1-1710614	NR-PDCCH mapping structure and REG bundle size	ETRI
R1-1710691	Resource Mapping for PDCCH	Samsung
R1-1710788	Discussions on NR-PDCCH Structure	MediaTek Inc.
R1-1710903	PDCCH structure for NR	NEC
R1-1710944	On the impact of multi-beam operation on PDCCH structure	InterDigital, Inc.
R1-1710973	Discussion on REG bundle size	ITRI
R1-1710978	On the PDCCH construction for NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711088	Views on remaining issues of resource mapping for NR-PDCCH	NTT DOCOMO, INC.
R1-1711177	PDCCH structure	Qualcomm Incorporated
R1-1711235	REG bundling for NR PDCCH	Sharp
R1-1711273	Design of resource mapping and NR-PDCCH	HTC Corporation
R1-1711280	On CCE and PDCCH mapping	Motorola Mobility, Lenovo
R1-1711327	The relation among REG, CCE, and CORESET	Panasonic
R1-1711475	Views on CCE-to-REG mapping	KT Corp.
R1-1711477	On NR-PDCCH Structure	Ericsson

5.1.3.1.1.2 RS structure/mapping

Including possible wideband RS.

DMRS mapping

- Option 1: DMRS is mapped on all REGs on all the OFDM symbols of a given PDCCH candidate
  - Supported by Ericsson, Nokia, ASB, ITRI, Huawei, HiSilicon, OPPO, Intel, ETRI, KT, Lenovo, MotM, Panasonic, NTT DOCOMO, CATT, MediaTek, CMCC, Sony, Spectrum
- Option 2 DMRS is mapped on all REGs on the first OFDM symbol of a given PDCCH candidate
  - Samsung, ZTE, Huawei, HiSilicon, vivo, InterDigital, LGE, Qualcomm, Sharp, Intel, NEC, Panasonic
- Option 3 DMRS is mapped on all REGs on the first and last OFDM symbols of a given PDCCH candidate
  - DOCOMO, CATT, MediaTek, CMCC, vivo, Sony, Spectrum

Agreement

- DMRS is mapped on all REGs on all the OFDM symbols of a given PDCCH candidate
  - The DMRS density is the same on all REGs

R1-1709950	DMRS for NR-PDCCH	Huawei, HiSilicon
R1-1710075	Further details of NR-PDCCH RS structure	CATT
R1-1710105	Issues regarding DMRS structure and mapping	ZTE
R1-1710149	On NR PDCCH RS design	Guangdong OPPO Mobile Telecom.
R1-1710304	Discussion on reference signal for NR-PDCCH	LG Electronics
R1-1710389	DMRS design for NR-PDCCH	vivo
R1-1710542	On DM-RS design for NR PDCCH	Intel Corporation
R1-1710615	DMRS design for NR-PDCCH	ETRI
R1-1710692	DMRS Structure for PDCCH	Samsung
R1-1710778	On DMRS Design for NR-PDCCH	CMCC
R1-1710789	RS structures for NR-PDCCH	MediaTek Inc.
R1-1710945	On REG bundling and associated DMRS	InterDigital, Inc.
R1-1710979	On the remaining details of PDCCH reference signal structure	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711089	Views on DM-RS design for NR-PDCCH	NTT DOCOMO, INC.
R1-1711178	RS for DL control channel	Qualcomm Incorporated
R1-1711328	RS mapping of NR-PDCCH	Panasonic
R1-1711478	On DM-RS for NR-PDCCH	Ericsson

5.1.3.1.2 Search space

5.1.3.1.2.1 CORESET configuration

Including relationship between CORESET and search space.

From offline discussion…

Agreements:

- For a CORESET which is configured by UE-specific higher-layer signalling, at least following are configured.
  - Frequency-domain resources, which may or may not be contiguous
    - Each contiguous part of a CORESET is equal to or more than the size of REG-bundle in frequency
      - FFS: exact size and number of contiguous parts for a CORESET
  - Starting OFDM symbol
  - Time duration
  - REG bundle size if the configuration is explicit
  - Transmission type (i.e., interleaved or non-interleaved)
  - More parameters may be added if agreed
- For a CORESET which is configured by UE-specific higher-layer signalling, at least following is configured.
  - Monitoring periodicity
    - FFS: it is a configuration per CORESET or per one or a set of PDCCH candidates
    - FFS: relation with DRX
    - FFS: default/fallback value

R1-1709951	Configuration of control resource set	Huawei, HiSilicon
R1-1710076	Configuration aspects of the NR-PDCCH	CATT
R1-1710106	NR-PDCCH CORESET configuration	ZTE
R1-1710150	PDCCH CORESET configuration and UE procedure on NR-PDCCH monitoring	Guangdong OPPO Mobile Telecom.
R1-1710305	Discussion on CORESET configuration	LG Electronics
R1-1710543	CORESETs for NR PDCCH	Intel Corporation
R1-1710693	CORESET Configurations	Samsung
R1-1710779	Discussion on CORESET duration	CMCC
R1-1710790	Discussions on CORESET configurations	MediaTek Inc.
R1-1710872	CORESET Monitoring Under Dynamic Change of BWP	InterDigital, Inc.
R1-1710980	On the PDCCH control resource set and its connection to the search space for NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711090	Views on control resource set configuration for NR-PDCCH	NTT DOCOMO, INC.
R1-1711179	Control resource set and search space	Qualcomm Incorporated
R1-1711272	Configuration for control resource sets and search spaces	HTC Corporation
R1-1711329	Configuration of CORESET	Panasonic
R1-1711368	Discussion on the search space design	Xiaomi technology
R1-1711479	On Configuration of Control Resource Sets	Ericsson

5.1.3.1.2.2 Search space design

Including possible nested search space. Both common search space and UE-specific search space should be considered.

R1-1711754 WF on NR PDCCH Blind decodes vivo, Samsung

Agreements:

- For PDCCH blind decoding, at least for the non-initial access, at least the following can be configured:
  - Number of PDCCH candidates per CCE aggregation level, per DCI format size that the UE monitors
  - Set of aggregation levels
    - FFS explicit or implicit configuration
  - Set of DCI format sizes
    - FFS explicit or implicit configuration
  - FFS: per CORESET not used for initial access or search space
  - FFS: Signalling details
  - Note that the number of candidates can be zero
- UE blind decoding capability is known by NW
  - FFS: How the capability is derived

Possible proposals from offline:

- FFS: UE PDCCH blind decoding capability is defined in NR
  - FFS: The capability can be defined as the maximum number of blind decodes that a UE can support within a time unit.
  - FFS: the value of the time unit

R1-1710306 Discussion on hierarchical search space structure LG Electronics
R1-1710544 NR PDCCH: Search spaces and monitoring behavior Intel Corporation

R1-1709952 Search space design Huawei, HiSilicon
R1-1710077 Search space design for NR-PDCCH CATT
R1-1710107 Search space design for NR-PDCCH ZTE
R1-1710151 NR PDCCH search space design with nested structure Guangdong OPPO Mobile Telecom.
R1-1710393 Discussion on search space design supporting dynamic DCI size vivo
R1-1710694 Search Space Design Samsung
R1-1710780 Discussion on NR-PDCCH search space design CMCC
R1-1710946 Search space design for eMBB-URLLC Multiplexing InterDigital, Inc.
R1-1710981 On the search space design and UE blind detection Nokia, Alcatel-Lucent Shanghai Bell
R1-1711091 Views on search space design for NR-PDCCH NTT DOCOMO, INC.
R1-1711180 Nested search space design Qualcomm Incorporated
R1-1711321 PDCCH BD reduction Panasonic
R1-1711330 Search space design Panasonic
R1-1711480 On Search Space and Blind Decoding Design Ericsson

5.1.3.1.2.3 Multi-beam operation for PDCCH

R1-1710012 Multi-beam operation for PDCCH Huawei, HiSilicon
R1-1710078 Discussion on multi-beam operation for NR-PDCCH CATT
R1-1710108 Supporting Multi-beam in NR-PDCCH ZTE
R1-1710152 Search space design consideration for NR PDCCH with BF Guangdong OPPO Mobile Telecom.
R1-1710307 Discussion on multi-beam operation for NR-PDCCH LG Electronics
R1-1710437 Control channel configuration for multi-TRP and multi-panel transmission AT&T
R1-1710545 Multi-beam operation for NR PDCCH Intel Corporation
R1-1710616 NR-PDCCH for broadcast information delivery ETRI
R1-1710695 Multibeam Transmission for PDCCH Samsung
R1-1710982 PDCCH support for multi-beam system Nokia, Alcatel-Lucent Shanghai Bell
R1-1711092 Views on multi-beam based NR-PDCCH NTT DOCOMO, INC.
R1-1711181 Multi-beam control operation Qualcomm Incorporated
R1-1711395 Discussion on Multi-beam Operation for PDCCH Convida Wireless LLC
R1-1711481 On Multi-beam and Multi-TRP Operation for PDCCH Ericsson

5.1.3.1.3 Resource sharing between PDCCH and PDSCH

R1-1711921 **WF on PDCCH /PDSCH resource sharing ZTE, Nokia, Ericsson, LG, Panasonic, Qualcomm, Sharp**

- The following is supported for dynamic resource reuse for PDSCH
  - RRC signaling to indicate the time and frequency resources for which the dynamic signaling below indicates resources for which PDSCH may or may not be mapped
    - FFS whether the time and frequency resources can correspond to resources used for purposes other than CORESETs configured for monitoring PDCCH by the UE or by other UEs
  - Dynamic signaling that
    - Indicates which of the time and frequency resources configured by the RRC signaling can be mapped to PDSCH (Details FFS) and
    - Can additionally indicate which of the time and frequency resources not indicated by the above RRC signaling and that are part of the CORESETS configured to the UE for PDCCH monitoring are mapped to PDSCH (Details FFS)
    - Note: Dynamic signaling overhead will limit the number of resources that can be dynamically indicated for reuse of resources. FFS the limit on the overhead.
  - UE can assume that the reused resources shall be within the frequency domain spanned by the resources allocated for the PDSCH
  - UE assumes that resources used for reception of PDCCH scheduling PDSCH are not reused
    - FFS: Reuse of resources used for other control signaling, e.g., common search space, group common PDCCH, broadcast PDCCH, UL grant

Decision: The document is noted.

R1-1711482 On Data Transmission in Control Resource Sets Ericsson
R1-1710546 Dynamic resource sharing between control and data Intel Corporation
R1-1709956 Resource multiplexing of downlink control and data Huawei, HiSilicon
R1-1710079 Flexible reuse of DL control resources for data transmission CATT

R1-1710109	Resource sharing between PDCCH and PDSCH	ZTE
R1-1710153	On resource sharing between PDCCH and PDSCH	Guangdong OPPO Mobile Telecom.
R1-1710308	Discussion on multiplexing between control and data	LG Electronics
R1-1710617	Discussion on dynamic indication of PDSCH start symbol	ETRI
R1-1710696	Multiplexing NR-PDCCH and PDSCH	Samsung
R1-1710791	Resource sharing between PDCCH and PDSCH	MediaTek Inc.
R1-1710873	PDSCH starting position in NR	InterDigital, Inc.
R1-1710983	Resource sharing between PDCCH and PDSCH in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711093	Resource sharing between data and control channels	NTT DOCOMO, INC.
R1-1711182	Resource reuse for data in DL control region	Qualcomm Incorporated
R1-1711236	Indication of PDSCH starting position for NR	Sharp
R1-1711320	Resource sharing between PDCCH and PDSCH	Panasonic
R1-1711354	PDSCH starting position indication for NR	WILUS Inc.

5.1.3.1.4 Group-common PDCCH

R1-1710968	Summary of [89-20] email discussion on Group-common PDCCH for NR	CATT

Agreements:
- In ‘Slot format related information’, ‘Empty’ is not indicated explicitly.
- Note: RAN1 specification ensures that UE(s) is/are aware of which resources can be for ‘gap for DL-UL switching’ and/or ‘gap’
- Note: RAN1 specification ensures that UE(s) is/are aware of which resources are for ‘CSI/interference measurement’.

Agreements:
- UE is configured with a CORESET to monitor group-common PDCCH.
- When configured, the group-common PDCCH follows the same CORESET configuration (e.g., REG-to-CCE mapping) of the CORESET.
  - A group-common PDCCH is formed by an integer number of CCEs.
- The CORESET for the monitored group-common PDCCH carrying SFI can be the same or different from the CORESET for the monitored PDCCH for other types of control signalling.

Friday
R1-1711991 WF on contents of the group-common PDCCH CATT, NEC

Agreement: Prioritize discussion of SFI functionality of a group-common PDCCH.
- Further work will be on group-common PDCCH carrying the SFI at least in August meeting.

5.1.3.1.4.1 Structure of group-common PDCCH

Limit to 1 contributions per 1 company/organization/university

R1-1709954	Structure of group-common PDCCH	Huawei, HiSilicon
R1-1710080	Channel structure for group-common PDCCH	CATT
R1-1710309	Discussion on the structure of group common PDCCH	LG Electronics
R1-1710438	Group common PDCCH Structure for NR	AT&T
R1-1710547	Group-common PDCCH: Physical structure	Intel Corporation
R1-1710697	UE-Group Common PDCCH Structure	Samsung
R1-1710792	Structure of group-common PDCCH	MediaTek Inc.
R1-1710857	On structure of group-common PDCCH	Sony
R1-1710947	Group-common PDCCH design considerations	InterDigital, Inc.
R1-1710984	On the structure of group common PDCCH in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711094	Views on structure of group-common PDCCH	NTT DOCOMO, INC.
R1-1711183	Structure of group common PDCCH	Qualcomm Incorporated
R1-1711237	Group common PDCCH structure for NR	Sharp
R1-1711331	Discussion on structure of group common PDCCH	Panasonic
R1-1711355	Discussion on structure for group-common PDCCH for NR	WILUS Inc.
R1-1711370	Discussion on the search space design	Xiaomi Technology
R1-1711390	Discussion on the structure of group common PDCCH	Xiaomi Technology
R1-1711483	On Group-Common PDCCH Structure and Configuration	Ericsson

5.1.3.1.4.2 Contents of group-common PDCCH

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1552 of 1750

Limit to 1 contributions per 1 company/organization/university

R1-1709953	Contents of group-common PDCCH	Huawei, HiSilicon
R1-1710081	Contents of the group-common PDCCH	CATT
R1-1710110	Group-common PDCCH design consideration	ZTE
R1-1710310	Discussion on the contents of group common PDCCH	LG Electronics
R1-1710391	Discussion on group common PDCCH and BD	vivo
R1-1710439	On the contents of group common PDCCH	AT&T
R1-1710548	Group-common PDCCH: Contents	Intel Corporation
R1-1710698	Functionalities of UE-Common PDCCH	Samsung
R1-1710793	Contents of group-common PDCCH	MediaTek Inc.
R1-1710856	On contents of group-common PDCCH	Sony
R1-1710907	Control indicator in group-common PDCCH for UE power saving	Apple Inc.
R1-1710985	On the contents of group common PDCCH in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711095	Views on contents of group-common PDCCH	NTT DOCOMO, INC.
R1-1711184	Contents of group common PDCCH	Qualcomm Incorporated
R1-1711238	Group common PDCCH contents for NR	Sharp
R1-1711281	NR Group-common PDCCH contents and structure	Motorola Mobility, Lenovo
R1-1711332	Discussion on contents of group common PDCCH	Panasonic
R1-1711356	Discussion on contents for group-common PDCCH for NR	WILUS Inc.
R1-1711369	Discussion on the content of group common PDCCH	Xiaomi technology
R1-1711484	On the Content of Group-Common PDCCH	Ericsson

5.1.3.1.4.3 UE behaviour related to group-common PDCCH

Limit to 1 contributions per 1 company/organization/university

R1-1710082	Configuration and monitoring of the group-common PDCCH	CATT
R1-1710154	Impact on common channel reception to PDCCH design	Guangdong OPPO Mobile Telecom.
R1-1710311	Discussion on UE behavior for the group common PDCCH	LG Electronics
R1-1710368	The relation among UE-specific DCI, GC-PDCCH, and semi-static signaling	Spreadtrum Communications
R1-1710440	UE behaviour for group common PDCCH	AT&T
R1-1710476	UE behavior related to group-common PDCCH	Huawei, HiSilicon
R1-1710549	Group-common PDCCH: UE behavior	Intel Corporation
R1-1710699	UE Behavior for UE-Group Common PDCCH Detection	Samsung
R1-1710781	UE behaviour related to dynamic and semi-static configured resources	CMCC
R1-1710794	UE behaviour for group-common PDCCH	MediaTek Inc.
R1-1710906	UE behavior on UL/DL transmission direction determination in NR TDD	Apple Inc.
R1-1710948	UE behaviour related to CORESET(s) configured by PBCH	InterDigital, Inc.
R1-1710986	On the UE behaviour related to group common PDCCH in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711096	Views on UE behavior for group-common PDCCH	NTT DOCOMO, INC.
R1-1711185	UE behaviour related to group common PDCCH	Qualcomm Incorporated
R1-1711239	Group common PDCCH monitoring for NR	Sharp
R1-1711333	Discussion on DL/UL transmission direction	Panasonic
R1-1711357	Discussion on UE behavior for group-common PDCCH for NR	WILUS Inc.
R1-1711485	On UE Procedures Related to Group-Common PDCCH	Ericsson

5.1.3.1.5 Ultra-reliable part of URLLC for DL control

Identify necessary techniques for physical downlink control channel to meet the URLLC requirements set forth by TR38.913.

R1-1709993	UE procedure of PDCCH monitoring for URLLC	Huawei, HiSilicon
R1-1710111	NR-PDCCH for supporting URLLC	ZTE
R1-1710155	DL control channel design for URLLC	Guangdong OPPO Mobile Telecom.
R1-1710312	Discussion on DL control with ultra-reliability	LG Electronics
R1-1710550	Satisfying ultra-reliability targets for NR PDCCH	Intel Corporation
R1-1710700	PDCCH Design for URLLC	Samsung
R1-1710862	Reliable PDCCH operation for URLLC	Sony
R1-1710874	Considerations for ultra-reliable DCI transmission	InterDigital, Inc.
R1-1710949	On Ultra-reliable and low-latency PDCCH	InterDigital, Inc.
R1-1710987	On the URLLC specific aspects for DL control channel	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711097	DL control channel design for URLLC	NTT DOCOMO, INC.
R1-1711338	Consideration on physical downlink control channel for URLLC	CATR
R1-1711486	On PDCCH for Ultra-Reliable Transmission	Ericsson
R1-1711487	On the Performance Evaluation of PDCCH for Ultra-Reliable Transmission	Ericsson
R1-1711552	Management of URLLC DL control channel efficiency and reliability	Qualcomm Incorporated

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1553 of 1750

5.1.3.1.6 Other

The document was presented by … from ...
Discussion: .
Decision: The document is noted.

R1-1710395	DCI content size and compression	vivo
R1-1709955	UE-specific DCI contents in NR	Huawei, HiSilicon
R1-1709957	Dynamic and semi-static DL/UL resource partition	Huawei, HiSilicon
R1-1709986	PDCCH reliability for URLLC	Huawei, HiSilicon
R1-1710460	Resource sharing between NR-PDCCH and data	Huawei, HiSilicon
R1-1710467	DCI design for URLLC	Huawei, HiSilicon
R1-1710701	Transmit Diversity for PDCCH	Samsung
R1-1710702	Bandwidth Part Hopping for CORESETS	Samsung
R1-1710988	On the usage of PDCCH DMRS as a complementary synchronization signal in DL	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711186	Common control resource set signaling in MIB	Qualcomm Incorporated
R1-1711187	Advanced Grant Indication for UE Power Saving	Qualcomm Incorporated
R1-1711413	CCE-to-REG mapping	Huawei, HiSilicon
R1-1711414	PDCCH-to-CCE mapping	Huawei, HiSilicon
R1-1711415	NR DL control capacity and blocking probability	Huawei, HiSilicon
R1-1711423	PDCCH monitoring for slot-aggregation and cross-slot scheduling	Huawei, HiSilicon
R1-1711431	HARQ feedback indication design for UL grant-free transmission	Huawei, HiSilicon
R1-1711433	Discussion on remaining frequency resources on symbol carrying CORESET	Huawei, HiSilicon
R1-1711453	DL and UL Assignment for NR TDD	Samsung
R1-1711454	Slot Reconfiguration for Low Latency in TDD	Samsung
R1-1711455	Indication of Reserved Resources	Samsung

5.1.3.2 Physical uplink control channel

5.1.3.2.1 PUCCH in short-duration

Wednesday offline summary:

Discussions:
- Companies supporting option 4 (sequence selection)
  - Qualcomm, Ericsson, MediaTek, ZTE, LG, Interdigital, Motorola mobility, Lenovo, DOCOMO
  - For SR only case: Intel, ZTE
- Companies supporting option 1 (FDM RS and UCI)
  - Option 1-1: FDM two sequences, one sequence is modulated with UCI
  - Option 1-2: based on single sequence, modulate even tone of a single sequence.
  - Modulate can be BPSK or QPSK
  - Samsung(Option 1-1), ZTE (option 1-2), Huawei, HiSilicon (Option 1-2), intel(option 1-1), Nokia (option 1-1), CATT (?)
- Advantages of option 4 (sequence selection)
  - Lower PAPR than option 1
  - With 2 bits payload, better link level performance for 1 UE
    - For 3 UEs, one company provided link level simulation showing option 4 has better performance than option 1. (R1-1711649)
  - MUX capacity is 6 UEs for 1 bit UCI, MUX capacity 3 UEs for 2 bits UCI
  - If multiplex with DMRS other UEs short PUCCH, can achieve flexible PUCCH allocation and higher multiplexing capacity.
  - Better MUX capacity for SR than 1-2.
- Advantages of option 1 (FDM RS and UCI)
  - Lower PAPR than LTE is only for option 1-2, but with worse cross-correlation than LTE.
  - MUX capacity of 6 UEs for 1 bit
  - Potential MUX capacity of 6 UEs for 2 bits

Qualcomm and Ericsson comment maximizing UE MUX capacity is not main design target for short PUCCH. Single UE performance is more important.

Thursday
Agreements:
- Working assumption:
  - For short-PUCCH with UCI of up to 2 bits (with/without SR), option 4 is supported.

- No more short-PUCCH format is supported for short-PUCCH in the WID scope.

5.1.3.2.1.1 Short-PUCCH for UCI of up to 2 bits

R1-1709958 Short PUCCH for up to 2 UCI bits Huawei, HiSilicon
R1-1710083 Short PUCCH for small UCI payloads CATT
R1-1710112 On short PUCCH for up to 2 bits UCI ZTE
R1-1710156 Discussion on short PUCCH for up to 2 UCI bits Guangdong OPPO Mobile Telecom.
R1-1710313 Design of short NR-PUCCH for up to 2 UCI bits LG Electronics
R1-1710386 Discussion on short-PUCCH up to 2-bit vivo
R1-1710551 Performance of short PUCCH format for 1~2 bits HARQ-ACK Intel Corporation
R1-1710588 Results for short PUCCH for UCI of up to 2 bits IITH
R1-1710618 Short-PUCCH for UCI of up to 2 bits ETRI
R1-1710703 Short PUCCH for UCI of 1 or 2 Bits Samsung
R1-1710819 Performance evaluation on channel structure of short PUCCH for 1 or 2 bits UCI MediaTek Inc.
R1-1710893 On the short PUCCH design for small UCI payloads Nokia, Alcatel-Lucent Shanghai Bell
R1-1710930 Discussion on 1-symbol NR-PUCCH for UCI of up to 2 bits Panasonic Corporation
R1-1710950 Evaluations of 1-symbol short-PUCCH with 1 or 2 bit(s) InterDigital, Inc.
R1-1711098 Sequence-based PUCCH for UCI of up to 2 bits NTT DOCOMO, INC.
R1-1711188 Channelization of 1-symbol short PUCCH with 1 or 2 bits payload Qualcomm Incorporated
R1-1711242 Short PUCCH structure for UCI of up to 2 bits Sharp
R1-1711282 Short PUCCH for up to 2 bit UCI Motorola Mobility, Lenovo
R1-1711358 Short PUCCH structure for UCI of up to 2 bits WILUS Inc.
R1-1711488 On the Design of Short PUCCH for 1-2 UCI bits Ericsson

5.1.3.2.1.2 Short-PUCCH for UCI of more than 2 bits

R1-1709959 Short PUCCH with more than 2 UCI bits Huawei, HiSilicon
R1-1710084 Short PUCCH for moderate and large UCI payloads CATT
R1-1710113 On short-PUCCH for more than 2 bits ZTE
R1-1710157 Discussion on short PUCCH for more than 2 UCI bits Guangdong OPPO Mobile Telecom.
R1-1710226 Discussion on 2-symbol Short PUCCH with More Than 2 Bits Beijing Xinwei Telecom Techn.
R1-1710253 Discussion on extending of scheduling request NEC Corporation
R1-1710314 Design of short NR-PUCCH for more than 2 UCI bits LG Electronics
R1-1710367 Discussion on 1-symbol PUCCH design Spreadtrum Communications
R1-1710387 Discussion on short-PUCCH more than 2-bit vivo
R1-1710408 On pre-DFT RS/UCI multiplexing for PUCCH in short duration Mitsubishi Electric RCE
R1-1710552 2-symbol NR PUCCH Intel Corporation
R1-1710589 Further discussion on pre-DFT multiplexing for short PUCCH IITH
R1-1710619 Short-PUCCH for UCI of more than 2 bits ETRI
R1-1710704 Short PUCCH for UCI of more than 2 Bits Samsung
R1-1710894 Short PUCCH design for UCI of more than 2 bits Nokia, Alcatel-Lucent Shanghai Bell
R1-1711099 FDM-based PUCCH for UCI of more than 2 bits NTT DOCOMO, INC.
R1-1711189 Channelization of 1-symbol short PUCCH with more than 2 bits payload Qualcomm Incorporated
R1-1711243 Short PUCCH structure for UCI of more than 2 bits Sharp
R1-1711489 On the Design of Short PUCCH for more than 2 UCI bits Ericsson

5.1.3.2.2 PUCCH in long-duration

R1-1711677 Summary of the E-mail Discussion [89-21]: On Long PUCCH for NR Ericsson

R1-1711834 WF on Long PUCCH Format with 1-2 UCI bits Ericsson, Huawei, HiSilicon, LG, ZTE, MediaTek, Panasonic, WILUS Inc., Intel, Vivo,Cohere Technologies, ETRI, Motorola mobility, Lenovo, CATT

Possible agreements:

- For a long PUCCH with up to 2 bits UCI:
  - For location of DMRS select from one of the following alternative in the next meeting:
    - Alt 1: DMRS always occurs in even [or odd] symbols in the long PUCCH
    - Alt 2: DMRS always occurs in even [or odd] symbols in the slot
    - Alt 3: DMRS occurs in one or more sets of consecutive symbols within the long PUCCH. The occasion of DMRS symbols depends on the duration of long PUCCH.
    - Alt 4: DMRS occurs in one or more sets of consecutive symbols within the long PUCCH. The occasion of DMRS symbols depends on the duration of long PUCCH but fixed within the slot

Possible agreements:

- For a long PUCCH with up to 2 bits UCI:
  - The DM-RS symbol(s) are formed as follows:

- DMRS for a PUCCH is a cyclic shift of a base sequence (e.g. a CAZAC or computer generated sequence) in frequency domain with Orthogonal Cover Code (OCC) in time.
- The data symbols are formed as the following:
  - The modulated UCI bit(s) is multiplied with a cyclic shift of a base sequence (e.g. a CAZAC or computer generated sequence) in frequency domain with Orthogonal Cover Code (OCC) in time.
    - Note: BPSK and QPSK modulations for 1 and 2 UCI bits, respectively.

Thursday (offline)

R1-1711912 WF on Long PUCCH Format with 1-2 UCI bits Ericsson, Huawei, HiSilicon, LG, ZTE, MediaTek, Panasonic, WILUS Inc., Intel, Vivo,Cohere Technologies, ETRI, Motorola mobility, Lenovo, CATT, Qualcomm

Agreements:

- For a long PUCCH with up to 2 bits UCI:
  - Working assumption:
    - DMRS always occurs in every other symbols in the long PUCCH
      - FFS: even or odd symbols
    - The working assumption can be revisited if an issue is found in terms of transient period.

Agreements:

  - The DMRS symbol(s) are formed as follows:
    - DMRS for a PUCCH is a sequence (e.g. a cyclic shift of a CAZAC or computer generated sequence) in frequency domain with Orthogonal Cover Code (OCC) in time.
  - Note: The data symbols are formed as the following:
    - The modulated UCI bit(s) is multiplied with a sequence (e.g. a cyclic shift of a CAZAC or computer generated sequence) in frequency domain with Orthogonal Cover Code (OCC) in time.
      - BPSK and QPSK modulations for 1 and 2 UCI bits, respectively.
  - Note: The usage of OCC for DMRS and UCI symbols is effectively disabled for differentiation of the users that are assigned with the same OCC.

R1-1711835 WF on Frequency Hopping for Long PUCCH Ericsson, MediaTek, Qualcomm, Panasonic, Intel, LG, NTT DOCOMO, Cohere Technologies, WILUS Inc., Huawei, HiSilicon, Samsung

Possible agreements:

- For a long PUCCH with N symbols in a slot
  - At most one hop within a slot is supported.
    - FFS on how to enable or disable frequency hopping
  - In case of frequency hopping, the hop occurs at the end of the X-th symbol where
    - FFS between X=floor(N/2) or ceil(N/2)

Friday offline

Agreements:

- For a PUCCH format for UCI with large payload with no multiplexing capacity within a slot:
  - The DMRS and UCI are mapped to different symbols.
  - For intra-slot frequency-hopping, one or two DMRS symbol(s) is/are mapped on each frequency-hop of the long-PUCCH.
    - Opt.1: one DMRS per frequency-hop
      - The location is around the middle of the frequency-hop
    - Opt.2: one or two DMRS per frequency-hop
      - FFS: the location of the DMRS symbol(s)
  - The DMRS symbol(s) are formed as follows:
    - DMRS for a PUCCH is a sequence (e.g. a cyclic shift of a CAZAC or computer generated sequence) in frequency domain.
  - **Working assumption:**
    - The symbols carrying UCI are formed as follows:
      - The UCI bits are encoded and scrambled, QPSK modulated and DFT pre-coded and mapped to the REs for the symbols carrying UCI of the long PUCCH

Friday: IITH commented during offline"Pi/2 BPSK modulation should be used for long duration PUCCH ", not captured due to concern from others

R1-1711996 WF on Long PUCCH Format for more than 2 UCI bits with Multi-user Multiplexing Ericsson

R1-1709960 Overview of long PUCCH design Huawei, HiSilicon

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1556 of 1750

R1-1710590 Views on long-duration PUCCH IITH
R1-1711201 Uplink Resource for SR Qualcomm Incorporated

5.1.3.2.2.1 Long-PUCCH for UCI of up to 2 bits

Focus on long-PUCCH within a slot.

R1-1709961 Long PUCCH structure for up to 2 bits with high multiplexing capacity Huawei, HiSilicon
R1-1710085 Long PUCCH for small UCI payloads CATT
R1-1710114 On long-PUCCH for up to 2 bits ZTE
R1-1710158 Discussion on long PUCCH for up to 2 UCI bits Guangdong OPPO Mobile Telecom.
R1-1710315 Design of long NR-PUCCH for up to 2 UCI bits LG Electronics
R1-1710553 Structure of 1~2 bits HARQ-ACK long PUCCH with TDM DMRS Intel Corporation
R1-1710598 Long PUCCH design for UCI of up to 2 bits Lenovo, Motorola Mobility
R1-1710705 Long PUCCH for UCI of 1 or 2 Bits Samsung
R1-1710895 On long PUCCH design for small payloads Nokia, Alcatel-Lucent Shanghai Bell
R1-1710932 Discussion on channel structure of long-duration NR-PUCCH for UCI of up to 2 bits Panasonic Corporation
R1-1711100 Long-PUCCH for UCI of up to 2 bits NTT DOCOMO, INC.
R1-1711190 Long PUCCH design with 1 or 2 bits UCI payload Qualcomm Incorporated
R1-1711490 On the Design of Long PUCCH for 1-2 UCI bits Ericsson

5.1.3.2.2.2 Long-PUCCH for UCI of more than 2 bits

Focus on long-PUCCH within a slot.

R1-1709962 Long PUCCH structure for moderate payload with some multiplexing capacity Huawei, HiSilicon
R1-1710086 Long PUCCH for moderate and large UCI payloads CATT
R1-1710115 On long-PUCCH for more than 2 bits ZTE
R1-1710316 Design of long NR-PUCCH for more than 2 UCI bits LG Electronics
R1-1710554 Long PUCCH for moderate and large payload Intel Corporation
R1-1710599 Long PUCCH design for UCI of more than 2 bits Lenovo, Motorola Mobility
R1-1710706 Long PUCCH for UCI of more than 2 Bits Samsung
R1-1710896 Long PUCCH design for UCI more than 2 bits Nokia, Alcatel-Lucent Shanghai Bell
R1-1710934 Discussion on channel design of long-duration NR-PUCCH for UCI of more than 2 bits Panasonic Corporation
R1-1711101 Long-PUCCH for UCI of more than 2 bits NTT DOCOMO, INC.
R1-1711191 Long PUCCH design with more than 2 bits UCI payload Qualcomm Incorporated
R1-1711240 Slot structure of NR long PUCCH for more than 2 bits Sharp
R1-1711251 Design of Long-PUCCH for UCI of more than 2 bits Cohere Technologies
R1-1711491 On the Design of Long PUCCH for more than 2 UCI bits Ericsson

5.1.3.2.2.3 Support of long-PUCCH over multiple slots

R1-1710013 Support of long-PUCCH over multiple slots Huawei, HiSilicon
R1-1710087 Design of multi-slot PUCCH transmission CATT
R1-1710116 Consideration on long-PUCCH over slots ZTE
R1-1710159 Slot aggregation and configuration for NR long PUCCH Guangdong OPPO Mobile Telecom.
R1-1710317 Support of long NR-PUCCH over multiple slots LG Electronics
R1-1710555 Long PUCCH over multiple slots Intel Corporation
R1-1710600 Long PUCCH over multiple slots Lenovo, Motorola Mobility
R1-1710620 Long-PUCCH over multiple slots ETRI
R1-1710707 Multi-Slot Long PUCCH Transmission Samsung
R1-1710935 Discussion on support of long-duration NR-PUCCH over multiple slots Panasonic Corporation
R1-1710976 NR Long PUCCH Requirements CMCC
R1-1711102 Long-PUCCH for more than one slot NTT DOCOMO, INC.
R1-1711192 Long PUCCH over multiple slots Qualcomm Incorporated
R1-1711241 Structure of NR long PUCCH over multiple slots Sharp
R1-1711252 Support of long-PUCCH over multiple slots Cohere Technologies
R1-1711492 On support of Long PUCCH over multiple slots Ericsson

5.1.3.2.3 Transmit diversity for PUCCH

R1-1710160 Design of NR PUCCH with long duration Guangdong OPPO Mobile Telecom.
R1-1710222 Transmit diversity for DFTsOFDM-based PUCCH in long duration Mitsubishi Electric RCE
R1-1710254 Discussion on beam sweeping or beam changing of SR NEC Corporation

R1-1710318 Consideration on transmit diversity for NR-PUCCH LG Electronics
R1-1710441 Transmit diversity for PUCCH AT&T
R1-1710463 Transmit diversity for PUCCH Huawei, HiSilicon
R1-1710556 Transmit diversity for PUCCH Intel Corporation
R1-1710708 Transmit Diversity for PUCCH Samsung
R1-1710897 Transmit Diversity for PUCCH Nokia, Alcatel-Lucent Shanghai Bell
R1-1710951 On transmit diversity for Long PUCCH InterDigital, Inc.
R1-1711193 Transmit diversity for PUCCH Qualcomm Incorporated
R1-1711493 On Transmit Diversity Schemes for PUCCH Ericsson

5.1.3.2.4 Resource allocation for PUCCH

R1-1710088 Further discussion on PUCCH resource allocation CATT
R1-1710117 NR PUCCH resource allocation ZTE
R1-1710161 Resource indication for UL control channel Guangdong OPPO Mobile Telecom.
R1-1710237 PUCCH resource allocation Fujitsu
R1-1710319 Consideration on resource allocation for NR-PUCCH LG Electronics
R1-1710388 Discussion of PUCCH resource indication vivo
R1-1710461 PUCCH resource allocation for HARQ-ACK and SR Huawei, HiSilicon
R1-1710557 Resource allocation for PUCCH during initial access Intel Corporation
R1-1710709 Resource Allocation for PUCCH with HARQ-ACK Samsung
R1-1710782 Discussion on subband-based PUCCH resource allocation and indication CMCC
R1-1710898 On the resource allocation for PUCCH Nokia, Alcatel-Lucent Shanghai Bell
R1-1710937 Discussion on resource allocation for uplink control channel Panasonic Corporation
R1-1711103 PUCCH resource allocation NTT DOCOMO, INC.
R1-1711194 Resource allocation for PUCCH Qualcomm Incorporated
R1-1711283 PUCCH resource allocation for HARQ-ACK feedback to Msg4 Motorola Mobility, Lenovo
R1-1711494 On Resource Allocation for PUCCH and Multiplexing PUCCH Formats Ericsson

5.1.3.2.5 UCI multiplexing

R1-1709989 Discussion on UCI feedback for URLLC Huawei, HiSilicon

5.1.3.2.5.1 UCI piggyback on PUSCH

For both PUSCH with CP-OFDM waveform and PUSCH with DFT-s-OFDM waveform

R1-1709963 UCI piggyback on PUSCH Huawei, HiSilicon
R1-1710089 Multiplexing of UCI and UL data on PUSCH CATT
R1-1710118 UCI multiplexing on PUSCH ZTE
R1-1710162 On UCI and data multiplexing in PUSCH Guangdong OPPO Mobile Telecom.
R1-1710320 Support of UCI piggyback on PUSCH for NR LG Electronics
R1-1710558 UCI multiplexing onto PUSCH Intel Corporation
R1-1710710 On UCI Multiplexing in PUSCH Samsung
R1-1710820 Discussion on UCI on PUSCH MediaTek Inc.
R1-1710899 UCI multiplexing on PUSCH Nokia, Alcatel-Lucent Shanghai Bell
R1-1710939 Discussion on UCI on PUSCH Panasonic Corporation
R1-1710952 Considerations on UCI transmission on PUSCH InterDigital, Inc.
R1-1711104 UCI on PUSCH NTT DOCOMO, INC.
R1-1711195 UCI piggyback on PUSCH Qualcomm Incorporated
R1-1711359 Discussion on UCI piggyback on PUSCH WILUS Inc.
R1-1711495 On UCI on PUSCH Ericsson

5.1.3.2.5.2 PUCCH-PUSCH multiplexing

R1-1710090 Simultaneous PUCCH-PUSCH transmission in NR CATT
R1-1710119 Multiplexing of PUSCH and short PUCCH ZTE
R1-1710163 Multiplexing of short PUCCH and long PUCCH Guangdong OPPO Mobile Telecom.
R1-1710321 Support of uplink channel multiplexing for NR LG Electronics
R1-1710464 Multiplexing of PUCCH and PUSCH Huawei, HiSilicon
R1-1710559 PUCCH-PUSCH multiplexing Intel Corporation
R1-1710711 On Simultaneous PUSCH and PUCCH Transmissions Samsung
R1-1710821 Discussion on PUCCH and PUSCH multiplexing MediaTek Inc.
R1-1710900 On the multiplexing between PUCCHs and PUSCH Nokia, Alcatel-Lucent Shanghai Bell
R1-1710940 Discussion on UCI and data multiplexing Panasonic Corporation
R1-1711105 Multiplexing of PUCCH and PUSCH NTT DOCOMO, INC.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1558 of 1750

R1-1711196	Multiplexing of PUCCH and PUSCH	Qualcomm Incorporated
R1-1711244	PUCCH and PUSCH multiplexing methods	Sharp
R1-1711360	Simultaneous transmission for long-PUCCH and PUSCH	WILUS Inc.
R1-1711496	On Simultaneous Transmission of PUSCH and PUCCH	Ericsson

5.1.3.2.6 Ultra-reliable part of URLLC for UL control

Identify necessary techniques for physical uplink control channel to meet the URLLC requirements set forth by TR38.913.

R1-1710120	Analysis of URLLC reliability for uplink control channel	ZTE
R1-1710322	Discussion on UL control with ultra-reliability	LG Electronics
R1-1710560	On UL control channel design aspects for URLLC	Intel Corporation
R1-1710597	Enhanced SR carried in UL control channel	Lenovo, Motorola Mobility
R1-1710712	PUCCH Design for URLLC	Samsung
R1-1710875	Considerations for ultra-reliable UCI transmission	InterDigital, Inc.
R1-1710901	On URLLC UCI transmission	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710942	Discussion on SR for URLLC and multiplexing with HARQ-ACK	Panasonic Corporation
R1-1711106	UL control channel design for URLLC	NTT DOCOMO, INC.
R1-1711497	On PUCCH for Ultra-Reliable Transmission	Ericsson
R1-1711498	On the Performance Evaluation of PUCCH for Ultra-Reliable Transmission	Ericsson
R1-1711548	Resource allocation for PUCCH to support URLLC	Sequans Communications
R1-1711553	The necessity of reliable SR design for GF/GB UL URLLC transmission	Qualcomm Incorporated

5.1.3.2.7 Other

R1-1710561	Configurations of various long PUCCH lengths	Intel Corporation
R1-1710562	Short PUCCH formats for 1~2 bits UCI	Intel Corporation
R1-1710563	Cyclic shift assignment and CM for FDM DMRS and UCI	Intel Corporation
R1-1710564	Short UL control channel early in a slot	Intel Corporation
R1-1710713	Performance Results for Long PUCCH	Samsung
R1-1710714	Performance Results for UCI and Data Multiplexing	Samsung
R1-1710715	UE-Group CSI Reporting	Samsung
R1-1710716	Multiplexing PUSCH with Short PUCCH or SRS	Samsung
R1-1710717	BSI/CSI Transmission on PUCCH	Samsung
R1-1710902	CP-OFDM waveform for NR long PUCCH	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711416	Performance evaluations on 1-symbol PUCCH for up to 2 UCI bits	Huawei, HiSilicon
R1-1711417	Long PUCCH structure for large payload with no multiplexing capacity	Huawei, HiSilicon
R1-1711418	On CSI feedback in NR	Huawei, HiSilicon
R1-1711419	Transmit diversity for short duration PUCCH	Huawei, HiSilicon
R1-1711420	Multiplexing between PUCCHs	Huawei, HiSilicon
R1-1711421	Multiplexing of UL control channel and SRS in NR	Huawei, HiSilicon

5.1.3.3 DL/UL data scheduling and HARQ procedure

From Thursday offline…

Agreements:

- RAN1 advises based on the current understanding that RAN2 can make progress without taking into account the progress of CBG retransmissions and pre-emption indication.
- RAN1 will strive for making CBG retransmissions and pre-emption indication being not be visible in the MAC spec.

Agreements:

- For HARQ,
  - The retransmissions can occupy a different frequency allocation than the initial transmission (Note, this is supported in LTE)
  - For downlink, the transmission durations for a given TB may not be the same in some cases.
    - Among initial transmission and retransmissions for a data having fixed DMRS position relative to the start of the slot
    - Among initial transmission and retransmissions for a data having fixed DMRS position relative to the start of the data
    - FFS: other cases
  - For uplink at least scheduled by a UL grant, the transmission durations for a given TB may not be the same in some cases.

Agreements:

- One TB is mapped to one DL/UL carrier.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1559 of 1750

- Re-transmission of a TB cannot take place on different carrier than the initial transmission.
- **Working assumption:**
  - Re-transmission of a TB cannot take place on different numerology than the initial transmission in Rel. 15.
- When uplink CBG-based (re)transmission is configured, the UL grant indicates which CBG(s) of a TB is/are retransmitted

Email approval of the LS capturing the above agreements/WA until 6th of July – Karri (Nokia)

5.1.3.3.1 DL/UL resource allocation

R1-1711322 Frequency/time resource assignment of the operation modes Panasonic

From Wednesday offline…

Agreements:

- For downlink, UE can be informed about the first DMRS position of the PDSCH between the following:
  - Fixed on the 3rd or 4th symbol of the slot (for, a.k.a, slot-based scheduling)
  - 1st symbol of the scheduled data (for a.k.a non-slot-based scheduling)
    - FFS: if special handling is needed for the case where some of the PRBs of the symbol of the scheduled data is overlapped with the other signals/channels
- FFS: When the UE is configured both slot-based scheduling and non-slot-based scheduling, the first DMRS position of the PDSCH can be changed between the 3rd or 4th symbol of the slot and 1st symbol of the scheduled data

Agreements:

- For uplink, the first DMRS position of the PUSCH is fixed relative to the start of the scheduled data.
  - FFS: Additional possibility of the another fixed position relative to the start of slot
  - The exact fixed position can be changed depending on the duration of the scheduled data

Conclusion:

- For both downlink and uplink, the second or later or additional DMRS is up to MIMO discussion.

5.1.3.3.1.1 Frequency-domain resource allocation

Including resource allocation for PDSCH/PUSCH with CP-OFDM waveform and PUSCH with DFT-s-OFDM waveform.

R1-1710164 Bandwidth part configuration and frequency resource allocation Guangdong OPPO Mobile Telecom.

R1-1711689 Outputs of offline discussion on RBG size/number determination OPPO

RBG size/number determination, following options are discussed:

- Option 1:
  - Semi-statically configure a size of Type0 RA bitmap in DCI.
  - Then determine the number and size of RBGs for a RA based on size of BWP and the size of the bitmap.
- Option 2:
  - RBG size can be semi-statically configured per BWP.
    - FFS: Dynamic switching of RBG size.
  - Then number of RBGs in the BWP is determined by size of the BWP and the configured/indicated RBG size.
- Option 3:
  - RBG size is determined by the BW of the BWP and/or PDCCH monitoring periodicity
    - FFS: Necessity of signaling

Friday

R1-1711843 Outputs of offline discussion on RBG size/number determination OPPO, Nokia, LGE, Samsung, vivo, ZTE, CATR

Agreements:

- For PDSCH/PUSCH, the RBG size/number can be changed along with the change of the BWP used for resource allocation.
- FFS: If one or multiple of following option(s) is/are also used for RBG size/number determination:
  - Opt. 1: Semi-statically configured size of Type0 RA bitmap.
    - Number and size of RBGs for a RA is determined based on size of BWP and the size of the bitmap.
  - Opt. 2: Semi-statically configured RBG size(s) per BWP for deriving number of RBGs.
    - Number of RBGs in the BWP is determined by size of the BWP and the configured/indicated RBG size(s).
    - FFS: Dynamic switching of RBG size(s).
  - Opt. 3: DCI format/DCI format size (e.g. a compact DCI may be with a larger RBG size than a normal DCI).

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1560 of 1750

- Opt. 4: Transmission durations (e.g. a shorter-duration transmission may be with a larger RBG size than a longer one).
- Opt. 5: RBG size is determined depending on the size of the BWP.
- Other options are not precluded.

R1-1711753 WF on UL Resource Allocation for PUSCH with DFT-s-OFDM waveform in NR NEC, NTT DOCOMO, Panasonic, OPPO, Ericsson, Nokia, ASB

Agreements:

- In frequency-domain, for PUSCH with DFT-s-OFDM waveform in NR, contiguous resource allocation scheme based on LTE UL RA Type 0 is adopted in Rel. 15.
  - FFS:
    - A coarser granularity (i.e. more than 1RB) of resource assignment in order to reduce the overhead further
    - BW parts
- In frequency-domain, for PDSCH in NR, a resource allocation scheme based on LTE DL RA Type 2 is supported in Rel. 15.
  - FFS:
    - A coarser granularity (i.e. more than 1RB) of resource assignment in order to reduce the overhead further
    - BW parts
- In frequency-domain, for PUSCH with CP-OFDM waveform in NR, contiguous resource allocation scheme based on LTE UL RA Type 0 is supported in Rel. 15
  - FFS:
    - A coarser granularity (i.e. more than 1RB) of resource assignment in order to reduce the overhead further
    - BW parts
- A DCI format with resource allocation based on LTE DL RA type 0 (i.e., bit-map) is supported for PDSCH.
- A DCI format with resource allocation based on LTE DL RA type 0 (i.e., bit-map) is supported for PUSCH with CP-OFDM waveform.
- A DCI format with resource allocation based on LTE DL RA type 2 is supported for PDSCH.
- A DCI format with resource allocation based on LTE UL RA type 0 is supported for PUSCH with CP-OFDM waveform and with DFT-s-OFDM waveform.
- FFS: some or all of the above DCI formats have the same DCI payload size.

Proposals from offline

- FFS: for PUSCH transmission, the waveform is either dynamically indicated by the scheduling DCI or is semi-statically configured by higher-layer signalling.
  - This will be discussed in scheduling/HARQ agenda.
- FFS: whether to conform the following working assumption
  - In frequency-domain, for PUSCH with DFT-s-OFDM waveform, only contiguous resource allocation is supported in Rel. 15.

Not treated

R1-1709974	Scheduling and resource allocation mechanism for active bandwidth parts	Huawei, HiSilicon
R1-1710091	NR DL/UL frequency domain resource allocation	CATT
R1-1710121	Resource allocation in frequency domain	ZTE
R1-1710164	Bandwidth part configuration and frequency resource allocation	Guangdong OPPO Mobile Telecom.
R1-1710245	Frequency-domain resource allocation schemes for NR	NEC
R1-1710323	Discussion on frequency-domain resource allocation	LG Electronics
R1-1710392	Discussion on downlink RA	vivo
R1-1710413	Further details on forward compatible resources in NR	AT&T
R1-1710565	DL/UL data frequency-domain resource allocation	Intel Corporation
R1-1710718	DL/UL Frequency Resource Allocation	Samsung
R1-1710787	On default bandwidth part	PANASONIC
R1-1710953	On frequency-domain resource allocation for NR	InterDigital, Inc.
R1-1710989	On resource allocation in frequency domain for PDSCH and PUSCH in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711107	Frequency-domain resource allocation	NTT DOCOMO, INC.

R1-1711197 MPR issue with distributed RB allocation in UL Qualcomm Incorporated
R1-1711198 Short PUSCH transmission in UL short duration Qualcomm Incorporated
R1-1711363 Two-step resource allocation for data channel in NR ASUSTEK COMPUTER (SHANGHAI)
R1-1711499 On Resource Allocation in the Frequency Domain Ericsson

5.1.3.3.1.2 Time-domain resource allocation

Timing/duration determination for symbol-level/slot-level/multi-slot-level scheduling.
Limit to 1 contributions per 1 company/organization/university
R1-1709994 Discussion on data transmission duration Huawei, HiSilicon
R1-1710092 NR DL/UL time domain resource allocation CATT
R1-1710165 Time-domain resource allocation for NR Guangdong OPPO Mobile Telecom.
R1-1710238 Discussion on time domain resource allocation Fujitsu
R1-1710246 Time-domain resource allocation schemes for NR NEC
R1-1710324 Discussion on time-domain resource allocation LG Electronics
R1-1710397 Discussion on flexible length scheduling vivo
R1-1710414 Transmission duration indication for symbol-level/slot-level/multi-slot-level scheduling AT&T
R1-1710566 Time-domain resource allocation for DL and UL data Intel Corporation
R1-1710719 DL/UL Time Resource Allocation Samsung
R1-1710838 Cross-slot scheduling for UE power saving MediaTek Inc.
R1-1710990 Time-domain resource allocation for NR Nokia, Alcatel-Lucent Shanghai Bell
R1-1711108 Time-domain resource allocation NTT DOCOMO, INC.
R1-1711471 Discussions on Transmission Duration KT Corp.
R1-1711500 On Resource Allocation in the Time Domain Ericsson

5.1.3.3.1.3 Transport block size determination

Limit to 1 contributions per 1 company/organization/university
R1-1709978 TB mapping and TB size determination Huawei, HiSilicon
R1-1710325 Discussion on TB size determination for NR LG Electronics
R1-1710720 Transport Block Size Determination Samsung
R1-1710991 Transport block size determination and the support of slot aggregation in NR Nokia, Alcatel-Lucent Shanghai Bell
R1-1711109 Transport block size determination NTT DOCOMO, INC.
R1-1711199 Discussion TB size determination Qualcomm Incorporated
R1-1711501 On MCS/transport Block Size Determination Ericsson

5.1.3.3.2 UL data transmission procedure with grant

Including details for single/multiple SR configurations.

R1-1710021 Advantages of Underlay Scheduling Request method over PUCCH-based SR Idaho National Laboratory
R1-1710093 Further details of grant-based UL transmission CATT
R1-1710122 On scheduling request in NR ZTE
R1-1710166 Discussion on the UL waveform indication Guangdong OPPO Mobile Telecom.
R1-1710247 Frequency hopping for NR UL PUSCH NEC
R1-1710326 Discussion on scheduling request for UL transmission with grant LG Electronics
R1-1710465 On uplink data scheduling Huawei, HiSilicon
R1-1710567 SR configuration and UL data scheduling Intel Corporation
R1-1710721 SR Transmission for Multiple Configurations Samsung
R1-1710722 Procedures for Grant-Based UL Transmissions Samsung
R1-1710834 On support of Grant-free and Grant-based transmission for UL URLLC MediaTek Inc.
R1-1710992 Discussion on multiple SR configuration Nokia, Alcatel-Lucent Shanghai Bell
R1-1711110 Scheduling request design in NR system NTT DOCOMO, INC.
R1-1711200 Simultaneous UL SR channel Qualcomm Incorporated
R1-1711502 On UL Data Scheduling Grant in NR Ericsson
R1-1711503 On Scheduling Request Enhancements Ericsson
R1-1711836 WF on scheduling request for NR Idaho National Laboratory, KDDI, Lenovo, Motorola Mobility, IITH, CEWIT, IITM, Tejas Networks, Qualcomm

5.1.3.3.3 UL data transmission procedure without grant

Including HARQ/re-transmission, UE identification, relation b/w UL grant-free and UL SPS, etc.

R1-1710328 Summary of [89-22] Email discussion about UL data transmission without UL grant LG Electronics

Agreements:

- In addition to the RS parameters, time and frequency resource are configured in a UE-specific manner.
  - Note: it is common understanding that the time and frequency resources configured for a UE may or may not collide with those for another UE (to be captured in the LS).
- WA: Both DFT-S-OFDM and CP-OFDM are supported for UL transmission without grant.
- NR supports more than 1 HARQ process for UL transmission without grant

Offline summary (on-going):

R1-1711829 Offline discussions on UL data transmission without grant NTT DOCOMO

- Function of L1 signalling
  - At least following functionality of the L1 signalling is supported
    - Activation/Deactivation
    - Modification of parameters configured by RRC
      - For example at least following parameters are common in the RRC configuration and L1 signaling
        - One physical resource including following
          - Time domain resource allocation for one transmission
          - Frequency domain resource allocation in terms of RB(s) or RBG(s)
          - UE-specific DMRS configuration
      - MCS/TBS
  - Switch to grant-based re-transmission for the same TB
    - Companies are encouraged to provide detailed methods to determine the grant is for the same TB
  - Companies are encouraged to provide analysis to prove the benefits of supporting an acknowledgement/indication of successful receiving of that TB from gNB in next meeting
- Formats of L1 signalling
  - Select from following two options to achieve each of the L1 signalling functionalities in next meeting
    - Option 1: UE-specific DCI (UL grant)
    - Option 2: Group common DCI
  - FFS the monitoring occasions for the L1 signalling
- RRC configurations
  - At least for UL transmission without UL grant and without L1 activation/deactivation signalling, the RRC (re-)configuration for a set of resource and parameters includes at least the following
  - Transmission interval, where the minimum value can be one slot or one mini-slot
  - One physical resource including following
    - Time domain resource allocation for one transmission
    - Frequency domain resource allocation in terms of RB(s) or RBG(s)
    - UE-specific DMRS configuration
  - At least one physical resource can be configured for one UE within the transmission interval
  - FFS multiple physical resources can be configured for one UE within the transmission interval
  - Note:
    - At least repetition can be performed on the same physical resource defined above
    - FFS multiple physical resources can be configured for the K repetitions, where K>1
  - Other transmission related parameters:
    - An MCS/TBS value
    - Number of repetitions K
    - Power control related parameters
    - FFS: HARQ process related parameters
    - FFS: Possible RVs related parameters for repetitions
    - FFS: Possible hopping related parameters including enable/disable configurability
    - FFS: Possible ACK feedback related parameters
    - FFS other parameters
  - Multiple sets of resource and parameters can be (re-)configured for each UE

Friday

Agreements:

- The same TA adjustment procedure/mechanism (including expiration of TA timer) is applied to UL transmission with and without UL grant
- For UL transmission without UL grant,
  - Open-loop power control based on pathloss estimate is supported.
  - FFS: Closed-loop power control is supported, which is based on NW signaling.

- A UE shall not transmit anything on configured resources for UL transmission without UL grant when there is no transport block to transmit.
- FFS: UCI piggybacking with transport block is supported for UL transmission without UL grant.

Agreement: RAN1 considers that UE transmitting UL transmission without UL grant can be identified based on time/frequency resources and RS parameter(s).

R1-1711969 Offline discussions on UL data transmission without grant NTT DOCOMO

Agreements:

- Type of UL data transmission without grant
  - Type 1: UL data transmission without grant is only based on RRC (re)configuration without any L1 signalling
  - Type 2: UL data transmission without grant is based on both RRC configuration and L1 signalling to activation/deactivation for UL data transmission without grant
    - Note: functionality of modification is achieved the L1 signalling by activation
  - Type 3: UL data transmission without grant is based on RRC configuration, and allows L1 signalling to modify some parameters configured by RRC but no L1 signalling for activation
- For UL data transmission without grant, type 1 and type 2 have already been agreed, FFS type 3.
- FFS the reliability issues for L1 signalling.
- For Type 1 UL transmission without UL grant, the RRC (re-)configuration includes at least the following
  - Periodicity and offset of a resource with respect to SFN=0
  - Time domain resource allocation
  - Frequency domain resource allocation
  - UE-specific DMRS configuration
  - Note:
    - one TB is mapped to a resource at least consisting of time/frequency-domain resource
    - RAN1 will not introduce specific resource allocation and DMRS configuration for UL data transmission without grant separate from UL data transmission with UL grant within the Rel.15 WI
  - An MCS/TBS value
  - Number of repetitions K
  - Power control related parameters
  - FFS HARQ related parameters
  - FFS if multiple resources can be configured
- For Type 2 UL transmission without UL grant
  - The RRC (re-) configuration for resource and parameters includes at least the following
    - Periodicity of a resource
    - Power control related parameters
  - At least the following additional parameters for the resource are given by L1 signalling
    - Offset associated with the periodicity with respect to a timing reference indicated by L1 signalling for activation
      - FFS: the timing reference
    - Time domain resource allocation
    - Frequency domain resource allocation
    - UE-specific DMRS configuration
    - An MCS/TBS value
    - Note:
      - one TB is mapped to one resource
      - RAN1 will not introduce specific resource allocation and DMRS configuration for UL data transmission without grant separate from UL data transmission with UL grant within the Rel.15 WI
  - FFS multiple resources can be configured
  - FFS HARQ related parameters
  - FFS whether number of repetitions K is configured by RRC signalling and/or indicated by L1 signalling

Email approval of the LS to RAN2 until 6th of July to explain RAN1 understandings based on above agreements – Lihui (NTT DOCOMO)

Not treated.

R1-1709991 Resource configuration on UL transmission without grant Huawei, HiSilicon
R1-1709992 UE identification and HARQ combining for grant-free transmissions Huawei, HiSilicon

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1564 of 1750

R1-1710014	Evaluation of UE identification for UL transmission without grant	ZTE
R1-1710015	Considerations on the procedures of UL data transmission without grant	ZTE
R1-1710094	Grant-free UL transmission procedure	CATT
R1-1710167	HARQ for uplink grant-free transmission	Guangdong OPPO Mobile Telecom.
R1-1710239	Discussions on HARQ for grant-free transmission	Fujitsu
R1-1710248	UL data transmission without grant	NEC
R1-1710327	Discussion on UL transmission without grant	LG Electronics
R1-1710328	Summary of [89-22] Email discussion about UL data transmission without UL grant	LG Electronics
R1-1710380	Discussion on UL grant-free transmission	vivo
R1-1710568	UL grant-free transmissions: Resource configuration	Intel Corporation
R1-1710601	UL grant-free transmission for URLLC	Lenovo, Motorola Mobility
R1-1710621	Resource allocation and transmission scheme for URLLC grant-free transmission	ETRI
R1-1710723	Procedures for Grant-Free UL Transmissions	Samsung
R1-1710724	Grant-Free and Grant-Based UL Transmissions	Samsung
R1-1710835	Grant-free Scheduling and retransmission schemes for UL URLLC	MediaTek Inc.
R1-1710836	On use of scrambling for UL Grant-free URLLC transmission	MediaTek Inc.
R1-1710861	Pre-emption in UL grant free resource	Sony
R1-1710863	Discussion on the retransmission of UL transmission without grant	Sony
R1-1710887	UL grant-free transmissions: Physical layer procedures	Intel Corporation
R1-1710963	On network resources and UE transmission configurations for grant-free access	NEC
R1-1710971	UL grant-free transmission for URLLC	China Telecommunications
R1-1710993	Unified framework for UL grant-free and UL SPS	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710994	UE identification and HARQ for URLLC UL grant-free	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711006	Issues and Control Design for UL Grant-free URLLC	III
R1-1711111	Overall solutions for UL grant free transmission	NTT DOCOMO, INC.
R1-1711253	Resource configuration for UL transmission without grant	NICT
R1-1711323	UL data transmission without grant	Panasonic
R1-1711504	On SPS/Grant-Free Transmission	Ericsson
R1-1711505	On HARQ Retransmission for SPS/Grant-free	Ericsson

5.1.3.3.4 CBG-based (re)transmission

R1-1711883 **WF on CBG retransmission** **Samsung**

Possible proposal from offline:

- CBG formation remains the same in retransmission as initial transmission

Possible agreement:

- Each CBG is the same set of CB(s) between initial transmission and retransmission

Friday

R1-1711958 **WF on CBG retransmission** **Samsung, ZTE**

Working assumption: For initial transmission and retransmission, each CBG of a TB has the same set of CB(s).

Agreement: For CBG-based (re)transmission, the DCI scheduling CBG-based (re)transmission carries single RV field for the transport block.

Email approval until July 13th for downselection between the fhe followings – Jeongho (Samsung)

- For the indicated number of CBGs per TB where "indicated" is realized by RRC, MAC, L1 signalling, the following options are considered for down-selection in RAN1#90.
  - Option 1. RRC signaling (for bit-field size)
  - Option 2. L1 signaling (for indication the number of CBGs per TB) + RRC signaling (for bit-field size)
  - Option 3. both Option 1 and Option 2
- To determine the number of CBG HARQ-ACK bits per TB, the following options are considered for down-selection in RAN1#90.
  - Option 1. A UE transmits HARQ-ACK bits only for scheduled CBGs.
    - "scheduled CBGs" means the CBGs scheduled in a (re)transmission
  - Option 2. A UE transmits HARQ-ACK bits for indicated CBGs.
    - FFS: "indicated" is realized by RRC, MAC, L1 signalling
  - Option 3. both Option 1 and Option 2 by configuration
- For DL CBG-based (re)transmission, when information on which CBG(s) is/are (re)transmitted is configured to be included in the DCI, the following options are considered for down-selection in RAN#90.
  - Option 1. TB-level NDI is jointly encoded with the information on which CBG(s) is/are (re)transmitted

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1565 of 1750

- Option 2. There is separate 1-bit bit-field for TB-level NDI.

- When CBG-based retransmission is configured, TB-level HARQ-A/N is supported and at least following options can be considered for down-selection in RAN1#90.
  - Option 1. Add 1 bit upon CBG-level HARQ-ACK bits
  - Option 2. Use all NACK of CBG-level HARQ-ACK bits
  - Option 3. Use different PUCCH format or PUCCH resource
- For HARQ-ACK codebook for CBG-based retransmission, the following options are considered for down-selection in RAN1#90.
  - Option 1. Dynamic codebook determination for multiple PDSCHs
  - Option 2. Semi-static codebook determination for multiple PDSCHs
  - Option 3. both Option 1 and Option 2 by configuration

5.1.3.3.4.1 CBG construction

Limit to 1 contribution per 1 company/organization/university

R1-1709968 Discussion on CBG construction Huawei, HiSilicon
R1-1710017 CBG construction ZTE
R1-1710095 Details of CBG construction CATT
R1-1710329 Consideration on CBG construction for NR HARQ LG Electronics
R1-1710396 Discussion on CB grouping vivo
R1-1710442 On CBG construction for NR PDSCH and PUSCH AT&T
R1-1710569 On CBG construction Intel Corporation
R1-1710593 Discussion on CBG grouping Guangdong OPPO Mobile Telecom.
R1-1710602 CBG construction for CBG-based retransmission Lenovo, Motorola Mobility
R1-1710725 CBG Construction Samsung
R1-1710830 Discussion on CBG construction for CBG-based (re)transmission MediaTek Inc.
R1-1710876 CBG based HARQ for NR InterDigital, Inc.
R1-1710995 Mapping code blocks to code block groups Nokia, Alcatel-Lucent Shanghai Bell
R1-1711112 CBG construction NTT DOCOMO, INC.
R1-1711202 CBG Construction Principles for CBG-based Transmission with Multi-Bit HARQ feedback Qualcomm Incorporated
R1-1711506 On Code Block Group Formation and CRC Attachment Ericsson

5.1.3.3.4.2 DL control signalling for CBG-based (re)transmission

Including CBG information by the DCI.

Limit to 1 contribution per 1 company/organization/university

R1-1709967 Scheduling mechanisms for CBG-based re-transmission Huawei, HiSilicon
R1-1710018 DL control for CBG ZTE
R1-1710096 DL control signaling design for CBG-based operation CATT
R1-1710168 Discussion on CBG indication in DCI Guangdong OPPO Mobile Telecom.
R1-1710240 Discussion on DL control signaling related to CBG based (re)-transmission Fujitsu
R1-1710330 Consideration on DCI signaling for CBG based HARQ LG Electronics
R1-1710443 DCI design for CBG based re transmision AT&T
R1-1710570 DCI design and scheduling of CBG-based (re)transmissions Intel Corporation
R1-1710603 DL control signalling for CBG-based retransmission Lenovo, Motorola Mobility
R1-1710726 Scheduling for CBG Retransmissions Samsung
R1-1710864 Discussion on the CBG index indication by DCI Sony
R1-1710908 DL control signal for CBG-based transmission Apple Inc.
R1-1710972 Control signalling for CBG-based (re)transmission China Telecommunications
R1-1710996 DL control signalling for CBG-based transmissions Nokia, Alcatel-Lucent Shanghai Bell
R1-1711113 DL control signalling for CBG-based (re)transmission NTT DOCOMO, INC.
R1-1711203 DCI considerations for CBG-based (re)-Transmissions Qualcomm Incorporated
R1-1711245 Pardon the Interruption: Downlink Control Signaling to Enable Preemption and CBG-based (Re) Transmission Sharp
R1-1711257 Discussion on DL control signalling for CBG-based retransmission HTC Corporation
R1-1711316 DL control signaling for CBG-based (re)transmission Shenzhen Coolpad Technologies
R1-1711324 DL control signalling for CBG-based (re)transmission Panasonic
R1-1711341 Discussions on the indication for CBG CATR
R1-1711507 On Retransmission Decoder Throughput Issues and CBG-based Retransmission Control Ericsson
R1-1711531 CBG based retransmission Sequans Communications

5.1.3.3.4.3 UL control signalling for CBG-based (re)transmission

Including CBG-level HARQ-ACK feedback.

Limit to 1 contribution per 1 company/organization/university

R1-1709969	Discussion on CBG-based feedback	Huawei, HiSilicon
R1-1710019	UL control for CBG	ZTE
R1-1710097	UL control signaling design for CBG-based operation	CATT
R1-1710169	Discussion on HARQ-ACK feedback for CBG-based transmission	Guangdong OPPO Mobile Telecom.
R1-1710241	Discussion on CBG based HARQ-ACK Design	Fujitsu
R1-1710331	Consideration on UCI signaling for CBG based HARQ	LG Electronics
R1-1710444	Uplink control channel design for CBG based re transmission	AT&T
R1-1710571	HARQ-ACK feedback for CBG-based (re)transmissions	Intel Corporation
R1-1710604	UL HARQ-ACK feedback for CBG-based retransmission	Lenovo, Motorola Mobility
R1-1710727	HARQ-ACK Feedback for CBG-Based Retransmissions	Samsung
R1-1710954	HARQ feedback design considerations for CBG based transmission	InterDigital, Inc.
R1-1710997	HARQ-ACK feedback for CBG-based (re-)transmission in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711114	UL control signalling for CBG-based (re)transmission	NTT DOCOMO, INC.
R1-1711204	UCI considerations for CBG-based (re)-Transmissions	Qualcomm Incorporated
R1-1711258	Discussion on UL control signalling for CBG-based retransmission	HTC Corporation
R1-1711361	Discussion on UL HARQ-ACK feedback for CBG-based retransmission	WILUS Inc.
R1-1711472	Considerations on TB-CRC Failure	KT Corp.
R1-1711508	On Design of CBG HARQ-ACK Feedback Schemes	Ericsson
R1-1711530	CBG based HARQ-Ack/Nack	Sequans Communications

5.1.3.3.5 HARQ-ACK feedback

5.1.3.3.5.1 HARQ-ACK feedback timing

Limit to 1 contributions per 1 company/organization/university

R1-1709970	HARQ feedback timing for NR	Huawei, HiSilicon
R1-1710332	Consideration on HARQ-ACK feedback timing for NR	LG Electronics
R1-1710418	HARQ-ACK feedback timing for FDD, semi-static TDD and mini-slot based transmissions	AT&T
R1-1710728	HARQ-ACK Feedback Timing	Samsung
R1-1710783	Discussion on timing design for semi-static DL/UL assignment	CMCC
R1-1710795	Timing of HARQ-ACK for PDSCH	MediaTek Inc.
R1-1710877	DL HARQ Feedback suppression	InterDigital, Inc.
R1-1710888	HARQ-ACK feedback: Timing considerations	Intel Corporation
R1-1710998	Timing aspects for HARQ-ACK feedback	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711115	HARQ-ACK timing	NTT DOCOMO, INC.
R1-1711205	Low latency impact analysis on user plane and control plane	Qualcomm Incorporated
R1-1711509	On HARQ Feedback Timing	Ericsson

5.1.3.3.5.2 HARQ-ACK multiplexing/bundling

Including solutions to address single/multiple TBs/CBGs over single/multiple carriers/TTIs.

R1-1710098	NR HARQ-ACK multiplexing	CATT
R1-1710242	Discussion on HARQ-ACK codebook	Fujitsu
R1-1710333	Support of HARQ-ACK multiplexing/bundling for NR	LG Electronics
R1-1710462	On HARQ-ACK multiplexing and/or bundling	Huawei, HiSilicon
R1-1710572	HARQ-ACK multiplexing and bundling	Intel Corporation
R1-1710605	HARQ-ACK codebook design for CBG-based transmission	Lenovo, Motorola Mobility
R1-1710729	HARQ-ACK Codeword Determination	Samsung
R1-1710999	On HARQ feedback determination	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711116	HARQ-ACK multiplexing	NTT DOCOMO, INC.
R1-1711259	Discussion on CBG-based HARQ feedback multiplexing	HTC Corporation
R1-1711510	On HARQ Codebook	Ericsson

5.1.3.3.6 Processing time and HARQ process number

R1-1711185 6 WF on Processing Time Requirements Qualcomm, ZTE, Deutsche Telekom, Vodafone, Panasonic, Ericsson

Agreements:

- For NR, RAN1 should consider the UE processing time(s) in terms of symbols (N1, N2) together with absolute time (in us), instead of slots (K)
  - N1: the number of OFDM symbols required for UE processing from the end of NR-PDSCH reception to the earliest possible start of the corresponding ACK/NACK transmission from UE perspective.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1567 of 1750

- N2: the number of OFDM symbols required for UE processing from the end of NR-PDCCH containing the UL grant reception to the earliest possible start of the corresponding NR-PUSCH transmission from UE perspective.
- Note the timing advance is not included in N1 and N2
  - FFS whether other aspects, e.g. UE UL/DL switching time, etc. are included in N1 and N2
- FFS between the following for each combination defined in the next slide
  - Opt 1: UE reports N1 and N2 as UE capability
  - Opt 2: Fixed values of N1 and N2
- UE is not expected transmit anything in uplink if the network set the values of K1 and/or K2 without leaving sufficient time for UE processing

Friday
R1-1711957 WF on Processing Time Requirements Qualcomm

Conclusions:
- Email discussion about followings – Joseph (Qualcomm)
  - Step 1: identify the candidate factors for processing time (until 4th Aug.)
  - Step 2: identify the table (until 4th Aug.)
- Based on the proponents' input for step 1 and step 2, following work will be done:
  - Step 3: fill-in the table
  - Targeting finishing step 3 until September meeting.
    - Note: companies are encouraged to bring up initial numbers for the table to the August meeting
  - Note: fill-in the table does not necessarily results in defining some UE capabilities or exact values of K1 and K2 in the specification.

5.1.3.3.6.1 Number of HARQ processes and HARQ RTT

R1-1709965	Number of HARQ processes and HARQ RTT	Huawei, HiSilicon
R1-1710099	Discussion on number of HARQ processes and HARQ RTT	CATT
R1-1710334	Discussion on HARQ process number for NR	LG Electronics
R1-1710394	Discussion on NR UE supporting self-contained operation	vivo
R1-1710415	Remaining details on the number of HARQ processes in NR	AT&T
R1-1710573	On HARQ processes and HARQ RTT	Intel Corporation
R1-1710730	On Number of HARQ Processes and HARQ RTT	Samsung
R1-1710967	Number of HARQ processes for co-existence with TD-LTE	NEC Corporation
R1-1711000	On the number of HARQ processes	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711117	Processing time and HARQ process number for NR	NTT DOCOMO, INC.
R1-1711206	UE processing time	Qualcomm Incorporated
R1-1711511	On Minimum Processing Time and Number of HARQ Processes in NR	Ericsson

5.1.3.3.6.2 Soft-buffer management

R1-1709966	Soft buffer handling	Huawei, HiSilicon
R1-1710020	Consideration about CBG soft-buffer management	ZTE
R1-1710100	Soft buffer management for NR	CATT
R1-1710335	Discussion on soft buffer management for NR	LG Electronics
R1-1710574	Soft-buffer requirements in NR	Intel Corporation
R1-1710731	Soft Buffer Partitioning	Samsung
R1-1711001	On the HARQ soft buffer handling	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711118	Soft-buffer size and management	NTT DOCOMO, INC.
R1-1711207	Considerations for soft buffer management	Qualcomm Incorporated
R1-1711325	UE category modelling and soft buffer	Panasonic
R1-1711512	On HARQ and Soft Buffer Handling	Ericsson

5.1.3.3.7 Multiplexing data with different transmission durations

5.1.3.3.7.1 Pre-emption indication for downlink

Including signalling details and UE behaviour when it is indicated.

R1-1711342	Discussion on the granularity of preemption indication	CATR

Offline summary (on-going):
R1-1711823 WF on pre-emption indication Huawei, HiSilicon, MediaTek, Sequans, NTT DOCOMO, Sony, vivo, ZTE, InterDigital, III

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1568 of 1750

Proposals:
- For downlink preemption indication
  - It is transmitted using a group common DCI in PDCCH
    - Working Assumption: This group common DCI is separate from group common PDCCH for SFI
    - Group common DCI addresses a time duration and frequency band
  - Whether a UE needs to monitor preemption indication is configured by RRC signaling
  - The granularity of preemption indication in time domain can be configured
  - The granularity of preemption indication in frequency domain will be down selected from
    - Option 1: RBG(s) in a common frequency band addressed by group common DCI with a given numerology
    - Option 2: 1/N of a common frequency band addressed by group common DCI with a given numerology
      - FFS: the value of N.
  - Details of group common DCI for pre-emption indication
    - FFS CORESET configuration and monitoring interval for the group common DCI
    - FFS details of contents for the group common DCI (E.g. the time/freq of pre-emption, number of pre-emption)

Friday
R1-1711911 WF on pre-emption indication Huawei, HiSilicon, MediaTek, Sequans, NTT DOCOMO, Sony, vivo, ZTE, InterDigital, III, Intel, LGE, Samsung

Agreements:
- For downlink preemption indication
  - It is transmitted using a group common DCI in PDCCH
    - FFS: This group common DCI is transmitted separately from SFI
    - Whether a UE needs to monitor preemption indication is configured by RRC signaling
    - The granularity of preemption indication in time domain can be configured
      - Details of granularity are FFS

R1-1711981 WF on group common pre-emption indication Huawei, HiSilicon, Sharp, ZTE, LGE, Sony, Panasonic, MediaTek, InterDigital

Not treated.
R1-1709984 On pre-emption indication for DL multiplexing of URLLC and eMBB Huawei, HiSilicon
R1-1710101 Further design considerations for DL pre-emption indication CATT
R1-1710123 DL pre-emption indicationZTE
R1-1710170 Symbol-level resource allocation and pre-emption indication Guangdong OPPO Mobile Telecom.
R1-1710336 Discussion on pre-emption indication for downlink LG Electronics
R1-1710382 Discussion on pre-emption indication for downlink vivo
R1-1710575 Remaining details of DL pre-emption indication Intel Corporation
R1-1710732 Indication of Preempted Resources in DL Samsung
R1-1710865 Remaining issues on using pre-emption indicator for DL URLLC/eMBB multiplexing Sony
R1-1710955 Signalling design considerations for DL pre-emption indication InterDigital, Inc.
R1-1711002 On pre-emption indication Nokia, Alcatel-Lucent Shanghai Bell
R1-1711119 Pre-emption indication for downlink NTT DOCOMO, INC.
R1-1711362 Discussion on UE behavior by pre-emption indication WILUS Inc.
R1-1711474 Views on preemption indication for DL KT Corp.
R1-1711513 On Pre-emption Indication for Downlink Ericsson
R1-1711551 Considerations on multiplexing with different transmission durations KDDI Corporation
R1-1711554 URLLC DL pre-emption and UL suspension indication channel design Qualcomm Incorporated

5.1.3.3.7.2 Possible enhancements for uplink

R1-1709988 Discussion on UL multiplexing of grant-based eMBB and grant-free URLLC Huawei, HiSilicon
R1-1710124 Uplink multiplexing for different transmission durations ZTE
R1-1710243 On eMBB and URLLC multiplexing for Uplink Fujitsu
R1-1710337 Discussion on eMBB and URLLC multiplexing for uplink LG Electronics
R1-1710383 Discussion on UL multiplexing data with different transmission durations vivo
R1-1710576 Multiplexing of UL transmissions with different data durations and latency requirements Intel Corporation
R1-1710606 On eMBB/URLLC multiplexing for uplink transmission Lenovo, Motorola Mobility
R1-1710733 On Indication of Preempted Resources in UL Samsung
R1-1710867 Multiplexing data with different transmission durations for Uplink Sony
R1-1710956 Multiplexing of low-latency traffic and non-latency sensitive traffic in UL InterDigital, Inc.

R1-1711003 Pause-Resume Scheduling for Low Latency Uplink Transmissions Nokia, Alcatel-Lucent Shanghai Bell
R1-1711120 Multiplexing of different data durations for uplink NTT DOCOMO, INC.
R1-1711208 Timing advance for different numerology Qualcomm Incorporated
R1-1711514 On Pre-emption Indication for Uplink Ericsson

5.1.3.3.8 Ultra-reliable part of URLLC for scheduling/HARQ procedure

Identify necessary techniques for scheduling/HARQ procedure to meet the URLLC requirements set forth by TR38.913.

R1-1709985 PDSCH reliability for URLLC Huawei, HiSilicon
R1-1709987 Discussion on URLLC numerology Huawei, HiSilicon
R1-1709990 Link adaption for URLLC transmission Huawei, HiSilicon
R1-1710016 Repetition/hopping related design and reliablity evaluations for grant-free URLLC ZTE
R1-1710125 Supporting Ultra reliability in scheduling ZTE
R1-1710338 Discussion on scheduling and HARQ procedure for URLLC LG Electronics
R1-1710381 Scheduling and HARQ aspects for URLLC reliability vivo
R1-1710466 Consideration on subsequent transmission after pre-emption Huawei, HiSilicon
R1-1710468 Discussion on Multi-TRP cooperation for URLLC Huawei, HiSilicon
R1-1710469 Support of URLLC for TDD Huawei, HiSilicon
R1-1710577 On link adaptation enhancements to support URLLC Intel Corporation
R1-1710734 Scheduling/HARQ Procedures for URLLC Samsung
R1-1710837 HARQ procedure for DL URLLC MediaTek Inc.
R1-1710866 Feedback for improving URLLC reliability Sony
R1-1711004 Discussion on scheduling based URLLC transmission Nokia, Alcatel-Lucent Shanghai Bell
R1-1711005 CSI measuring and reporting procedure for URLLC Nokia, Alcatel-Lucent Shanghai Bell
R1-1711121 Scheduling and HARQ procedures for URLLC NTT DOCOMO, INC.
R1-1711343 Discussion on URLLC transmitted in same or different numerology resources ASUSTEK COMPUTER (SHANGHAI)
R1-1711432 Discussion on over-the-air time synchronization for URLLC Huawei, HiSilicon
R1-1711515 On Supporting High Reliability for Data Transmissions Ericsson
R1-1711555 UL URLLC Capacity Based on URLLC and eMBB dynamic multiplexing Qualcomm Incorporated
R1-1711556 Ultra reliable HARQ design with async CSI feedback Qualcomm Incorporated
R1-1711560 Discussion on wireless time synchronization for URLLC SIA

5.1.3.3.9 Other

R1-1709964 HARQ processing time Huawei, HiSilicon
R1-1710735 Remaining Aspects for Short Scheduling Durations Samsung
R1-1710736 Triggered UCI Transmissions Samsung
R1-1710737 DL Resource Allocation for Multiplexing Data with Different Transmissions Durations Samsung
R1-1710738 Average User Plane Latency for Preemption based Multiplexing Samsung
R1-1711367 On UE processing time Ericsson LM
R1-1711422 Resource allocation for data channels Huawei, HiSilicon
R1-1711426 CBG-based transmission/retransmission for DL multiplexing of eMBB and URLLC Huawei, HiSilicon
R1-1711427 Discussion on group common pre-emption indication Huawei, HiSilicon
R1-1711428 Superposed transmission of pre-emption indication with eMBB data Huawei, HiSilicon
R1-1711429 Consideration on ACK/NACK error in CBG-based retransmission Huawei, HiSilicon
R1-1711430 Discussion on UL multiplexing of grant-based eMBB and URLLC Huawei, HiSilicon
R1-1711434 Discussion on TB size determination Huawei, HiSilicon
R1-1711435 Unified design for slot and mini-slot Huawei, HiSilicon
R1-1711456 HARQ Process Management in NR Samsung
R1-1711457 Indication of Preempted Resources Prior to HARQ-ACK Feedback Samsung
R1-1711458 Considerations on Signaling for Indicating Preempted Resources Samsung
R1-1711516 On Mixed Numerology Ericsson

5.1.3.4 Scheduling/HARQ aspects for carrier aggregation and dual connectivity

R1-1711425 Summary of LTE CA/DC and remaining issues for NR Huawei, HiSilicon

5.1.3.4.1 Carrier aggregation

R1-1711846 Way Forward on NR Carrier Aggregation Huawei, HiSilicon, KT, CATR, MediaTek, Nokia, ASB, Ericsson, Intel
Also supported by LGE

Conclusions:
Email approval on the following until July 10th – Zhenfei (Huawei):

- NR support Primary Component Carrier (PCC) and Secondary Component Carrier (SCC)
  - A UE monitors PDCCH candidates in common search space(s) and UE specific search space(s) on PCC
  - A UE monitors PDCCH candidates on UE-specific search space(s) for an SCC
- Support cross carrier scheduling with CIF
  - A carrier is scheduled by one and only one carrier
  - FFS: the number of CIF bits and possible connection to BWPs
- NR Supports at least 2 cell groups for PUCCH
  - Carrier transmitting the PUCCH can be configured within the cell group
    - FFS The PUCCH configuration can be done by the UL PCC reconfiguration or PUCCH reconfiguration
- For scheduling with different and the same numerologies:
  - For self-scheduling
    - PDCCH and the scheduled PDSCH have the same numerologies
    - PDCCH and the scheduled PUSCH can have the same or different numerologies
      - The time granularity indicated in the DCI for the timing relationship between DCI and the corresponding PUSCH follows the numerology of the PUSCH transmission
  - For cross-carrier scheduling
    - PDCCH and the scheduled PDSCH/PUSCH can have different or the same numerologies
      - The time granularity indicated in the DCI for the timing relationship between DCI and the corresponding PDSCH/PUSCH follows the numerology of the PDSCH/PUSCH transmission
    - UE is not expected to support faster processing for the case of cross-carrier scheduled PDSCH/PUSCH transmission scheduled by a DCI requiring than the case of self-scheduled PDSCH/PUSCH transmission scheduled by the DCI.
- UCI feedback related to multiple DL component carriers is supported for DL component carriers operating with the same and different numerology
  - The time granularity indicated in the DCI for PDSCH and the corresponding HARQ-ACK follows the numerology for HARQ-ACK transmission
  - UE is not expected to support faster processing for the case when PDSCH and the corresponding HARQ-ACK use a different numerology than the case of the case when PDSCH and HARQ-ACK use the same numerology
- NR support 4 timing advance groups including Primary Timing Advance Group and Secondary Timing Advance Group(s)
  - Support PRACH transmission for timing advance acquisition on SCC

5.1.3.4.1.1 Self-/cross-carrier scheduling and joint/separate UCI feedback

For carriers with the same and different numerology

R1-1709975	On NR carrier aggregation	Huawei, HiSilicon
R1-1710102	Scheduling and HARQ support for NR CA	CATT
R1-1710171	Bandwidth part based resource scheduling for carrier aggregation	Guangdong OPPO Mobile Telecom.
R1-1710339	Support of cross-CC DCI/UCI transmission for NR CA	LG Electronics
R1-1710578	Scheduling and UCI feedback for carrier aggregation	Intel Corporation
R1-1710739	Cross-Carrier Scheduling and HARQ-ACK Feedback	Samsung
R1-1710885	On cross-carrier scheduling and joint UCI design	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710964	On UE-to-UE measurement for CLI management	NEC
R1-1711122	NR carrier aggregation	NTT DOCOMO, INC.
R1-1711209	CA with mixed numerology	Qualcomm Incorporated
R1-1711517	On Scheduling and UCI Handling in Carrier Aggregation	Ericsson

5.1.3.4.1.2 SRS fast switching

For carriers with the same and different numerology

R1-1711847	Way Forward on SRS Switching	Huawei, HiSilicon, MediaTek, Intel
R1-1709976	SRS switching among CCs and bandwidth parts	Huawei, HiSilicon
R1-1710579	On SRS fast switching	Intel Corporation
R1-1710740	Fast Carrier Switcing for SRS Transmissions	Samsung
R1-1711518	On SRS Fast Switching in NR	Ericsson

5.1.3.4.2 Dual connectivity

R1-1709977	On NR dual connectivity	Huawei, HiSilicon
R1-1710103	Scheduling and HARQ support for NR DC	CATT
R1-1710340	Discussion on dual connectivity with single active UL at a given time	LG Electronics

R1-1710580	On Dual Connectivity for NR	Intel Corporation
R1-1710741	DC for UE with Single UL Carrier Capability	Samsung
R1-1710884	On NR CA/DC configuration	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711123	LTE-NR Dual connectivity	NTT DOCOMO, INC.
R1-1711519	On Dual Connectivity for NR	Ericsson

5.1.4 Channel coding

R1-1711917 Chairman's notes of AI 5.1.4 Channel coding Ad-Hoc chair (Nokia)
The document was presented by Matthew Baker from Nokia.
Decision: The document is endorsed and the content is incorporated as below.

5.1.4.1 LDPC code

5.1.4.1.1 Coding chain

R1-1711344	LDPC Coding chain	Intel Corporation
R1-1710844	Consideration on coding chain for eMBB data channel	ZTE

5.1.4.1.1.1 CRC attachment

R1-1710482 Study of Number of CRC Bits for Small Transport Blocks Ericsson
R1-1711533 CRC attachment for Smaller TBs Nokia, Alcatel-Lucent Shanghai Bell
R1-1710827 On CRC attachment for TB and CB MediaTek Inc.
Note: proposal is for $L_{TB\text{-}CRC}$ =14 for TBs less than e.g. 512 (or higher?)
R1-1710957 Data channel processing and CRC attachment InterDigital, Inc.
R1-1711210 CRC attachment Qualcomm Incorporated

Proposal to be checked until RAN1#90 after LDPC design is complete:
- $L_{TB\text{-}CRC}$ = 16 bits for TBs smaller than e.g. 1008 or 8432 bits
- $L_{CB\text{-}CRC}$ = 8 bits
- Checking other values is not precluded

Agreement: CBG-level CRC is not adopted

Not treated.

R1-1710481	Study of Number of CRC Bits for Code Blocks	Ericsson
R1-1710044	Consideration on CRC attachment for eMBB data	CATT
R1-1710341	Discussion on CRC reduction and attachement for eMBB data	LG Electronics
R1-1710480	CRC Attachment for Code Block Group	Ericsson
R1-1711532	CRC attachment for CBG	Nokia, Alcatel-Lucent Shanghai Bell

5.1.4.1.1.2 Segmentation

R1-1710342 Code block segmentation for eMBB LG Electronics
R1-1710742 CB segmentation on data channel Samsung
R1-1711534 Code block segmentation of eMBB Nokia, Alcatel-Lucent Shanghai Bell
R1-1711211 LDPC segmentation Qualcomm Incorporated
R1-1711439 Segmentation for eMBB data Huawei, HiSilicon

Agreement: Same value of Z for code blocks within a TB

R1-1711535 Padding for LDPC Nokia, Alcatel-Lucent Shanghai Bell

Agreement: Working assumption from RAN1-NRAH#1 is confirmed that filler bits F are attached at the end of info block B

Not treated.

R1-1710743	UE operation for two different base graphs	Samsung
R1-1710958	Code block segmentation for eMBB data channel	InterDigital, Inc.

5.1.4.1.1.3 Rate matching

R1-1710344 Discussion on bit level interleaver LG Electronics

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1572 of 1750

R1-1710484 **Bit Ordering for Circular Buffer of LDPC Codes Ericsson**
R1-1711538 **Interleaving for LDPC Nokia, Alcatel-Lucent Shanghai Bell**
R1-1710828 **On interleaver for NR LDPC code MediaTek Inc.**
R1-1711212 LDPC rate matching Qualcomm Incorporated

Conclusion for bit-level interleaving: Revisit after the decision on modulation symbol interleaving in the MIMO session.

R1-1710045 **IR-HARQ scheme for NR LDPC codes CATT**
R1-1710485 **Rate Matching for NR LDPC codes Ericsson**
R1-1711438 **Rate matching for LDPC codes Huawei, HiSilicon**

Agreement:
- The number of RVs is 4.
- The RVs are at fixed locations in the circular buffer
- RV#0 is self-decodable
- Working assumption (to be confirmed after selection of the BGs): The first 2Z punctured systematic bits are not entered into the circular buffer

Not treated
R1-1711536 Rate matching for LDPC Nokia, Alcatel-Lucent Shanghai Bell
R1-1710343 On rate matching with LDPC code for eMBB LG Electronics
R1-1710483 LDPC Code Performance at High Code Rate Ericsson

5.1.4.1.1.4 Other

R1-1710486 Throughput Requirements of LDPC Decoder Ericsson
R1-1711440 On LDPC codes for eMBB data Huawei, HiSilicon

5.1.4.1.2 LDPC code design

Finalise number of base graphs, compact vs. extended design, and other design details

R1-1711944 **Observations on LDPC Shift Coefficients Qualcomm, Intel, Ericsson**
R1-1711692 **WF on final parity check matrix selection Nokia**

Agreements: Down selection of PCMs are facilitated as follows:
- Considering the priority given to certain merged proposals in BG1 and BG2, the following ranking is used to facilitate the selection of parity check matrices in more fairer manner.
- The proponent(s) who are not selected for BG1 or BG2 are ranked above.
- The proponent(s) who are only in one selected solution of BG1 and BG2 are ranked next.
- The proponent(s) who are selected for both BG1 and BG2 are ranked below.
- Any PCMs with significant overlaps with previous PCM designs are ranked below.
- If there are several proponents end up with the same rank, mutual understanding may use to rank the companies.
  - Previous proposals on BG1 and BG2 and the effort put in there shall be considered when ranking.
  - Higher ranking may provide to proponents who were not in the BG1.
- Ranking changes from top to bottom when the proponent's proposal selected for a shift coefficient design.

Selection of final parity check matrices for BG1 is facilitated as below.
For Set **i** = 1:8
- Step 1: Cross check BLER performance at 10-2 and 10-4 for the block sizes related to the Set **i** (within 512-to-8448) and code rates 8/9-to-1/3.
- Step 2: Identify the candidates which are within 0.1 dB BLER performance across most block sizes related to the Set **i** (within 512-to-8448) and code rates 8/9-to-1/3.
- Step 3: Higher ranked identified candidate which is proven to satisfy the selection criteria as below, the proposal is selected as shift coefficient design for Set **i**.
- Step 4: the selected proponent is ranked below others.

End

Selection criteria for a ranked high proposal as candidate X:
- A candidate among existing candidates which has better (>0.1dB) BLER performance for block sizes related to the Set **i** (within 512-to-8448) and code rates 8/9-to-1/3 is selected as candidate Y.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1573 of 1750

- Error floor should be checked by examining slope of BLER curves at BLER=10-4.
- Denote P1 as the number of simulation cases for which the required SNR of candidate X is smaller than the required SNR of candidate Y for more than 0.1dB
- Denote P2 as the number of simulation cases for which the required SNR of candidate Y is smaller than the required SNR of candidate X for more than 0.1dB
- If P2 – P1 <= 2% of all simulation cases (QPSK, block sizes related to the Set **i** (within 512-to-8448) and code rates 8/9-to-1/3, BLER targets), and satisfies the error floor requirement, candidate X is deemed to satisfy the selection criteria.

Selection of final parity check matrices for BG2 is facilitated as below.
For Set **i** = 1:8

- Step 1: Cross check BLER performance at 10-2 and 10-4 for the block sizes related to the Set **i** (within 40-to-2560) and code rates 2/3-to-1/5.
- Step 2: Identify the candidates which are within 0.1 dB BLER performance across most block sizes related to the Set **i** (within 40-to-2560) and code rates 2/3-to-1/5.
- Step 3: Higher ranked identified candidate which is proven to satisfy the selection criteria as below, the proposal is selected as shift coefficient design for Set **i**.
- Step 4: the selected proponent is ranked below others.

End

Selection criteria for a ranked high proposal as candidate X:

- A candidate among existing candidates which has better (>0.1dB) BLER performance for block sizes related to the Set **i** (within 40-to-2560) and code rates 2/3-to-1/5 is selected as candidate Y.
- Error floor should be checked by examining slope of BLER curves at BLER=10-4.
- Denote P1 as the number of simulation cases for which the required SNR of candidate X is smaller than the required SNR of candidate Y for more than 0.1dB
- Denote P2 as the number of simulation cases for which the required SNR of candidate Y is smaller than the required SNR of candidate X for more than 0.1dB
- If P2 – P1 <= 2% of all simulation cases (QPSK, block sizes related to the Set **i** (within 40-to-2560) and code rates 2/3-to-1/5, BLER targets), and satisfies the error floor requirement, candidate X is deemed to satisfy the selection criteria.

R1-1711545 Summary of [89-24] Email discussion LDPC code base graph #1 for NR Nokia, Alcatel-Lucent Shanghai Bell
R1-1711546 Summary of [89-25] Email discussion on LDPC code base graph #2 for NR Nokia, Alcatel-Lucent Shanghai Bell

Not treated.
R1-1710046 LDPC design for eMBB data CATT
R1-1710047 Offset optimization for NR LDPC CATT
R1-1710345 Circulant permutation matrix design for LDPC codes LG Electronics
R1-1710487 LDPC Code Design for Base Graph #1 Ericsson
R1-1710488 LDPC Code Design for Base Graph #2 Ericsson
R1-1710489 Application of Two Base Graphs for NR Data Channels Ericsson
R1-1710744 LDPC Code for BG#1 Samsung
R1-1710745 LDPC Code for BG#2 Samsung
R1-1710746 Modulo Lifting for Length-Flexible QC LDPC Codes Samsung
R1-1710829 On NR LDPC design and performance MediaTek Inc.
R1-1710845 Shift coefficients design for base graph 1 ZTE
R1-1710846 Shift coefficients design for base graph 2 ZTE
R1-1711213 LDPC rate compatible design Qualcomm Incorporated
R1-1711345 Base Graph 1 lifting and evaluations Intel Corporation
R1-1711346 Base Graph 2 lifting and evaluations Intel Corporation
R1-1711436 LDPC design for base graph 1 Huawei, HiSilicon
R1-1711437 LDPC design for base graph 2 Huawei, HiSilicon
R1-1711537 LDPC designs for base graph 1 and base graph 2 Nokia, Alcatel-Lucent Shanghai Bell

R1-1711731 WF on LDPC code usage scenarios MediaTek, Qualcomm, InterDigital, ZTE

R1-1711982 WF on LDPC parity check matrices Nokia

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1574 of 1750

Agreement: Final parity check matrices for NR LDPC base graph #1 and #2 are agreed as in excel files R1-1711982_BG1.xlsx and R1-1711982_BG2.xlsx in R1-1711982.

Agreements:

- Base graph #1 is used for the initial transmission and subsequent re-transmissions of the same TB when
  - CBS > X or code rate of the initial transmission > Y
- Base graph #2 is used for the initial transmission and subsequent re-transmissions of the same TB when
  - CBS <= X and code rate of the initial transmission <= Y
- Working assumption: X = 2560 and Y = 0.67
  - FFS after PCM decisions if X can be extended to 3840 and/or Y can be extended to 0.75

To be checked how the receiver knows in each case the code rate of the initial transmission, and how exactly it is defined.
FFS whether some UE capabilities may be possible that do not require the implementation of both base graphs.

5.1.4.2 Polar code

5.1.4.2.1 Code construction

R1-1711443 Summary of [89-26] Polar code for NR -- alignment of latency/complexity calculation for early termination Huawei
The document was presented by Zukang Shen from Huawei.
Decision: The document is noted.
R1-1711442 Summary of [89-27] Polar code proposal for NR Huawei
Decision: The document is noted.

R1-1711644 Study of Split-CRC Polar Code Construction for Early Termination Tsofun Algorithm
(Revision of R1-1709883)

- Proposal 1: Use J+J'=n_{FAR} + 3 for polar code construction.
- Proposal 2: If some of the J+J' bits are distributed to allow ET, a relaxed requirement for FAR due to undetectable decoding errors should be agreed.

Decision: The document is noted.

R1-1711347 Simple distributed CRC design for Polar codes Intel Corporation

- Any assistance bits (if distributed) are based on CRC and are distributed in a controlled and simple way as proposed in the companion document [R1-1711348].

Decision: The document is noted.

R1-1711215 Evaluation of early termination for Polar codes Qualcomm Incorporated

- Proposal: Adopt CRC-aided successive-cancellation list decoding (CA-SCL) (with one long CRC) solution of Polar codes for control channel for robust performance, lower complexity and latency.

Decision: The document is noted.

R1-1710490 CRC-based Polar Code Construction Ericsson

- Proposal 1: Adopt CA-Polar for both DL and UL of NR.
- Proposal 2: Recursive and non-recursive distributed CRC (D-CRC) can be considered as alternative choices, if early termination is required to be supported via modified code construction.

Decision: The document is noted.

R1-1711764 WF on Polar codes construction NTT DOCOMO, Ericsson, Qualcomm, Intel, Tsofun Algorithm, CATT, AT&T

- Assume the input information sequence of channel coding is (u_1, u_2, …, u_K)
- If the ith assistant bit p_i of Polar codes are inserted after u_b (b=1,2,…,K), then p_i can only linearly generated from information bits (u_1, u_2, …, u_b) without any interleaving,
  - That is, no interleaver is used before the basic Polar encoder, and the information bits are mapped into the encoder by keeping the same input order and no de-interleaver is used after the basic Polar decoder
  - i.e., $p_i = a_1 u_1 \oplus a_2 u_2 \oplus \cdots \oplus a_b u_b \oplus \cdots \oplus a_K u_K$, where

$$a_j = \begin{cases} 0 \text{ or } 1, & \text{if } j \le b \\ 0, & \text{if } j > b \end{cases}$$

Decision: The document is noted.

R1-1711730 **WF on the Number of Assistant Bits for Polar Construction** **Ericsson, NTT DOCOMO, Qualcomm, Intel, Tsofun Algorithm, Samsung, LG, Fujitsu**

- The number of assistant bits of Polar codes is
  - $J+J' = n_{FAR} + 3$

Decision: The document is noted.

Questions:

- J' = 3 or 6?
- How are the J+J' bits generated?
- Which bits are distributed (if any) and how?

Proposal for further consideration over lunch:

- For DL and UL for K>=22:
  - The number of assistant bits of Polar codes is
    - $J+J' = n_{FAR} + 3$
    - The J+J' bits are generated from a single CRC polynomial
    - Working assumption that 3 bits are distributed
      - 6 distributed bits can be further considered if 3 is shown to be insufficient
- (FFS?) For UL for K<22:
  - The number of assistant bits of Polar codes is
    - J' = 6
    - The J' bits comprise 3 CRC bits and 3 parity bits
    - 6 bits are distributed

Alternative proposal (Nokia)

- The number of assistant bits of Polar codes is
  - $J+J' = n_{FAR} + 6$
- The J+J' bits are generated from a single CRC polynomial plus at least 3 parity bits
- 9 of the J+J' bits are distributed

Possible compromise:

- The number of assistant bits of Polar codes is
  - $J+J' = n_{FAR} + 6$
- The J+J' bits are generated from a single CRC polynomial
- Confirm working assumption that some (9?) of the J+J' bits are distributed

---

Proposal:

- For DL & UL, at least for K>22:
  - The number of assistant bits of Polar codes is
    - $J+J' = n_{FAR} + 3$
    - The J+J' bits are generated from:
      - Working assumption a single CRC polynomial with no interleaver
        - If it turns out that the FAR target cannot be satisfied, then FFS between:
          - Single CRC with interleaver, or
          - Two CRCs
    - Working assumption that 3 bits are distributed
      - 6 distributed bits can be further considered if 3 is shown to be insufficient
- FFS: For UL for K<=22:
  - The number of assistant bits of Polar codes is
    - J' = 6
    - The J' bits comprise 3 CRC bits and 3 parity bits
    - 6 bits are distributed

Question: Can the FAR target be satisfied using a single CRC polynomial with no interleaver, while achieving early termination benefits?
Yes: Intel, NTT DOCOMO, Ericsson, CATT, Qualcomm~~, Tsofun~~, ~~NEC~~
No: Nokia, LG, Huawei, CohLog, MediaTek, ZTE, Accelercomm, NEC, Tsofun

Question: Are the achievable early termination benefits (while achieving the FAR and BLER targets) worthwhile compared to the complexity of adding an interleaver?
Yes: LG, Nokia, MediaTek, Huawei, Accelercomm, ITRI, CohLog, NEC, Spreadtrum, InterDigital
No: Ericsson, NTT DOCOMO, Qualcomm, Intel, CATT, Fujitsu, Tsofun

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1576 of 1750

Question: Should we work on a code construction based solution to deliver early termination benefits while achieving the FAR and BLER targets with acceptable complexity?

a) Downlink

Yes: Samsung, Nokia, LG, Huawei, MediaTek, Intel, InterDigital, ZTE, ITRI, Spreadtrum, Tsofun, Coherent Logix, Accelercomm, NEC, Qualcomm (if there is a plan B), NTT DOCOMO (if there is a plan B)

No: Ericsson

b) Uplink

Yes: Nokia, Huawei, Accelercomm, LG, NEC, Intel (if same scheme as for DL)

No: Ericsson, Qualcomm, Samsung, Fujitsu

Conclusion:

- RAN1 will work on a code construction based solution to deliver early termination benefits while achieving the FAR and BLER targets with acceptable complexity at least for the DL
- Revisit UL after designing the DL solution.

Possible solutions for code construction based solution to deliver early termination benefits while achieving the FAR and BLER targets with acceptable complexity for downselection:

- Single CRC + interleaver
  - LG, Huawei, HiSilicon, Nokia, ASB, Coherent Logix, ZTE, Accelercomm, Spreadtrum, MediaTek
- Multiple segment CRCs
  - Tsofun, NTT DOCOMO, Qualcomm, CATT, Intel, Ericsson

Agreement:

- All companies work together to design for the DL a Single CRC polynomial + Interleaver scheme to deliver early termination benefits while achieving the FAR (in presence of AWGN, and in presence of random QPSK, and undetected errors in intended user's codeword), and BLER targets with acceptable complexity and latency.
  - Working assumption that the CRC length is 19 bits, to be finalised as part of the design, taking into account the number of blind decodes or hypotheses to be tested.
    - Longer CRCs will be considered if required to meet the FAR target
- For DL for K+nFAR>=12, and for UL where K+nFAR>22, J+J' = nFAR + 3
- For UL, where 12<=K+nFAR<=22, J+J' = nFAR + 6, comprising 3 parity bits and nFAR + 3 additional CRC bits

Note: K is the number of payload information bits without CRC or parity bits
Note: nFAR may be zero in some circumstances.
Note: UE specific scrambling is not precluded and will be considered separately.

From **R1-1708833** (submitted to RAN1#89):
Proposal: The interleaver is determined from the CRC generator matrix

R1-1711980 **Performance with L1 CRC polynomial** **Qualcomm**

R1-1709996 **Parity check bits for Polar code** **Huawei, HiSilicon**
R1-1709997 **Early termination for Polar code** **Huawei, HiSilicon**
R1-1710048 **Polar codes construction for NR control channel** **CATT**
R1-1710747 Polar code construction Samsung
R1-1710847 Performance evaluations on Polar codes ZTE
R1-1711125 **Performance evaluation of DSPC-Polar codes** **NTT DOCOMO, INC.**
R1-1711214 Early termination scheme for Polar codes Qualcomm Incorporated
R1-1711540 Early termination benefits of CRC distribution Nokia, Alcatel-Lucent Shanghai Bell
R1-1711541 Performance evaluation of polar code constructions Nokia, Alcatel-Lucent Shanghai Bell

R1-1709882 Enhancement of Early Termination of Polar Codes by placing UE-ID on Frozen Symbols Tsofun Algorithm
R1-1711570 UE_ID Insertion for Early Block Discrimination on DCI Blind Detection Coherent Logix
R1-1709998 **Polar code for very small block length** **Huawei, HiSilicon**
R1-1711557 Performance of polar code for very small block length Qualcomm Incorporated

R1-1709902 Enhancements for Polar code construction Sequans Communications
R1-1709995 Polar code construction Huawei, HiSilicon

R1-1710346 Early termination effect of polar codes LG Electronics
R1-1710479 Evaluation of PM based early termination for Polar code Huawei, HiSilicon
R1-1710491 Study of Early Termination for DCI Ericsson
R1-1710748 Scrambling for polar codes Samsung
R1-1710770 Discussion on Polar code construction Spreadtrum Communications
R1-1711124 Distributed simple parity check Polar codes NTT DOCOMO, INC.
R1-1711216 **Decoding and encoding latency for polar codes with PC frozen bits or distributed CRC bits Qualcomm Incorporated**
R1-1711217 Performance comparison between CA-polar and PC-polar for very small block length Qualcomm Incorporated
R1-1711348 Evaluations of Polar code designs Intel Corporation
R1-1711539 Distributed CRC Polar code construction Nokia, Alcatel-Lucent Shanghai Bell
R1-1711571 Scrambling Sequence Design for Early Block Discrimination on DCI Blind Detection Coherent Logix
R1-1711572 Scrambling Sequence Design for Multi-Mode Block Discrimination on DCI Blind Detection Coherent Logix
R1-1711573 Early Block Discrimination on DCI Blind Detection Coherent Logix

R1-1711983 **WF on Polar Code Construction With PC bits Huawei, Hilisicon, CATT, MTK,ZTE, Accelercomm, Coherent Logix, LG, Spreadtrum, Interdigital, Nokia**

Agreement: For UL, where 12<=K+nFAR<=22, J+J' = nFAR + 6, 3 PC bits are generated according to the following steps:
1. Encode *K* info bits to *K+nFAR+3* CRC encoded bits,
   - *FFS the nFAR+3* CRC bit locations
2. Select K' = K+nFAR+6 most reliable bit positions
3. Select *3* PC bits from the *K'* reliable positions
   - *The most reliable n* positions with w_{min}, where
     - w_{min} is the minimum row weight (as defined in R1-1706193) of the *K+nFAR+3* most reliable positions within the K' reliable positions, where *n* is given by:
       - *n*=1 if *M-K-nFAR*>192
       - *n*=0 otherwise
   - 3-*n* positions selected *in least reliable positions within the K' reliable positions*.
4. Working Assumption: The value of the PC bits is obtained from a length-5 cycle shift register as in R1-1706193

5.1.4.2.2 Sequence design

R1-1710470 **Necessity of multiple sequence for Polar code Huawei, HiSilicon**

Agreement:
- Channel bit interleaving is applied
  - The interleaving is either performed as part of the rate matching and/or after rate matching
    - To be confirmed after the rate matching discussion whether the interleaving is a separate function
  - FFS whether the interleaver is a function of the modulation
- The same sequence for each mother code size is used for all modulations
- The UL sequence for a given mother code size is also used for the DL

R1-1710348 Design of polar codes with high order modulations LG Electronics
R1-1710961 Interleaver design for polar codes with high order modulation InterDigital, Inc.

R1-1710000 **Nested sequence for Polar code Huawei, HiSilicon**
R1-1710493 On Bit Mapping Design for Polar Codes Ericsson
R1-1710843 **On the storage of polar code sequences AccelerComm Ltd**
R1-1711126 **Sequence design of Polar codes NTT DOCOMO, INC.**
R1-1711218 **Sequence construction of Polar codes for control channel Qualcomm Incorporated**
R1-1711542 Sequence design for Polar codes Nokia, Alcatel-Lucent Shanghai Bell
R1-1711822 **Design of combined-and-Nested polar code sequences Samsung** (Revision of R1-1710749)
R1-1711781 **Performance comparison of sequences for Polar code Huawei**

R1-1711794 **WF on Polar Code Sequence evaluation criteria Samsung**

Current support for each sequence:
- Polarization Weight (PW): Huawei, MediaTek, Nokia, LG, InterDigital, ZTE, Spreadtrum, CATT, Accel., Tsofun

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1578 of 1750

- Optimized- combined-and-nested (CN): Samsung, Qualcomm, NTT DOCOMO, Ericsson, Tsofun
- mutual information density evolution (MI-DE): Qualcomm, Samsung, NTT DOCOMO, Ericsson, Tsofun,
- Intel: Intel, Samsung, Qualcomm, NTT DOCOMO, Ericsson, Tsofun
- Docomo: NTT DOCOMO, Ericsson, Samsung, Qualcomm, Tsofun

Proposal:
- PW is adopted up to N=512
- Companies work together to design the sequence for N>512

Objected by Samsung, Qualcomm, NTT DOCOMO, Ericsson, Tsofun

Agreement for Next Steps:
- Polar code sequence candidates, including any merged solutions, should be provided by Wed 2nd Aug – Zukang (Huawei)
- Identify candidates of polar code sequence according to the procedure below by Wed 9th Aug– Zukang (Huawei)
- Rate matching proposals for any sequence that has been selected as a winner by at least one company to be provided by Wed 16th Aug. – Zukang (Huawei)

Decision procedure:

Candidate sequences shall have the property of simple nestedness, i.e. one sequence of length N/2 is nested with the sequence of length N

- Presence or absence of any other property (including symmetry, arithmetic describability, down-nestedness (i.e. a sequence of length N/2 is nested within the lower half of the sequence of length N), up-and-down-nestedness (i.e. a sequence of length N/2 is nested in both the upper and lower halves of the sequence of length N)) shall not be used as a decision criterion.

- Performance metric
  - SNR to achieve 10^{-2} and 10^{-3} BLER
- Simulation assumptions
  - Evaluate the block error rate (BLER) performance versus SNR

Channel	AWGN Channel
Modulation	QPSK
Info. Block length (=K bits w/o CRC)	K = 8:1:min $(200, K_{\max,N})$, where $K_{\max,N} = \lfloor 5N/6 - (J + J') \rfloor$ K = min $(200, K_{\max,N})$:24:$K_{\max,N}$, where $K_{\max,N} = \lfloor 5N/6 - (J + J') \rfloor$ excluding any code rates below 1/8
Codeword length (=N)	{64, 128, 256, 512, 1024}
Decoding algorithm	List-X with LLR-based min-sum
List sizes	1,2,4,8,16 (pruned to 8 best paths for CRC check)
Code construction for evaluation	CA polar
Number of (J+J') bits	19 bits (0b1010001010110111100 1 where the last bit is d19)

PerfThresh_K = 0.1dB for lower range of K, 0.3dB for higher range of K
PerfThresh_L = 0.4dB for L=1, 0.2dB for L=2, 0.1dB otherwise.
PerfThresh = max (PerfThresh_K, PerfThresh_L)

Each company selects a winning sequence by the following algorithm:
- For sequence A,
  - compare with sequence Bat each simulation case.
    - For each simulation case:
      - if A's performance is worse than B – PerfThresh, increment FailCount_AB
      - if A's performance is better than B + PerfThresh, increment WinCount_AB
    - If (FailCount_AB – WinCountAB) / Total number of simulation cases > 2%, increment OverallFail_A
  - compare with sequence Cat each simulation case.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1579 of 1750

        - For each simulation case:
            - if A's performance is worse than C – PerfThresh, increment FailCount_AC
            - if A's performance is better than C + PerfThresh, increment WinCount_AC
        - If (FailCount_AC – WinCountAC) / Total number of simulation cases > 2%, increment OverallFail_A
    - repeat for sequences D…N
- For sequence B,
    - compare with sequence A at each simulation case
    - etc
- …
- For sequence N,
    - compare with sequence A
    - etc
- Select sequence with smallest OverallFail

If multiple sequences A to M have the same smallest OverallFail,

- For sequence A,
    - compare with sequence Bat each simulation case.
        - For each simulation case, if A's performance is better than B + PerfThresh, increment WinCount_AB
    - compare with sequence C at each simulation case.
        - For each simulation case, if A's performance is better than C + PerfThresh, increment WinCount_AC
    - WinCount A = ∑WinCount_AB…AM
    - repeat for sequences up to M
- Repeat for sequences B to M.
- Select sequence with highest WinCount, referred to as sequence W.
- If any WinCount_xW > WinCount Wx, then sequence(s) x is/are also selected.

If more than 1 sequence is selected by at least one company, then the final sequence will be chosen from the sequences that were selected by at least one company according to the largest support in RAN1#90.

R1-1710347 Repetition scheme of polar codes LG Electronics
R1-1710750 Design of unfied rate-matching for polar codes Samsung
R1-1710825 Optimization and comparison of Polar code rate-matching design MediaTek Inc.
R1-1710848 Rate matching scheme of Polar codes ZTE
R1-1710960 Parameter selection for polar codes repetition InterDigital, Inc.
R1-1711219 Determination of the values for the parameters in rate-matching for control channel Qualcomm Incorporated
R1-1710496 Thresholds for Mother Code Size Determination Ericsson
R1-1711349 Discussion on Polar code rate-matching Intel Corporation

R1-1711697 WF on rate matching for Polar codes Qualcomm

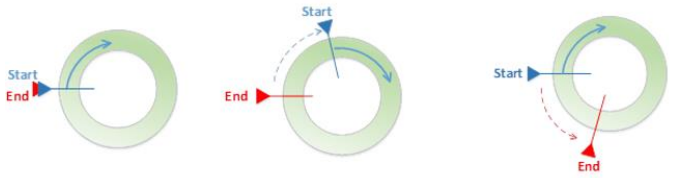
Agreement: $R_{min} = 1/8$

R1-1711729 WF on Circular buffer of Polar Code Ericsson, Qualcomm, MediaTek, LGE

Agreement:

- To support repetition, puncturing, and shortening of Polar code:
    - The $N=2^n$ coded bits at the output of Polar encoder is written into a length-N circular buffer in an order that is predefined for a given value of N
    - To obtain M coded bits for transmission
        - Puncturing is realized by selecting bits from position (N-M) to position (N-1) from the circular buffer
        - Shortening is realized by selecting bits from position 0 to position M-1 from the circular buffer
        - Repetition is realized by selecting all bits from the circular buffer, and additionally repeat (M-N) consecutive bits from the circular buffer
            - Exact set of repeated bits FFS till RAN1#90

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1580 of 1750



(a) No puncturing or shortening (b) puncturing (c) shortening

R1-1710751 **Circular buffer management for polar code rate-matching Samsung**

R1-1710492 Information Sequence Design for Polar Codes Ericsson
R1-1710494 Impact of Puncturing on Bit-channel Capacities Ericsson
R1-1710495 Polar Code Performance in Fading Channel Ericsson
R1-1710591 Sequence design evaluation for rate-matched polar codes NEC Corporation
R1-1710959 Parameter selection for polar codes puncturing and shortening InterDigital, Inc.
R1-1711127 Rate matching of Polar codes NTT DOCOMO, INC.
R1-1711220 Rate-matching scheme for control channel Qualcomm Incorporated
R1-1711543 Rate matching for Polar codes Nokia, Alcatel-Lucent Shanghai Bell

5.1.4.2.3 Other

R1-1709999 Interleaver design for Polar code Huawei, HiSilicon
R1-1710752 Design of channel interleaver for polar codes Samsung
R1-1710849 Segementation of Polar codes ZTE
R1-1711128 Interleaving design of Polar codes NTT DOCOMO, INC.
R1-1711222 Design and evaluation of Interleaver for Polar codes Qualcomm Incorporated

R1-1710001 Rate matching for Polar code Huawei, HiSilicon
R1-1710003 Channel coding chain for control channel Huawei, HiSilicon
R1-1710842 A flexible, low-latency, hardware-efficient SCL polar decoder AccelerComm Ltd
R1-1710868 Blind Detection with Polar Codes McGill University
R1-1710869 Partitioned List Decoding of Polar Codes McGill University
R1-1711221 Design of Polar code for large UCI with segmentation Qualcomm Incorporated

5.1.4.3 PBCH

R1-1710002 Support of implicit soft combining for PBCH by Polar code construction Huawei, HiSilicon
R1-1710004 Channel coding for URLLC Huawei, HiSilicon
R1-1710049 Discussion on Polar codes for PBCH CATT
R1-1710349 Details on PBCH coding LG Electronics
R1-1710472 Benefits of implicit soft combining for PBCH by Polar code construction Huawei, HiSilicon
R1-1710497 Study of Number of CRC Bits for PBCH Ericsson
R1-1710498 Polar Code Design for NR-PBCH Ericsson
R1-1710826 Polar coding design for NR-PBCH combining MediaTek Inc.
R1-1710850 Considerations on Channel Coding for NR-PBCH ZTE
R1-1711223 PBCH channel coding Qualcomm Incorporated
R1-1711544 Implicit timing indication for PBCH Nokia, Alcatel-Lucent Shanghai Bell

5.1.4.4 Other

R1-1709903 Discussion of LTE-RM decoding ambiguity Sequans Communications
R1-1710471 CRC polynomial for L1 control information and MIB Huawei, HiSilicon
R1-1710499 LDPC Code Performance for High Reliability Use Cases Ericsson

5.1.5 Modulation

R1-1711956 **On Pi/2-BPSK with spectrum shaping** **Ericsson**

- Proposed agreement: Spectrum shaping is supported without RAN1 impact

Decision: The document is noted.

R1-1711831 WF on pi/2 BPSK with spectrum shaping IITH, ATT, Qualcomm, Deutsche Telekom, IITM, Reliance Jio, Samsung, Thales, INL, CEWiT, Tejas Networks, DISH, Sony

- pi/2 BPSK DFT-s-OFDM supports spectrum shaping without spectrum expansion of pi/2 BPSK data at least for uplink data for carrier frequencies below 6GHz
  - The spectrum shaping function shall be specified in RAN1

Discussion: Also supported by Interdigital
Ericsson is OK with main bullet, commented that RAN4 was expecting information by end of June meeting – if we proceed now with proposal, RAN1 will delay RAN4 progress
Decision: The document is noted.

R1-1711909 [Draft] LS response on required NR parameters from RAN4 perspective Ericsson
Decision: The document is noted and final LS is approved in R1-1711975 with following typo corrections

Based on this, RAN1 would like ~~the~~ to inform RAN4 that the RAN1 specifications will support the following modulation schemes in the uplink transmission direction: π/2-BPSK, QPSK, 16QAM, 64QAM, and 256QAM.

RAN1 specifications will support both OFDM (without DFT precoding) and DFT-precoded OFDM (a.k.a. DFTS-OFDM) for the uplink transmission direction. All above modulation schemes are supported for both OFDM and DFTS-precoded OFDM.

Although indicated in the RAN4-sourced LS as information not being necessary until later, RAN1 would also like to inform RAN4 that the RAN1 specifications will support the following ~~-~~modulation schemes in the downlink transmission direction: QPSK, 16QAM, 64QAM, and 256QAM.

Not treated.

R1-1710474	Further consideration on pi/2 BPSK with FDSS	Huawei, HiSilicon
R1-1710592	Next steps for pi/2 BPSK with spectrum shaping	IITH
R1-1710753	Modulation Schemes for NR	Samsung
R1-1710881	On pi/2-BPSK DFTS-OFDM with spectrum shaping	Ericsson AB
R1-1711224	Consideration for MCS table	Qualcomm Incorporated
R1-1711398	On spectrum shaping for uplink Pi/2 BPSK with DFT-S-OFDM	Nokia, Alcatel-Lucent Shanghai Bell

5.1.6 Duplexing

Focus on cross-link interference management for duplexing flexibility

R1-1711918 Chairman's notes of AI 5.1.6 Duplexing Ad-Hoc chair (Qualcomm)
The document was presented by RAN1 chair on behalf of Wanshi Chen (Vice Chair).
Decision: The document is endorsed. Content incorporated below.

R1-1710127 Viewpoint on NR CLI Management for Duplexing Work Plan ZTE

5.1.6.1 Cross-link interference management

Note that potential schemes are listed in Section 10.1 of TR38.802

R1-1709982	**UE-to-UE measurement for cross-link interference mitigation**	**Huawei, HiSilicon**
R1-1710039	**Support of interference management schemes in duplexing flexbility**	**CATT**
R1-1710350	**Discussion on CLI measurement for Duplexing Flexibility**	**LG Electronics**
R1-1710581	**Details on cross-link interference measurement**	**Intel Corporation**
R1-1710755	**Cross-link Interference Management based on Coordinated Beamforming**	**Samsung**
R1-1710771	**Discussions on UE-to-UE interference measurement and report**	**Panasonic**
R1-1710784	**Discussion on UE-to-UE cross-link interference management**	**CMCC**
R1-1710818	**CLI measurements in NR**	**MediaTek Inc.**
R1-1710965	On cross-carrier scheduling and HARQ-ACK feedback for NR CA	NEC
R1-1710128	**UE-to-UE measurement as an enabler for CLI mitigation schemes**	**ZTE**
R1-1711129	**Discussion on cross-link interference mitigation for duplexing flexibility**	**NTT DOCOMO, INC.**
R1-1711225	Dynamic TDD UE-to-UE measurement considerations	Qualcomm Incorporated
R1-1711314	**On NR Cross-Link Symbol Alignment Scheme**	**Nokia, Alcatel-Lucent Shanghai Bell**
R1-1711562	**On Hybrid TDD and Signaling for Cross-link Interference Mitigation**	**Ericsson**

Further revised in R1-1711706

R1-1711682 WF on UE-to-UE measurement as an enabler for CLI mitigation schemes ZTE

Agreements:
- For CLI management, support UE-to-UE interference measurement and reporting without the introduction of new RS(s)

Agreements:
- For UE-to-UE interference, support CLI measurement metrics which include at least one of
  - RSRP for the purpose of CLI
    - FFS the definition (e.g., based on SRS, DM-RS, etc.) and the corresponding reporting
  - RSSI for the purpose of CLI
    - FFS the definition (e.g., resources for the measurement) and the corresponding reporting
- For UE-to-UE interference, FFS additionally support CQI/CSI as the CLI measurement metrics and if so, its definition/reporting

R1-1711707 **WF on inter-TRP signaling for UE-to-UE cross-link interference measurement** **LGE**
R1-1711700 **WF on CLI measurement** **MediaTek**
R1-1711842 **WF on UE-to-UE crosslink measurement** **CMCC, Spreadtrum**
R1-1711830 **WF on UE-UE CLI measurement** **Huawei, HiSilicon, ZTE, MediaTek, Intel, CMCC**
R1-1711851 **WF on inter-gNB signaling for cross-link interference management** **LGE**

R1-1709981 TRP-to-TRP measurement for cross-link interference mitigation Huawei, HiSilicon
R1-1710129 Channel sensing based schemes for cross-link interference mitigation in NR ZTE
R1-1710351 Discussion on details of backhaul signaling for duplexing flexibility LG Electronics
R1-1710582 On RS transmission location for cross-link interference measurement for NR duplex flexibility Intel Corporation
R1-1710754 Cross-link Interference Management Based on UE Measurements Samsung
R1-1710772 Discussions on intended DL/UL direction configuration via Xn signalling Panasonic
R1-1711226 Dynamic TDD Cross-link interference management consideration Qualcomm Incorporated
R1-1711313 Cross-link interference management based on Xn support Nokia, Alcatel-Lucent Shanghai Bell
R1-1711561 On Hybrid TDD and Measurements for Cross-link Interference Mitigation Ericsson

5.1.6.2 Other

R1-1709983 UL Power control for cross-link interference mitigation Huawei, HiSilicon
R1-1710130 TRP-to-TRP measurement as an enabler for CLI mitigation schemes ZTE
R1-1710756 Performance Evaluation of Cross-Link Interference Management Samsung
R1-1710757 Timing Alignment on Cross-Link for Dynamic TDD Samsung
R1-1710758 Cross-Link Interference Management based on Power Control Samsung
R1-1710759 Discussion on CLI Mitigation with Network Coordination Samsung
R1-1710760 Interference Measurement Table and Beam Coordination Samsung
R1-1711130 Discussion on prioritized scenarios for duplexing flexibility NTT DOCOMO, INC.
R1-1711315 LBT-based UL transmission for dynamic TDD Nokia, Alcatel-Lucent Shanghai Bell
R1-1711563 On Dynamic TDD Scenarios Ericsson
R1-1711564 On Duplexing in Paired Spectrum Ericsson

5.1.7 Wider bandwidth operations

Refer to R1-1709841 for work plan. Note that this agenda will be closed after this meeting.

R1-1711795 **On bandwidth parts and "RF" requirements** **Ericsson**

Possible observations (from Wednesday offline)
- Usage scenarios #1, and 2, and 3 are at least identified as usage scenarios for BW part
  - From UE perspective, usage scenarios #1 and 3 are the same
- Usage scenario #4 can be considered in the context of carrier aggregation

Observation:
- Usage scenarios #1, and 2, and 3 in R1-1711795 are at least identified as usage scenarios for BW part
  - From UE perspective, at least for single active BW part scenario, usage scenarios #1 and 3 are the same

Agreements:
- Usage scenario #4 in R1-1711795 is supported in the context of non-contiguous intra-band carrier aggregation
  - Carrier without SS block can be configured for some UEs
- Send LS to RAN2/4 to tell above agreement/observation in R1-1711824

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1583 of 1750

R1-1711824 **Draft LS on non-contiguous CA AT&T**
Decision: The document is noted and final LS is approved in R1-1711825
MCC: to attach R1-1711795 to the LS

R1-1711788 **Way forward on further details of bandwidth part operation** **Intel, AT&T, Huawei, HiSilicon**

Possible agreements (from Wednesday offline)
- For a single carrier WB UE, multiple active bandwidth parts with different numerologies are considered for a UE simultaneously
  - One TB is mapped per each active BWP.
  - FFS: The multiple active BWPs may overlap in frequency domain.
  - FFS: Cross-BWP scheduling is supported.
- Primary focus is to complete the single active bandwidth part case

Agreements:
- Primary focus is to complete the single active bandwidth part case
- If time is available later after completing the single active bandwidth part case, following cases should be considered for UE
  - For a single carrier WB UE, multiple active bandwidth parts with different numerologies are configured for a UE simultaneously
    - One TB is mapped per each active BWP.
    - FFS: The multiple active BWPs may overlap in frequency domain.
    - FFS: Cross-BWP scheduling is supported.

Possible agreement (from Wednesday offline)
- For intra-band scenario, capability(capabilities) of time required for bandwidth adaptation is reported by UE.
  - FFS: Detailed reporting contents
  - Minimum requirement for RF retuning time is to be determined by RAN 4

R1-1711802 **Way Forward on Further Details for Bandwidth Part** **MediaTek, Huawei, HiSilicon**

Agreements:
- For FDD, separate sets of bandwidth part (BWP) configurations for DL & UL per component carrier
  - The numerology of DL BWP configuration is applied to at least PDCCH, PDSCH & corresponding DMRS
  - The numerology of UL BWP configuration is applied to at least PUCCH, PUSCH & corresponding DMRS
- For TDD, separate sets of BWP configurations for DL & UL per component carrier
  - The numerology of DL BWP configuration is applied to at least PDCCH, PDSCH & corresponding DMRS
  - The numerology of UL BWP configuration is applied to at least PUCCH, PUSCH & corresponding DMRS
  - For UE, if different active DL and UL BWPs are configured, UE is not expected to retune the center frequency of channel BW between DL and UL

Agreements:
- At least one of configured DL BWPs includes one CORESET with common search space at least in primary component carrier
- Each configured DL BWP includes at least one CORESET with UE-specific search space for the case of single active BWP at a given time
  - In case of single active BWP at a given time, if active DL BWP does not include common search space, then UE is not required to monitor the common search space

Possible agreement:
- For the indication of active DL/UL bandwidth part(s), support both DCI and time pattern schemes
  - FFS UE-specific DCI or group common DCI
  - FFS details of time pattern schemes

Thursday
R1-1711812 **WF on configuration of a BWP in wider bandwidth operation** **LG Electronics, MediaTek**

Agreement:
- In configuration of a BWP,
  - A UE is configured with BWP in terms of PRBs.
    - The offset between BWP and a reference point is implicitly or explicitly indicated to UE.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1584 of 1750

- FFS for reference point, e.g., center/boundary of NR carrier, channel number used for sync. and/or channel raster, or center/boundary of RMSI BW, center/boundary of SS block accessed during the initial access, etc.
- NR supports MU-MIMO between UEs in different (but overlapping) BWPs

R1-1711855 **Way forward on PRB indexing** **Intel, Sharp, Ericsson, MediaTek, NTT DOCOMO, Panasonic, Nokia, ASB, NEC, KT, ETRI**

Agreements:
- Common PRB indexing is supported
  - The indexing is common to all the UEs sharing a wideband CC from network perspective, regardless of whether they are NB, CA, or WB UEs.
  - The indexing is with respect to the reference point
  - The indexing is with respect to a given numerology
  - Note: Example usage of common PRB indexing is for scheduling group common PDSCH, RS sequences, BWP configuration, etc.
- UE-specific PRB indexing is supported
  - It is indexed per BWP with respect to the configured SCS for the BWP
  - Note: Example usage of UE-specific indexing is for scheduling UE-specific PDSCH

R1-1711853 **Activation/deactivation of bandwidth partEricsson**

Agreements:
- Activation/deactivation of DL and UL bandwidth parts can be
  - by means of dedicated RRC signaling
    - Possibility to activate in the bandwidth part configuration
  - by means of DCI (explicitly and/or implicitly) or MAC CE [one to be selected]
    - by means of DCI could mean
      - Explicit: Indication in DCI (FFS: scheduling assignment/grant or a separate DCI) triggers activation/deactivation
        - Separate DCI means DCI not carrying scheduling assignment/grant
      - Implicit: Presence of DCI (scheduling assignment/grant) in itself triggers activation/deactivation
      - This does not imply that all these alternatives are to be supported.
  - FFS: by means of timer
  - FFS: according to configured time pattern

Prepare draft LS to RAN2/4 until Friday – Pei-Kai (Mediatek), Intel
Friday
R1-1711948 [Draft] LS on bandwidth part operation in NR MediaTek
Further revised in **R1-1711989** [Draft] LS on Bandwidth Part Operation in NR Mediatek
Decision: The document is noted and final LS is approved in R1-1711998.

R1-1711913 **WF on introduction indication in SS block for cell update** **CMCC**

R1-1711873 **WF on initial bandwidth part** **LG Electronics, Ericsson, MediaTek**

R1-1711795 On bandwidth parts and 'RF' requirements Ericsson
R1-1709972 Overview of wider bandwidth operations Huawei, HiSilicon
R1-1710040 NR wider bandwidth operation CATT
R1-1710126 Resource allocation for wideband operation ZTE
R1-1710172 Discussion on UE specific RF bandwidth adaptation in NR Guangdong OPPO Mobile Telecom.
R1-1710249 PRB and RBG indexing within wider channel BW for NR NEC
R1-1710352 Remaining details on wider bandwith operation LG Electronics
R1-1710398 NR transmission on anchor bandwidth part vivo
R1-1710416 Design considerations for NR operation with wide bandwidths AT&T
R1-1710583 Open issues for wider bandwidth operations Intel Corporation

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1585 of 1750

R1-1710622	UE bandwidth configuration during initial access	ETRI
R1-1710761	Wider Bandwidth Operations	Samsung
R1-1710785	Discussion on the change of SS block frequency position	CMCC
R1-1710796	Further Details on Wider Bandwidth Operations in NR	MediaTek Inc.
R1-1710878	Bandwidth Adaptation via BWP Selection in NR	InterDigital, Inc.
R1-1710883	On wider band aspects of NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710943	Discussion on PRB grid and PRB indexing	Panasonic Corporation
R1-1711131	Remaing issues on wider bandwidth operations for NR	NTT DOCOMO, INC.
R1-1711227	UE Power Saving during Active State	Qualcomm Incorporated

5.1.8 NR-LTE co-existence

Refer to R1-1709844 for work plan.

R1-1711919 **Chairman's notes of AI 5.1.8 NR-LTE co-existence** **Ad-Hoc chair (Qualcomm)**
The document was presented by RAN1 chair on behalf of Wanshi Chen (Vice Chair).
Decision: The document is endorsed. Content incorporated below.

R1-1709980	**Subcarrier mapping for LTE-NR coexistence**	**Huawei, HiSilicon**
R1-1710173	**Discussion on the NR-LTE self-interference issue**	**Guangdong OPPO Mobile Telecom.**
R1-1710250	**Discussion on UL sharing of NR and LTE**	**NEC**
R1-1710354	Remaining details on UL sharing between LTE and NR	LG Electronics
R1-1710384	**Interference analysis for LTE-NR co-existence**	**vivo**
R1-1710417	**Remaining details of NR-LTE coexistence in overlapping spectrum**	**AT&T**

Proposals:
- Send an LS to RAN3 that specifications of Xn interface and enhanced X2 interface shall include messages to enable coordination between LTE MCG and NR SCG of:
  - SCell activation/deactivation/reconfiguration
  - MBSFN subframe configuration
  - Signaling needed for timing synchronization and SFN alignment between LTE and NR
  - TDD UL/DL configuration
  - Indication of semi-statically reserved resources reserved of LTE

Continue discussion offline – Ralf (AT&T)
Thursday

R1-1711710 **WF on NR-LTE coexistence** **AT&T, Nokia, Ericsson, Vodafone**
Agreements:
- For LTE-NR coexistence in overlapping spectrum, support on the Xn interface and enhanced X2 interface messages
  - FFS details, e.g., SCell ON/OFF, LTE MBSFN subframe configuration, synchronization aspects between LTE and NR, indication of semi-statically reserved resources in frequency domain, Indication of semi-statically reserved resources in time domain, etc.
- For LTE-NR coexistence in adjacent spectrum, support on the Xn interface and enhanced X2 interface messages
  - FFS details, e.g., synchronization aspects between LTE and NR, TDD UL/DL configuration, etc.
  - FFS the case of multi-operator scenarios
- Aim to conclude the FFS parts for the above and send an LS to RAN3 in the next meeting

---

R1-1710584	**Open issues for LTE-NR coexistence**	**Intel Corporation**
R1-1710763	**LTE-NR coexistence for UL**	**Samsung**
R1-1710840	**Discussion on Uplink TDM Operation for NR NSA**	**China Telecommunications**
R1-1710880	**On uplink half-tone shift**	**Ericsson AB**
R1-1710904	**Uplink transmission in NR NSA mode**	**Apple Inc.**
R1-1711701	**Considerations of NR-LTE coexistence in uplink**	**ZTE** (Revision of R1-1710910)
R1-1711132	**Views on single UL transmission and UL sharing**	**NTT DOCOMO, INC.**
R1-1711229	**NR-LTE Co-channel Coexistence Considerations**	**Qualcomm Incorporated**
R1-1711337	**On NR-LTE coexistence for NSA and SA**	**China Unicom**
R1-1711584	**On UL coverage extension of TDD @3.5GHz**	**ORANGE** (Revision of R1-1711365)
R1-1711400	**On 1Tx only UE in LTE-NR Dual Connectivity**	**Nokia, Alcatel-Lucent Shanghai Bell**

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1586 of 1750

R1-1711709 **WF on NR-LTE coexistence in overlapping spectrum** **AT&T, Deutsche Telekom, Vodafone, Intel, Ericsson, Samsung, Orange, China Unicom, Huawei, HiSilicon, China Telecom**

Agreements:

- In NR, support configuration between the following for paired spectrum (support of scheme 2 below is conditioned on the assumption that 100kHz is adopted as a supported UL channel raster in NR to support LTE/NR co-existence with LTE FDD)
  - Scheme 1: Do nothing to allow subcarrier alignment between NR UL (15 kHz) and LTE UL
  - Scheme 2: Allow subcarrier alignment between NR UL (15 kHz) and LTE UL, where NR UL raster is with a 7.5 kHz shift to the LTE UL raster
- Send an LS to RAN4 - Ralf (AT&T)

Wednesday

R1-1711779 **[DRAFT] LS on subcarrier alignment and channel raster** **AT&T, Sprint, T-Mobile USA, Huawei, HiSilicon, Samsung, Deutsche Telekom, Ericsson, Intel, China Telecom**

The document was presented by Ralf Bendlin from AT&T.

Discussion: .Qualcomm: let's delete "to support configuration of subcarrier alignment between NR UL (15 kHz) and LTE UL in paired spectrum".

AT&T compromise: RAN1 kindly requests RAN4 to take the above RAN1 agreement into account ensuring scheme 1 and scheme 2 are possible

Qualcomm: Scheme 2 is conditioned to RAN4 decision

Decision: The document is noted and final LS is approved in R1-1711839 with the following updates:

Action to RAN4 WG:

RAN1 kindly requests RAN4 to take the above RAN1 agreement ~~to support configuration of subcarrier alignment between NR UL (15 kHz) and LTE UL in paired spectrum~~ into account when discussing NR channel raster.

Dates of next TSG-RAN WG1 Meetings:

RAN1 #90	21st – 25th August 2017	Prague, Czech Republic
RAN1 NR Ad-Hoc#~~32~~ 33	18th – 21th September 2017	Nagoya, Japan

Thursday

R1-1711675 **Way forward on UE self-interference** **Vivo, OPPO, Coolpad, China Telecom, Xiaomi, Huawei, HiSilicon, China Unicom**

Agreements:

- RAN1 to continue study the solution(s) to mitigate UE self-interference due to the simultaneous transmission and reception at the same time
  - Note: the issue is particular applicable for specific band combination(s) (e.g. harmonics related issues)
  - Note: the issue can be addressed if UE is not mandated to transmit on one carrier (F1) and receive on another carrier (F2) at the same time
- Send an LS to RAN4 regarding the above agreements – Xueming (Vivo), which is approved in **R1-1711872**

R1-1711705 Way forward on handling of single UL transmission NTT DoCoMo

R1-1711848 **Way forward on handling of single UL transmission** **NTT DoCoMo, Apple**

Agreements:

- Support the following solution to single UL transmission where NW synchronization between eNodeB and gNodeB is assumed (where there is at least one LTE carrier and at least one NR carrier of a different carrier frequency)
  - When UE is activated with multiple UL carriers on different frequencies, time-switching of LTE UL carrier and NR UL carrier is used
    - UL transmission timing pattern of LTE carrier and NR carrier is semi-statically shared between eNodeB and gNodeB
    - FFS: Signaling to UE of UL transmission timing pattern
  - UE simultaneously receives signals/channels from both NR DL carrier and LTE DL carrier
    - For scheduling/HARQ timing of LTE FDD carrier, the following timing can be considered, e.g., for LTE:
      - DL-reference UL/DL configuration for TDD
      - DL-reference UL/DL configuration defined for FDD-SCell in TDD-FDD CA with TDD-PCell
      - Up to NW implementation (i.e., no RAN1 spec. impact)
    - For scheduling/HARQ timing of NR carrier, no special handling would be necessary
  - Other solutions are not precluded

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1587 of 1750

- Send an LS to RAN2, RAN3, and RAN4 – Kazuaki (DCM), which is drafted and endorsed in **R1-1711877.** Final LS approved in R1-1711878.

R1-1711817 **WF on LTE/NR DC deployment scenarios to extend NR UL coverage Orange, Deutsche Telekom, Ericsson, China Unicom, OPPO, Huawei, China Telecom, Nokia, ZTE**

Agreements:
- RAN1 should consider the following scenarios as listed in R1-1711817 in the future work especially in terms of UL coverage
  - Scenario 1
  - Scenario 2 where UL sharing is from network perspective
    - FFS where UL sharing from UE perspective
      - Aim to conclude in the next meeting; if no consensus, consider sending an LS to RANP for clarification
  - Scenario 3

Not treated.

R1-1709979	Overview of NR UL for LTE-NR coexistence	Huawei, HiSilicon
R1-1710041	Support of UL carrier sharing between NR-LTE	CATT
R1-1710353	Remaining details on DL sharing between LTE and NR	LG Electronics
R1-1710385	Issues on UL transmission for LTE-NR co-existence	vivo
R1-1710762	LTE-NR coexistence for DL	Samsung
R1-1710909	Discussion of NR-LTE coexistence on DL	ZTE
R1-1710912	Reserved resources supporting NR co-existence with LTE and NB-IoT	Ericsson AB
R1-1711228	NR LTE Adjacent Channel Coexistence Consideration	Qualcomm Incorporated
R1-1711247	NR LTE Adjacent Channel Coexistence Consideration	Qualcomm Incorporated
R1-1711248	NR-LTE Co-channel Coexistence Considerations	Qualcomm Incorporated
R1-1711399	LTE and NR performance in NR-LTE UL sharing	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711559	Uplink operation for LTE+NR Dual Connectivity	VODAFONE Group Plc

5.1.9 UL power control

R1-1711947 **Chairman's notes of AI 5.1.9 UL Power Control** **Ad-Hoc chair (Qualcomm)**
The document was presented by RAN1 chair on behalf of Wanshi Chen (Vice Chair).
Decision: The document is endorsed. Content incorporated below.

5.1.9.1 Power sharing mechanism

Including power sharing mechanism for LTE-NR dual connectivity, NR carrier aggregation and dual connectivity

R1-1709949	**Power control for CA and DC**	**Huawei, HiSilicon**
R1-1710042	**Power Sharing Mechanism**	**CATT**
R1-1710839	**UL Power Sharing for LTE-NR Dual Connectivity**	**MediaTek Inc.**
R1-1710879	**Power Sharing Mechanisms with LTE-NR DC and NR DC**	**InterDigital, Inc.**
R1-1711526	**Power Sharing for LTE-NR Dual Connectivity**	**Ericsson**

Agreements:
- Regarding power sharing for LTE-NR dual connectivity, support at least semi-static power sharing between LTE and NR
  - FFS details
  - Discuss further whether or not to support dynamic power sharing between LTE and NR
  - Discuss further impacts due to other factors, e.g., different TTI lengths, channel/service types, synchronous vs. asynchronous, different processing latency for LTE vs. NR, assumption regarding communication between NR vs. LTE at UE, specification impact to LTE (if any) and/or NR, etc.

Send an LS to RAN4 to inform the above agreements – Ravi (Ericsson)
Friday
R1-1711898 **[DRAFT] LS on power sharing for LTE-NR Dual Connectivity** **Ericsson**
Discussion: Nokia → should RAN2 be informed as well?
AT&T → WI code is incorrect
Decision: The document is noted and final LS is approved in R1-1711999 by adding RAN2 in CC part and updating work item code to "NR_newRAT".

R1-1711862	**WF on LTE-NR power sharing mechanism**	**NTT DoCoMo, InterDigital**
R1-1710355	Discussion on power sharing for LTE-NR dual connectivity	LG Electronics

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1588 of 1750

R1-1710585 Power sharing mechanism for NR dual connectivity Intel Corporation
R1-1710764 On UL Power Sharing for Multi-Cell Transmissions Samsung
R1-1710911 Power Control for CA and DC in NR ZTE
R1-1711133 LTE-NR power sharing mechanism NTT DOCOMO, INC.
R1-1711396 On power sharing between LTE and NR in DC Nokia, Alcatel-Lucent Shanghai Bell

5.1.9.2 NR power control framework

Including power control for PUSCH/PUCCH/SRS/DMRS, PHR calculation

R1-1710174 Uplink power control for NR Guangdong OPPO Mobile Telecom.
R1-1710356 Discussion on uplink power control for NR LG Electronics
R1-1711818 WF on UL power control LGE, Ericsson, InterDigital

Agreements:

- In NR, PUSCH and at least some type(s) of SRS can share same closed loop power control command from gNB
  - FFS details, e.g., the type(s) of SRS, beam related aspects, etc.
- In NR, PUSCH and PUCCH rely on independent closed loop power control commands from gNB
- Study aspects related SRS carrier switching

R1-1711134 Power control framework for PUSCH NTT DOCOMO, INC.
R1-1711230 Power control and PHR for NR Qualcomm Incorporated
R1-1711397 UL Power Control for MIMO Nokia, Alcatel-Lucent Shanghai Bell
R1-1711724 Summary of power control ZTE
R1-1711721 WF on UL power control ZTE, NTT DoCoMo
R1-1711863 WF on NR power control framework NTT DOCOMO, Nokia, Intel, InterDigital
R1-1711819 WF on PHR for different waveforms LG Electronics, NTT DOCOMO, InterDigital

Agreement: UE's power headroom report is based on the corresponding PUSCH transmission(s)

- FFS details

Not treated.
R1-1709948 General considerations on UL power control design Huawei, HiSilicon
R1-1710043 NR Power Control Framework CATT
R1-1710209 On NR power control ZTE
R1-1710210 On NR PHR calculation ZTE
R1-1710219 UL transmission power control Mitsubishi Electric Co.
R1-1710357 Discussion on uplink power headroom report for NR LG Electronics
R1-1710404 UL multi-beam power control vivo
R1-1710475 Discussion on PHR calculation Huawei, HiSilicon
R1-1710586 PUSCH and PUCCH power control Intel Corporation
R1-1710765 Power Control Framework Samsung
R1-1710766 On PHR Requirements and Calculation Samsung
R1-1710786 Discussion on NR power control and sharing CMCC
R1-1711602 Common and Beam Specific Power Control Parameters InterDigital, Inc.
R1-1711054 On the NR UL power control framework Ericsson
R1-1711249 Power control and PHR for NR Qualcomm Incorporated
R1-1711335 UL power control in multi-beam based approaches ASUSTEK COMPUTER (SHANGHAI)

5.1.10 Channel model

R1-1711623 Correction on the formula of AnnexA ZTE, Ericsson (Revision of R1-1711255)
Decision: Agreed in R1-1711758 as 38.901CR0016 with latest version of cover sheet (v11.2).

R1-1711624 Correction on Procedure A of spatially-consistency UT mobility modeling ZTE, Ericsson (Revision of R1-1711256)
Decision: Agreed in R1-1711760 as 38.901CR0017 with latest version of cover sheet (v11.2).

5.1.11 Other

R1-1709971 Remaining issues on ECP Huawei, HiSilicon
R1-1710358 Multiplexing NCP and ECP LG Electronics
R1-1710405 Feasibility study on subband constellation rotation for uplink PAPR reduction for CP-OFDM waveform vivo
R1-1710406 PAE consideration on supporting CP-OFDM and DFT-S-OFDM vivo

R1-1710407	Forward compatibility consideration for ECP design and NR-MBMS	vivo
R1-1710767	ECP Aspects for 60kHz SCS	Samsung
R1-1710768	On PAPR of DMRS for p/2-BPSK DFT-s-OFDM with Spectrum Shaping	Samsung
R1-1710769	RACH Aspects for CA and DC	Samsung
R1-1710966	Flexible subcarrier spacing in the uplink for NR use cases including mMTC	ATR
R1-1711231	TDD-SUL CA scenario	Qualcomm Incorporated
R1-1711250	TDD-SUL CA scenario	Qualcomm Incorporated
R1-1711326	Comment on NR specification	Panasonic
R1-1711389	Further details on scrambling	Ericsson
R1-1711424	On bandwidth adaptation	Huawei, HiSilicon
R1-1711459	Modulation Scheme for URLLC with Preemption Multiplexing	Samsung
R1-1711460	On Transparency of Spectrum Shaping for p/2-BPSK DFT-s-OFDM	Samsung
R1-1711461	On Spectrum Shaping Methods for p/2-BPSK DFT-s-OFDM	Samsung
R1-1711462	On Modulation Schemes for High Spectral Efficiency	Samsung
R1-1711463	Transmission and Reception for High-Order Modulation with MIMO	Samsung
R1-1711528	Extended Range Considerations for mMTC	HUGHES Network Systems Ltd
R1-1711529	Channel Model for Non-Terrestrial Networks	HUGHES Network Systems Ltd
R1-1711574	Discussion on bandwidth part configuration	LG Electronics Inc.

5.2 Other

R1-1711317	Discussion on NR Operating in Unlicensed Spectrum	ASUSTEK COMPUTER (SHANGHAI)
R1-1711464	High level consideration on NR unlicensed band operation	Huawei, HiSilicon
R1-1711465	NR Numerology on unlicensed bands	Huawei, HiSilicon
R1-1711466	NR Frame structure on unlicensed bands	Huawei, HiSilicon
R1-1711467	Coexistence and Channel access for NR unlicensed band operations	Huawei, HiSilicon
R1-1711469	NR standalone operation on unlicensed bands	Huawei, HiSilicon
R1-1711470	Discussion on NoMA study for Rel-15 SI	Huawei, HiSilicon
R1-1711520	Discussion of Multi-Antenna and Highly Directional Beam-Forming for Operation in Unlicensed Spectrum	Ericsson
R1-1711521	On Autonomous UL Transmissions for NR in Unlicensed Spectrum	Ericsson
R1-1711522	On Channel Access Mechanisms for NR in Unlicensed Spectrum	Ericsson
R1-1711523	On NR Operation in the 60 GHz Unlicensed Band	Ericsson
R1-1711524	On Physical Layer Design Policies for Unlicensed Operation of NR	Ericsson
R1-1711525	Technology Components for Unlicensed Operation	Ericsson
R1-1711549	Considerations on Satellite channel model	THALES
R1-1711550	NTN Bentpipe payload architecture and characteristics	THALES
R1-1711568	Considerations on HAPS channel model	CNES, Thales

6 Closing of the meeting

Mr Chair thanked all for the progress achieved during this second ad-hoc meeting on NR.
Special thanks to the Vice chairmen, especially at the start of the meeting and for chairing their respective sessions.
Mr Chair thanked the host ZTE for the organization and facilities. Although meeting's start was a bit challenging, with inadequate number of seats, no power to all seats… during the first 1,5 hours of day one, the number of meeting rooms (5 all together) were really appreciated.

Then Mr chair warned the delegates that organizing the RAN1 chair and vice chair election at the next meeting could also be a challenge (due to the number of voting companies – likely to be around 300 – and the potential number of round of voting. August will be last meeting chaired by Satoshi-san.

Meeting was closed at 20:15.
See you all in Prague.

Samsung Electronics Co., Ltd. v. Asus Tech Licensing EX-1016, 1590 of 1750

3GPP TSG RAN WG1 Meeting #90 **R1-171xxxx**
Prague, Czech Rep, 21st – 25th August 2017

Annex A: List of Tdocs at RAN1 #AH_NR2

Please see excel file attached to this report

EX-1016, 1591 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex B: List of CRs agreed at RAN1 #AH_NR2

TS/TR	CR	Rev	Rel	Title	Cat	Vsn	@ Mtg	TD#	Source to WG	Work Item
38.901	16	-	Rel-14	Correction on the fomula of Annex A	F	14.1.0	R1#AH_NR2	R1-1711758	ZTE, Ericsson	NR_newRAT-Core
38.901	17	-	Rel-14	Correction on Procedure A of spatially-consistency UT mobility modeling	F	14.1.0	R1#AH_NR2	R1-1711760	ZTE, Ericsson	NR_newRAT-Core

EX-1016, 1592 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex C-1: List of Outgoing LSs from RAN1 #AH_NR2

TDoc #	Title	Source	Release	Related WIs	Reply to	To	Cc	Original LS	Reply in
R1-1711825	LS on non-contiguous CA	RAN1, AT&T	Rel-15	NR_newRAT-Core		RAN2, RAN4			
R1-1711839	LS on subcarrier alignment and channel raster	RAN1, AT&T	Rel-15	NR_newRAT-Core		RAN4			
R1-1711872	LS on UE self-interference	RAN1, vivo	Rel-15	NR_newRAT-Core		RAN4			
R1-1711878	LS on single UL transmission	RAN1, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN2, RAN3, RAN4			
R1-1711880	LS on Beam Aspects of NR RACH	RAN1, Huawei	Rel-15	NR_newRAT-Core		RAN2			
R1-1711966	Reply LS on reading time index indication for RRM measurements	RAN1, Intel	Rel-15	NR_newRAT-Core	R2-1706160	RAN2			
R1-1711975	LS response on required parameters from RAN4 perspective	RAN1, Ericsson	Rel-15	NR_newRAT-Core	R4-1704216	RAN4			
R1-1711987	"Reply LS response on NR basic handover		Rel-15	NR_newRAT-Core	R2-1707503	RAN2			
"	RAN1, Samsung		Rel-15	NR_newRAT-Core	S3-171568	SA3	RAN2, RAN4		
R1-1711997	Response LS on Support for fake gNB detection mechanisms	RAN1, Nokia	Rel-15	NR_newRAT-Core		RAN2, RAN4			
R1-1711998	LS on bandwidth part operation in NR	RAN1, MediaTek	Rel-15	NR_newRAT-Core		RAN4	RAN2		
R1-1711999	LS on power sharing for LTE-NR Dual Connectivity	RAN1, Ericsson	Rel-15	NR_newRAT-Core		RAN2	RAN3		
R1-1712000	LS on support of multi-TRP transmission in NR	RAN1, Intel	Rel-15	NR_newRAT-Core		RAN2			
R1-1712001	LS on NR initial access and mobility	RAN1, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN4			
R1-1712002	LS on NR initial access and mobility	RAN1, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN2			
R1-1712005	Reply LS on PDCCH design	RAN1, Ericsson, CATT	Rel-15	NR_newRAT-Core		RAN2, RAN4			

EX-1016, 1593 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex C-2: List of Incoming LSs from RAN1 #AH_NR2

TDoc #	Title	Source	Release	Related WIs	Reply to	To	Cc	Original LS	Reply in
R1-1710211	LS on SR design principles in NR	RAN2, Samsung	Rel-15	NR_newRAT-Core		RAN1		R2-1705867	
R1-1710212	LS on UE measurement capabilities across LTE and NR	RAN2, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN4	RAN1	R2-1706140	
R1-1710213	LS on UE categories for NR and LTE-NR Dual Connectivity	RAN2, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN, RAN1	RAN4	R2-1706141	
R1-1710214	LS reply to SA2 on maximum data rate	RAN2, MediaTek	Rel-15	NR_newRAT-Core	S2-172398, R1-1706857	SA2, RAN1	RAN3, SA1, CT1, CT4	R2-1706155	
R1-1710215	Response LS on reading time index indication for RRM measurements	RAN2, Intel	Rel-15	NR_newRAT-Core	R1-1706707	RAN1		R2-1706160	
R1-1710216	LS on Emergency Support in NR	SA2, Nokia	Rel-15	NR_newRAT-Core		RAN	SA, RAN1, RAN2, RAN3	S2-173700	
R1-1710217	LS on Support for fake gNB detection mechanisms	SA3, Nokia	Rel-15	NR_newRAT-Core		RAN1, RAN2, RAN4		S3-171568	
R1-1710220	Reply LS on Emergency Support in NR	RAN, T-Mobile	Rel-15	NR_newRAT-Core	S2-173700	SA2	SA, RAN1, RAN2, RAN3	RP-171434	
R1-1710221	Reply LS on UE categories for NR and LTE-NR Dual Connectivity	RAN, NTT DOCOMO	Rel-15	NR_newRAT-Core	R2-1706141	RAN2, RAN1	RAN4	RP-171480	
R1-1711892	Reply LS on PBCH content	RAN2, Huawei	Rel-15	NR_newRAT-Core	R1-1709789	RAN1		R2-1707490	
R1-1711940	LS to RAN1 on NR basic handover	RAN2, Ericsson	Rel-15	NR_newRAT-Core		RAN1		R2-1707503	
R1-1711949	Reply LS to RAN1 on UL data transmission without UL grant for NR	RAN2, Huawei	Rel-15	NR_newRAT-Core	R1-1709805	RAN1		R2-1707499	
R1-1711950	LS to RAN1 on Random Access	RAN2, Samsung	Rel-15	NR_newRAT-Core		RAN1		R2-1707504	

EX-1016, 1594 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex D: List of Approved updated WIDs

None

EX-1016, 1595 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex E: List of draft TSs/TRs agreed at RAN1 #AH_NR2

Tdoc Number	Title	Source	Conclusion/Decision
R1-1712004	TS38.211 v0.1.0 NR; Physical channels and modulation	Ericsson LM	Endorsed

EX-1016, 1596 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex F: List of actions

- **Outgoing LS**

[NRAH2-01] Sundar (Qualcomm)
LS of beam management
Email approval until 10th July

[NRAH2-02] Karri (Nokia)
LS of UL/DL HARQ
Email approval until 6th July

- **CR approval**

None

- **Text proposal for TS and TR**

[NRAH2-03] Editors
Email discussion until August meeting about all specs

- 1st step: All spec editors will provide new draft specs (including all agreements and WA) until July 14th
- 2nd step: All spec editors will provide further updated specs (including all agreements and WA) until August 4th
- All companies are recommended checking these specs and comment via the reflector
- All spec editors will update specs via the reflector and submit them to the August meeting (RAN1#90)
- Objective is to get the updated specs endorsed on Monday on Monday (day 1 of RAN1#90)

- **Miscellaneous**

[NRAH2-04] Daniel (Ericsson)
Email discussion until the August meeting w.r.t the RRC parameters list for NR

- Daniel (Ericsson) will provide an initial RRC parameters list until August 9th
- All companies are recommended checking it and comment via the reflector
- Daniel (Ericsson) will update it via the reflector and submit it to the August meeting (RAN1#90)
- Objective is to get the (updated) RRC parameters list agreed on Monday (day 1 of RAN1#90)

[NRAH2-05] Daewon (Intel)
DMRS sequence for NR PBCH

EX-1016, 1597 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Companies are encouraged to provide the information on NR PBCH DMRS sequence until 28th July in order to finalize the design

[NRAH2-06] Yuichi (DOCOMO)
LS of CSI-RS for beam management
Email approval for the LS in R1-1712003 until 7th July

[NRAH2-07] Lihui (DOCOMO)
LS of UL SPS / grant free
Email approval until 6th July to explain RAN1 understandings based on above agreements

[NRAH2-08] Jeongho (Samsung)
Down selection of CBG-based (re)transmission Email approval until 13th July to have down selection

[NRAH2-09] Joseph (Qualcomm)
Processing Time Requriements
l Email discussion about followings – Joseph (Qualcomm)
- Step 1: identify the candidate factors for processing time (until 4th Aug.)
- Step 2: identify the table (until 4th Aug.) l Based on the proponents' input for step 1 and step 2, following work will be done:
- Step 3: fill-in the table
- Targeting finishing step 3 until September meeting.
  ² Note: companies are encouraged to bring up initial numbers for the table to the August meeting
- Note: fill-in the table does not necessarily results in defining some UE capabilities or exact values of K1 and K2 in the specification.

[NRAH2-10] Zhenfei (Huawei)
Scheduling/HARQ aspects for CA
Email approval until 10th July

[NRAH2-11] Zukang (Huawei)
Polar code sequence
- Polar code sequence candidates, including any merged solutions, should be provided by Wed 2nd Aug § Identify candidates of polar code sequence according to the procedure below by Wed 9th Aug § Rate matching proposals for any sequence that has been selected as a winner by at least one company to be provided by Wed 16th Aug.

[NRAH2-12] Zukang (Huawei)
Polar code design on polynomial and interleaver for email discussion until August 7th
Main target is on gathering all proposals about detailed design on polynomial and interleaver.

EX-1016, 1598 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex G: List of participants at RAN1 #AH_NR2

Please see excel file attached to this report

EX-1016, 1599 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

3GPP TSG RAN WG1 Meeting #90 **R1-171xxxx**
Prague, Czech Rep, 21st – 25th August 2017

Annex H: **TSG RAN WG1 meetings in 2017 – 2018**

TITLE	TYPE	DATES	LOCATION	CTRY
3GPPRAN1#90	WG	21 – 25 Aug 2017	Prague	Rep Czech
3GPPRAN1-NR3	AH	18 – 21 Sep 2017	Nagoya	Japan
3GPPRAN1#90bis	WG	09 – 13 Oct 2017	Prague	Rep Czech
3GPPRAN1#91	WG	27 Nov – 01 Dec 2017	Reno	US
3GPPRAN1-AH-1801	AH	22 – 26 Jan 2018	TBD	
3GPPRAN1#92	WG	26 Feb – 2 Mar 2018	Athens	Greece
3GPPRAN1#92bis	WG	16 – 20 Apr 2018	TBD	China
3GPPRAN1#93	WG	21 – 25 May 2018	TBD	Korea
3GPPRAN1#94	WG	20 – 24 Aug 2018	Gothenburg	Sweden
3GPPRAN1#94bis	WG	8 – 12 Oct 2018	TBD	China
3GPPRAN1#95	WG	12 – 16 Nov 2018	TBD	US

MEETING TYPES		
AH = Ad Hoc	ST = Startup Meeting	RG = Rapporteurs Group
JM = Joint	WG = Working Group	SG = Steering Group
PM = Preparatory Meeting	CM = Chairmen's meeting	TG = Task Group
RM = Resolution Meeting	OR = Ordinary	XO = Extraordinary

End of document

EX-1016, 1600 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

APPENDIX 35

3GPP TSG RAN meeting #68 **RP-150581**
Malmö, Sweden, June 15 – 18, 2015

Agenda Item: 3

Source: ETSI MCC

Title: Report of 3GPP TSG RAN meeting #67,
Shanghai, China, March 9 – 12, 2015

Document for: Approval

Report of 3GPP TSG RAN meeting #67

held in Shanghai, China

March 9 – 12, 2015



colour code:
green: approved new TSs/TRs/WIs/SIs/Report/Exception
grey: outgoing LSs/LTIs
red: WI/SI closed/completed or moved to next REL
purple: pendingTdocs

The present document has been developed within the 3rd Generation Partnership Project (3GPP ™) and it has not been subject to any approval process by the 3GPP Organizational Partners.

Keywords
RAN, UTRA, LTE

3GPP

Postal address

3GPP support office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet
http://www.3gpp.org

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© 2015, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).
All rights reserved.

UMTS™ is a Trade Mark of ETSI registered for the benefit of its members
3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners
LTE™ is a Trade Mark of ETSI currently being registered for the benefit of its Members and of the 3GPP Organizational Partners
GSM® and the GSM logo are registered and owned by the GSM Association

Contents

Meeting Organisation 6
Executive Summary 6
1 Opening of the Meeting 11
2 Reminders for usage of IT resources, IPR declaration and antitrust compliance 11
3 Approval of the Agenda 12
4 Approval of the meeting report of TSG-RAN #66 13
5 Reports from other meetings 14
5.1 Report from TSG SA 14
5.2 Report from PCG 14
5.3 Report from other meetings 14
6 Liaison activity of TSG RAN 15
6.1 Groups outside 3GPP 15
6.2 TSG SA, TSG CT, TSG GERAN 16
6.3 TSG RAN WG1, WG2, WG3, WG4, WG5, RAN ITU-R ad hoc 17
7 ITU-R Ad hoc 19
7.1 Status report 19
7.2 Submission to ITU-R 19
7.2.1 Submission to ITU-R WP5A 19
7.2.2 Submission to ITU-R WP5D 19
7.2.3 Other ITU-R submission 21
8 RAN WGs: WG Status Reports & CR Approvals up to Rel-10 22
8.1 TSG RAN WG1 22
8.1.1 Report from RAN WG1 including report on actions required from the previous meeting 22
8.1.2 Discussions on decisions from RAN WG1 22
8.1.3 Approval of CRs to REL-8 WIs and WIs of previous releases 22
8.1.4 Approval of CRs to Rel-9 WIs 22
8.1.5 Approval of CRs to Rel-10 WIs 22
8.1.6 Approval of CRs to Rel-11 WIs 22
8.1.7 Approval of linked CR packages led by RAN WG1 22
8.2 TSG RAN WG2 22
8.2.1 Report from RAN WG2 including report on actions required from the previous meeting 22
8.2.2 Discussions on decisions from RAN WG2 23
8.2.3 Approval of CRs to REL-8 WIs and WIs of previous releases 23
8.2.4 Approval of CRs to Rel-9 WIs 23
8.2.5 Approval of CRs to Rel-10 WIs 24
8.2.6 Approval of CRs to Rel-11 WIs 24
8.2.7 Approval of linked CR packages led by RAN WG2 24
8.3 TSG RAN WG3 24
8.3.1 Report from RAN WG3 including report on actions required from the previous meeting 24
8.3.2 Discussions on decisions from RAN WG3 24
8.3.3 Approval of CRs to REL-8 WIs and WIs of previous releases 24
8.3.4 Approval of CRs to Rel-9 WIs 24
8.3.5 Approval of CRs to Rel-10 WIs 24
8.3.6 Approval of CRs to Rel-11 WIs 24
8.3.7 Approval of linked CR packages led by RAN WG3 24
8.4 TSG RAN WG4 25
8.4.1 Report from RAN WG4 including report on actions required from the previous meeting 25
8.4.2 Discussions on decisions from RAN WG4 25
8.4.3 Approval of CRs to REL-8 WIs and WIs of previous releases 26
8.4.4 Approval of CRs to Rel-9 WIs 26
8.4.5 Approval of CRs to Rel-10 WIs 26

8.4.6 Approval of CRs to Rel-11 WIs 27
8.4.7 Approval of linked CR packages led by RAN WG4 27
8.5 TSG RAN WG5 27
8.5.1 Report from RAN WG5 including report on actions required from the previous meeting 27
8.5.2 Discussions on decisions from RAN WG5 27
8.5.3 Approval of CRs to closed WIs of REL-10 (incl. TEI10_Test) and previous releases 27
8.5.4 Approval of CRs to closed WIs of REL-11 (incl. TEI11_Test) 28
8.5.5 Approval of linked CR packages led by RAN WG5 29

9 Conformance Testing Work Items 30
9.1 Closed REL-12 work items 30
9.2 Open Rel-11 work items 30
9.3 Open Rel-12 work items 31
9.4 Open Rel-13 work items 32

10 Work Items with target Rel-12 (not related to conformance testing) 33
10.1 Closed UTRA only related WIs 33
10.2 Closed UTRA & LTE related WIs 33
10.3 Closed LTE only related WIs 33
10.4 Open UTRA only related WIs 35
10.5 Open UTRA & LTE only related WIs 35
10.6 Open LTE only related WIs (non-spectrum related) 35
10.7 Open LTE only related WIs (spectrum; CA related) 37
10.8 Small Technical Enhancements and Improvements for Rel-12 [TEI12] 44

11 Work Items with target Rel-13 (not related to conformance testing) 45
11.1 Open UTRA related WIs (spectrum related) 45
11.2 Open UTRA & LTE related WIs (non-spectrum related) 45
11.3 Open LTE only related WIs (non-spectrum related) 46
11.4 Open LTE only related WIs (spectrum; CA related) 48
11.5 Open LTE only related WIs (spectrum; not CA related) 54

12 Study Items 55
12.1 Closed study items 55
12.2 Open UTRA related SIs 55
12.3 Open UTRA & LTE related SIs 56
12.4 Open LTE only related SIs 56

13 New Work Items/Study Items 65
13.1 New core functions 65
13.1.1 WIs/SIs led by RAN1 67
13.1.2 WIs/SIs led by RAN2 70
13.1.3 WIs/SIs led by RAN3 76
13.1.4 WIs/SIs led by RAN4 78
13.2 Spectrum related WIs/SIs 80
13.3 UE conformance testing WIs/SIs led by RAN5 85

14 UE capabilities/FGIs 87

15 Inter WG/TSG-related discussions & decisions 90

16 Outputs to other groups 91

17 TSG RAN elections 91
17.1 Election of RAN chairman 91
17.2 Election of RAN vice-chairmen 91

18 Project management 92
19 Future meeting schedule 96
20 Any other business 96
21 Closing of the meeting 96
Annex A: List of participants 97
Annex B: List of Tdocs 98
Annex C: Incoming liaison statements (LSin) 99
Annex D: Outgoing liaison statements (LSout) 104
Annex E: List of Change Requests (CRs) 106
Annex F: Summary of RAN work items (WI) and study items (SI) 138
Annex G: Actions decided by RAN #67 143
Annex H: History 144

Meeting Organisation

Meeting:	3GPP TSG RAN #67		
Meeting location:	Shanghai, China		
Duration:	Monday 09.03.2015 - Thursday 12.03.2015		
Host:	Huawei Technologies		
TSG RAN Chairman:	Dino Flore (Qualcomm)	email: oflore@qti.qualcomm.com	
TSG RAN Vice chairman:	Takaharu Nakamura (Fujitsu)	email: n.takaharu@jp.fujitsu.com	
TSG RAN Vice chairman:	Giovanni Romano (Telecom Italia)	email: giovanni.romano@telecomitalia.it	
TSG RAN Vice chairman:	Sharat Chander (AT&T)	email: sharat.chander@att.com	
TSG RAN MCC Support:	Joern Krause (ETSI MCC)	email: Joern.Krause@etsi.org	
Email reflector:	3GPP_TSG_RAN@LIST.ETSI.ORG		
Technical documents:	ftp://ftp.3gpp.org/tsg_ran/TSGR_67/Docs		
next meetings:	TSG RAN #68	15.06. - 18.06.2015 Malmö, Sweden	host: EF3
	TSG RAN #69	14.09. - 17.09.2015 Phoenix, USA	host: NAF3

Executive Summary

3GPP TSG RAN meeting #67 was held in Shanghai, China, March 9-12, 2015, hosted by Huawei Technologies. The meeting had 229 participants (see Annex A) and 519 Technical Documents (see Annex B).

Main topics/decisions:

- **block approval**: RAN #67 continued to use "block approval process" for agreed CR packages from WGs and WI/SI status reports, i.e. these contributions were only discussed on request (flag) otherwise the CRs were considered approved and the % complete and target date of the status reports were considered approved.

- **time budget analysis (AI 13)**: RAN #67 assessed the modified time budget requests in WI/SI status reports for already approved WIs/SIs relative to the time budget status endorsed by RAN #66 in RP-142318; the RAN WG chairman's provided their estimates of remaining time budgets in their WGs (see WG status reports in AI 8); new WIs/SIs provided their time budget requests in the WI/SI descriptions (see AI 13); the resulting endorsed time budget allocations for all approved WIs/SIs after RAN #67 is provided in **RP-150518** (1 time unit ~ 2h). RAN5 WIs/SIs are excluded from this time budget handling.

- **RAN elections (AI 17)**: All chairman/vice-chairmen were reelected by acclamation for a 2nd term:

RAN chairman:	Mr. Dino Flore	Qualcomm Incorporated / ATIS
RAN vice-chairman:	Mr. Giovanni Romano	TELECOM ITALIA S.p.A. / ETSI
RAN vice-chairman:	Mr. Sharat Chander	AT&T / ATIS
RAN vice-chairman:	Mr. Takaharu Nakamura	Fujitsu Limited / ARIB

- **REL-12 (AI 10, AI 14)**: RAN #66 granted 3 REL-12 Core part WIs (LTE_D2D_Prox-Core, GCSE_LTE-MBMS_CM-Core, LTE_CA_B3_B42_B42-Core) a second 3 months exception to complete the WI in REL-12 by March 2015. These 3 Core part WIs were completed by RAN #67 in March 2015.
  For REL-12 there are still open after RAN #67: 7 RAN4 Perf. part WIs (which are supposed to be completed 3-6 months after their corresponding Core part WIs) and 13 RAN5 Testing WIs (which will be completed independently from the REL-12 schedule).
  Also the ASN.1 of REL-12 was frozen at RAN #67 in March 2015 (6 months after the REL-12 freeze that was declared in Sep.14 at RAN #65).
  REL-12 UE capabilities: no conclusions yet, discussion to be continued at RAN #68.

2 new REL-12 UE categories: DL 750/800Mbps and DL 1Mbps (RAN1 will decide if 750Mbps or 800Mbps and the feature combination to get to the category)

- **5G (AI 18)**: The 5th generation of mobile communication was discussed in connection with incoming LSs from ITU-R WP5D and NGMN, a RAN chairnan's input on "Getting ready for 5G" and a number of company views on this subject.
  It was decided to have a 2-days "3GPP RAN workshop on 5G" on Sep. 17-18, 2015, i.e. on Thursday/Friday of the week of RAN #69, i.e. RAN #69 will be reduced to Monday/Tuesday/Wednesday.
  The RAN timeline for "5G" was endorsed in RP-150483 and will be also presented to SA #67.
  According to this timeline a RAN SI on 5G scope & requirements may be approved at RAN #70 in Dec.15.
  A SI on channel modelling for above 6GHz may already be approved at RAN #69 in Sep.15 but with no RAN1 impact before 2016.

- **Air to Ground Communication (AI 13.1)**: 3GPP TSG RAN completed its assessment (that had an email discussion between RAN #66 and RAN #67) and summarized its views regarding Mission Critical Air Ground Air Communications in RP-150506.

- **Study on possible additional configuration for LTE TDD (AI 12.4.4)**: Progress was made on this RAN level SI is separate ad hoc sessions summarized in Report RP-150405. The latest TR 36.825 v0.1.1 is available in RP-150519.

- **Study on regulatory aspects for flexible duplex for E-UTRAN (AI 13.1):** This new RAN level SI was approved by RAN #67 in RP-150470 to identify regulatory possibilities/constraints for flexible duplex operation. Also an LS on this subject was approved by email after RAN #67 in RP-150509 and it was sent to regulators for feedback.

- **ITU-R:**

  - current implementation of 700 MHz bandplan with 3GPP specification (LSin RP-150028): answer provided in RP-150477 that misalignment of REL-11 and REL-12 is solved (CR R4-151155 in RP-150384)

  - provision of transposition references and certification C for draft revision 2 of Recommendation ITU-R M.2012 (LSin RP-150029): RAN answer with 2 editorial comments provided in RP-150478 (CT had no comments);RAN answer will have to pass SA and PCG review before submission to ITU-R via ATIS

  - preliminary draft new Report ITU-R M.[IMT.ABOVE 6 GHz] (LSin RP-150040): no RAN answer as currently no activity on this topic

  - detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (LSin RP-150041), requesting an update on IMT activities (LSin RP-150031): IMT-2020 ("5G"): 3GPP should approve the final specs to be submitted to ITU-R in December 2019 (they have to be transposed); RAN answer in RP-150442 (to pass SA/PCG review and to be sent to ITU-R by ATIS)

- Incoming Liaison Statements/Letters to ITU: 27, see Annex C

- Outgoing Liaison Statements/Letters to ITU: 10 (incl. 2 approved by email), see Annex D

- 13 closed work items (WI) in March 2015 (3 Core, 6 Perf., 4 Testing):

  - 1 RAN1 REL-12 Core part:
    - LTE Device to Device Proximity Services (630130, LTE_D2D_Prox-Core)

  - 1 RAN3 REL-12 Core part:
    - Group Call eMBMS congestion management for LTE (640137, GCSE_LTE-MBMS_CM-Core)

  - RAN4 (1 Core, 6 Perf.):

    5 REL-12 Perf. parts for:
    - Further EUL enhancements (620249, EDCH_enh-Perf)
    - Perf. req. of interf. cancellation & suppression RX for SU-MIMO (630147, LTE_SUMIMO_RX-Perf)
    - LTE-A intra-band contiguous CA in Band 41 for 3DL (610222, LTE_CA_C_B41_3DL-Perf)
    - LTE-A intra-band non-contiguous CA in Band 41 for 3 DL (620238, LTE_CA_NC_B41_3DL-Perf)
    - E-UTRA UE demodulation/Channel State Information (CSI) perf. req. for multiple CA configurations (640127, LTE_CA_Mult-Perf)

REL-12 Core & Performance parts for:
- LTE-A 3 Band CA (3DL/1UL) of Band 3, Band 42 and Band 42 (640x30, LTE_CA_B3_B42_B42)

- 4 RAN5 UE Conformance Test Aspects for:
  - REL-11, Further Enhancements to CELL-FACH (600004, Cell_FACH_enh-UEConTest)
  - REL-11, HSDPA Multiflow Data Transmission (620016, HSDPA_MFTX-UEConTest)
  - REL-11, Single radio voice call continuity from UTRAN/GERAN to E-UTRAN (640012, rSRVCC-UEConTest)
  - REL-12, Further REL-12 Configurations for LTE-A CA (610013, LTE_CA_Rel12-UEConTest)

- 2 closed REL-13 study items (SI) in March 2015:
  - RAN1: Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE (660065, FS_LTE_MUTX_NAIC)
    Note: This SI was stopped as scope changed completely; new SI see RP-150496.
  - RAN4: Study on LTE DL 4 Rx antenna ports (660070, FS_LTE_4Rx_AP_DL)

- 71 new approved work items (WI) in March 2015 (33 Core, 29 Perf., 9 Testing):

  - 6 RAN2 REL-13:
    - Core part: Multiflow Enhancements for UTRA RP-150288
    - Core part: Dual Connectivity enhancements for LTE RP-150490
    - Core part: Multicarrier Load Distribution of UEs in LTE RP-150491
    - Core part: RAN enhancements for extended DRX in LTE RP-150493
    - Core part: LTE-WLAN Radio Level Integration and Interworking Enhancement RP-150510
    - Core part: RAN aspects of Application specific Congestion control for Data Comm. RP-150512

  - 1 RAN3 REL-13:
    - Core part: RAN aspects for improvem. to CS/PS coordination in UTRAN Shared Network RP-150500

  - RAN4 (26 Core, 29 Perf.):
    REL-13 Performance parts:
    - Perf. part: Dual Connectivity enhancements for LTE RP-150490
    - Perf. part: Multicarrier Load Distribution of UEs in LTE RP-150491
    - Perf. part: LTE-WLAN Radio Level Integration and Interworking Enhancement RP-150510

    REL-13 Core & Performance parts:
    - LTE DL 4 Rx antenna ports RP-150427
    - AWS-Extension Band for LTE RP-150428
    - Add. BCS for LTE-A inter-band CA of Band 5 and Band 7 RP-150171
    - Add. BW combination set for LTE-A inter-band CA of Band 3 and Band 5 RP-150425
    - LTE-A 3 Band CA (3DL/1UL) of Band 1, Band 3 and Band 42 RP-150121
    - LTE-A 3 Band CA (3DL/1UL) of Band 1, Band 19 and Band 42 RP-150122
    - LTE-A 3 Band CA (3DL/1UL) of Band 1, Band 21 and Band 42 RP-150123
    - LTE-A 3 Band CA (3DL/1UL) of Band 3, Band 19 and Band 42 RP-150124
    - LTE-A 3 Band CA (3DL/1UL) of Band 19, Band 21 and Band 42 RP-150125
    - Add. BCS for LTE-A 3 Band CA (3DL/1UL) of Band 4, Band 4 and Band 7 RP-150429
    - Add. BCS for LTE-A 3 Band CA (3DL/1UL) of Band 4, Band 7 and Band 12 RP-150430
    - LTE-A 3 Band CA (3DL/1UL) of Band 2, Band 7 and Band 12 RP-150431
    - LTE-A 3 Band CA (3DL/1UL) of Band 2, Band 4 and Band 7 RP-150432
    - LTE-A 3 Band CA (3DL/1UL) of Band 7, Band 20 and Band 38 RP-150433
    - LTE-A 4 Band CA (4DL/1UL) of Band 2, Band 4, Band 4 and Band 12 RP-150073
    - LTE-A 4 Band CA (4DL/1UL) of Band 2, Band 2, Band 4 and Band 12 RP-150074
    - LTE-A 4 Band CA (4DL/1UL) of Band 2, Band 2, Band 4 and Band 4 RP-150075
    - LTE-A 4 Band CA (4DL/1UL) of Band 1, Band 3, Band 5 and Band 40 RP-150434
    - LTE-A 4 Band CA (4DL/1UL) of Band 1, Band 3, Band 7 and Band 8 RP-150435
    - LTE-A 4 Band CA (4DL/1UL) of Band 2, Band 4, Band 5 and Band 29 RP-150436
    - LTE-A dual uplink inter-band CA FDD-TDD RP-150064
    - LTE-A dual uplink inter-band CA Class A4 RP-150410
    - LTE-A 3DL/2UL inter-band CA RP-150479
    - LTE-A intra-band contiguous CA in Band 8 RP-150437
    - LTE-A intra-band non-contiguous CA in Band 42 for 3DL RP-150246
    - LTE-A intra-band contiguous CA in Band 42 for 4DL RP-150438

- 9 RAN5 UE Conformance Test Aspects for:
  - REL-12, Further DL MIMO Enhancement for LTE-Advanced RP-150071
  - REL-12, LTE Device-to-Device Proximity Services RP-150131
  - REL-12, L-band for Supplemental Downlink in E-UTRA and UTRA RP-150134
  - REL-12, Low cost & enhanced coverage MTC UE for LTE RP-150135
  - REL-12, Further Rel-12 configurations for LTE Advanced Carrier Aggregation with 2UL RP-150136
  - REL-12, Codec for Enhanced Voice Services (EVS) RP-150137
  - REL-12, Smart Congestion Mitigation in E-UTRAN RP-150202
  - REL-12, Perf. Requirements of Interf. Cancellation and Suppression Receiver for SU-MIMO for E-UTRA RP-150245
  - REL-12, DCH Enhancements for UMTS RP-150412

- 5 new approved study items (SI) for REL-13 in March 2015:

  - RAN: Study on regulatory aspects for flexible duplex for E-UTRAN RP-150470
  - RAN1: Study on Downlink Multiuser Superposition Transmission for LTE RP-150496
  - RAN2: Study on Latency reduction techniques for LTE RP-150465
  - RAN2: Study on further Enhancements of Minimization of Drive Tests for E-UTRAN RP-150472
  - RAN4: Study on Measurement gap enhancement for LTE RP-150515

- 0 new approved Technical Specifications (TS), i.e. now under CR control

- 5 new approved Technical Reports (TR), i.e. now under CR control:

  - RAN4 REL-12 TR 36.833-5-41 LTE_CA_C_B41_3DL-Perf RP-150116
  - RAN4 REL-12 TR 36.833-6-41 LTE_CA_NC_B41_3DL-Perf RP-150117
  - RAN4 REL-12 TR 36.852-12 LTE_CA_B1_B8-Core RP-150498
  - RAN4 REL-12 TR 36.877 LTE_D2D_Prox-Core RP-150093
  - RAN4 REL-13 TR 36.867 FS_LTE_4Rx_AP_DL RP-150141

- 0 new Technical Specifications (TS) provided for information

- 5 new Technical Reports (TR) provided for information:

  - RAN1 REL-13 TR 25.705 FS_UTRA_SDATA RP-150197
  - RAN2 REL-13 TR 25.706 FS_UTRA_EDL RP-150225
  - RAN3 REL-13 TR 37.870 FS_MultiRAT_JC RP-150264
  - RAN3 REL-13 TR 36.875 FS_LTE_dualC_ext RP-150216
  - RAN4 REL-13 TR 36.833-5-42 LTE_CA_C_B42_3DL-Core RP-150118

- Change requests statistics (see also Annex E): 919 CRs handled with 909 approved CRs.

Phase	Cat	all CRs	Approved CRs	approved RAN1	approved RAN2	approved RAN3	approved RAN4	approved RAN5
Rel-9	F	1	1	0	0	0	1	0
Rel-10	A	1	1	0	0	0	1	0
Rel-10	B	10	10	0	1	0	0	9
Rel-10	F	42	42	0	4	0	13	25
Rel-11	A	16	15	0	4	0	11	0
Rel-11	B	13	13	0	1	0	0	12
Rel-11	D	1	1	0	0	0	1	0
Rel-11	F	99	99	2	6	3	17	71
Rel-12	A	25	25	2	6	2	15	0
Rel-12	B	108	107	4	8	3	26	66
Rel-12	C	9	5	4	1	0	0	0
Rel-12	D	6	6	0	2	3	1	0
Rel-12	F	584	583	8	38	25	63	449
Rel-13	F	1	1	0	0	0	1	0
sum		916	909	20	71	36	150	632

1 Opening of the Meeting

TSG RAN chairman Mr. Dino Flore (Qualcomm) opened the meeting 3GPP TSG RAN #67 on Monday March 9th, 2015 at 9am.
On behalf of the host, Huawei Technologies, David Mazzarese welcomed the delegates to Shanghai, China and explained organisational issues of the meeting.

NOTE: The TSG meetings #67 will be carried out in the 1 week TSG set up (see RP-131328, RAN/CT at the beginning and SA at the end of the week).

2 Reminders for usage of IT resources, IPR declaration and antitrust compliance

The TSG RAN chairman made the following three announcements to remind the delegates of this meeting:

RAN chair's reminder regarding responsible behaviour regarding IT resources of the meeting:

Delegates are reminded that they share the meeting IT resources with their fellow delegates. You should not abuse the service by using bandwidth-hogging applications such as movie downloads, streaming video, web-based gaming, etc during the meeting. Use the internet service in your hotel rooms for this!
Delegates must respect the law of the hosting country*, and should not visit prohibited internet sites.*
In cases of persistent abuse of the internet bandwidth, MCC may restrict individual's use of the service.
In particular, the PCG has laid down the following network usage conditions:
1. Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws.
2. Users shall not engage in non-work related activities that are consume excessive bandwidth or cause significant degradation of the performance of the network.
Since the network is a shared resource, users should exercise some basic etiquette when using the 3GPP network at a meeting. It is understood that high bandwidth applications such as downloading large files or video streaming might be required for business purposes, but delegates should be strongly discouraged in performing these activities for personal use. Downloading a movie or doing something in an interactive environment for personal use essentially wastes bandwidth that others need to make the meeting effective. The meeting chairman should remind end users that the network is a shared resource; the more one user grabs, the less there is for another. Email and its attachments already take up significant bandwidth (certain email programs are not very bandwidth efficient). In case of need the chair can ask the delegates to restrict IT usage to things that are essential for the meeting itself.

1. ***DON'T place your WiFi device in ad-hoc mode***
2. ***DON'T set up a personal hotspot in the meeting room***
3. ***DO try 802.11a if your WiFi device supports it***
4. ***DON'T manually allocate an IP address***
5. ***DON'T be a bandwidth hog by streaming video, playing online games, or downloading huge files***
6. ***DON'T use packet probing software which clogs the local network (e.g., packet sniffers or port scanners)***

Based on the report of the PCG ad hoc group on IT improvements:
http://www.3gpp.org/ftp/PCG/PCG_27/DOCS/PCG27_13r1.zip
see also http://www.3gpp.org/Delegates-Corner#outil_sommaire_14

RAN chair's reminder regarding IPRs:

The attention of the delegates to the meeting of this Technical Specification Group was drawn to the fact that 3GPP Individual Members have the obligation under the IPR Policies of their respective Organizational Partners to inform their respective Organizational Partners of

Essential IPRs they become aware of.
The delegates were asked to take note that they were thereby invited:

- ***to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.***
- ***to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Information Statement and the Licensing declaration forms***

Based on http://www.3gpp.org/3gpp-calendar/89-call-for-ipr-meetings

RAN chair's reminder regarding antitrust and competition law:

The attention of the delegates to the meeting was drawn to the fact that 3GPP activities were subject to all applicable antitrust and competition laws and that compliance with said laws was therefore required by any participant of the meeting, including the Chairman and Vice-Chairmen and were invited to seek any clarification needed with their legal counsel. The leadership would conduct the present meeting with impartiality and in the interests of 3GPP. Delegates were reminded that timely submission of work items in advance of TSG/WG meetings was important to allow for full and fair consideration of such matters.

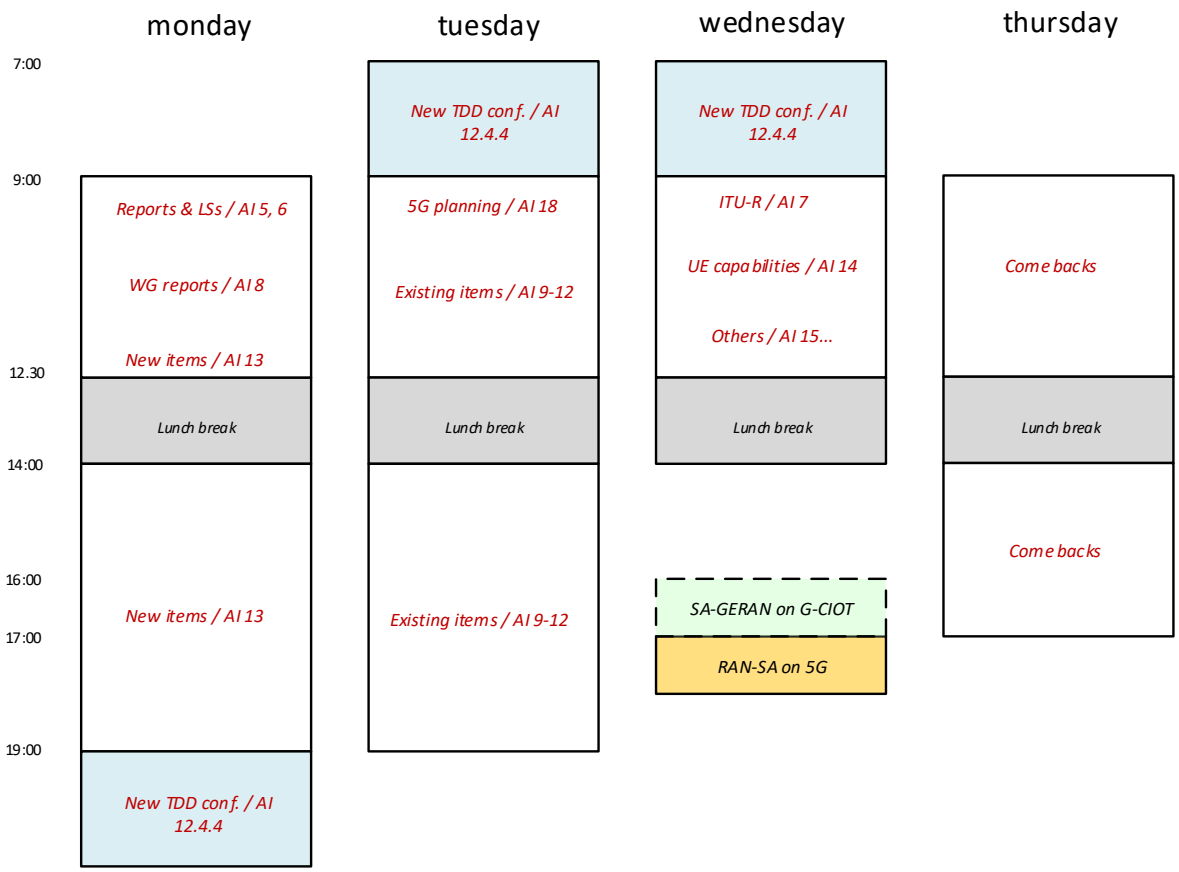
Based on http://www.3gpp.org/about-3gpp/legal-matters/21-3gpp-calendar/1616-statement-of-antitrust-compliance

3 Approval of the Agenda

NOTE: Agreed CR packages of RAN WGs (if not flagged for discussion) will be approved without presentation. % complete and target dates of WI/SI status reports (if not flagged for discussion) will be approved without presentation.

RP-150001	Agenda for RAN #67 held in Shanghai, China, 09.03.-12.03.2015 Agenda	RAN chairman (Qualcomm)
	conclusion: revised in RP-150049 (before the meeting) to correct a WI name & acronym	
RP-150049	Agenda for RAN #67 held in Shanghai, China, 09.03.-12.03.2015 Agenda	RAN chairman (Qualcomm)
	conclusion: approved	

tentative meeting schedule as distributed by the RAN chair on 06.03.2015 over the RAN reflector:



note: During the week:
- another session on TDD config. on Thu 7:00-9:00 was decided
- joint RAN-SA session will start at 17:30 on Wed

4 Approval of the meeting report of TSG-RAN #66

RP-150002 Draft report of RAN #66 held in Maui, USA, 08.12.-11.12.2014 ETSI MCC Report
conclusion: revised in RP-150003 before the meeting

RP-150003 Draft report of RAN #66 held in Maui, USA, 08.12.-11.12.2014 ETSI MCC Report
conclusion: revised in RP-150060

RP-150060 Report of RAN #66 held in Maui, USA, 08.12.-11.12.2014 ETSI MCC Report
conclusion: approved

5 Reports from other meetings

5.1 Report from TSG SA

TSG SA #66 was held in Maui, USA, Dec. 10-12, 2014. Due to the one week TSG set up RAN and SA meetings are overlapping and the reporting from SA is reduced:

Reports:
RAN: SP-140851
CT: SP-140855
GERAN: SP-140715

SA1: SP-140746
SA2: SP-140666
SA3: SP-140812
SA4: SP-140718
SA5: SP-140783

SA6: ToR (terms of reference): SP-140884, meeting calendar: SP-140659

REL-12:
stage 1 freeze: March 2013 (#59)
stage 2 freeze: Dec. 2013 (#62)
stage 3 freeze: Sep. 2014 (#65)
ASN.1 freeze: March 2015 (#67)* (equivalent to CT formal interface specification freeze)

REL-13:
stage 1 freeze: Sep. 2014 (#65)
stage 2 freeze: June 2015 (#68)*
stage 3 freeze: Dec. 2015 (#70)*
ASN.1 freeze: March 2016 (#71)* (equivalent to CT formal interface specification freeze)

*: planned dates

discussion: No comments

5.2 Report from PCG

Nothing to report as last PCG meeting was PCG #33 held in Seoul, Korea, on 28.10.2014 (see RAN #66 report) and next PCG meeting will be PCG #34 on 28.04.2015 in Sophia Antipolis, France.

5.3 Report from other meetings

RP-150055 RAN chair's presentation on "3GPP & unlicensed spectrum" at IEEE 802 Interim Session, 11-16.01.2015, Atlanta, USA RAN chairman (Qualcomm) Info REL-13 FS_LTE_LAA
compare LSin RP-150024
conclusion: noted

RP-150054 RAN chair's presentation on "3GPP & unlicensed spectrum" at WFA Board of Directors, Feb. 23, 2015 RAN chairman (Qualcomm) Info REL-13 FS_LTE_LAA
WFA = WiFi Alliance
conclusion: noted

6 Liaison activity of TSG RAN

6.1 Groups outside 3GPP

NGMN:

RP-150019 LS on NGMN's 5G Initiative (2nd LS)
(NGMN_LS_141223; to: SA, RAN, CT; cc: -; contact: NGMN Office) NGMN
LSin - -
RAN action requested
conclusion: LS will be treated under AI 18

ETSI TC RRS:

RP-150020 LS on Licensed Shared Access (LSA) related Activities in TC RRS
(ETSI TC RRS(14)028019r1; to: SA; cc: RAN, SA5; contact: Intel) ETSI TC RRS
LSin - -
RRS = Reconfigurable Radio Systems; no explicit RAN action requested
conclusion: noted, no LS answer

IEEE802 LMSC:

RP-150024 LS regarding coexistence of Licensed Assisted Access (LAA) and IEEE 802
(IEEE_802_LMSC_150202; to: RAN; cc: RAN1, IEEE 802, IEEE 802.19; contact: Chairman IEEE 802 LMSC) IEEE 802 LMSC
LSin REL-13 FS_LTE_LAA
conclusion: LS will be treated under AI 12.4.3
RAN chair: we will come to AI 12.4.3 on Tue in order to provide an answer to IEEE.

ATIS COAST SYNC:

RP-150025 LS on Request for information sharing between ATIS COAST SYNC and 3GPP RAN on timing requirements for wireless base stations in the United States
(ATIS_COAST_SYNC_150122_00007; to: RAN; cc: ATIS; contact: AT&T) ATIS COAST SYNC
LSin - -
COAST = Copper/Optical Access, Synchronization and Transport Committee; SYNC = Synchronization Subcommittee; RAN action requested
conclusion: noted, LS answer is prepared by RAN4 in RP-150038

RP-150038 Response LS to ATIS_COAST_SYNC_150122_00007 = RP-150025 on ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations
(R4-151239; to: RAN; cc: -; contact: NSN) RAN4
LSin REL-12 -
RAN action requested; RP-150038 is a reply proposal from RAN4 to LSin RP-150025 (and therefore treated here);
discussion: XX: individual companies have individual requirements will not be enough
RAN chair: could we provide some more detailed answer
RAN4 chair: not sure that this will be possible as this depends on implementations and in 3GPP we have no specific requirements
RAN chair: a ballpark figure should be possible
Ericsson: difficult to speculate about future requirements
RAN chair: you are talking about positioning what about other features?
Ericsson: other features are captured by RAN4 answer
conclusion: noted, no reply to RAN4; LS answer to RP-150025 is provided (based on RP-150038) in RP-150421 by RAN4 chair

RP-150421 Response LS to ATIS_COAST_SYNC_150122_00007 = RP-150025 on ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations (to: ATIS COAST SYNC; cc: -; contact: Nokia Networks) RAN LSout REL-12 -
reply to RP-150025 based on RP-150038
conclusion: approved (unseen)

CTIA:

RP-150026 LS regarding CTIA MIMO OTA Test Plan Development
(CTIA_LS_150203; to: RAN4, RAN5; cc: RAN; contact: AT&T) CTIA MOSG
LSin REL-13 LTE_MIMO_OTA-Core
conclusion: LS will be treated under AI 11.2.4

RP-150027 Reply LS to RP-142316 on OTA Test Requirement Work Plan
(CTIA_LS_150202; to: RAN; cc: RAN4; contact: Spirent) CTIA OTA WG
LSin REL-13 LTE_UTRA_TRP_TRS-Core
conclusion: LS will be treated under AI 11.2.1

ITU-R WP5D:

RP-150028 LS on current implementation of 700 MHz bandplan with 3GPP specification
(ITU-R WP5D/TEMP/567; to: RAN4, RAN; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin REL-11 LTE_DL_FDD700, LTE_APAC700
conclusion: LS will be treated under AI 7.2.2

RP-150029 LS to GCS proponents and transposing organizations on the provision of transposition references and certification C for draft revision 2 of Recommendation ITU-R M.2012
(ITU-R WP5D/TEMP/530; to: RAN, CT, SA, PCG, 3GPP2, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, TIA, TTA, TTC, WiMAX Forum; cc: -; contact: ITU-R SG5 Counsellor) ITU-R WP5D
LSin - -
conclusion: LS will be treated under AI 7.2.2

RP-150031 LS to ext. organizations and research entities engaged in "5G" development requesting an update on IMT activities
(ITU-R WP5D/TEMP/521(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin - -
conclusion: LS will be treated under AI 7.2.2

RP-150040 LS on preliminary draft new Report ITU-R M.[IMT.ABOVE 6 GHz]
(ITU-R WP5D/TEMP/534(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin - -
conclusion: LS will be treated under AI 7.2.2

RP-150041 LS on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT)
(ITU-R WP5D/TEMP/577; to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin - -
RAN action requested;
conclusion: LS will be treated under AI 7.2.2

6.2 TSG SA, TSG CT, TSG GERAN

related to Proximity-based Services:

RP-150021 LS on public safety discovery
(S2-150691; to: RAN1, RAN2, SA3, RAN; cc: -; contact: Qualcomm) SA2
LSin REL-13 eProSe-Ext
conclusion: LS will be treated under AI 11.3.5

related to Mission Critical Push to Talk (MCPTT):

RP-150022 LS on support for ProSe one-to-one communication in Release 13
(S6-150076; to: RAN2; cc: SA2, RAN; contact: General Dynamics) SA6
LSin REL-13 MCPTT
conclusion: LS will be treated under AI 11.3.5

RP-150023 LS on Establishment of new working group TSG SA WG6
(SP-140884; to: OMA, ETSI TC TCCE, 3GPP TSG CT, SA2, SA6, ATIS; cc: TCCA, PCG, RAN, CT1, CT3, CT4, CT6, SA1, SA3, SA4, SA5; contact: SA6 convener) SA
LSin REL-13 MCPTT
conclusion: LS will be treated under AI 11.3.5

ITU-R WP5D:

RP-150443 CT-input to LETTER TO ITU ON 3GPP COMMENTS ON DRAFT REVISION 2 OF RECOMMENDATION ITU-R M.2012
(CP-150207; to: RAN; cc: -; contact: CT chair (Ericsson)) CT
LSin - -
received on Tue of RAN #67
conclusion: LS will be treated under AI 7.2.2

6.3 TSG RAN WG1, WG2, WG3, WG4, WG5, RAN ITU-R ad hoc

Public Safety REL-12:

RP-150037 LS on impact of optional preconfigured parameters for D2D out of Network coverage mode
(R4-151170; to: RAN1, RAN2, RAN5, SA2, RAN; cc: -; contact: Sprint) RAN4
LSin REL-12 LTE_D2D_Prox-Core
no RAN action requested;
conclusion: LS will be treated under AI 10.6.5

Public Safety REL-13:

RP-150033 Response LS to S2-150691 = RP-150021 on public safety discovery
(R1-150948; to: SA2; cc: RAN2, SA3, RAN; contact: Qualcomm) RAN1
LSin REL-13 eProSe-Ext-SA2
conclusion: LS will be treated under AI 11.3.5

RP-150035 LS reply to S6-150076 = RP-150021 on support for ProSe one-to-one communication in Release 13
(R2-150710; to: SA6; cc: SA2, RAN; contact: Intel) RAN2
LSin REL-13 MCPTT
conclusion: LS will be treated under AI 11.3.5

LTE REL-12 UE capabilities:

RP-150032 LS on LTE Rel-12 UE feature list about RAN1 responsible features
(R1-150947; to: RAN; cc: RAN2, RAN4; contact: NTT DOCOMO) RAN1
LSin REL-12 -
conclusion: LS will be treated under AI 14.

RP-150034 LS on LTE Rel-12 UE feature list about RAN2 responsible features
(R2-150703; to: RAN; cc: RAN1, RAN4; contact: NTT DOCOMO) RAN2
LSin REL-12 -
conclusion: LS will be treated under AI 14.

RP-150036 LS on LTE Rel-12 UE feature list about RAN4 responsible features
(R4-151044; to: RAN; cc: RAN1, RAN2; contact: NTT DOCOMO) RAN4
LSin REL-12 -
conclusion: LS will be treated under AI 14.

ITU related:

RP-150039 DRAFT Letter to ITU in reply to ITU-R WP5D/TEMP/567 = RP-150028 on CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION

(R4-151242; to: RAN; cc: -; contact: Ericsson) RAN4
LTIin REL-11 LTE_DL_FDD700, LTE_APAC700
conclusion: LS will be treated under AI 7.2.2

RP-150043 Draft letter to ITU in reply to ITU-R WP5D/TEMP/521(Rev.1) = RP-150031 and ITU-R WP5D/TEMP/577 = RP-150041 on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT)
(RT-150009; to: RAN; cc: -; contact: Telecom Italia) 3GPP ITU-R ad hoc
LTIin - -
conclusion: LS will be treated under AI 7.2.2

RP-150044 Draft letter to ITU in reply to ITU-R WP5D/TEMP/530 = RP-150029 on 3GPP comments on draft revision 2 of Recommendation ITU-R M.2012
(RT-150010; to: CT, RAN; cc: -; contact: Telecom Italia) 3GPP ITU-R ad hoc
LTIin - -
conclusion: LS will be treated under AI 7.2.2

UL 64QAM:

RP-150042 LS on the introduction of the signalling for UL 64 QAM
(R2-150733; to: RAN4; cc: RAN, RAN1; contact: Huawei) RAN2
LSin REL-12 LTE-L23, TEI12
note: 64QAM UL functionality for LTE exists in 3GPP specs since REL-8; however, signalling of a UE capability in now introduced for REL-12 (see R2-150713 in RP-150379 and R2-150715 in RP-150377) and RF requirements will be introduced via REL-13 WI LTE_UL64QAM-Core; no RAN action requested
discussion: AT&T: what was done for 256QAM?
Huawei: finally mandatory for all frequency bands
conclusion: noted, no LS answer to RAN2, RAN4 will inform RAN2 & RAN what to do with the ffs in 36.306 that is introduced with CR R2-150713 in RP-150379

Others:

RP-150030 Response LS to S2-150658 on Support of a mix of IPv4 and IPv6 eNBs and Backhauls in eMBMS
(R3-150489; to: SA2; cc: CT4, RAN, CT; contact: Alcatel-Lucent) RAN3
LSin REL-13 TEI13
LS S2-150658 was not sent to/cc RAN but just to RAN3, CT4; LS S2-150658 and included SA2 CR related to SA2 REL-13 WI MBMS_enh (started at SA #66 and target: SA #69); RP-150030 includes RAN3 endorsed CRs to 36.300, 36.444, 36.443; no RAN action requested
conclusion: noted, no LS answer
as it was not planned to introduce REL-13 specs already in March 15 (REL-12 ASN.1 freeze) RAN3 should resubmit these CRs to RAN #68 with the correct
REL-13 WI code MBMS_enh (TEIx is not appropriate for inter-WG/TSG related CRs) so that they can be approved there; 36.300 CR has to be submitted via RAN2;
SA2 can continue with their work under this assumption

RP-150038 Response LS to ATIS_COAST_SYNC_150122_00007 = RP-150025 on ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations
(R4-151239; to: RAN; cc: -; contact: NSN) RAN4
LSin REL-12 -
conclusion: LS will be treated under AI 6.1 together with LSin RP-150025

7 ITU-R Ad hoc

7.1 Status report

RP-150004 Status Report ITU-R Ad hoc ITU-R Ad hoc Contact (Telecom Italia) Report
conclusion: noted

7.2 Submission to ITU-R

7.2.1 Submission to ITU-R WP5A

No contributions.

7.2.2 Submission to ITU-R WP5D

700 MHz band plan:

RP-150028 LS on current implementation of 700 MHz bandplan with 3GPP specification (ITU-R WP5D/TEMP/567; to: RAN4, RAN; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
WED LSin REL-11 LTE_DL_FDD700, LTE_APAC700
bands in 700-800MHz range: FDD: 12, 13, 14, 17 (all 4 from REL-8 LTE-RF), 28 (REL-11 LTE_APAC700); FDD DL: 29 (REL-11 LTE_DL_FDD700); TDD: 44 (REL-11 LTE_APAC700); RAN action requested
conclusion: noted, an answer is prepared by RAN4 in RP-150039

RP-150039 DRAFT Letter to ITU in reply to ITU-R WP5D/TEMP/567 = RP-150028 on CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION (R4-151242; to: RAN; cc: -; contact: Ericsson) RAN4
WED LTIin REL-11 LTE_DL_FDD700, LTE_APAC700
RAN action requested; RP-150039 is a reply proposal from RAN4 to answer LSin RP-150028; corresponding REL-11 LTE_APAC700-Core CR is submitted to RAN #67 in R4-151155 (in RP-150384) to align REL-11 with REL-12;
conclusion: noted, no LS answer to RAN4;
LS answer to RP-150028 (based on RP-150039) is provided in RP-150477
Note: As this topic is only spectrum related, SA does not need to review the RAN answer and since the RAN answer will not be part of an ITU Recommendation there is no need to have a PCG review, i.e. the answer could be provided via 3GPP LS coordinator to ITU-R WP5D.

RP-150477 Reply LS to ITU-R WP5D/TEMP/567 = RP-150028 ON CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION (to: ITU-R WP5D; cc: -; contact: Ericsson)
RAN LSout LS05 REL-11 LTE_DL_FDD700, LTE_APAC700
conclusion: approved (unseen), note: RP-150384 was approved;
LS will be sent out to ITU-R WP5D via 3GPP LS coordinator.

ITU-R M.2012:

RP-150029 LS to GCS proponents and transposing organizations on the provision of transposition references and certification C for draft revision 2 of Recommendation ITU-R M.2012
WED (ITU-R WP5D/TEMP/530; to: RAN, CT, SA, PCG, 3GPP2, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, TIA, TTA, TTC, WiMAX Forum; cc: -; contact: ITU-R SG5 Counsellor) ITU-R WP5D
LSin - -
RAN action requested;
conclusion: noted, an answer is prepared by the 3GPP ITU-R ad hoc in RP-150044

RP-150044 Draft letter to ITU in reply to ITU-R WP5D/TEMP/530 = RP-150029 on 3GPP comments on draft revision 2 of Recommendation ITU-R M.2012
WED (RT-150010; to: CT, RAN; cc: -; contact: Telecom Italia) 3GPP ITU-R ad hoc
LTIin - -

3GPP ITU-R ad hoc prepared this draft answer to the LSin of ITU-R WP5D RP-150029; RAN action requested

conclusion: noted, no LS answer to 3GPP ITU-R ad hoc,
RP-150043 is used as basis for the reply to RP-150041 and RP-150031 in RP-150478 taking into account the review comments from CT
Note: The final output of RAN will pass SA and then PCG review.

RP-150443 CT-input to LETTER TO ITU ON 3GPP COMMENTS ON DRAFT REVISION 2 OF RECOMMENDATION ITU-R M.2012
(CP-150207; to: RAN; cc: -; contact: CT chair (Ericsson)) CT
LSin - -

received on Tue of RAN #67; related to ITU-R LSin RP-150029 and triggered by RP-150044; no RAN action required

conclusion: noted, no LS answer to CT

RP-150478 Draft letter to ITU in reply to ITU-R WP5D/TEMP/530 = RP-150029 on 3GPP comments on draft revision 2 of Recommendation ITU-R M.2012 (to: SA; cc: -; contact: Telecom Italia) RAN LTIout - -

conclusion: agreed (unseen); LS will be reviewed in SA and later in PCG before it will be approved in PCG and provided to ITU-R WP5D.

Above 6GHz:

RP-150040 LS on preliminary draft new Report ITU-R M.[IMT.ABOVE 6 GHz]
(ITU-R WP5D/TEMP/534(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin - -

WED

no explicit RAN action requested;

conclusion: noted, no LS answer as currently there is no 3GPP activity on this

5G/IMT-2020:

RP-150041 LS on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT)
(ITU-R WP5D/TEMP/577; to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin - -

TUE

RAN action requested; provides the ITU-R WP5D workplan towards the finalization of IMT2020 technical specifications

discussion: Telecom Italia: acc. offline clarifications we need to freeze specs by Dec. 2019 for the IMT-2020 submission
Head of US delegation in ITU-R WP5D (Interdigital): TSG meetings in June 2015 and 2016 are overlapping with ITU-R WP5D meetings; asks to avoid this conflict in the future
ITU-R convener 3GPP (Telecom Italia): suggests to discuss this topic at next PCG meeting since liaison with ITU is usually going via PCG anyway

conclusion: noted, an answer is prepared by the 3GPP ITU-R ad hoc in RP-150043
finalization of 3GPP specs to be submitted to ITU must be done in December 2019

RP-150031 LS to ext. organizations and research entities engaged in "5G" development requesting an update on IMT activities
(ITU-R WP5D/TEMP/521(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor) ITU-R WP5D
LSin - -

TUE

RAN action requested; requests information on the current status of the work and conclusions that may have been reached on "5G" and on the respective planned work programs for 2015/2016

conclusion: noted, an answer is prepared by the 3GPP ITU-R ad hoc in RP-150043

RP-150043 Draft letter to ITU in reply to ITU-R WP5D/TEMP/521(Rev.1) = RP-150031 and ITU-R WP5D/TEMP/577 = RP-150041 on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (RT-150009; to: RAN; cc: -; contact: Telecom Italia) 3GPP ITU-R ad hoc LTIin - -
3GPP ITU-R ad hoc prepared this draft answer to the LSin of ITU-R WP5D RP-150031 and RP-150041; RAN action requested
conclusion: noted, no LS answer to 3GPP ITU-R ad hoc,
RP-150043 is used as basis for the reply to RP-150041 and RP-150031 in RP-150442

RP-150442 Draft letter to ITU in reply to ITU-R WP5D/TEMP/521(Rev.1) = RP-150031 and ITU-R WP5D/TEMP/577 = RP-150041 on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (to: SA, cc: -; contact: Telecom Italia) RAN
conclusion: agreed, will be provided to SA for review and from there to PCG for approval

For 5G see also RP-150056 under AI 18.

ITU-R M.1457:
Note: After RAN #68, it was detected that an input to ITU-R WP5D on revision 13 of Rec. M.1457 (technical description of IMT-2000) was forgotten. An email discussion was started on 14.04.15 and LSout RP-150520 was approved on 28.04.15. See Annex D.

7.2.3 Other ITU-R submission

No contributions.

8 RAN WGs: WG Status Reports & CR Approvals up to Rel-10

Note: REL-4, REL-5, REL-6 and REL-7 were closed after RAN #65, i.e. no CRs to these releases will be considered anymore.

8.1 TSG RAN WG1

8.1.1 Report from RAN WG1 including report on actions required from the previous meeting

RP-150005 Status Report RAN WG1 RAN1 chairman (NTT DOCOMO) Report
presented by RAN 1 vice-chair Wanshi Chen (Qualcomm)
discussion: RAN1 vice-chair (ALU): slide 21: "official online time" would be more correct as there were a lot of offline sessions which were very efficient
Huawei: on time units we could reduce time units for maintenance a bit
RAN chair: will be up to RAN1 chair to handle the 1TU deficit
conclusion: noted

RP-150006 List of CRs from RAN WG1 ETSI MCC Info
conclusion: noted

8.1.2 Discussions on decisions from RAN WG1

No contributions

8.1.3 Approval of CRs to REL-8 WIs and WIs of previous releases

RP-150358 CRs to 36.213 to clarify common search reception related to MBMS RAN1 CRset REL-8 LTE-Phys, TEI11
conclusion: approved

8.1.4 Approval of CRs to Rel-9 WIs

No contributions

8.1.5 Approval of CRs to Rel-10 WIs

No contributions

8.1.6 Approval of CRs to Rel-11 WIs

RP-150359 CRs to 36.213 on TM10 CSI-IM Interference Measurements RAN1 CRset REL-11 COMP_LTE_DL-Core
conclusion: approved

8.1.7 Approval of linked CR packages led by RAN WG1

No contributions

8.2 TSG RAN WG2

8.2.1 Report from RAN WG2 including report on actions required from the previous meeting

RP-150007 Status Report RAN WG2 RAN2 chairman (Ericsson) Report

discussion: RAN1 vice-chair (ALU): no need for RAN1 time allocation for point to multipoint as we get an LS
conclusion: noted, ASN.1 REL-12 is frozen

RP-150155 Way forward on RAN2 capacity increase LG Electronics Inc. Disc REL-13 -
moved from AI 13.1.2 to AI 8.2.1
proposals:
- *Increased capacity is no more than 4 TUs.*
- *The eD2D WI runs in parallel with other items.*
- *Keep CP/UP split for legacy topics.*
- *RAN2 allocates TUs to each WI/SI strictly following the requested TU.*
- *Announce the RAN2 time schedule in advance and fix the announced time schedule.*
- *Align the actual time and TU.*

discussion: RAN2 chair: announce RAN2 time schedule in advance is not so easy as it depends on inputs
conclusion: noted

RP-150243 Proposal to increase the RAN2 capacity Huawei, HiSilicon Disc REL-13 -
moved from AI 18. to AI 8.2.1
proposals:
Increase the RAN2 capacity for serving the increasing demand from the industry (as reflected in the number of SI/WI proposals):
- *Transform the current User Plane parallel session into a "general" parallel session, i.e. not focusing only on stage 3 User Plane aspects, but also addressing stage-2 and stage-3 Control Plane aspects.*
- *A total of 5 TUs could be added, instead of the 4 TUs previously proposed and tentatively agreed*

discussion: Huawei: proposing here 5TUs but could also consider +6TUs as suggested by some other companies
RAN2 chair: last time we said 4TUs is reasonable, now 5 TUs and even 6TUs are discussed, so a bit like a bazar, we need to be careful as it is getting tighter close to the end of the REL; also additional TUs will impact more the parallel than the main session
Telecom Italia: any impact on RAN4 needs to checked as this will otherwise become the bottleneck
Nokia Networks: supports RAN2 chair to be rather more conservative and consider 4 more time units
RAN chair: please discuss offline with RAN2 chair and experts, we will come back to it on Tue evening
conclusion: noted, see RAN2 way forward in RP-150480 (AI 13.1.2), so +4 additional time units i.e. one day of meeting time which may be used for any kind of control-plane or stage-2 session compared to what RAN2 did so far

RP-150008 List of CRs from RAN WG2 ETSI MCC Info
conclusion: noted

8.2.2 Discussions on decisions from RAN WG2

No contributions

8.2.3 Approval of CRs to REL-8 WIs and WIs of previous releases

RP-150368 RAN2 agreed CRs on various REL-8 Work Items RAN2 CR set REL-8 LTE-L23, TEI10, TEI11, RANimp-ANSS, TEI12
conclusion: approved

8.2.4 Approval of CRs to Rel-9 WIs

RP-150369 RAN2 agreed CR on Correction of GLONASS system time RAN2 CR 36.355 0126 2 F REL-9 LCS_LTE, TEI12
conclusion: approved

8.2.5 Approval of CRs to Rel-10 WIs

RP-150370 RAN2 agreed CRs on Various REL-10 Work ItemsRAN2 CR set REL-10 eICIC_LTE-Core, TEI10, TEI11, TEI12, LTE_SC_enh_dualC-Core
note: Merged REL-12 cat.A CR and REL-12 cat.F CR to LTE_SC_enh_dualC-Core included
conclusion: approved

8.2.6 Approval of CRs to Rel-11 WIs

RP-150371 RAN2 agreed CRs on Various REL-11 Work ItemsRAN2 CR set REL-11 LTE_CA_enh-Core, TEI11, TEI12
conclusion: approved

8.2.7 Approval of linked CR packages led by RAN WG2

No contributions

8.3 TSG RAN WG3

8.3.1 Report from RAN WG3 including report on actions required from the previous meeting

RP-150009 Status Report RAN WG3 RAN3 chairman (Huawei) Report
conclusion: noted

RP-150010 List of CRs from RAN WG3 ETSI MCC Info
conclusion: noted

8.3.2 Discussions on decisions from RAN WG3

No contributions

8.3.3 Approval of CRs to REL-8 WIs and WIs of previous releases

No contributions

8.3.4 Approval of CRs to Rel-9 WIs

No contributions

8.3.5 Approval of CRs to Rel-10 WIs

No contributions

8.3.6 Approval of CRs to Rel-11 WIs

RP-150347 Rel-11 CRs from RAN3 RAN3 CR set REL-11 TEI11
note: R3-150301 REL-11 CR was already submitted to RAN #66 in RP-142083 (R3-142978) with a cat.A CR, while the cat.A CR could be implemented the REL-11 CR could not be implemented as based on wrong spec version
conclusion: approved

8.3.7 Approval of linked CR packages led by RAN WG3

RP-150348 Correction of the usage of the MultibandInfoList IE RAN3 CR set REL-11 TEI11
conclusion: approved

8.4 TSG RAN WG4

8.4.1 Report from RAN WG4 including report on actions required from the previous meeting

RP-150011 Status Report RAN WG4 RAN4 chairman (Nokia Networks) Report
discussion: Ericsson: slide 49: RAN4 time budget: Tue: 1TU for CA intra-band really needed?, Wed: no band-specific for Core RF can be reduced; Thu: no real work on band (just 1 WI ongoing); maintenance could be reduced a bit
RAN4 chair: 7 TUs are for spectrum & CA, the split can still be decided
RAN chair: can discuss RAN4 TU handling offline, we will come back on Tue evening
conclusion: noted

RP-150012 List of CRs from RAN WG4 ETSI MCC Info
conclusion: noted

8.4.2 Discussions on decisions from RAN WG4

RP-150145 Pcell support requirements for LTE CA combinations Vodafone, TeliaSonera, Orange, Telecom Italia, Deutsche Telekom, NTT DOCOMO, INC., CHTTL, Dish Network Disc REL-12 LTE_CA, TEI12
proposed:
1. *At RAN4#74bis, companies shall supply:*
   a. *"Request" for existing combinations where Pcell is required to be mandatorily supported by the UE for xDL/1UL on all aggregated carriers*
   b. *"Exception information" on specific existing combinations where Pcell cannot be mandatorily supported by the UE for xDL/1UL on all aggregated carriers*
2. *For existing combinations where a "request" but no "exception info" is provided, Pcell in all aggregated carriers will be agreed as mandatorily supported for UE for Rel-12 onwards.*
3. *For combinations where a "request" and "exception info" is provided, a decision on mandatory Pcell support in all aggregated carriers will be made in time for RAN#68.*
4. *For combinations where no "request" is provided, Pcell support in the UE shall be optional for Rel-12.*
5. *For new xDL/1UL WIDs (rel-13 and onwards) it shall be described in the WID for which aggregated carriers Pcell shall be defined in the spec. Also it shall be defined in the WID the aggregated carriers for which Pcell is required to be mandatorily supported by UEs, otherwise UE support is optional for the Release in which it is added to the spec.*

discussion: Telefonica: supports the Tdoc
Qualcomm: "*cannot*" in a. unclear; in subsequent REL everything is becoming mandatory or how does it work? with more DL in a CA combination supporting UL on all will increase the testing time significantly
Vodafone: technical feasibility is the reason for exception; we tried to solve this in RAN4 but we really need to have a solution for this by RAN #68
RAN chair: suggest that interested parties discuss this topic further offline and we will come back
conclusion: noted, see way forward in RP-150476

RP-150228 Way forward on RAN4 related WI/SI NTT DOCOMO, INC. Disc REL-13 -
proposal:
RAN4 should count at least 1.1 TU for RRM/Demod part as additionally available TU.
That means that totally available TU for new WI/SI for RRM/Demod part is at least 13.1(12+1.1) TU.
Thus, TU for handling TEI would be reduced by 1.1 instead.
conclusion: noted

RP-150476 Way forward on "Mandating Pcell support in UE for all bands of LTE-CA band combinations" Vodafone Disc REL-12 LTE_CA, TEI12
proposed:
1. *At RAN4#74bis, companies shall supply:*
   a. *"Request" for existing combinations where Pcell is required to be mandatorily supported by the UE for 2-3DL/xUL on all aggregated carriers*

   b. *"Exception information" on specific existing combinations where Pcell cannot be mandatorily supported by the UE for 2-3DL/xUL on all aggregated carriers*
2. *For existing 2-3DL/xUL combinations where a "request" but no "exception info" is provided, Pcell in all aggregated carriers will be agreed as mandatorily supported by the UE for Rel-12 onwards.*
3. *For existing 2-3DL/xUL combinations where a "request" and "exception info" is provided, a decision on mandatory Pcell support in all aggregated carriers will be made in time for RAN#68.*
4. *For existing 2-3DL/xUL combinations where no "request" is provided, Pcell support in the UE shall be optional for (at least) Rel-12.*
5. *For new 2-3DL/xUL WIDs (Rel-13 and onwards) it shall be described in the WID for which aggregated carriers Pcell shall be defined in the spec. Also it shall be defined in the WID the aggregated carriers for which Pcell is required to be mandatorily supported by UEs, otherwise UE support is optional for (at least) the release in which it is added to the spec. If during the corresponding work item, major issues are found with specifying Pcell in every band for a combination, then this can be revisited.*
6. *For 4-5DL/xUL WIDs, RAN4 should discuss further the approach during the work item for handling this, and a decision should be made by RAN#70 (December) plenary.*

discussion: Qualcomm: way forward is ok, but impact on product availability and testing need to be taken into account
Mediatek: would like to have more time to discuss this
Vodafone: we discussed this for 3 months already
Deutsche Telekom: supports Vodafone, we need predictable UE behaviour
Telecom Italia, CMCC: supports Vodafone as well
Qualcomm: in some exceptional cases we need to bypass some of these rules otherwise there will be no product
Deutsche Telekom: reasons for exceptions have to be technical and not commercial
Orange: supports Vodafone as well
Qualcomm: 256QAM of last meeting was a discussion that was not driven by technical reasons
Qualcomm: what if multiple operators cannot agree on which case is optional or mandatory?
Vodafone: is a hypothetical case but in this case of course RAN4 can discuss this further

conclusion: noted, way forward is approved

8.4.3 Approval of CRs to REL-8 WIs and WIs of previous releases

No contributions

8.4.4 Approval of CRs to Rel-9 WIs

RP-150381 RAN4 CRs to Rel-9 WIs RAN4 CR36.101set REL-9TEI9
conclusion: approved

8.4.5 Approval of CRs to Rel-10 WIs

RP-150382 RAN4 CRs to Rel-10 WIs RAN4 CRset REL-10 eICIC_LTE-Perf, LTE_CA-Core, LTE_CA-Perf, RInImp8-UMTSLTE3500, TEI10, LTE_eDL_MIMO-Core
conclusion: approved

RP-150383 RAN4 CRs to Maximum allowed layers for multiple monitoring for CA RAN4 CR36.133set REL-10 LTE_CA-Core
discussion: MCC: company CR RP-140065 replaces R4-150040 of RP-150383 and company CR RP-150066 replaces R4-150041 of RP-150383
conclusion: R4-150040 is revised in RP-150065 and R4-150041 is revised in RP-150066

RP-150065 Maximum allowed layers for multiple monitoring for CA Alcatel-Lucent, Ericsson, Huawei, HiSilicon CR36.1332753 1 A REL-11 LTE_CA-Core
company contribution to replace cat.A CR R4-150040 submitted in RP-150383 which is a mirror of REL-10 CR R4-151105 submitted in RP-150383
conclusion: approved

RP-150066 Maximum allowed layers for multiple monitoring for CA Alcatel-Lucent, Ericsson, Huawei, HiSilicon CR36.1332754 1 A REL-12 LTE_CA-Core

company contribution to replace cat.A CR R4-150041 submitted in RP-150383 which is a mirror of REL-10 CR R4-151105 submitted in RP-150383
conclusion: approved

8.4.6 Approval of CRs to Rel-11 WIs

RP-150059 CR to TR 36.850 v11.1.0 changing the TR into a pointer to the new TR 36.852-11 ETSI MCC CR 36.8500002 - F REL-11 TEI11
company CR: This CR is just turning TR 36.850 into a pointer to TR 36.852-11 as the TR numbering scheme was modified; TR 36.852-11 will take over the whole contents of TR 36.850 v11.1.0; future CRs have to be made to TR 36.852-11
conclusion: approved

RP-150384 RAN4 CRs to Rel-11 WIs RAN4 CRset REL-11 Cell_FACH_enh-Perf, eICIC_enh_LTE-Perf, LCS_LTE-NBPS-Perf, LTE_APAC700-Core, LTE_Interf_Rej-Perf, LTE_Relay2-Core, TEI11
conclusion: approved

8.4.7 Approval of linked CR packages led by RAN WG4

No contributions

8.5 TSG RAN WG5

8.5.1 Report from RAN WG5 including report on actions required from the previous meeting

RP-150014 Status Report RAN WG5 RAN5 Chairman (Sprint) Report
conclusion: noted

RP-150015 List of CRs from RAN WG5 ETSI MCC Info
conclusion: noted

RP-150016 Status Report MCC TF160 (for approval) ETSI MCC TF160 Leader Report
presented by RAN5 chairman
conclusion: approved

8.5.2 Discussions on decisions from RAN WG5

No contributions

8.5.3 Approval of CRs to closed WIs of REL-10 (incl. TEI10_Test) and previous releases

RP-150320 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel 99 Conformance Testing(TEI_Test) RAN5 CRset F REL-11 TEI_Test
conclusion: approved

RP-150321 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-7 Conformance Testing(TEI7_Test) RAN5 CRset F REL-11 TEI7_Test
conclusion: approved

RP-150322 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test) (Batch 1) RAN5 CRset F REL-8 TEI8_Test
conclusion: approved

RP-150323 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test) (Batch 2) RAN5 CRset F REL-8 TEI8_Test
conclusion: approved

RP-150324 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-8 Conformance Testing(TEI8_Test) (Batch 3) RAN5 CRset F REL-8 TEI8_Test
conclusion: approved

RP-150325 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-9 Conformance Testing(TEI9_Test) (Batch 1) RAN5 CRset F REL-9 TEI9_Test
conclusion: approved

RP-150326 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-9 Conformance Testing(TEI9_Test) (Batch 2) RAN5 CRset F REL-9 TEI9_Test
conclusion: approved

RP-150327 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-10 Conformance Testing (TEI10_Test) (Batch 1) RAN5 CRset F REL-10 TEI10_Test
conclusion: approved

RP-150328 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-10 Conformance Testing (TEI10_Test) (Batch 2) RAN5 CRset F REL-10 TEI10_Test
conclusion: approved

RP-150329 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-10 Conformance Testing (TEI10_Test) (Batch 3) RAN5 CRset F REL-10 TEI10_Test
conclusion: approved

RP-150330 CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A RAN5 CR34.123-3 3327 - F REL-11 TEI8_Test
conclusion: approved

RP-150332 CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (prose), Annex A RAN5 CR34.229-3 0283 - F REL-10 TEI8_Test
conclusion: approved

RP-150333 CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (TTCN), Annex A RAN5 CR34.229-3 set - F/B REL-10 TEI8_Test, TEI9_Test
TTCN batch; 29 Test Cases
conclusion: approved

RP-150334 CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A RAN5 CR36.523-3 2625 - F REL-12 TEI8_Test
conclusion: approved

RP-150336 CR to 37.751-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A RAN5 CR37.571-4 0049 - F REL-10 TEI9_Test
conclusion: approved

RP-150337 CR to 37.571-4: Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (TTCN), Annex A RAN5 CR37.571-4 set - F/B REL-10 TEI9_Test
TTCN batch; 2 Test Cases
conclusion: approved

8.5.4 Approval of CRs to closed WIs of REL-11 (incl. TEI11_Test)

RP-150331 CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (TTCN), Annex A RAN5 CR34.123-3 set - F/B REL-11 TEI7_Test, TEI8_Test, TEI9_Test, TEI10_Test
TTCN batch; 28 Test Cases
conclusion: approved

RP-150335 CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (TTCN), Annex A RAN5 CR36.523-3 set - F/B REL-11 TEI8_Test, TEI9_Test, TEI10_Test, TEI11_Test
TTCN batch; 121 Test Cases

conclusion: approved

8.5.5 Approval of linked CR packages led by RAN WG5

No contributions

9 Conformance Testing Work Items

9.1 Closed REL-12 work items

Note: For earlier releases see AI 8.5.

No contributions.

9.2 Open Rel-11 work items

9.2.1 UE Conformance Test Aspects for UE Over the Air (Antenna) conformance testing methodology – Laptop Mounted Equipment Free Space Test
[UEAnt_FSTest-UEConTest]

RP-150068 Status report for WI UE Conformance Test Aspects for UE Over the Air (Antenna) conformance testing methodology - Laptop Equipment Free Space Test, rapporteur: ZTE RAN5 Report REL-11 UEAnt_FSTest_UEConTest
MCC: target date changed
conclusion: noted, approved: 95%, June 16

9.2.2 UE Conformance Test Aspects – Further Enhancements to CELL-FACH
[Cell_FACH_enh-UEConTest]

RP-150132 Status report for WI on UE Conformance Test Aspects - Further Enhancements to CELL-FACH: rapporteur: Ericsson RAN5 Report REL-11 Cell_FACH_enh-UEConTest
conclusion: noted, approved: 100%, March 15; WI completed

RP-150338 RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – Further Enhancements to CELL-FACH (Cell_FACH_enh-UEConTest) RAN5 CRset F REL-11 Cell_FACH_enh-UEConTest
conclusion: approved

9.2.3 UE Conformance Test Aspects - HSDPA Multiflow Data Transmission
[HSDPA_MFTX-UEConTest]

RP-150126 Status report for WI UE Conformance Test Aspects - HSDPA Multiflow Data Transmission; rapporteur: Qualcomm RAN5 Report REL-11 HSDPA_MFTX-UEConTest
conclusion: noted, approved: 100%, March 15; WI completed

RP-150339 RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – HSDPA Multiflow Data Transmission (HSDPA_MFTX-UEConTest]) RAN5 CRset F REL-11 HSDPA_MFTX-UEConTest
conclusion: approved

9.2.4 UE Conformance Test Aspects - Single radio voice call continuity from UTRAN/GERAN to E-UTRAN
[rSRVCC-UEConTest]

RP-150133 Status report for WI on UE Conformance Test Aspects - Single radio voice call continuity from UTRAN/GERAN to E-UTRAN: rapporteur: Ericsson RAN5 Report REL-11 rSRVCC-UEConTest
conclusion: noted, approved: 100%, March 15; WI completed

RP-150340 RAN5 agreed non TTCN CR(s) WI UE Conformance Test Aspects – Single radio voice call continuity from UTRAN/GERAN to E-UTRAN (rSRVCC-UEConTest) RAN5 CRset F REL-11 rSRVCC-UEConTest
conclusion: approved

9.2.5 Conformance Test Aspects: Small Technical Enhancements and Improvements for Rel-11 [TEI11_Test]

RP-150341 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-11 Conformance Testing (TEI11_Test) RAN5 CRset F REL-11 TEI11_Test
conclusion: approved

9.3 Open Rel-12 work items

9.3.1 UE Conformance Test Aspects – Further REL-12 Configurations for LTE Advanced Carrier Aggregation [LTE_CA_Rel12-UEConTest]

RP-150076 Status report for WI UE Conformance Test Aspects for Further REL-12 Configurations for LTE Advanced Carrier Aggregation: Microsoft RAN5 Report REL-12 LTE_CA_Rel12-UEConTest
MCC: WI covers REL-12 inter-band 2DL, REL-12 intra-band contiguous 2DL and REL-12 intra-band non-contiguous 2DL WIs; are all these REL-12 CA covered?
It seems remaining combinations are intended to be moved to LTE_CA_Rel12_3DL-UEConTest, even if 2DL only? (LTE_CA_B2_B4_BWset2-Core, LTE_CA_B4_B12_BWset-Core, LTE_CA_B18_B28-Core, LTE_CA_B18_B28-Perf completed but not included);
discussion: RNA5 chair: we will discuss the handling of CA basket WIs in the next RAN5 meeting
conclusion: noted, approved: 100%, March 15; WI completed

RP-150077 Revised WID: UE Conformance Test Aspects - Further REL-12 Configurations for LTE Advanced Carrier Aggregation Microsoft Corporation WID rev RAN5 REL-12 LTE_CA_Rel12-UEConTest
last approved WID: RP-140621; removal of 2 CA configurations that are no longer in REL-12 in order to complete the WI; to be approved before the SR and completion of the WI
conclusion: approved

RP-150342 RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – Further REL-12 Configurations for LTE Advanced Carrier Aggregation (LTE_CA_Rel12-UEConTest) RAN5 CRset F REL-12 LTE_CA_Rel12-UEConTest
conclusion: approved

9.3.2 UE Conformance Test Aspects – Further Rel-12 Configurations for LTE Advanced Carrier Aggregation with 3DL [LTE_CA_Rel12_3DL-UEConTest]

RP-150078 Status report for WI UE Conformance Test Aspects for Further REL-12 Configurations for LTE Advanced Carrier Aggregation with 3DL: Microsoft RAN5 Report REL-12 LTE_CA_Rel12_3DL-UEConTest
MCC: target date changed
conclusion: noted, approved: 12%, Dec.15

RP-150079 Revised WID: UE Conformance Test Aspects - Further Rel-12 Configurations for LTE Advanced Carrier Aggregation with 3DL Microsoft Corporation WID rev RAN5 REL-12 LTE_CA_Rel12_3DL-UEConTest
last approved WID: RP-142231; aligning the content of CA configurations within the REL-12 scope, decided at RAN#66; addition of 2 supporting companies.
conclusion: approved

RP-150343 RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects – Further Rel-12 Configurations for LTE Advanced Carrier Aggregation with 3DL (LTE_CA_Rel12_3DL-UEConTest) RAN5 CRset F REL-12 LTE_CA_Rel12_3DL-UEConTest
conclusion: approved

9.3.3 UE Conformance Test Aspects - BeiDou Navigation Satellite System (BDS) Positioning Support for LTE and UMTS [LCS_BDS-UEConTest]

RP-150357 Status report for SI UE Conformance Test Aspects - BeiDou Navigation Satellite System (BDS) Positioning Support for LTE and UMTS; rapporteur: CATT RAN5 Report REL-12 LCS_BDS-UEConTest
MCC: late Tdoc request/submission
conclusion: noted, approved: 90%, June 15

RP-150344 RAN5 agreed non TTCN CR(s) under WI UE Conformance Test Aspects - BeiDou Navigation Satellite System (BDS) Positioning Support for LTE and UMTS (LCS_BDS-UEConTest) RAN5 CR set F REL-12 LCS_BDS-UEConTest
conclusion: approved

9.3.4 UE Conformance Test Aspects - LTE Coverage Enhancements
[Cov_Enh_LTE-UEConTest]

RP-150205 Status report for WI: UE Conformance Test Aspects - LTE Coverage Enhancements, rapporteur: China Telecom RAN5 Report REL-12 Cov_Enh_LTE-UEConTest
conclusion: noted, approved: 5%, Sep.15

9.3.5 UE Conformance Test Aspects – WLAN/3GPP Radio Interworking
[**New:** UTRA_LTE_WLAN_interw-UEConTest

RP-150092 Status report for UE Conformance Test Aspects - WLAN/3GPP Radio Interworking; rapporteur: Intel RAN5 Report REL-12 UTRA_LTE_WLAN_interw-UEConTest
conclusion: withdrawn

RP-150097 Status report for UE Conformance Test Aspects - WLAN/3GPP Radio Interworking, rapporteur: Intel RAN5 Report REL-12 UTRA_LTE_WLAN_interw-UEConTest
conclusion: withdrawn

RP-150098 Status report for UE Conformance Test Aspects - WLAN/3GPP Radio Interworking, rapporteur: Intel RAN5 Report REL-12 UTRA_LTE_WLAN_interw-UEConTest
conclusion: noted, approved: 5%, Dec.15

9.3.6 Conformance Test Aspects: Small Technical Enhancements and Improvements for Rel-12 [TEI12_Test]

RP-150345 RAN5 agreed non TTCN CR(s) under WI Small Technical Enhancements and Improvements for Rel-12 Conformance Testing (TEI12_Test) RAN5 CR set F REL-12 TEI12_Test
conclusion: approved

RP-150398 CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (TTCN), Annex A RAN5 CR 36.523-3 set - F/B REL-12 TEI12_Test TTCN batch; 3 Test Cases
conclusion: approved

9.4 Open Rel-13 work items

9.4.1 UE Conformance Test Aspects - LTE UE TRP and TRS and UTRA Hand Phantom
[LTE_UTRA_TRP_TRS-UEConTest]

RP-150069 Status report for WI UE Conformance Test Aspects - LTE UE TRP and TRS and UTRA Hand Phantom, rapporteur: ZTE RAN5 Report REL-13 LTE_UTRA_TRP_TRS-UEConTest
MCC: target date changed
conclusion: noted, approved: 20%, June 16

RP-150070 Revised WID: UE Conformance Test Aspects - LTE UE TRP and TRS and UTRA Hand Phantom ZTE WID rev RAN5 REL-13 LTE_UTRA_TRP_TRS-UEConTest
last approved WID: RP-140090; revised to align with RAN4 Core part WI in RP-141966
conclusion: approved

10 Work Items with target Rel-12 (not related to conformance testing)

NOTE: RAN #66 granted 3 REL-12 Core part WIs a second 3 months exception to complete the WI in REL-12 by March 2015.

10.1 Closed UTRA only related WIs

RAN1:

RP-150360 CR to 25.214 to clarify UMTS Heterogeneous Network Enhancements RAN1 CR25.2140735 1 F REL-12 UTRA_HetNet_enh-Core
conclusion: approved

RAN2:

RP-150372 RAN2 agreed CRs on Core part: Further Enhanced Uplink (EUL) enhancements RAN2 CRset REL-12 EDCH_enh-Core
conclusion: approved

RAN3:

RP-150349 Further EUL enhancements RAN3 CRset REL-12 EDCH_enh-Core
conclusion: approved

RAN4:

RP-150385 RAN4 CRs to Closed UTRA only related Wis RAN4 CRset REL-12 EDCH_enh-Core, UTRA_hetnet_enh-Core, TEI12
conclusion: approved; Note: By mistake also TEI12 CRs were packed in RP-150387 although they should have been submitted to AI 10.8.

10.2 Closed UTRA & LTE related WIs

RAN3:

RP-150350 Add missing new SIB for IncMon RAN3 CR25.4231861 1 F REL-12 LTE_UTRA_IncMon-Core
conclusion: approved

RAN4:

RP-150386 RAN4 CRs to Closed UTRA & LTE related Wis RAN4 CRset REL-12 LTE_UTRA_Incmon-Core
conclusion: approved

10.3 Closed LTE only related WIs

RAN1:

RP-150363 CR to 36.213 on correction for TDD-FDD CA RAN1 CR36.2130494 1 F REL-12 LTE_CA_TDD_FDD-Core
conclusion: approved

RP-150364 CRs to 36.211 & 36.213 on corrections for Small Cell enhancements RAN1 CRset REL-12 LTE_SC_enh_L1-Core
conclusion: approved

RP-150365 CR to 36.213 on corrections for Dual Connectivity feature RAN1 CR36.2130504 1 F REL-12 LTE_SC_enh_dualC-Core
conclusion: approved

RAN2:

RP-150373 RAN2 agreed CRs on Closed LTE REL-12 Work Items RAN2 CRset REL-12 UTRA_LTE_WLAN_interw-Core, LTE_SC_enh_dualC-Core, LTE_UTRA_IncMon-Core, LC_MTC_LTE-Core, LTE_NAICS-Core
Note: The CRs in R2-150722, R2-150723 and R2-150724 were originally from RAN3
conclusion: approved

RAN3:

RP-150351 Dual Connectivity for LTE CRs RAN3 CRset REL-12 LTE_SC_enh_dualC-Core
conclusion: approved

RP-150352 Correction of reloading PWS alerts RAN3 CR36.4131285 1 F REL-12 REP_WMD-RFR_PWS-Core
conclusion: approved

RAN4:

RP-150387 RAN4 CRs to Closed LTE only related Wis RAN4 CRset REL-12 LC_MTC_LTE-Core, LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core, LTE_CA_NC_2UL-Core, LTE_CA_2UL-A1-Perf, LTE_CA_2UL-A2-Perf, LTE_CA_2UL-A3-Perf, LTE_CA_2UL-A4-Perf, LTE_CA_2UL-A5-Perf, LTE_D2D_Prox-Core, LTE_SC_enh_dualC-Core, MBMS_LTE_OS-Core, TEI12
conclusion: approved
Note 1: By mistake also TEI12 CRs were packed in RP-150387 although they should have been submitted to AI 10.8.
Note 2: R4-150502 and R4-150503 list "LTE_CA_2UL-intra-Perf" and R4-150504 lists "LTE_CA_2UL-intra-Core". Both WI codes do not exist.
R4-150504 lists "LTE_CA_2UL-intra-Core" which does not exist. All 3 CRs should list "LTE_CA_NC_2UL-Core" instead.

RP-150388 RAN4 CRs to Closed LTE carrier aggregation only related WIs RAN4 CRset REL-12 LTE_CA_B1_B19_B21-Core, LTE_CA_B1_B3_B20-Core, LTE_CA_B1_B3_B5-Core, LTE_CA_B1_B3_B8-Core, LTE_CA_B1_B42_B42-Core, LTE_CA_B1_B5_B7-Core, LTE_CA_B1_B7_B20-Core, LTE_CA_B19_B42_B42-Core, LTE_CA_B2_B12_B12-Core, LTE_CA_B2_B12_B30-Core, LTE_CA_B2_B2_B13-Core, LTE_CA_B2_B29_B30-Core, LTE_CA_B2_B4_B12-Core, LTE_CA_B2_B4_B13-Core, LTE_CA_B2_B4_B5-Core, LTE_CA_B2_B5_B12-Core, LTE_CA_B2_B5_B30-Core, LTE_CA_B3_B3_B7-Core, LTE_CA_B3_B42_B42-Core, LTE_CA_B3_B7_B20-Core, LTE_CA_B3_B7_B7-Core, LTE_CA_B4_B12_B12-Core, LTE_CA_B4_B12_B30-Core, LTE_CA_B4_B29_B30-Core, LTE_CA_B4_B4_B13-Core, LTE_CA_B4_B5_B12-Core, LTE_CA_B4_B5_B30-Core, LTE_CA_B7_B8_B20-Core, LTE_CA_C_B40_3DL_BW-Core, LTE_CA_C_B41_3DL-Core, LTE_CA_NC_B41_3DL-Core, LTE_CA_B2_B4_B4-Core, LTE_CA_B2_B2_B5-Core, LTE_CA_B2_B2_B29-Core, LTE_CA_B4_B4_B5-Core, LTE_CA_B4_B4_B12-Core, LTE_CA_B39_B39_B41-Core, LTE_CA_B18_B28-Core, LTE_CA_B25_B41_B41-Core, LTE_CA_B3_B42_B42-Core, LTE_CA_B3_B42_B42-Perf, LTE_CA_B4_B12_B30-Core, LTE_CA_C_B41_3DL-Core, LTE_CA_C_B42-Core, LTE_CA_TDD_FDD-Core
conclusion: approved

RP-150053 Correction to the implementation of CR 2471r3 (Clarification for ACK/NACK feedback of CGI measurement) ETSI MCC CR36.133 2824 - F REL-12 LTE_TDD_eIMTA-Core
company CR: The modification to the note in Table 8.1.2.3.7.1-1 proposed by CR 2471r3 (RP-141700 or RAN #65) was missed in the implementation of the CR by MCC. This CR corrects this error.
conclusion: approved

RP-150072 Approval of TR 36.852-12 v2.0.0: E-UTRA inter-band Carrier Aggregation Ericsson TR36.852-12 RAN4 REL-12 LTE_CA_B1_B8-Core
RAN4 TR 36.852-12 is provided for approval; note: TR 36.851 was provided to RAN #66 for information (RP-142015), then TR number was changed to TR 36.852-12; all TPs from Rel-12 WIs are implemented in this TR
conclusion: was at first intended to be approved but then revised in RP-150498 (covering a number of late editorial review comments coming from a check by ETSI Edithelp)

RP-150498 Approval of TR 36.852-12 v2.0.1: E-UTRA inter-band Carrier Aggregation Ericsson TR36.852-12 RAN4 REL-12 LTE_CA_B1_B8-Core
conclusion: approved as TR 36.852-12 v12.0.0

10.4 Open UTRA only related WIs

10.4.1 Perf. part: Further EUL enhancements [EDCH_enh-Perf]

RP-150062 Status report for WI Perf. part: Further EUL Enhancements, rapporteur: Ericsson RAN4 Report REL-12 EDCH_enh-Perf
conclusion: noted, approved: 100%, March 15; WI completed

RP-150389 RAN4 CRs to Open UTRA only related Wis - Perf part RAN4 CR25.1331398 - F REL-12 EDCH_enh-Perf
conclusion: approved

10.5 Open UTRA & LTE only related WIs

10.5.1 Perf. part: Increasing the minimum number of carriers for UE monitoring in UTRA and E-UTRA [LTE_UTRA_IncMon-Perf]

RP-150063 Status report for WI Perf. part: Increasing the minimum number of carriers for UE monitoring in UTRA and E-UTRA; rapporteur: Ericsson RAN4 Report REL-12 LTE_UTRA_IncMon-Perf
conclusion: noted, approved: 40%, June 15

10.6 Open LTE only related WIs (non-spectrum related)

10.6.1 Perf. part: Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation [LTE_TDD_eIMTA-Perf]

RP-150154 Status report for WI Perf Part: Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation; rapporteur: CATT RAN4 Report REL-12 LTE_TDD_eIMTA-Perf
conclusion: noted, approved: 55%, June 15

RP-150396 RAN4 CRs to Further Enhancements to LTE TDD for DL-UL Interference Management and Traffic Adaptation: Perf. Part RAN4 CRset REL-12 LTE_TDD_eIMTA-Perf
conclusion: approved

10.6.2 Perf. part: Low cost & enhanced coverage MTC UE for LTE [LC_MTC_LTE-Perf]

RP-150149 Status Report: Perf. part: Low cost & enhanced coverage MTC UE for LTE; rapporteur: Vodafone RAN4 Report REL-12 LC_MTC_LTE-Perf
Core part was completed at RAN #66
MCC: target date changed
conclusion: noted, approved: 90%, June 15

RP-150390 RAN4 CRs to Low cost & enhanced coverage MTC UE for LTE: Perf. Part RAN4 CR36.101set REL-12 LC_MTC_LTE-Perf
conclusion: approved

10.6.3 Perf. part: E-UTRA Small cell enhancements - Physical layer aspects [LTE_SC_enh_L1-Perf]

RP-150173 Status report for WI Perf. part: E-UTRA Small cell enhancements - Physical layer aspects, rapporteur: Huawei RAN4 Report REL-12 LTE_SC_enh_L1_Perf
MCC: target date changed
conclusion: noted, approved: 80%, June 15

RP-150394 RAN4 CRs to E-UTRA Small cell enhancements - Physical layer aspects: Perf. Part RAN4 CRset REL-12 LTE_SC_enh_L1-Perf
conclusion: approved

10.6.4 Perf. part: Dual Connectivity for LTE [LTE_SC_enh_dualC]

RP-150160 Status Report for WI Perf Part.: Dual Connectivity for LTE; rapporteur: RAN4 Report REL-12 LTE_SC_enh_dualC
conclusion: noted, approved: 45%, June 15

RP-150393 RAN4 CRs to Dual Connectivity for LTE: Perf. Part RAN4 CRset REL-12 LTE_SC_enh_dualC-Perf
conclusion: approved

10.6.5 LTE Device to Device Proximity Services [LTE_D2D_Prox] 2nd exception: RP-141916

RP-150037 LS on impact of optional preconfigured parameters for D2D out of Network coverage mode (R4-151170; to: RAN1, RAN2, RAN5, SA2, RAN; cc: -; contact: Sprint) RAN4 LSin REL-12 LTE_D2D_Prox-Core
no RAN action requested;
discussion: ZTE: will RAN4 solve the ffs in REL-12?
Sprint: REL-12 ProSe work is closed
Orange: action is now for SA2 to limit the scenario
Qualcomm: there is no requested action
ZTE: RAN2 refers to CT1
RAN2 chair: CT1 would need to change their spec as they allow the use case that RAN4 discard in the LS; RAN4 overruled RAN2/CT1 scenario
US Dep.of C.: with preconfigured data in the UE it could still work
RAN chair: some more offline discussion is needed
conclusion: noted, no LS answer

RP-150488 Draft LS regarding D2D off network operation (to: CT1; cc: SA2; contact: Sprint) Sprint LSout REL-12 LTE_D2D_Prox-Core
related to LSin RP-150037
discussion: ZTE: RAN1/2/4/5 should be informed as well
conclusion: revised in RP-150516

RP-150516 LS regarding D2D off network operation (to: CT1; cc: SA2, RAN1, RAN2, RAN4, RAN5; contact: Sprint) RAN LSout REL-12 LTE_D2D_Prox-Core
conclusion: approved

RP-150094 Status report for WI: LTE Device to Device Proximity Services; rapporteur: Qualcomm RAN1 Report REL-12 LTE_D2D_Prox
conclusion: noted, approved: Core: 100%, March 15, Perf.: 25%, Sep.15; Core part WI completed

RP-150366 CRs to 36.201, 36.211, 36.212, 36.213 & 36.214 to introduce D2D feature RAN1 CRset REL-12 LTE_D2D_Prox-Core
conclusion: approved

RP-150374 RAN2 agreed CRs on LTE Device to Device Proximity Services RAN2 CRset REL-12 LTE_D2D_Prox-Core
conclusion: approved

RP-150353 ProSe CRs RAN3 CRset REL-12 LTE_D2D_Prox-Core
conclusion: approved

RP-150093 TR 36.877 v2.0.0 LTE Device to Device Proximity Services: User Equipment (UE) radio transmission and reception Qualcomm TR 36.877 RAN4 REL-12 LTE_D2D_Prox-Core
RAN4 TR 36.877 is submitted for approval; v1.0.0 was noted at RAN #66 in RP-141897
conclusion: approved as TR 36.877 v12.0.0

Note: By mistake the 36.101 RAN4 CR R4-151273 and 36.133 RAN4 CR R4-151126 to LTE_D2D_Prox-Core were packed in RP-150387 (see AI 10.3).

10.6.6 Perf. part: Network-Assisted Interference Cancellation and Suppression for LTE [LTE_NAICS-Perf]

RP-150179 Status Report for WI: Perf. part: Network Assisted Interference Cancellation and Suppression for LTE; rapporteur: MediaTek RAN4 Report REL-12 LTE_NAICS-Perf

conclusion: noted, approved: 50%, June 15

10.6.7 Perf. part: Performance requirements of interference cancellation and suppression receiver for SU-MIMO [LTE_SUMIMO_RX-Perf]

RP-150229 Status report for WI Perf Part.: Performance requirements of interference cancellation and suppression receiver for SU-MIMO, rapporteur: Huawei RAN4 Report REL-12 LTE_SUMIMO_RX-Perf
conclusion: noted, approved: 100%, March 15; Perf. part WI completed

RP-150395 RAN4 CRs to Performance requirements of interference cancellation and suppression receiver for SU-MIMO: Perf. Part RAN4 CR36.101set REL-12 LTE_SUMIMO_RX-Perf
conclusion: approved

10.6.8 Core part: Group Call eMBMS congestion management for LTE

[GCSE_LTE-MBMS_CM-Core] 2nd exception: RP-141864

RP-150081 Status report for WI Core part: Group Call eMBMS congestion management for LTE, rapporteur: Alcatel-Lucent RAN3 Report REL-12 GCSE_LTE-MBMS_CM-Core
MCC: 2 alternative CRs in RP-150354 and RP-150355
conclusion: noted, approved: 100%, March 15; Core part WI completed

RP-150082 Selection of M2AP solution for suspension notification Alcatel-Lucent Disc REL-12 GCSE_LTE-MBMS_CM-Core
discussion: RAN3 chair: there was an offline agreement to go the RP-150355 solution
conclusion: noted

RP-150354 Support for eMBMS congestion management, via new procdure RAN3 CR36.4430102 - B REL-12 GCSE_LTE-MBMS_CM-Core
MCC: Technically endorsed by RAN3. Alternative solution to CR0101r1 to complete the WI
conclusion: rejected

RP-150355 Support for eMBMS congestion management, via MBMS scheduling information procedure RAN3 CR 36.4430101 1 B REL-12 GCSE_LTE-MBMS_CM-Core
MCC: Technically endorsed by RAN3. Alternative solution to CR0102 to complete the WI
conclusion: approved

RP-150375 RAN2 agreed CRs on Introduction of MBMS congestion management for Public Safety Group Call RAN2 CRset REL-12 GCSE_LTE-MBMS_CM-Core
conclusion: approved

10.7 Open LTE only related WIs (spectrum; CA related)

NOTE: For the WIs under agenda item 10.7 (except 10.7.4) and 11.4 no separate status reports per WI will be provided but a Tdoc will be submitted to agenda item 10.7 by RAN4 with a collection of all % complete and target dates for each WI.

RP-150013 Status Report of RAN4 CA WIs RAN4 chairman (Nokia Networks) Report
MCC: Instead of separate SRs for each CA WI, RAN4 provides a single spreadsheet for REL-12/REL-13 CA WIs tracking completion level, target date and any other essential information.
conclusion: noted, % complete and target dates are approved as in RP-150013 unless modified in the table below in red

RAN #67 agenda	UID	Acronym	REL	target after RAN #67	% complete	rapporteur	Open issues / Other notes
10.7.1.1	640130	LTE_CA_B3_B42_B42-Core	REL-12	March 15	100	NTT DOCOMO	No open issues/CRs for TS 36.101(R4-150441) and 36.104(R4-150438) agreed at RAN4 #74.
10.7.1.1	640230	LTE_CA_B3_B42_B42-Perf	REL-12	March 15	100	NTT DOCOMO	No open issues/CRs for TS 36.141(R4-150439) agreed at RAN4 #74.
10.7.2.1	610222	LTE_CA_C_B41_3DL-Perf	REL-12	March 15	100	Alcatel-Lucent	Newly agreed proposals in R4-151108 and R4-150450. CRs already agreed in RP-141560.

RAN #67 agenda	UID	Acronym	REL	target after RAN #67	% complete	rapporteur	Open issues / Other notes
10.7.3.1	620238	LTE_CA_NC_B41_3DL-Perf	REL-12	March 15	100	Alcatel-Lucent	Newly agreed proposals in R4-151108 and R4-150450. CRs already agreed in RP-141561.
11.4.1.01	650141	LTE_CA_B1_B40-Core	REL-13	June 15	80	KT	CR will be submitted to RAN #74Bis
11.4.1.01	650241	LTE_CA_B1_B40-Perf	REL-13	June 15	80	KT	CR will be submitted to RAN #74Bis
11.4.1.02	650138	LTE_CA_B2_B28-Core	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.02	650238	LTE_CA_B2_B28-Perf	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.03	650144	LTE_CA_B3_B31-Core	REL-13	June 15	75	Huawei	MSD due to harmonic issue
11.4.1.03	650244	LTE_CA_B3_B31-Perf	REL-13	June 15	0	Huawei	CRs to be agreed
11.4.1.04	650137	LTE_CA_B3_B38-Core	REL-13	June 15	90	Nokia Networks	Agreement on TIB and RIB
11.4.1.04	650237	LTE_CA_B3_B38-Perf	REL-13	June 15	90	Nokia Networks	Agreement on TIB and RIB
11.4.1.05	650142	LTE_CA_B3_B40-Core	REL-13	June 15	80	KT	CR will be submitted to RAN #74Bis
11.4.1.05	650242	LTE_CA_B3_B40-Perf	REL-13	June 15	80	KT	CR will be submitted to RAN #74Bis
11.4.1.06	660182	LTE_CA_B3_B41-Core	REL-13	Sep. 15	20	China Telecom	CR will be submitted to RAN #74Bis
11.4.1.06	660282	LTE_CA_B3_B41-Perf	REL-13	Sep. 15	20	China Telecom	CR will be submitted to RAN #74Bis
11.4.1.07	650139	LTE_CA_B4_B28-Core	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.07	650239	LTE_CA_B4_B28-Perf	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.08	650145	LTE_CA_B5_B40-Core	REL-13	June 15	80	SK Telecom	CRs will be submitted to RAN #75
11.4.1.08	650245	LTE_CA_B5_B40-Perf	REL-13	June 15	80	SK Telecom	CRs will be submitted to RAN #75
11.4.1.09	630133	LTE_CA_B7_B22-Core	REL-13	June 15	10	Ericsson	UE REFSENS, MOP relaxation. Chair: No activity for a long time
11.4.1.09	630233	LTE_CA_B7_B22-Perf	REL-13	June 15	0	Ericsson	Chair: No activity for a long time
11.4.1.10	620123	LTE_CA_B8_B27-Core	REL-13	June 15	15	KT	Quardplexer implementation and its performance
11.4.1.10	620223	LTE_CA_B8_B27-Perf	REL-13	June 15	15	KT	Quardplexer implementation and its performance
11.4.1.11	650143	LTE_CA_B20_B31-Core	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.11	650243	LTE_CA_B20_B31-Perf	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.1.12	650140	LTE_CA_B20_B40-Core	REL-13	June 15	70	Ericsson	MSD for low band has not been decided yet. This is one of the combinations with harmonic mixing problem. The plan is that, CRs will be submitted to RAN #68 provided that we can complete the work by RAN4#75.
11.4.1.12	650240	LTE_CA_B20_B40-Perf	REL-13	June 15	0	Ericsson	CRs will be submitted to RAN #68
11.4.1.13	660181	LTE_CA_B25_B26-Core	REL-13	June 15	95	Sprint	The work for this WI is completed and related CRs were endorsed in RAN4-74 however an updated WID with additional bandwidth combination sets was presented to RAN4-74 for information and will be submitted to RAN-67 for approval. The BW combination sets will require a Text Proposal to add the sets to the TR for RAN4-74b and incorporated into the CRs that will be provided for agreement in RAN4-75 and for approval in RAN-68.

RAN #67 agenda	UID	Acronym	REL	target after RAN #67	% complete	rapporteur	Open issues / Other notes
11.4.1.13	660281	LTE_CA_B25_B26-Perf	REL-13	June 15	95	Sprint	The work for this WI is completed and related CRs were endorsed in RAN4-74 however an updated WID with additional bandwidth combination sets was presented to RAN4-74 for information and will be submitted to RAN-67 for approval. The BW combination sets will require a Text Proposal to add the sets to the TR for RAN4-74b and incorporated into the CRs that will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.01	660183	LTE_CA_B1_B3_B3-Core	REL-13	June 15	50	China Unicom	MSD issues
11.4.2.01	660283	LTE_CA_B1_B3_B3-Perf	REL-13	June 15	0	China Unicom	Performance issues
11.4.2.02	660190	LTE_CA_B1_B3_B40-Core	REL-13	Sep. 15	10	KT	Pentaplexer consideration and related UE architecture
11.4.2.02	660290	LTE_CA_B1_B3_B40-Perf	REL-13	Sep. 15	10	KT	Pentaplexer consideration and related UE architecture
11.4.2.03	660187	LTE_CA_B1_B8_B28-Core	REL-13	Sep. 15	20	Softbank Mobile	Sub CA (B1+B40) WI completetion
11.4.2.03	660287	LTE_CA_B1_B8_B28-Perf	REL-13	Sep. 15	20	Softbank Mobile	Sub CA (B1+B40) WI completetion
11.4.2.04	660191	LTE_CA_B1_B8_B40-Core	REL-13	Sep. 15	10	KT	Sub CA (B1+B40) WI completetion
11.4.2.04	660291	LTE_CA_B1_B8_B40-Perf	REL-13	Sep. 15	10	KT	Sub CA (B1+B40) WI completetion
11.4.2.05	660184	LTE_CA_B1_B19_B28-Core	REL-13	June 15	50	NTT DOCOMO	1. If relaxations due to harmonic filter are applied to B19 and B28 Tx/Rx or not. 2. MSD values on B28 due to the noise B19 Tx origin. 3. DTIB and DRIB for B19 and B28 associated with the above.
11.4.2.05	660284	LTE_CA_B1_B19_B28-Perf	REL-13	June 15	0	NTT DOCOMO	No technical issues. CRs for TS36.307/TS36.141 will be submitted at the same time as the completion of Core part.
11.4.2.06	660194	LTE_CA_B1_B3_B28-Core	REL-13	June 15	99	Nokia Networks	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.06	660294	LTE_CA_B1_B3_B28-Perf	REL-13	June 15	99	Nokia Networks	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.07	660199	LTE_CA_B1_B7_B28-Core	REL-13	June 15	50	Huawei	CRs to be agreed
11.4.2.07	660299	LTE_CA_B1_B7_B28-Perf	REL-13	June 15	0	Huawei	CRs to be agreed
11.4.2.08	661100	LTE_CA_B1_B3_B7-Core	REL-13	June 15	30	Huawei	Agreement on TIB and RIB
11.4.2.08	661200	LTE_CA_B1_B3_B7-Perf	REL-13	June 15	0	Huawei	CRs to be agreed
11.4.2.09	640122	LTE_CA_B2_B2_B12-Core	REL-13	June 15	99	U.S. Cellular	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.09	640222	LTE_CA_B2_B2_B12-Perf	REL-13	June 15	99	U.S. Cellular	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.10	650153	LTE_CA_B2_B5_B29-Core	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.10	650253	LTE_CA_B2_B5_B29-Perf	REL-13	June 15	99	Huawei	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.11	661101	LTE_CA_B3_B3_B5-Core	REL-13	Sep. 15	10	Intel	Harmonic and intermodulation study; Define dRIB and CRs; REFSENS relaxation for RAN4 spec
11.4.2.11	661201	LTE_CA_B3_B3_B5-Perf	REL-13	Sep. 15	0	Intel	CRs for RAN4 spec and Release indpendent CRs
11.4.2.12	640125	LTE_CA_B3_B3_B8-Core	REL-13	June 15	99	CHTTL	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.

RAN #67 agenda	UID	Acronym	REL	target after RAN #67	% complete	rapporteur	Open issues / Other notes
11.4.2.12	640225	LTE_CA_B3_B3_B8-Perf	REL-13	June 15	99	CHTTL	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.13	660188	LTE_CA_B3_B7_B7_BWset-Core	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.13	660288	LTE_CA_B3_B7_B7_BWset-Perf	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.14	660193	LTE_CA_B3_B7_B8-Core	REL-13	June 15	95	Ericsson	The band combination is included in the related CR endorsed in RAN4-74 (CRs will be provided for agreement in RAN4-75 and for approval in RAN-68). However, the additional bandwidth combination set for CA_3A-8A, subset 'Set 3' in RP-142013, was not implemented in the CR. Therefore, the completion level is set to 95% (the performance part not affected).
11.4.2.14	660293	LTE_CA_B3_B7_B8-Perf	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.15	661102	LTE_CA_B3_B7_B28-Core	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.15	661202	LTE_CA_B3_B7_B28-Perf	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.16	620132	LTE_CA_B3_B8_B27-Core	REL-13	June 15	30	KT	Sub CA (B8+B27) WI completetion
11.4.2.16	620232	LTE_CA_B3_B8_B27-Perf	REL-13	June 15	30	KT	Sub CA (B8+B27) WI completetion
11.4.2.17	660195	LTE_CA_B3_B8_B28-Core	REL-13	Sep. 15	20	Softbank Mobile	Sub CA (B3+B40) WI completetion
11.4.2.17	660295	LTE_CA_B3_B8_B28-Perf	REL-13	Sep. 15	20	Softbank Mobile	Sub CA (B3+B40) WI completetion
11.4.2.18	660192	LTE_CA_B3_B8_B40-Core	REL-13	Sep. 15	10	KT	Sub CA (B3+B40) WI completetion
11.4.2.18	660292	LTE_CA_B3_B8_B40-Perf	REL-13	Sep. 15	10	KT	Sub CA (B3+B40) WI completetion
11.4.2.19	660198	LTE_CA_B3_B40_B40-Core	REL-13	June 15	50	Huawei	MSD for 3+40+40
11.4.2.19	660298	LTE_CA_B3_B40_B40-Perf	REL-13	June 15	0	Huawei	
11.4.2.20	660189	LTE_CA_B7_B7_B28-Core	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.20	660289	LTE_CA_B7_B7_B28-Perf	REL-13	June 15	99	Ericsson	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.21	660186	LTE_CA_B7_B40_B40-Core	REL-13	June 15	40	ZTE	Deffine dTib, dRiB and CR will be submitted
11.4.2.21	660286	LTE_CA_B7_B40_B40-Perf	REL-13	June 15	40	ZTE	CRs will be submitted
11.4.2.22	650149	LTE_CA_B8_B41_B41-Core	REL-13	June 15	99	CMCC	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.22	650249	LTE_CA_B8_B41_B41-Perf	REL-13	June 15	99	CMCC	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.2.23	660196	LTE_CA_B8_B42_B42-Core	REL-13	June 15	20	Softbank Mobile	BS Co-ex Study, Actual Relaxation Values and Relevant CRs
11.4.2.23	660296	LTE_CA_B8_B42_B42-Perf	REL-13	June 15	20	Softbank Mobile	Release indpendent CRs
11.4.2.24	660185	LTE_CA_B21_B42_B42-Core	REL-13	June 15	90	NTT DOCOMO	CR for TS36.101/TS36.104 (No technical issues)
11.4.2.24	660285	LTE_CA_B21_B42_B42-Perf	REL-13	June 15	0	NTT DOCOMO	CR for TS36.307/TS36.141 (No technical issues)
11.4.2.25	660197	LTE_CA_B28_B40_B40-Core	REL-13	June 15	30	Huawei	Tib/Rib and MSD for 28+40, Tib/Rib and MSD for 28+40+40
11.4.2.25	660297	LTE_CA_B28_B40_B40-Perf	REL-13	June 15	0	Huawei	
11.4.2.26	650151	LTE_CA_B38_B40_B40-Core	REL-13	June 15	70	Samsung	Define dRIB and CRs for RAN4 spec

RAN #67 agenda	UID	Acronym	REL	target after RAN #67	% complete	rapporteur	Open issues / Other notes
11.4.2.26	650251	LTE_CA_B38_B40_B40-Perf	REL-13	June 15	70	Samsung	CRs for RAN4 spec and Release indpendent CRs
11.4.2.27	640132	LTE_CA_B41_B42_B42-Core	REL-13	June 15	60	Huawei	Delta Tib and Rib values and/or MSD for the constituent bands. CRs for RAN4 spec.
11.4.2.27	640232	LTE_CA_B41_B42_B42-Perf	REL-13	June 15	60	Huawei	CRs for RAN4 spec including release indpendent CRs
11.4.3.1	661104	LTE_CA_B2_B2_B5_B30-Core	REL-13	Dec. 15 => Sep.15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.1	661204	LTE_CA_B2_B2_B5_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.2	661103	LTE_CA_B2_B2_B12_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.2	661203	LTE_CA_B2_B2_B12_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.3	661105	LTE_CA_B2_B2_B29_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.3	661205	LTE_CA_B2_B2_B29_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.4	661107	LTE_CA_B2_B4_B5_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.4	661207	LTE_CA_B2_B4_B5_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.5	661106	LTE_CA_B2_B4_B12_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.5	661206	LTE_CA_B2_B4_B12_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.6	661108	LTE_CA_B2_B4_B29_B30-Core	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.6	661208	LTE_CA_B2_B4_B29_B30-Perf	REL-13	Dec. 15	50	AT&T	CRs submitted for information at RAN #74
11.4.3.7	661109	LTE_CA_B25_B41_B41_B41-Core	REL-13	Sep. 15	50	Alcatel-Lucent	UE test configurations and RRM requirements to be finalized.
11.4.3.7	661209	LTE_CA_B25_B41_B41_B41-Perf	REL-13	Dec. 15	25	Alcatel-Lucent	UE release independent requirements and RRM tests to be specified.
11.4.4.1	661110	LTE_CA_2UL_R13-A1-Core	REL-13	Dec. 15	40	Huawei	Harmonic and intermodulation study; Delta Tib and Rib values; CRs for RAN4 spec
11.4.4.1	661210	LTE_CA_2UL_R13-A1-Perf	REL-13	Dec. 15	40	Huawei	CRs for RAN4 spec and Release indpendent CRs
11.4.4.2	661111	LTE_CA_2UL_R13-A2-Core	REL-13	Dec. 15	50	Qualcomm	Core specifications for CA_1A-28A combination were endorsed as part of the large CR in R4-151269. The work item is held open at 50% completion to allow for the addition of new 2UL A2 combinations in the Rel-13 timeframe.
11.4.4.2	661211	LTE_CA_2UL_R13-A2-Perf	REL-13	Dec. 15	50	Qualcomm	Release independent specifications for CA_1A-28A combination were endorsed in R4-150243, R4-150244, and R4-150245. The work item is held open at 50% completion level to allow for the addition of new 2UL A2 combinations in the Rel-13 timeframe.
11.4.4.3	661112	LTE_CA_2UL_R13-A3-Core	REL-13	Dec. 15	25	Ericsson	CA_18A-28A (only combination in WID after RAN#66) completed and included in endorsed Draft CR (R4-151269). Completion level still set at 25% anticipating that additional band combinations will be proposed for Rel-13. Open issue: GNSS protection.
11.4.4.3	661212	LTE_CA_2UL_R13-A3-Perf	REL-13	Dec. 15	25	Ericsson	CA_18A-28A (only combination in WID after RAN#66) completed and included in endorsed Draft CR (R4-150243). Completion level still set at 25% anticipating that additional band combinations will be proposed for Rel-13.
11.4.5.1	650147	LTE_CA_C_B42_3DL-Core	REL-13	June 15	99	CATT	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.

RAN #67 agenda	UID	Acronym	REL	target after RAN #67	% complete	rapporteur	Open issues / Other notes
11.4.5.1	650247	LTE_CA_C_B42_3DL-Perf	REL-13	June 15	99	CATT	The work for this WI is completed and related CRs were endorsed in RAN4-74. CRs will be provided for agreement in RAN4-75 and for approval in RAN-68.
11.4.6.1	661113	LTE_CA_NC_B41_4DL-Core	REL-13	Dec. 15	10	Alcatel-Lucent	UE RF and RRM requirements to be specified.
11.4.6.1	661213	LTE_CA_NC_B41_4DL-Perf	REL-13	Dec. 15	10	Alcatel-Lucent	UE release independent requirements and RRM test to be specified.

RP-150058 Way forward on LTE Carrier Aggregation WI handling ETSI MCC Disc - -

As corresponding email discussion on the RAN_DRAFTS reflector was not able to conclude, this is an attempt to summarize the situation and to propose a way forward

Questions:

a. Is it intended to consider pure 3DL/2UL intra-band combinations in this WI?
If yes, then a 2nd intra-band TR must be considered in this WI (or a 2nd WI for intra-band).

b. Do we allow CRs/TPs only when all pairings specified in the WID for a certain 3DL/2UL combination are completed? Or is one pairing enough?

c. Do we want to make the inclusion of all 10 fallback modes for 4DL/1UL WIs and all 25 fallback modes for 5DL/1UL WIs mandatory? Or do we just limit the WIDs to the 4DL/1UL and 5DL/1UL case(s) and for fallback modes separate WIs have to be considered?

d. Is it a correct understanding that for 6DL/1UL to 32DL/1UL we will not mandate to cover all fallback permutations in the same WI?

e. Is there consensus that even if a fallback mode can be optional for a UE, it must be covered in the fallback mode permutations of the corresponding WI (otherwise no UE will have this option)?

Proposals:

A. The CR cover sheets for this WI have to explicitly list in the summary for change all 3DL/2UL combinations with their pairings that are covered by this CR. Otherwise it will be intransparent what is covered and we should rather approve one complete CR set at the end of the WI instead of allowing to complete different 3DL/2UL combinations separately.

B. Define in TS 36.101 clause 3.1 what is a fallback mode and how its order is characterized otherwise remove corresponding terms from the spec.

C. A defintion of "bandwidth combination set (BCS)" is required in TS 36.101 clause 3.1 and BCS must be defined as a property of a CA combination and not as permutations of BCS of parts of the CA combination.

D. The recursive definition of CA combinations for intra-band and mixed intra-/inter-band cases has to be avoided, i.e. for each CA combination the bandwidths supported on each CC are listed but there is no pointering to parts of other CA combinations which may split in further BCSs.

E. The way bandwidth combinations are defined for intra-band CA will follow the same approach as for inter-band CA i.e. a YES/NO for each bandwidth that is possible for a CC, in addition it is possible to restrict the number of possible bandwidth combinations within a BCS via minimum and maximum aggregated bandwidth indications.

discussion: Nokia: too detailed proposal and better to handle this in RAN4
Qualcomm: supports the table format and going back to RAN4 would mean moving in circles
Nokia: email discussion on RAN4 reflector is more appropriate
RAN4 chair: we need to make sure that table format change does not impact ongoing CRs
RAN vice-chair (Fujitsu): RAN needs to discuss this topic also from project management point of view
ALU: prefers another quarter for further RAN4 discussion before taking the decision
DISH: table need be future proof, also take into account that table format also has impact on BS specs
MCC: the proposed table is designed to be future-proof
RAN4 chair: impact on harmonized standards need to be taken into account

conclusion: noted, MCC will trigger an email discussion on the RAN4 reflector in order to come to a decision by RAN #68

10.7.1 3 Band Carrier Aggregation (3DL/1UL)

10.7.1.1 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 42 and Band 42

[LTE_CA_B3_B42_B42] 2nd exception: RP-141779

10.7.1.1	640130	LTE_CA_B3_B42_B42-Core	REL-12	March 15	100	NTT DOCOMO	No open issues/CRs for TS 36.101(R4-150441) and 36.104(R4-150438) agreed at RAN4 #74.
10.7.1.1	640230	LTE_CA_B3_B42_B42-Perf	REL-12	March 15	100	NTT DOCOMO	No open issues/CRs for TS 36.141(R4-150439) agreed at RAN4 #74.

RP-150391 RAN4 CRs to LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 42 and Band 42 RAN4 CR set REL-12 LTE_CA_B3_B42_B42-Core, LTE_CA_B3_B42_B42-Perf
conclusion: approved

Core and Perf. part WIs are completed.

10.7.2 Intra-band CA related WIs (contiguous 3DL)

10.7.2.1 Perf. part: LTE Advanced intra-band contiguous Carrier Aggregation in Band 41 for 3DL [LTE_CA_C_B41_3DL-Perf]

10.7.2.1	610222	LTE_CA_C_B41_3DL-Perf	REL-12	March 15	100	Alcatel-Lucent	Newly agreed proposals in R4-151108 and R4-150450. CRs already agreed in RP-141560.

RP-150116 TR 36.833-5-41 v2.0.0 on LTE-Advanced intra-band contiguous Carrier Aggregation (CA) in Band 41 for 3 downlinks (3DL) Alcatel-Lucent TR 36.833-5-41 RAN4 REL-12 LTE_CA_C_B41_3DL-Perf
RAN4 TR 36.833-5-41 is provided for approval; v1.0.0 was noted at RAN #65 in RP-141426; wrong Tdoc request by Sprint
conclusion: TR 36.833-5-41 is approved as v12.0.0

Perf. part WI completed

Note: RP-141560 of RAN #65 included 4 CRs to "LTE_CA_C_B40_3DL_BW-Core": 1 CR to 36.101 and 3 CRs to 36.307.
RAN4 agreed that no change is required in TS 36.104 and 36.141 as Band 41 C CA is already defined for 2 DL, and BS spec (unlike UE spec) are agnostic to the number of contiguous carriers in one band.
But CRs are required in 36.101 (Core) and 36.307 (Perf) which were included in RP-141561.
So in conclusion RP-141560 had errors in the WI codes on the CR covers of the 36.307 CRs (which should have indicated Perf. and not Core part) and it was forgotten to update WID RP-142017 to indicate this Perf. part impact.

10.7.3 Intra-band CA related WIs (non-contiguous 3DL)

10.7.3.1 Perf. part: LTE Advanced intra-band non-contiguous Carrier Aggregation in Band 41 for 3 DL [LTE_CA_NC_B41_3DL-Perf]

10.7.3.1	620238	LTE_CA_NC_B41_3DL-Perf	REL-12	March 15	100	Alcatel-Lucent	Newly agreed proposals in R4-151108 and R4-150450. CRs already agreed in RP-141561.

RP-150117 TR 36.833-6-41 v2.0.0 on LTE-Advanced intra-band non-contiguous Carrier Aggregation (CA) in Band 41 for 3 downlinks (3DL) Alcatel-Lucent TR 36.833-6-41 RAN4 REL-12 LTE_CA_NC_B41_3DL-Perf
RAN4 TR 36.833-6-41 is provided for approval; v1.0.0 was noted at RAN #65 in RP-141427; wrong Tdoc request by Sprint
conclusion: TR 36.833-6-41 is approved as v12.0.0

Perf. part WI completed

Note: RP-141561 of RAN #65 included 3 CRs: 2 CRs to "LTE_CA_NC_B41_3DL-Perf" for 36.307 and 1 CR to "LTE_CA_NC_B41_3DL-Core" for 36.101.
The WID RP-140101 indicates that 36.307 is impacted by the Core part (which is wrong, it is impacted by the Perf. part).
The WID RP-140101 indicates as well that 36.141 is impacted by the Perf. part. However, RAN4 agreed that no change is required in TS 36.141 as Band 41 C CA is already defined for 2 DL, and BS spec (unlike UE spec) are

agnostic to the number of contiguous carriers in one band.
Both aspects were unfortunately not clarified in a revision of the WID RP-140101.

10.7.4 Other CA related WIs (for WIs of 10.7.4 a separate status report is required)

10.7.4.1 Perf. part: E-UTRA UE performance requirements for multiple Carrier Aggregation configurations [LTE_CA_Mult-Perf]

RP-150188 Status Report for WI Perf Part: E-UTRA UE demodulation/CSI performance requirements for multiple Carrier Aggregation configurations; rapporteur: CMCC RAN4 Report REL-12 LTE_CA_Mult-Perf
conclusion: noted, approved: 100%, March 15; WI is completed

RP-150392 RAN4 CRs to E-UTRA UE performance requirements for multiple Carrier Aggregation configurations: Perf. Part RAN4 CRset REL-12 LTE_CA_Mult-Perf
conclusion: approved

10.8 Small Technical Enhancements and Improvements for Rel-12 [TEI12]

RAN1:

RP-150361 CRs to 25.215, 25.225 & 36.214 on new E-UTRA RSRQ measurement definition RAN1 CRset REL-12 TEI12
conclusion: approved

RAN2:

RP-150376 RAN2 agreed CRs on Small Technical Enhancements and Improvements for Rel-12 RAN2 CRset REL-12 TEI12
conclusion: approved

RP-150377 RAN2 agreed CRs on ASN.1 corrections RAN2 CRset REL-12 TEI12
conclusion: approved

RAN3:

RP-150356 TEI12 CRs RAN3 CRset REL-12 TEI12
conclusion: approved

RAN4:

Note: By mistake the TEI12 RAN4 CRs were packed into RP-150385 (AI 10.1) and RP-150387 (AI 10.3).

11 Work Items with target Rel-13 (not related to conformance testing)

11.1 Open UTRA related WIs (spectrum related)

11.1.1 HSPA Dual-Band UL carrier aggregation [**New WI:** HSUPA_DB_MC]

RP-150127 Status report for WI HSPA Dual-Band UL carrier aggregation; rapporteur: Qualcomm RAN4 Report REL-13 HSUPA_DB_MC
conclusion: noted, approved: Core: 10%, Dec.15; Perf.: 0%, March 16

RP-150129 Revised WID: HSPA Dual-Band UL carrier aggregation Qualcomm Incorporated WID rev RAN4 REL-13 HSUPA_DB_MC
last approved WID: RP-142237; revised to add RRM aspects/specs
discussion: Nokia: would like to have clarification why we need additional RRM requirements here
conclusion: approved

11.1.2 Core part: Support of EVS over UTRAN CS [**New WI:** EVSoCS_UTRAN-Core]

RP-150128 Status report for WI Support of EVS over UTRAN CS; rapporteur: Qualcomm RAN2 Report REL-13 EVSoCS_UTRAN-Core
conclusion: noted, approved: Core: 10%, Sep.15

11.2 Open UTRA & LTE related WIs (non-spectrum related)

11.2.1 Core part: LTE UE TRP & TRS and UTRA Hand Phantom related UE TRP and TRS Requirements [LTE_UTRA_TRP_TRS-Core] (WI was shifted from REL-12 to REL-13)

TRP = total radiated power, TRS = total radiated sensitivity

RP-150027 Reply LS to RP-142316 on OTA Test Requirement Work Plan (CTIA_LS_150202; to: RAN; cc: RAN4; contact: Spirent) CTIA OTA WG LSin REL-13 LTE_MIMO_OTA-Core
CTIA = Cellular Telecommunications & Internet Association; no RAN action requested
conclusion: noted, no LS answer

RP-150104 Status report for WI Core part: LTE UE TRP & TRS and UTRA Hand Phantom related UE TRP and TRS Requirements, rapporteur: Nokia Corporation RAN4 Report REL-13 LTE_UTRA_TRP_TRS-Core
conclusion: noted, approved: Core: 40%, Dec.15

11.2.2 Base Station (BS) RF requirements for Active Antenna System (AAS) [AAS_BS_LTE_UTRA]

(WIs were shifted from REL-12 to REL-13)

RP-150231 Status report for WI: Base Station (BS) RF requirements for Active Antenna System (AAS), rapporteur: Huawei RAN4 Report REL-13 AAS_BS_LTE_UTRA
conclusion: noted, approved: Core: 75%, Dec.15; Perf.: 20%, June 16

11.2.3 Core part: SON for AAS-based deployments [UTRA_LTE_SON_AAS-Core]

RP-150110 Status report for WI Core part: SON for AAS-based deployments, rapporteur: Nokia Networks RAN3 Report REL-13 UTRA_LTE_SON_AAS-Core
conclusion: noted, approved: Core: 25%, June.15

11.2.4 Core part: Radiated requirements for the verification of multi-antenna reception performance of UEs [**New WI:** UTRA_LTE_MIMO_OTA-Core]

RP-150026 LS regarding CTIA MIMO OTA Test Plan Development (CTIA_LS_150203; to: RAN4, RAN5; cc: RAN; contact: AT&T) CTIA MOSG LSin REL-13 LTE_MIMO_OTA-Core

CTIA = Cellular Telecommunications & Internet Association; no RAN action requested
Tdoc will be presented by CTIA OTA Working Group Vice-Chair (Spirent)
conclusion: noted, no LS answer

RP-150260 Status report for WI Core Part: Radiated requirements for the verification of multi-antenna reception performance of UEs; rapporteur: Intel RAN4 Report REL-13 UTRA_LTE_MIMO_OTA-Core
conclusion: noted, approved: Core: 5%, Dec.15

RP-150261 Revised WID: Radiated requirements for the verification of multi-antenna reception performance of UEs Intel Corporation WID rev RAN4 REL-13 UTRA_LTE_MIMO_OTA-Core
last approved WID: RP-142221; updated WI acronym.
conclusion: approved

11.3 Open LTE only related WIs (non-spectrum related)

11.3.1 Core part: Enhanced Signalling for Inter-eNB Coordinated Multi-Point (CoMP) for LTE [COMP_LTE_IeNB_sig-Core]

RP-150162 Status report for Core part: Enhanced signalling for inter-eNB CoMP for LTE; rapporteur: Samsung RAN3 Report REL-13 COMP_LTE_IeNB_sig-Core
conclusion: noted, Core: 30%, June 15

11.3.2 Further LTE Physical Layer Enhancements for MTC [LTE_MTCe2_L1]

RP-150100 Status report for WI Further LTE Physical Layer Enhancements for MTC: rapporteur: Ericsson RAN1 Report REL-13 LTE_MTCe2_L1
discussion: Huawei: The Q4 2015 RAN1 TU budget can be discussed in a later RAN meeting when we have a more complete picture of what is needed to complete all REL-13 items.
conclusion: revised in RP-150495

RP-150495 Status report for WI Further LTE Physical Layer Enhancements for MTC: rapporteur: Ericsson RAN1 Report REL-13 LTE_MTCe2_L1
conclusion: noted, approved: Core: 25%, Dec.15; Perf.: 0%, June 16

RP-150102 Motivation for Revised WID Further LTE Physical Layer Enhancements for MTC Ericsson Disc (motiv) REL-13 LTE_MTCe2_L1
conclusion: noted

RP-150101 Revised WID: Further LTE Physical Layer Enhancements for MTC Ericsson WID rev RAN1 REL-13 LTE_MTCe2_L1
last approved WID: RP-141865
discussion: Huawei: 1st change: is too early to describe this here; 2nd change: should br rephrased
Mediatek: discussion on RAN drafts reflector happened and there seems to be quite wide consensus there
NTT DOCOMO: is fine with the update
ALU, AT&T, Microsoft, NEC, Fujitsu: support the revised WID
CATT: if we accept the change, can RAN1 still discuss 1.4MHz?
Intel: proposals will save some discussion in RAN1, so supports revised WID
Huawei: does not accept the revised WID, discussion should be left to WG
AT&T: it says "should" and it is a reasonable goal
RAN chair: please discuss further offline
conclusion: revised in RP-150492

RP-150492 Revised WID: Further LTE Physical Layer Enhancements for MTC Ericsson WID rev RAN1 REL-13 LTE_MTCe2_L1
conclusion: approved

11.3.3 Core part: RAN Aspects of RAN Sharing Enhancements for LTE [RSE-RAN_LTE-Core]

RP-150289 Status report for WI Core Part: RAN Aspects of RAN Sharing Enhancements for LTE; rapporteur: NEC RAN3 Report REL-13 RSE-LTE_RAN-Core
conclusion: noted, approved: Core: 20%, Sep.15

11.3.4 LTE Carrier Aggregation Enhancement Beyond 5 Carriers [**New WI:** LTE_CA_enh_b5C]

RP-150272 Status report for LTE Carrier Aggregation Enhancement Beyond 5 Carriers, rapporteur: Nokia Corporation RAN1 Report REL-13 LTE_CA_enh_b5C
conclusion: noted, Core: 10%, Dec.15; Perf.: 0%, June 16

RP-150203 Revised Work Plan for LTE Carrier Aggregation Enhancement Beyond 5 Carriers NTT DOCOMO, INC., Nokia Corporation, Nokia Networks Disc REL-13 LTE_CA_enh_b5C
revised work plan for WI: LTE_CA_enh_b5C; revision of RP-141997
conclusion: noted

RP-150275 Motivation for WID Revision: LTE Carrier Aggregation Enhancement Beyond 5 Carriers Nokia Corporation, NTT DoCoMo Inc., Nokia Networks Disc (motiv) REL-13 LTE_CA_enh_b5C
conclusion: noted

RP-150277 Revised WID: LTE Carrier Aggregation Enhancement Beyond 5 Carriers Nokia Corporation, NTT DoCoMo Inc., Nokia Networks WID revRAN1 REL-13 LTE_CA_enh_b5C
last approved WID: RP-142286
discussion: Ericsson: what about time units for Perf. part?
RAN chair: time units should be discussed in status report
CATT: TUs were already changed with status report RP-150272
conclusion: approved

11.3.5 Enhanced LTE Device to Device Proximity Services [**New WI:** LTE_eD2D_Prox]

Proximity-based Services:

RP-150021 LS on public safety discovery
(S2-150691; to: RAN1, RAN2, SA3, RAN; cc: -; contact: Qualcomm) SA2
LSin REL-13 eProSe-Ext
no explicit RAN action requested
conclusion: noted, no LS answer

RP-150033 Response LS to S2-150691 = RP-150021 on public safety discovery
(R1-150948; to: SA2; cc: RAN2, SA3, RAN; contact: Qualcomm) RAN1
LSin REL-13 eProSe-Ext-SA2
no RAN action requested;
discussion: SA2 chair (Samsung): related MCPTT work needs to be taken into account
conclusion: noted, no LS answer

Mission Critical Push to Talk (MCPTT):

see also RP-150380 under AI 15.

RP-150022 LS on support for ProSe one-to-one communication in Release 13
(S6-150076; to: RAN2; cc: SA2, RAN; contact: General Dynamics) SA6
LSin REL-13 MCPTT
conclusion: LS will be treated under AI 11.3.5
no RAN action requested
conclusion: noted, no LS answer

RP-150023 LS on Establishment of new working group TSG SA WG6
(SP-140884; to: OMA, ETSI TC TCCE, 3GPP TSG CT, SA2, SA6, ATIS; cc: TCCA, PCG, RAN, CT1, CT3, CT4, CT6, SA1, SA3, SA4, SA5; contact: SA6 convener) SA
LSin REL-13 MCPTT
TCCE = TETRA and Critical Communications Evolution; TCCA = TETRA + Critical Communications Association; no RAN action requested
conclusion: noted, no LS answer

RP-150035 LS reply to S6-150076 = RP-150021 on support for ProSe one-to-one communication in Release 13
(R2-150710; to: SA6; cc: SA2, RAN; contact: Intel) RAN2
LSin REL-13 MCPTT
no RAN action requested;
conclusion: noted, no LS answe

Status:

RP-150095 Status report for WI: Enhanced LTE Device to Device Proximity Services; rapporteur: Qualcomm RAN2 Report REL-13 LTE_eD2D_Prox
conclusion: noted, approve: Core: 0%, Dec.15; Perf.: 0%, June 16

Revised WID:

RP-150441 Revised WID: Enhanced LTE Device to Device Proximity Services Qualcomm WID rev RAN2 REL-13 LTE_eD2D_Prox
last approved WID: RP-142311
conclusion: approved

11.3.6 Core part: UE core requirements for uplink 64 QAM [**New WI:** LTE_UL64QAM-Core]

RP-150232 Status report for WI: Core part: UE core requirements for uplink 64 QAM, rapporteur: Huawei RAN4 Report REL-13 LTE_UL64QAM-Core
conclusion: noted, approve: Core: 10%, Sep.15

11.3.7 Perf. part: Performance requirements of MMSE-IRC receiver for LTE BS [**New WI:** LTE_MMSE_IRC_BS-Perf]

RP-150204 Status report for WI Perf. Part: Performance requirements of MMSE-IRC receiver for LTE BS; rapporteur: China Telecom RAN4 Report REL-13 LTE_MMSE_IRC_BS-Perf
conclusion: noted, approve: Perf: 10%, June 16

RP-150206 Revised WID: Performance requirements of MMSE-IRC receiver for LTE BS China Telecom WID rev RAN4 REL-13 LTE_MMSE_IRC_BS-Perf
last approved WID: RP-142223; a new TR is added
conclusion: approved

11.3.8 Perf. part: CRS Interference Mitigation for LTE Homogenous Deployments [**New WI:** LTE_CRSIM-Perf]

RP-150061 Status report for WI Perf. part: CRS Interference Mitigation for LTE Homogenous Deployments; rapporteur: Ericsson RAN4 Report REL-13 LTE_CRSIM-Perf
discussion: MCC: target date change (from June 15 to March 16), error in status report history
conclusion: noted, approved: Perf.: 10%, March 16

11.4 Open LTE only related WIs (spectrum; CA related)

NOTE: See RP-150013 under agenda item 10.7 for the status of WIs of agenda item 11.4.

11.4.1 Inter-band CA related WIs (2DL/1UL)

11.4.1.1 LTE Advanced inter-band Carrier Aggregation of Band 1 and Band 40 [LTE_CA_B1_B40]

No contributions

11.4.1.2 LTE Advanced inter-band Carrier Aggregation of Band 2 and Band 28 [LTE_CA_B2_B28]

No contributions

11.4.1.3 LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 31 [LTE_CA_B3_B31]

RP-150318 Revised WID proposal: LTE Advanced Carrier Aggregation of Band 3 and Band 31 Orange; Huawei WID rev RAN4 s (2DL/1UL) REL-13 LTE_CA_B3_B31
last approved WID RP-141337
discussion: Orange: addition of a reference and extension of completion date
conclusion: approved
Note: It was detected after RAN #67 that the revised WID RP-150318 (target date for Core part is Dec.15) is in contradiction with the status report provided in RP-150013 (target date for Core part is June 15). The rapporteur clarified that June 15 is correct.

11.4.1.4 LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 38 [LTE_CA_B3_B38]

No contributions

11.4.1.5 LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 40 [LTE_CA_B3_B40]

No contributions

11.4.1.6 LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 41

[**New WI:** LTE_CA_B3_B41]

No contributions

11.4.1.7 LTE Advanced inter-band Carrier Aggregation of Band 4 and Band 28 [LTE_CA_B4_B28]

No contributions

11.4.1.8 LTE Advanced inter-band Carrier Aggregation of Band 5 and Band 40 [LTE_CA_B5_B40]

RP-150285 Revised WID: Additional bandwidth combination set for LTE Advanced inter-band Carrier Aggregation of Band 5 and Band 40 Samsung WID rev RAN4 s (2DL/1UL) REL-13 LTE_CA_B5_B40
last approved WID: RP-141888; revised to add new bandwidth combination set
conclusion: approved

11.4.1.9 LTE Advanced inter-band Carrier Aggregation of Band 7 and Band 22 [LTE_CA_B7_B22]

No contributions

11.4.1.10 LTE Advanced inter-band Carrier Aggregation of Band 8 and Band 27 [LTE_CA_B8_B27]

No contributions

11.4.1.11 LTE Advanced inter-band Carrier Aggregation of Band 20 and Band 31 [LTE_CA_B20_B31]

No contributions

11.4.1.12 LTE Advanced inter-band Carrier Aggregation of Band 20 and Band 40 [LTE_CA_B20_B40]

No contributions

11.4.1.13 LTE Advanced inter-band Carrier Aggregation of Band 25 and Band 26

[**New WI:** LTE_CA_B25_B26]

RP-150115 Revised WID: LTE Advanced inter-band Carrier Aggregation of Band 25 and Band 26 Sprint WID rev RAN4 s (2DL/1UL) REL-13 LTE_CA_B25_B26
last approved WID: RP-142020; revised to add 2 bandwidth combination sets; both of the added bandwidth combination sets are subsets of bandwidth combination set 0
conclusion: approved
Note: It was detected after RAN #67 that the revised WID RP-150115 (target date for Core and Perf. part is Dec.15) is in contradiction with the status report provided in RP-150013 (target date for Core and Perf. part is June 15). The rapporteur clarified that June 15 is correct.

11.4.2 3 Band Carrier Aggregation (3DL/1UL)

11.4.2.1 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 3

[**New WI:** LTE_CA_B1_B3_B3]

No contributions

11.4.2.2 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 40

[**New WI:** LTE_CA_B1_B3_B40]

No contributions

11.4.2.3 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 1, Band 8 and Band 28

[**New WI:** LTE_CA_B1_B8_B28]

RP-150067 Revised Work Item Proposal: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 8 and Band 28 SoftBank Mobile WID rev RAN4 s (3DL/1UL) REL-13 LTE_CA_B1_B8_B28
last approved WID: RP-141826; to change TRs from new specs to affected specs
conclusion: revised in RP-150447

RP-150447 Revised Work Item Proposal: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 8 and Band 28 SoftBank Mobile WID rev RAN4 s (3DL/1UL) REL-13 LTE_CA_B1_B8_B28

conclusion: approved

11.4.2.4 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 1, Band 8 and Band 40
[**New WI:** LTE_CA_B1_B8_B40]

No contributions

11.4.2.5 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 19 and Band 28
[**New WI:** LTE_CA_B1_B19_B28]

No contributions

11.4.2.6 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 28
[**New WI:** LTE_CA_B1_B3_B28]

No contributions

11.4.2.7 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 7 and Band 28
[**New WI:** LTE_CA_B1_B7_B28]

RP-150234 Revised WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 7 and Band 28, rapporteur: Huawei Huawei WID rev RAN4 s (3DL/1UL) REL-13 LTE_CA_B1_B7_B28
last approved WID: RP-142208; correction of the Maximum aggregated bandwidth for LTE_CA_B1_B7_B28; revised WID was also submitted to RAN4 #74
conclusion: approved
Note: It was detected after RAN #67 that the revised WID RP-150234 (target date for Core part is Dec.15) is in contradiction with the status report provided in RP-150013 (target date for Core part is June 15). The rapporteur clarified that June 15 is correct.

11.4.2.8 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 7
[**New WI:** LTE_CA_B1_B3_B7]

No contributions

11.4.2.9 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 2 and Band 12
[LTE_CA_B2_B2_B12]

RP-150413 Clean-up of 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 2 and Band 12 RAN4 CR 36.853-12 0003 - F REL-12 LTE_CA_B2_B2_B12-Core
LTE_CA_B2_B2_B13 is a REL-13 WI. By accident TP(s) with coexistence studies of harmonics and intermodulation products for TE_CA_B2_B2_B12 were included in the Rel-12 TR 36.853 (now called TR 36.853-12) before approving it at RAN #66; this CR removes this REL-13 material from the REL-12 TR
conclusion: approved

11.4.2.10 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 5, and Band 29
[LTE_CA_B2_B5_B29]

No contributions

11.4.2.11 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 3 and Band 5
[**New WI:** LTE_CA_B3_B3_B5]

No contributions

11.4.2.12 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) for Band 3, Band 3 and Band 8
[LTE_CA_B3_B3_B8]

No contributions

11.4.2.13 Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 7 and Band 7
[**New WI:** LTE_CA_B3_B7_B7_BWset]

No contributions

11.4.2.14 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 7 and Band 8
[**New WI:** LTE_CA_B3_B7_B8]

No contributions

11.4.2.15 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 7 and Band 28 [**New WI:** LTE_CA_B3_B7_B28]

No contributions

11.4.2.16 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) for Band 3, Band 8 and Band 27 [LTE_CA_B3_B8_B27]

No contributions

11.4.2.17 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 3, Band 8 and Band 2 [**New WI:** LTE_CA_B3_B8_B28]

No contributions

11.4.2.18 LTE Advanced 3 band Carrier Aggregation (3DL/1UL) of Band 3, Band 8 and Band 40 [**New WI:** LTE_CA_B3_B8_B40]

No contributions

11.4.2.19 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 40 and Band 40 [**New WI:** LTE_CA_B3_B40_B40-Core]

No contributions

11.4.2.20 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 7, Band 7 and Band 28 [**New WI:** LTE_CA_B7_B7_B28]

No contributions

11.4.2.21 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 7, Band 40 and Band 40 [**New WI:** LTE_CA_B7_B40_B40]

No contributions

11.4.2.22 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 8, Band 41 and Band 41 [LTE_CA_B8_B41_B41]

RP-150269 TR 36.853-13 v0.3.0: Rel-13 Inter-band Carrier Aggregation (3DL/1UL) ZTE TR 36.853-13 RAN4 REL-13 LTE_CA_B8_B41_B41-Core

Tdoc was withdrawn as it is too early to submit this RAN4 TR and TR should be in v1.0.0.

conclusion: withdrawn

11.4.2.23 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 8, Band 42 and Band 42 [**New WI:** LTE_CA_B8_B42_B42]

No contributions

11.4.2.24 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 21, Band 42 and Band 42 [**New WI:** LTE_CA_B21_B42_B42]

No contributions

11.4.2.25 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 28, Band 40 and Band 40 [**New WI:** LTE_CA_B28_B40_B40]

RP-150233 Revised WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 28, Band 40 and Band 40, rapporteur: HuaweiHuawei WID rev RAN4 s (3DL/1UL) REL-13 LTE_CA_B28_B40_B40

last approved WID: RP-142206; correction of the Maximum aggregated bandwidth for LTE_CA_B28_B40_B40; revised WID was also submitted to RAN4 #74

conclusion: approved

Note: It was detected after RAN #67 that the revised WID RP-150233 (target date for Core part is Dec.15) is in contradiction with the status report provided in RP-150013 (target date for Core part is June 15). The rapporteur clarified that June 15 is correct.

11.4.2.26 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 38, Band 40 and Band 40 [LTE_CA_B38_B40_B40]

No contributions

11.4.2.27 LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 41, Band 42 and Band 42 [LTE_CA_B41_B42_B42]

No contributions

11.4.3 4 Band Carrier Aggregation (4DL/1UL)

11.4.3.1 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 5 and Band 30 [**New WI:** LTE_CA_B2_B2_B5_B30]

RP-150086 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 5 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B5_B30
last approved WID: RP-142199
discussion: MCC: WI code can not be modified after allocation
conclusion: revised in RP-150448 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150448 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 5 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B5_B30
conclusion: approved (unseen)
Note: It was detected after RAN #67 that revised WID does not indicate that TR 36.854-13 is affected by Core part and that its target (Sep.15) is in contradiction with the status report RP-150013 to RAN #67 which indicates Core part target is Dec.15. The rapporteur clarified that the Core part target is Sep.15.

11.4.3.2 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 12 and Band 30 [**New WI:** LTE_CA_B2_B2_B12_B30]

RP-150087 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 12 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B12_B30
last approved WID: RP-142198
conclusion: revised in RP-150449 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150449 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 12 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B12_B30
conclusion: approved (unseen)

11.4.3.3 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 29 and Band 30 [**New WI:** LTE_CA_B2_B2_B29_B30]

RP-150088 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 29 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B29_B30
last approved WID: RP-142200
conclusion: revised in RP-150450 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150450 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 29 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B2_B29_B30
conclusion: approved (unseen)

11.4.3.4 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 5 and Band 30 [**New WI:** LTE_CA_B2_B4_B5_B30]

RP-150089 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 5 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B5_B30
last approved WID: RP-142202
conclusion: revised in RP-150451 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150451 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 5 and Band 30 AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B5_B30
conclusion: approved (unseen)

11.4.3.5 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 12 and Band 30 [**New WI:** LTE_CA_B2_B4_B12_B30]

RP-150090 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 12 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B12_B30
last approved WID: RP-142201
conclusion: revised in RP-150452 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150452 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 12 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B12_B30
conclusion: approved (unseen)
Note: It turned out after RAN #67 that the target date was not updated in the revised WID RP-150452 (which indicates Dec.14). The Core and Perf. part have the target Dec.15 as in status report RP-150013.

11.4.3.6 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 29 and Band 30 [**New WI:** LTE_CA_B2_B4_B29_B30]

RP-150091 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 29 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B29_B30
last approved WID: RP-142203; note: CA_B2_B4_B29 is already specified in a REL-12 WI; CA_B2_B4_B30 already covered in RP-150090;
conclusion: revised in RP-150419

RP-150419 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 29 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B29_B30
last approved WID: RP-142203
conclusion: revised in RP-150453 (use allocated WI code, correct UID, use TR 36.854-13 instead of TR 36.8xx in section 10 and move it to affected specs; clarify which spec is impacted by Core/Perf. part; check whether TR 36.853-13 or TR 36.852-13 are affected as well)

RP-150453 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 29 and Band 30
AT&T WID rev RAN4 s (4DL/1UL) REL-13 LTE_CA_B2_B4_B29_B30
conclusion: approved (unseen)

11.4.3.7 LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 25, Band 41, Band 41 and Band 41 [**New WI:** LTE_CA_B25_B41_B41_B41]

No contributions

11.4.4 Inter-band CA related WIs (2UL)

11.4.4.1 LTE Advanced dual uplink inter-band Carrier Aggregation Class A1 in REL-13 [**New WI:** LTE_CA_2UL_R13-A1]

RP-150235 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A1 in REL-13, rapporteur: Huawei Huawei WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A1
last approved WID: RP-141935; adding CA_2A-12A and deleting CA_1A-26A
conclusion: revised in RP-140407

RP-150407 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A1 in REL-13, rapporteur: Huawei Huawei WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A1
last approved WID: RP-141935; revision of RP-150235 adding also TDD-TDD;
conclusion: revised in RP-150411 as multiple versions of RP-150407 exist

RP-150411 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A1 in REL-13, rapporteur: Huawei Huawei WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A1
last approved WID: RP-141935; revision of RP-150407
discussion: RAN4 chair: includes also FDD-FDD and TDD-TDD limitation
conclusion: approved

11.4.4.2 LTE Advanced dual uplink inter-band Carrier Aggregation Class A2 in REL-13 [**New WI:** LTE_CA_2UL_R13-A2]

RP-150408 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A2 in REL-13
Qualcomm WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A2
last approved WID: RP-141975; adding TDD-TDD

conclusion: approved

11.4.4.3 LTE Advanced dual uplink inter-band Carrier Aggregation Class A3 in REL-13

[**New WI:** LTE_CA_2UL_R13-A3]

RP-150409 Revised WID: LTE Advanced dual uplink inter-band Carrier Aggregation Class A3 in REL-13 Ericsson WID rev RAN4 s (2UL) REL-13 LTE_CA_2UL_R13-A3
last approved WID: RP-142010; adding TDD-TDD
conclusion: approved

11.4.5 Intra-band CA related WIs (contiguous 3DL)

11.4.5.1 LTE Advanced intra-band contiguous Carrier Aggregation in Band 42 for 3DL

[LTE_CA_C_B42_3DL]

RP-150118 TR 36.833-5-42 v1.0.0: LTE Advanced Carrier Aggregation in Band 42 for 3DL CATT TR 36.833-5-42 RAN4 REL-13 LTE_CA_C_B42_3DL-Core
RAN4 TR 36.833-5-42 is provided for information
conclusion: noted

RP-150319 Revised WID for LTE Advanced intra-band contiguous Carrier Aggregation in Band 42 for 3DL CATT WID rev RAN4 s (C 3DL) REL-13 LTE_CA_C_B42_3DL
last approved WID: RP-141677
conclusion: approved

11.4.6 Intra-band CA related WIs (non-contiguous 4DL)

11.4.6.1 LTE Advanced intra-band non-contiguous Carrier Aggregation in Band 41 for 4 DL

[**New WI:** LTE_CA_NC_B41_4DL]

No contributions

11.5 Open LTE only related WIs (spectrum; not CA related)

11.5.1 2GHz FDD LTE Band for Region 1 (1980-2010MHz and 2170-2200MHz Bands)

[LTE_1980_2170_REG1]

RP-150106 Status Report for WI 2GHz FDD LTE Band for Region 1; rapporteur: DISH Network RAN4 Report REL-13 LTE_1980_2170_REG1
conclusion: noted, approved: Core: 35%, June 15; Perf.: 0%, June 15

RP-150107 Revised WID: 2GHz FDD LTE Band for Region 1DISH Network WID rev RAN4 s REL-13 LTE_1980_2170_REG1
last approved WID: RP-141710; captures the recent RAN4 agreement on the band plan and updates rapporteurship (only co-rapporteur modified)
conclusion: revised in RP-150424 (adding some more affected specs)

RP-150424 Revised WID: 2GHz FDD LTE Band for Region 1DISH Network WID rev RAN4 s REL-13 LTE_1980_2170_REG1 revision of RP-150107; last approved WID: RP-141710;
conclusion: approved

12 Study Items

12.1 Closed study items

RP-150362 CR to 36.873 to reduce O-to-I XPR Geometric Variance for the 3D Channel Model RAN1 CR 36.873 0003 - F REL-12 FS_LTE_3D_channel
conclusion: approved

RP-150420 CR for Corrections and Clarifications of UE specifications in TR 36.844 RAN4 CR 36.844 0010 - F Rel-13 FS_LTE_FDD_1670_US
discussion: MCC: late submission; note: FS_LTE_FDD_1670_US was a REL-13 SI
conclusion: approved

12.2 Open UTRA related SIs

12.2.1 REL-13 Study on Downlink Enhancements for UMTS [FS_UTRA_EDL]

RP-150223 Status report for SI: Downlink Enhancements for UMTS, rapporteur: Huawei RAN2 Report REL-13 FS_UTRA_EDL
conclusion: noted, approved: 80%, June 15

RP-150224 Revised SID: Downlink Enhancements for UMTS, rapporteur: Huawei Huawei SID rev RAN2 REL-13 FS_UTRA_EDL
last approved SID: RP-141901; target date corrected to June 2015 (RAN #68) and TR information added
conclusion: approved

RP-150225 TR 25.706 v1.0.0 on Downlink Enhancements for UMTS, for information Huawei TR 25.706 RAN2 REL-13 FS_UTRA_EDL
RAN2 TR 25.706 is submitted for information
conclusion: noted

12.2.2 REL-13 Study on small data transmission enhancement for UMTS [FS_UTRA_SDATA]

RP-150196 Status report for SI Study on Small Data Transmission Enhancements for UMTS, rapporteur: Ericsson RAN1 Report REL-13 FS_UTRA_SDATA
discussion: MCC: why does a SI have a Core part completion level?
conclusion: noted, approved: 55%, June 15

RP-150197 TR 25.705 v1.0.0 on Study on Small Data Transmission Enhancements for UMTS, for information Ericsson TR 25.705 RAN1 REL-13 FS_UTRA_SDATA
RAN1 TR 25.705 is submitted for information
conclusion: noted

12.2.3 REL-13 Study on Network-Assisted Interference Cancellation and Suppression for UMTS [**New SI:** FS_UTRA_NAICS]

Note: Tdoc numbers of status report and revised SID were swapped to be in line with Tdocs.

RP-150175 Status report for SI: Study on Network-Assisted Interference Cancellation and Suppression for UMTS, rapporteur: Huawei RAN1 Report REL-13 FS_UTRA_NAICS
conclusion: noted, approved: 20%, Sep. 15

RP-150174 Revised SID: Study on Network-Assisted Interference Cancellation and Suppression for UMTS, rapporteur: Huawei Huawei, HiSilicon SID rev RAN1 REL-13 FS_UTRA_NAICS
last approved SID: RP-142250; TR will be submitted for information at RAN #68 and for approval at RAN #69; TR number is added
conclusion: approved

12.2.4 REL-13 Study on RAN sharing enhancements for UMTS [**New SI:** FS_RSE_UTRA_GUSH]

RP-150227 Status report for SI: Study on RAN sharing enhancements for UMTS, rapporteur: Huawei RAN3 Report REL-13 FS_RSE_UTRA_GUSH
conclusion: noted, approved: 10%, June 15

12.3 Open UTRA & LTE related SIs

12.3.1 REL-13 Study on Multi-RAT Joint coordination [FS_MultiRAT_JC]

RP-150187 Status Report for SI: Study on Multi-RAT Joint Coordination; rapporteur: CMCC RAN3 Report REL-13 FS_MultiRAT_JC
conclusion: noted, approved: 85%, June 15

RP-150189 Revised SID: Study on Multi-RAT Joint Coordination CMCC SID rev RAN3 REL-13 FS_MultiRAT_JC
last approved SID: RP-132086;
conclusion: revised in RP-150417

RP-150417 Revised SID: Study on Multi-RAT Joint Coordination CMCC SID rev RAN3 REL-13 FS_MultiRAT_JC
last approved SID: RP-132086
discussion: RAN3 chair: why do we need to specify when we start work?
AT&T: is the time budget enough to finish the SI?
RAN3 chair: SI is overlapping with the WI
SI is on control plane only while WI is on control and user plane
conclusion: rejected, can discuss at RAN #68 how to address user plane part in the WI

RP-150264 TR 37.870 v1.0.0 on Study on Multi-RAT Joint Coordination, for information CMCC TR 37.870 RAN3 REL-13 FS_MultiRAT_JC
RAN3 TR 37.870 is submitted for information
conclusion: noted

12.3.2 REL-13 Study on Indoor Positioning Enhancements for UTRA and LTE [FS_UTRA_LTE_iPos_enh]

RP-150080 Status report for SI on Study on Indoor Positioning Enhancements for UTRA and LTE; rapporteur: NextNavRAN1 Report REL-13 FS_UTRA_LTE_iPos_enh
conclusion: noted, approved: 30%, Sep.15

12.4 Open LTE only related SIs

12.4.1 REL-13 Study on LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz [FS_LTE_1980_2170_Korea]

RP-150120 Status Report of SI on Study on LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz; rapporteur: KT RAN4 Report 36.861 REL-13 FS_LTE_1980_2170_Korea
discussion: MCC: target date changed to RAN#68
conclusion: noted, approved: 90%, June 15

RP-150119 Revised SID: Study on LTE FDD in the bands 1980-2010MHz and 2170-2200MHz KT SID rev RAN4 REL-13 FS_LTE_1980_2170_Korea
last approved SID: RP-141154; target date is changed to RAN #68
conclusion: approved

12.4.2 REL-13 Study on Elevation Beamforming/Full-Dimension (FD) MIMO for LTE [FS_LTE_EBF_FDMIMO]

RP-150346 Status report for SI Study on Elevation Beamforming/Full-Dimension (FD) MIMO for LTE; rapporteur: Nokia Networks RAN1 Report REL-13 FS_LTE_EBF_FDMIMO
discussion: MCC: late Tdoc request
conclusion: noted, approved: 45%, June 15

12.4.3 REL-13 Study on Licensed-Assisted Access using LTE [**New SI:** FS_LTE_LAA]

RP-150024 LS regarding coexistence of Licensed Assisted Access (LAA) and IEEE 802 (IEEE_802_LMSC_150202; to: RAN; cc: RAN1, IEEE 802, IEEE 802.19; contact: Chairman IEEE 802 LMSC) IEEE 802 LMSC
LSin REL-13 FS_LTE_LAA
LMSC = Local and Metropolitan Area Network Standards Committee; RAN #66 received LSin RP-141747; RAN chair presented RP-150055 (see AI 5.3) at IEEE 802 Interim Session on 13.01.2015 in Atlanta, USA; no explicit RAN action requested
presented by Alcatel-Lucent
conclusion: noted, LS answer drafted by Ericsson in RP-150444

Note: Tdoc numbers of RP-150444 and RP-150445 were swapped to be in line with Tdocs.

RP-150444 Draft Response LS to IEEE_802_LMSC_150202 = RP-150024 regarding Coexistence of Licensed Assisted Access (LAA) and IEEE 802 (to: IEEE 802 LMSC; cc: -; contact: Ericsson) Ericsson, Huawei
LSout REL-13 FS_LTE_LAA
discussion: Blackberry: should see RP-150317 first
conclusion: revised in RP-150454 to provide the final version

RP-150454 Response LS to IEEE_802_LMSC_150202 = RP-150024 regarding Coexistence of Licensed Assisted Access (LAA) and IEEE 802 (to: IEEE 802 LMSC; cc: -; contact: Ericsson) RAN LSout LS01 REL-13 FS_LTE_LAA
conclusion: approved (sent out on Wed of RAN #67)

RP-150317 LAA Use CasesBlackBerry UK Limited Disc REL-13 FS_LTE_LAA
proposed that RAN provide the following guidance to RAN1:
- *RAN1 are requested to verify that the parameters currently assumed for LAA coexistence evaluations are representative of at least one high-density real world use case*
- *If any adjustment to existing simulation assumptions is deemed necessary, these should aim at minimizing impact to study item timescales*

discussion: Ericsson: something missing for use cases?
Blackberry: co-existence aspects are essential for this feature
Ericsson: we are using full buffer scenario
Blackberry: details can be discussed in RAN1
Qualcomm: no objections were raised when this was discussed in RAN1; single channel case is not a realistic scenario
Blackberry: there was no discussion about density
RAN chair: suggests that companies contribute in RAN1
Blackberry: we are suggesting that RAN1 should look into the scenarios mentioned by IEEE
conclusion: noted

RP-150271 Status report for SI Study on Licensed-Assisted Access using LTE; rapporteur: Ericsson RAN1 Report REL-13 FS_LTE_LAA
conclusion: revised in RP-150414

RP-150414 Status report for SI Study on Licensed-Assisted Access using LTE; rapporteur: Ericsson RAN1 Report REL-13 FS_LTE_LAA
revision of RP-150271; MCC: late submission
conclusion: noted, approved: 40%, June 15

RP-150278 [DRAFT] LS on Licensed-Assisted Access (to: ETSI BRAN; cc: -; contact: Ericsson) Ericsson LSout REL-13 FS_LTE_LAA
conclusion: revised in RP-150444

RP-150445 [DRAFT] LS on Licensed-Assisted Access (to: ETSI BRAN; cc: -; contact: Ericsson) Ericsson, Huawei LSout REL-13 FS_LTE_LAA
Note: Tdoc numbers of RP-150444 and RP-150445 were swapped to be in line with Tdocs.
conclusion: revised in RP-150455

RP-150455 [DRAFT] LS on Licensed-Assisted Access (to: ETSI BRAN; cc: -; contact: Ericsson) Ericsson, Huawei LSout REL-13 FS_LTE_LAA
conclusion: revised in RP-150505

RP-150505 LS on Licensed-Assisted Access (to: ETSI BRAN; cc: -; contact: Ericsson) RAN LSout REL-13 FS_LTE_LAA
conclusion: approved

12.4.4 REL-13 Study on possible additional configuration for LTE TDD

[**New SI:** FS_LTE_TDD_add_config]

12.4.4.1 Main session

RP-150151 Status report for SI on Study on possible additional configuration for LTE TDD, rapporteur: NTT DOCOMO, INC. RAN Report REL-13 FS_LTE_TDD_add_config
note: This is a RAN SI
conclusion: noted, approved: 5%, Sep.15

Revised SID:

RP-150153 Revised SID: Study on possible additional configuration for LTE TDD CATT, CATR, NTT DoCoMo SID rev RAN REL-13 FS_LTE_TDD_add_config
last approved SID: RP-142248
conclusion: not treated (should be resubmitted to RAN #68)

Results of the ad hoc:

RP-150405 Report of ad hoc on REL-13 Study on possible additional configuration for LTE TDD Nokia Networks (ad hoc convener) Report REL-13 FS_LTE_TDD_add_config
for RAN approval
discussion: CATT: email discussion should be extended by 1 week (due to LAA discussion)
Orange: seems to become the biggest topic of REL-13 so we need to reduce the effort
Ericsson: suggests to avoid offline and email discussions and have just shared discussion
conclusion: approved, email discussion (topics see RP-150486) will be extended by 1 week

Note: TR RP-150152 was agreed during the ad hoc and then revised in RP-150487 (see below).
TP RP-150147 was actually revised/split into 2 TPs RP-150399 and RP-150401.
RP-150484 was not approved but revised in RP-150486 which was approved.

RP-150406 Void - - - -
conclusion: withdrawn

RP-150487 TR 36.825 v0.1.0 for Feasibility study on possible additional configuration for LTE TDD CATT TR 36.825 RAN REL-13 FS_LTE_TDD_add_config
summarizing the results of RAN #67 with revision marks compared to v0.0.1 in RP-150152
discussion: CATT: there is a minor typo
RAN chair: can be fixed in next version
conclusion: RP-150487 was agreed during RAN #67 but revised in RP-150519 to carry out some editorial corrections to align with the 3GPP drafting rules (differences between RP-150487 and RP-150519 are shown in a version with revision marks in RP-150519)

RP-150519 TR 36.825 v0.1.1 for Feasibility study on possible additional configuration for LTE TDD CATT, ETSI MCC TR 36.825 RAN REL-13 FS_LTE_TDD_add_config
conclusion: agreed; this TR version shall be used for TPs to TR 36.825 submitted to RAN #68

12.4.4.2 Ad hoc session

NOTE: The documents of this agenda item were handled in separate RAN ad hoc sessions.
The report of this ad hoc is provided in RP-150405 (see AI 12.4.4.1).

Technical Report:

RP-150152 TR skeleton 36.825 v0.0.1 for Study on possible additional configuration for LTE TDD CATT TR 36.825 RAN REL-13 FS_LTE_TDD_add_config
RAN TR is provided for agreement; includes TR skeleton

Scenarios and evaluation guidelines:

RP-150185 Consideration on possible additional configuration for LTE TDD CMCC Disc REL-13 FS_LTE_TDD_add_config
proposes to study possible scenarios when introducing additional TDD configuration, e.g., downlink only configuration. And further investigation of such configuration shall be considered by taking all possibilities into account. Additional impacts to these deployment scenarios and use cases shall also be further investigated from deployment perspective, e.g., impact on inter-operator coexistence

in the same TDD band, limit of Non-standalone deployment in network operation, benefits of synchronized network not achievable and etc.

RP-150147 Scenarios, use cases and frequency bands for additional TD-LTE configuration Vodafone TP 36.825 REL-13 FS_LTE_TDD_add_config

RP-150208 Deployment scenarios on additional TDD configurations NTT DOCOMO, INC. TP 36.825 REL-13 FS_LTE_TDD_add_config

RP-150300 Considerations on TDD allocations in CEPT region and the need for a new TDD DL only configuration Orange TP 36.825 REL-13 FS_LTE_TDD_add_config

text proposals:

- *Add Band 33, 34, 38 and 40 to section 4.2 of the TR 36.8XX on "Feasibility study on possible additional configuration for LTE TDD". These bands are intended to be aggregated with FDD bands including 7, 20, 3, 1, 8, 28 and 22*
- *Add the text from paragraph 3 above to the section 4.3 (Use cases) of the same TR.*

RP-150255 Methods of utilizing unused TDD spectrum CATT Disc REL-13 FS_LTE_TDD_add_config

3 methods of utilizing unused TDD spectrum

initial discussion on the possible methods of utilizing the unused TDD spectrum, i.e. adopting new TDD configurations, converting the TDD spectrum to FDD SDL, and using existing TDD configurations;

unclear that the possible new TDD configuration or converting the TDD spectrum to FDD SDL is an efficient way to utilize the unused TDD spectrum

RP-150252 General discussion on possible new TDD configurations CATT Disc REL-13 FS_LTE_TDD_add_config

Proposal 1: Document the following in TR36.825

- *At least one standalone FDD or TDD carrier must be used together with the non-standalone TDD carrier.*
- *Inter-band carrier aggregation is a pre-requisite for a UE to receive data from a non-standalone TDD carrier.*

Proposal 2: Conclude in RAN#67 the intended deployments (i.e. scenarios, frequency bands, and use cases) for non-standalone TDD carriers.

Proposal 3: For inter-operator co-existence study, the standalone TDD carrier adjacent to the non-standalone TDD carrier shall at least include the macro deployment with seamless coverage, while all basestations for the standalone and non-standalone TDD carriers are outdoor.

Proposal 4: For inter-operator co-existence study, focus on the case in which victim is the standalone TDD carrier and aggressor is the non-standalone TDD carrier.

Proposal 5: The conventional RAN4 methodologies (i.e. the deterministic approach and the Monte Carlo simulation approach) for co-existence study shall be adopted in this study item.

Proposal 6: Initiate email discussion after RAN#67 to agree on the co-existence evaluation assumptions.

Proposal 7: Initiate email discussion after RAN#67 to agree on the performance evaluation assumptions.

Proposal 8: If new TDD configurations are to be introduced, as a minimum to maintain healthy TDD eco-system, the 3GPP core specification shall mandate that UEs supporting the new TDD configurations shall also support the existing TDD configuration, and corresponding testing in RAN5 and GCF shall be ensured.

Proposal 9: Consider further mechanisms to ensure healthy TDD eco-system.

Proposal 10: Methods other than the option of possible new TDD configurations and the option of converting the TDD spectrum into FDD SDL to utilize the unused TDD spectrum shall be discussed in the study item.

RP-150140 Considerations of introducing possible additional TDD configuration(s) NEC Disc REL-13 FS_LTE_TDD_add_config

Proposal 1: CA scenario# 4 should be the main deployment scenario for the 10:0:0/9:1:0 configuration. SCE scenario 2a specified in TS36.872 can be reused. The additional TDD UL-DL 10:0:0/9:1:0 configuration can be configured as a Secondary Cell which is used to improve the downlink throughput.

Proposal 2: Different operators in the same band without guard band should be highly prioritized for additional TDD configuration(s) study.

Proposal 3: Baseline evaluation is that all operators uses TDD UL-DL configuration #5 (8:1:1) as the Secondary cell. Ideal synchronization is assumed.
Proposal 4: The impact of introduction of 10:0:0/9:1:0 configuration of small cell on both the macro cell and the small cell of other operators should be evaluated in the co-existence study.
Proposal 5: Small cell simulation assumption could be reused in the evaluation. The detailed parameters could be decided by email discussion.

RP-150292 TP for TR36.825: Use Case: FDD-TDD Carrier Aggregation KTTP 36.825 REL-13 FS_LTE_TDD_add_config
a use case is provided when LTE TDD carrier is used as secondary carrier in FDD-TDD Carrier Aggregation

RP-150218 Scenarios and evaluation assumption for DL-only TDD NTT DOCOMO, INC. Disc REL-13 FS_LTE_TDD_add_config
Proposal 1: Reuse scenario 2a defined in TR36.872 for performance evaluation.
Proposal 2: Use the aggregated DL throughput to access the potential benefits and drawbacks of new TDD configurations assuming carrier aggregation.
Proposal 3: If the channel reciprocity is not assumed to be available, compare new configurations of 10:0:0, 9:1:0 (DL:Sp:UL) and TDD UL/DL configuration 5.
Proposal 4: If the channel reciprocity is assumed to be available, compare a new configuration of 9:1:0 (DL:Sp:UL) and TDD UL/DL configuration 5.
Proposal 5: Assume 10 small cells per macro cell and higher resource utilization of 60~70% for the highest loaded cell when applying TDD UL/DL configuration as the baseline parameters.

Evaluation methodology details:

RP-150210 Evaluation methodology for possible additional TDD configuration(s) Huawei, HiSilicon Disc REL-13 FS_LTE_TDD_add_config
discussed the performance-related potential benefits and drawbacks of the additional TDD configuration. A proposed evaluation methodology for potential benefits is also provided

RP-150254 Evaluation on the benefits and drawbacks for possible additional LTE TDD configuration CATT Disc REL-13 FS_LTE_TDD_add_config
Proposal 1: At least the following performance metrics shall be studied
- *Cell average and cell edge downlink packet throughput*
- *PUCCH load on the accompanied standalone carrier*

Proposal 2: Performance of the following two systems shall be compared:
- *Target system: standalone carrier X + non-standalone TDD carrier Y with 10:0:0 (DL:Sp:UL)*
- *Reference system: standalone carrier X + standalone TDD carrier Y with 8:1:1 (DL:Sp:UL)) and special subframe configuration 4 with normal CP in downlink*

Proposal 3: The evaluation shall assume a certain percentage of non-CA capable UEs in the system.
Proposal 4: The evaluation shall focus on the high traffic load case.

Coexistence:

RP-150253 RAN4 methodologies for co-existence study CATT Disc REL-13 FS_LTE_TDD_add_config
provides some general introduction on the conventional RAN4 methodologies for co-existence study. These methodologies can be used for the study on the possible additional TDD configuration

RP-150251 Co-existence Considerations for Additional Configuration for LTE TDD Nokia Corporation, Nokia Networks Disc REL-13 FS_LTE_TDD_add_config
proposal: to encourage 3GPP RAN to investigate and develop technical solutions for avoiding any co-existence issues between LTE TDD DL/UL and DL only operations and configurations in any deployment situations, frequency bands, frequencies and geographical areas
propose to capture the example method for co-existence solution presented in section 2 in the TR

RP-150230 Consideration of unsynchronized operation for TD-LTE NTT DOCOMO, INC. Disc REL-13 FS_LTE_TDD_add_config
Impact of unsynchronization on spectrum efficiency is discussed
Conclusion 1:
Time synchronization and/or the same UL/DL configuration usage between operators are essential for TD-LTE operation. Otherwise, the spectrum efficiency is significantly lost.
Conclusion 2:

When DL only carrier (SCell) is operated with 5 MHz offset from the adjacent operators whose configuration is not DL only configuration, the DL only configuration carrier would suffer from significant interference from the adjacent operators UEs. Note that at the same time, the adjacent operators' eNB would suffer from eNB using DL only configuration according to the distance.

Conclusion 3:

From conclusion 1 and 2, witout achieving time synchronization and/or the same UL/DL configuraions inlcuding DL only configuraion between operators, all operators become unhappier compared to the cases it is achieved.

RP-150247 Solutions to mitigate raised concerns on DL only configuration NTT DOCOMO, INC. Disc REL-13 FS_LTE_TDD_add_config

Proposal 1:

In the same way as any other TDD UL/DL configuration, 3GPP should ensure that the operation of the "Downlink only LTE TDD" (10:0:0 or 9:1:0) configuration is supported for all frequency bands specified for TDD mode of operation in RAN4 specifications, when paired with another frequency band used as an anchor carrier. Furthermore, 3GPP should ensure that ALL UEs that support the CA configuration for "Downlink only LTE TDD" also support other TDD UL/DL configurations for the Downlink only LTE TDD usage TD-LTE bands.

Proposal 2:

Guideline for usage of "Downlink only TDD configurationfor TD-LTE(10:0:0) is specified in the standard (as in the Annex section).

Simulations:

RP-150168 Coexistence and simulation methodology on additional configuration for LTE TDD ZTE Disc REL-13 FS_LTE_TDD_add_config

Proposal 1:

The cost for both SDL and TDD system should be carefully evaluated when deployed in adjacent carriers. The potential cost includes the additional Guard Band, BS complexity and throughput loses by site restriction.

For a new configuration, at least the system level simulation should be further performed. The exact band, number of carriers, carrier bandwidths etc. should be determined for the simulation study.

Proposal 2:

The simulation assumption can refer study from both eIMTA and Small cell. The performance impact of interference should be taken into account in the system level simulation. The simulation assumption can reuse parameters from eIMTA for interference modeling.

RP-150301 Simulation Assumptions for Evaluating Additional Configurations for LTE TDD Ericsson Disc REL-13 FS_LTE_TDD_add_config

proposals:

- *Adjacent channel evaluations are done where all cells on the same carrier use the same UL-DL TDD configuration but where the configuration maybe different between the carriers*
- *Use the following deployment scenarios: Femto-Femto, Femto-Macro, Pico-Pico, Pico-Macro, and Macro-Macro*
- *System level simulations are conducted using non-full buffer traffic models*
- *Detailed simulation assumptions for the scenarios are adopted from TR 36.828*

Ecosystem considerations:

RP-150287 Views on the eco-system impact of possible additional TDD configuration(s) CATR Disc REL-13 FS_LTE_TDD_add_config

- TD-LTE with legacy configurations has widely deployed and develops fast, with a large penetration ratio of the LTE FDD/TDD dual mode devices, which are already very mature due to the widely on-field test.

- The introduction of any new configuration(s) in TD-LTE will cause eco-system problem, esp. the downlink only configuration will bring the risk of different UE designs and fragment TD-LTE market.

- Any new configuration will cause the additional complexity, esp. in UE side. It needs to justify whether there is any potential benefit worth such an impact on the eco-system.

RP-150146 Benefits/drawbacks and ecosystem aspects for additional TD-LTE configuration Vodafone TP 36.825 REL-13 FS_LTE_TDD_add_config

RP-150099 Void NTT DOCOMO, INC. Report REL-13 FS_LTE_TDD_add_config

conclusion: withdrawn

12.4.5 REL-13 Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE [**New SI:** FS_LTE_MUTX_NAIC]

RP-150213 Status report for SI Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE; rapporteur: MediaTek RAN1 Report REL-13 FS_LTE_MUTX_NAIC
conclusion: noted, approved: 0%, Dec.15; SI is stopped and instead a new SI with modified scope and title is considered in RP-150456;
TR 36.891 of SI FS_LTE_MUTX_NAIC will be withdrawn and the new SI will have a new TR

RP-150186 Scope of Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE Alcatel-Lucent SID rev RAN1 REL-13 FS_LTE_MUTX_NAIC
last approved SID: RP-142315, note: rapporteur of this SI is Mediatek, compare RP-140214
proposing title change to "Study on Downlink Multiuser Superposition Transmission for LTE"
discussion: MCC: we cannot modify the title & WI code so then we rather close the current SI and open a new SI (it shows that we need to be more careful before approving a WI/SI
AT&T: would like to be removed from supporting companies as scope changed
CMCC: would like to be removed as well
conclusion: rejected

RP-150214 Revised SID: Study on Enhanced Multiuser Transmissions and Network Assisted Interference Cancellation for LTE Mediatek SID rev RAN1 REL-13 FS_LTE_MUTX_NAIC
last approved SID: RP-142315; wrong title in Tdoc request (note: It is not possible to modify the title of approved SIs), compare RP-140186
discussion: Mediatek: changed the supporting companies and includes ALU version RP-150186 already; suggest to change second last version
Nokia: would like to remove the precoder aspect
Huawei, Ericsson: would like to keep the precoder aspect
conclusion: rejected, a new SID will be drafted in RP-150456 based on RP-150214 version

RP-150456 New SI proposal: Study on Downlink Multiuser Superposition Transmission for LTE Mediatek SID (new) REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_MUST; note: The scope and title of SI FS_LTE_MUTX_NAIC has changed significantly, therefore it was decided to stop SI FS_LTE_MUTX_NAIC and to open instead this new SI with corresponding new scope and title;
discussion: CATT: is it allowed in the SI that 2 users are using different precoding vectors?
NTT DOCOMO: can be discussed in RAN1
Nokia: in offline discussion it was clarified that such a multiplexing can be discussed in RAN1
Ericsson: we understand that they have to use same precoding vector
CATT: discussion of last meeting and email discussion considered same precoding vector also unclear: "same" applies also to TX diversity schemes?
Mediatek: 2 UE using same precoding vector is covered
Huawei: either same precoding vector or same TX diversity scheme is considered, and same precoding vector must be possible
conclusion: revised in RP-150496

RP-150496 New SI proposal: Study on Downlink Multiuser Superposition Transmission for LTE Mediatek SID new REL-13 -
conclusion: approved
Note: The rapporteur clarified after RAN #67 that a new TR 36.8xx is intended.

RP-150215 Proposed Work Plan for Enhanced Multiuser Transmissions and Network Assisted Interference CancellationMediatek Disc REL-13 FS_LTE_MUTX_NAIC
conclusion: noted

12.4.6 REL-13 Study on Support of single-cell point-to-multipoint transmission in LTE [**New SI:** FS_LTE_SC_PTM]

RP-150176 Status report for SI: Study on Support of single-cell point-to-multipoint transmission in LTE, rapporteur: Huawei RAN2 Report REL-13 FS_LTE_SC_PTM

conclusion: noted, approved: 25%, June 15

RP-150177 Revised SID: Study on Support of single-cell point-to-multipoint transmission in LTE, rapporteur: Huawei Huawei, HiSilicon SID rev RAN2 REL-13 FS_LTE_SC_PTM
last approved SID: RP-142205; editorial corrections
conclusion: approved

12.4.7 REL-13 Study on Extension of Dual Connectivity in E-UTRAN [**New SI:** FS_LTE_dualC_ext]

RP-150163 Status report for SI Study on Extension of Dual Connectivity in E-UTRAN; rapporteur: Samsung RAN3 Report REL-13 FS_LTE_dualC_ext
discussion: MCC: target date change
conclusion: noted, approved: 85%, June 15

RP-150170 Revised SID: Study on Extension of Dual Connectivity in E-UTRAN Samsung SID rev RAN3 REL-13 FS_LTE_dualC_ext
last approved SID: RP-142257; revised to change the title and WI code, correct some format and typo
conclusion: approved

RP-150216 TR 36.875 v1.0.0 on Extension of Dual Connectivity in E-UTRAN Samsung TR 36.875 RAN3 REL-13 FS_LTE_dualC_ext
RAN3 TR 36.875 is provided for information
conclusion: noted

12.4.8 REL-13 Study on further enhancements of small cell higher layer aspects for LTE [**New SI:** FS_LTE_SC_enh2_hilayer]

RP-150226 Status report for SI: Study on further enhancements of small cell higher layer aspects for LTE, rapporteur: Huawei RAN3 Report REL-13 FS_LTE_SC_enh2_hilayer
discussion: Huawei: time unit change
conclusion: noted, approved: 10%, Sep.15

12.4.9 REL-13 Study on LTE DL 4 Rx antenna ports [**New SI:** FS_LTE_4Rx_AP_DL]

RP-150138 Status report for SI LTE DL 4 Rx antenna ports, rapporteur: Ericsson RAN4 Report REL-13 FS_LTE_4Rx_AP_DL
discussion: MCC: TR has to be approved before completing the SI
conclusion: noted, approved: 100%, March 15; SI is completed

RP-150139 Revised SID: Study on LTE DL 4 Rx antenna ports Ericsson SID rev RAN4 REL-13 FS_LTE_4Rx_AP_DL
last approved SID: RP-142299; revised to add TR name and completion date
conclusion: Specifications Manager: allocated TR number is TR 36.867
revised in RP-150457 to add TR number

RP-150457 Revised SID: Study on LTE DL 4 Rx antenna ports Ericsson SID rev RAN4 REL-13 FS_LTE_4Rx_AP_DL
conclusion: approved

RP-150141 TR 36.867 v1.0.0, Study on LTE DL 4 Rx antenna ports Ericsson TR 36.867 RAN4 REL-13 FS_LTE_4Rx_AP_DL
RAN4 TR is provided for 1-step approval; note: SI was started in Dec.14 (forgetting to indicate the TR in the SID), so TR number needs to be allocated during RAN #67
conclusion: TR 36.867 is approved as v13.0.0

12.4.10 REL-13 Study on performance enhancements for high speed scenario in LTE [**New SI:** FS_LTE_high_speed]

RP-150158 Status Report for SI: Study on performance enhancements for high speed scenario in LTE RAN4 Report REL-13 FS_LTE_high_speed
discussion: MCC: a SI has no Core part
conclusion: revised in RP-150517

RP-150517 Status Report for SI: Study on performance enhancements for high speed scenario in LTE RAN4 Report REL-13 FS_LTE_high_speed
conclusion: noted, approved: 5%, Sep.15

RP-150159 Revised SID: Study on performance enhancements for high speed scenario in LTE NTT DOCOMO, INC., Huawei, HiSilicon SID rev RAN4 REL-13 FS_LTE_high_speed
last approved SID: RP-142307
conclusion: approved

13 New Work Items/Study Items

NOTE: No further REL-12 WIs can be proposed as REL-12 was frozen in Sep.14.
As the REL-12 ASN.1 freeze is planned for March 2015, new REL-13 WIs/SIs have lower priority than the completion of REL-12 WIs.

Time budgets:
RAN #66 endorsed as outcome of the meeting: RP-142318.

RP-150048 Status of time budgets for RAN1/2/3/4 REL-12 & REL-13 WIs/SIs after RAN #67 RAN1/RAN2/RAN3/RAN4 chairmen Report REL-12 -
note: The status after RAN #66 was endorsed in RP-142318.
conclusion: revised in RP-150518

check on Tue evening regarding RAN2/RAN4 capacity discussion:
RAN2 chair: we will go for extra 4TUs
RAN4 chair: 4RX and measurement gap and something from RAN2 could be agreed

RP-150518 Status of time budgets for RAN1/2/3/4 REL-12 & REL-13 WIs/SIs after RAN #67 RAN1/RAN2/RAN3/RAN4 chairmen Report REL-12 -
conclusion: endorsed
Note: It was detected after RAN #67 that the new approved WI "Multiflow Enhancements for UTRA" (RP-150288, HSDPA_MFTX_enh) requested 0.5 TU for RAN3 #88 in May 2015 which was not reflected in RP-150518. However, the 0.5TU will be used.
Note: It was detected after RAN #67 that the new approved WI "Multicarrier Load Distribution of UEs in LTE" (RP-150491, LTE_MC_load) requested 0.5 TU for RAN4 #76 for R4RD Core in Aug. 2015 which was not reflected in RP-150518. However, the 0.5TU will be used.

13.1 New core functions

Air to Ground Communication:
RP-150315 Mission Critical Air Ground Air Communications: Summary of discussions Orange Report REL-13 -
report of email discussion on the RAN reflector between RAN #66 and RAN #67
Proposal :
Based on the above elements we propose to issue an open letter from 3GPP RAN in RAN#67 to officially answer to the questions asked by the French Ministry of Interior and the UK Home office on the feasibility of A2G communications.
discussion: Vodafone: range by public safety services is quite large so a problem for base station configuration
Ericsson: sending LS to Individual Members?
RAN chair: we can approve a Tdoc that summarizes the status (then we do not need an LS)
conclusion: noted;
Orange will draft RP-150423 to answer the questions in a summary document

RP-150423 3GPP TSG RAN views regarding Mission Critical Air Ground Air Communications Orange Disc REL-13 -
based on RP-150315
discussion: Vodafone: can accept this; is a bit over-simplifying and hopefully there will be no bigger issues
conclusion: revised in RP-150506 to have source: RAN
RP-150506 3GPP TSG RAN views regarding Mission Critical Air Ground Air Communications RAN Disc REL-13 -
conclusion: approved

Flexible Duplex:
RP-150199 Discussion on regulatory aspects in using LTE uplink spectrum in Korea TTA Disc REL-13 -

In recent RAN meetings, there were some discussions on the regulatory aspects of using LTE UL spectrum for flexible duplex, i.e., network sends DL traffic to UEs via UL spectrum. This contribution provides some observations and discussions on Korean regulations related to the flexible duplex operations; shifted from AI 13.1.1 to AI 13.1
conclusion: noted

RP-150250 Further discussion on regulatory aspects related to flexible duplex operation for E-UTRAN LG Electronics, China Telecom, Huawei, HiSilicon, IAESI Disc REL-13 -
conclusion: noted

RP-150249 Motivation for new SID: Study on regulatory aspects for flexible duplex for E-UTRAN LG Electronics, China Telecom, Huawei, HiSilicon Disc motiv REL-13 -
discussion:
conclusion: noted

RP-150248 New SID: Study on regulatory aspects for flexible duplex for E-UTRANLG Electronics SID new RAN REL-13 -
new SI for LTE only; leading WG: RAN; WI code to be used: FS_LTE_flex_duplex_reg; SI was postponed at RAN #66 in RP-142278
discussion: Ericsson: first part of SI description unclear: intention as on slide 4 of motivation paper?
Ericsson: last time we said we look at regulatory aspects and not on technologies
LG: will be difficult to leave out technologies completely
Huawei: at first scenarios need to be considered
RAN1 vice-chai (ALU): prefers to do it the other way around and look at what is possible first from regulatory aspect
RAN vice-chair (AT&T): D2D set a precedence case that should be taken into account
Ericsson: do we want to look at regulatory aspects? which group is having the experts? TSG RAN? the group that is closest to regulatory aspects is RAN4
Orange:question to China Telecom: in which band do you see this sort operation?
China Telecom: if we solve co-existence issues we may see a band in the future
RAN chair: so use cases without touching technologies can be discussed in RAN; suggests to discuss regulatory aspects via email (so that regulatory experts can be involved)
conclusion: revised in RP-150470

RP-150470 New SID: Study on regulatory aspects for flexible duplex for E-UTRANLG Electronics SID new RAN REL-13 -
discussion: Sprint: not possible in the US, concerned how this can be handled at RAN
RAN chair: we will study this and most of it will anyway done via email reflector
Telecom Italia: what if not possible in some regions?
RAN chair: we will see this when the SI is done
Telecom Italia: concerned that RAN is doing regulatory work and work is moved to RAN because of lack of resources in RAN4
RAN chair: treatment at RAN is not motivated by lack of resources in RAN4
Telecom Italia: suggests an LS to regional regulatory bodies
conclusion: approved, Telecom Italia will draft an LS in RP-150482

RP-150482 Draft LSout to regulatory bodies on flexible duplexTelecom Italia LSout REL-13 FS_LTE_flex_duplex_reg
Alt 1: 3GPP would appreciate any useful information related to objectives of the study in the attachment.
Alt 2: 3GPP would like to ask the regulator whether the utilization of UL allocations for network to UE transmissions is possible with the current regulation and under which tehnical conditions (Tx Power, Modulation, etc)
Alt 3: 3GPP TSG RAN would like to inform Regional Regulatory bodies 3GPP started this activity.
discussion: Microsoft: supports the LS
Huawei: Alt3 preferred option
RAN chair: what about going for Alt1?
Orange: Alt1 is not a clear question and subject to interpretation
Orange: we only ask regulators what is in the current regulation so no extra work is required for them
Microsoft: what is "useful information"?
ALU: we have a SI approved so work can go on there, Alt2 is not acceptable for us
RAN chair: ask regulators whether .... is possible?

China Unicom: does not expect a quick reply from regulators
Huawei: why did we approve a SI if we send an LS now?
Lightsquared: we will certainly not get a simple yes/no answer when we ask whether it is possible
Ericsson: if we send SID to regulators and the SID is not clear then we need to work on the SID
Huawei: we do not want to preempt our own SI by an LS
RAN chair: if we get input from regulators is parallel this would just help
Orange: the sooner we send the LS the better
TeliaSonera: if scope of SI is not clear then we should not approve the SI, we should send as detailed questions to the regulators as possible
RAN chair: we could ask "3GPP would like to ask for regulators feedback on "utilizing UL spectrum for transmission from the network to UEs, including aspects such as Tx power levels, modulation schemes, type of transmitting nodes, etc."
Orange: we need to clarify what feedback we expect
Orange: we do not preempt the SI and the SI will continue until Sep.
Vodafone: we should mention "FDD"
Orange: do we indicate "current regulation"?
ALU: supports Orange
LG: would like to include also "otential regional/band-specific regulatory possibilities/constraints for the use cases of "
RAN chair: To whom do we send the LS? To: ECC PT1, RRA, ARIB, FCC, CCSA, TTA, TAICS, TSDSI; cc: ITU-R WP5D
Fujitsu: also to ITU?
AT&T: should not be sent to ITU-R WP5D
RAN chair: agrees that we rather seem to have OPs than regulators
RAN chair: so just to ECC PT1, FCC, other regulators of China, Japan, Korea, Taiwan, India
Ericsson: it seems the regions need to identify the regulators

conclusion: revised in RP-150507

RP-150507 Draft LSout to regulatory bodies on flexible duplexTelecom Italia LSout REL-13 FS_LTE_flex_duplex_reg

conclusion: Telecom Italia will identify the regulators
for 2 weeks email discussion to identify the regulators and corresponding contacts,
final LS will be in RP-150509,
so RP-150507 is revised in RP-150509

RP-150509 LS on 3GPP RAN Study on regulatory aspects for flexible duplex for E-UTRAN (to: ECC PT1, FCC, RRA, National Communications Commission (TW), ARIB, CCSA, Wireless Adviser to the Government of India; cc: -; contact: Telecom Italia) RAN LSout REL-13 FS_LTE_flex_duplex_reg

conclusion: RP-150509 was approved by (2 weeks) email discussion after RAN #67.
This email discussion was kicked off by Telecom Italia on 12.03.2015 and the approved RP-150509 was sent out on 27.03.2015.

13.1.1 WIs/SIs led by RAN1

RAN1 chair indicated that there is no room in RAN1 for new LTE items in the next quarter. So new RAN1-led proposals will be considered for information. As such we will not treat them on Monday. If time allows we may come back to them in the second part of the week.

RP-150502 Way forward on new RAN1-led WI proposal on LTE bandwidth flexibility enhancements Huawei, China Unicom, AT&T, CHTTL, DISH NETWORKS, LightSquared, Rogers, Telefonica, Telus, T-Mobile USA, Vodafone, CATR, HiSilicon, Potevio, ASUSTeK, Lenovo, III, CoolPad, TD-Tech Disc REL-13 -

discussion: RAN chair: does RAN1 have available capacity?
RAN1 chair: no extra capacity
NEC: supporting companies of the way forward and companies of the WI are alsmost matching
RAN chair: yes, way forward should have a bigger consensus
Nokia: was not aware that we will come back , should it study without RF requirements?
Microsoft: has a similar concern, we should study this
Ericsson: should rather be a RAN4 SI and not a RAN1 WI

RAN4 chair: sees the proposal for the first time
Vodafone: has interest in this topic, can maybe discussed by email
TeliaSonera: should be a SI, not happy to see now request for RAN1 capacity although we said there is no RAN1 capacity
RAN chair: you are free to use the RAN DRAFTS reflector asking for feedback or discuss offline
Qualcomm: we would contribute but do not think that we could solve RAN4 issues by email
Samsung: is rather a RAN4 SI but not happy to have unofficial discussions over the reflector; so get approval first
NTT DOCOMO: suggests to discuss this topic at RAN #68
Huawei: we should recognise the large interest of operators in this proposal and the need by the industry to agree this work item for Rel13
RAN chair: if the proposal has high priority for the industry then it should have no problems to be approved against other items once there is some new capacity available in RAN1

conclusion: noted, way forward was not agreed, no official RAN email discussion on this
(but as for all proposals: proponents are free to initiate email discussions on the RAN_DRAFTS reflector and come back next meeting with a proposal)

But the following HSPA related proposal could be presented:

semi-static spectrum refarming (SSR):

RP-150266 Motivation for New SI Interference coordination for SSR between UMTS and LTE China Unicom Disc motiv REL-13 -
conclusion: not treated

RP-150263 New SID Proposal: study on interference coordination for semi-static spectrum refarming between UMTS and LTE China Unicom SID new RAN1 REL-13 -
new SI for UTRA & LTE; leading WG: RAN1; WI code to be used: FS_UTRA_LTE_ICSSR
conclusion: revised in RP-150468

RP-150468 New SID Proposal: study on interference coordination for semi-static spectrum refarming between UMTS and LTE China Unicom SID new RAN1 REL-13 -
conclusion: revised in RP-150503

RP-150503 New SID Proposal: study on interference coordination for semi-static spectrum refarming between UMTS and LTE China Unicom SID new RAN1 REL-13 -
discussion: RAN chair: can this be done in UMTS session of RAN1 alone?
RAN1 chair: UMTS session has time but LTE has no time; could be done in UMTS only
Ericsson: if overlap with LTE session can be avoided
ALU: not a very clean approach to have it just in UTRA although UTRA & LTE is affected
Nokia: refarming involves usually also RAN4
Ericsson: also TU allocation is not enough
Qualcomm: prefers to postpone the topic due to impact on LTE experts
Samsung: not clear whether it should be handled by RAN1 or RAN4
Huawei: LTE to UMTS interference will be considered in the SI so not big impact on LTE
conclusion: postponed

<u>will be treated only if time allows</u>:

V2X for LTE:

RP-150164 Motivation of Feasibility Study on LTE-based V2X Services LG Electronics Inc. Disc motiv REL-13 -
conclusion: not treated

RP-150165 New SI proposal: Feasibility Study on LTE-based V2X Services LG Electronics Inc. SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_V2X
conclusion: revised in RP-150499

RP-150499 New SI proposal: Feasibility Study on LTE-based V2X Services LG Electronics Inc. SID new RAN1 REL-13 -
conclusion: not treated

Enhanced UL for LTE:

RP-150190 Motivation for New SI: Uplink Enhancements for LTE CMCC Disc motiv REL-13 -
conclusion: not treated

RP-150293 Motivation for Uplink Enhancements for Heterogeneous and Small Cell Networks Huawei, HiSilicon Disc motiv REL-13 -
Further analysis of potential gains of LTE uplink enhancements for HetNet; revision of RP-142004; related to SI RP-150191
conclusion: not treated

RP-150191 New SID Proposal: Study on Uplink Enhancements for LTE CMCC SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_EUL; SI was postponed at RAN #66 in RP-141843
conclusion: not treated

LTE bandwidth flexibility:

RP-150237 Motivation for new work item on LTE bandwidth flexibility enhancements Huawei, China Unicom, HiSilicon Disc motiv REL-13 -
conclusion: not treated

RP-150236 New Work Item proposal: LTE bandwidth flexibility enhancements Huawei, China Unicom, HiSilicon WID new RAN1 REL-13 -
new WI for LTE only; leading WG: RAN1; WI code to be used: LTE_flex_BW; WI was postponed at RAN #66 in RP-141911
conclusion: revised in RP-150513

RP-150513 New Work Item proposal: LTE bandwidth flexibility enhancements Huawei, China Unicom, HiSilicon WID new RAN1 REL-13 -
conclusion: postponed

Coordinated Scheduling for LTE:

RP-150279 Motivation for Study on Physical Layer Enhancements of Coordinated Scheduling for LTE large CoMP clusters Ericsson Disc motiv REL-13 -
conclusion: not treated

RP-150280 New SI: Study on Physical Layer Enhancements of Coordinated Scheduling for LTE large CoMP clusters Ericsson SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_CSched_COMP; SI was not treated at RAN #66 in RP-141819
conclusion: not treated

eMBMS for LTE:

RP-150302 Future eMBMS enhancements for LTE Ericsson Disc REL-13 -
discusses the most urgent areas of future MTC enhancements
conclusion: not treated

RP-150303 New WI proposal: eMBMS enhancements for LTE Ericsson WID new RAN1 REL-13 -
new WI for LTE only; leading WG: RAN1; WI code not yet allocated as if related to MTC then why is this missing in the title?; note: MBMS_LTE_enh was a REL-10 WI
conclusion: withdrawn

Self-backhaul nodes:

RP-150169 Discussion on Self-backhaul Nodes for Dense Cell Deployment ZTE Disc REL-13 -
no related SI/WI proposal? for LTE only; LPN = low power node
conclusion: not treated

CSI-RS in DwPTS:

RP-150256 New work item proposal on support of CSI-RS in DwPTS CATT WID new RAN1 REL-13 -
new WI for LTE only; leading WG: RAN1; WI code to be used: LTE_CSIRS_DwPTS; no motivation paper; WI was postponed at RAN #66 in RP-141953
conclusion: not treated

will be treated under AI 18:

Above 6GHz:
Note: These Tdocs will be handled in connection with 5G under AI 18.

RP-150219 New SID Proposal: Study on channel model for frequency spectrum above 6 GHz Samsung SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1 (?); WI code to be used: FS_LTE_b6GHz_channel_model; no motivation paper; compare WI proposal RP-150308
conclusion: not treated

RP-150221 Motivation for study on further evolution beyond LTE-Advanced using frequency spectrum above 6 GHz Samsung Disc motiv REL-13 -
conclusion: not treated

RP-150220 New SID Proposal: Study on further evolution beyond LTE-Advanced using frequency spectrum above 6 GHz Samsung SID new RAN1 REL-13 -
new SI for LTE only; leading WG: RAN1; WI code to be used: FS_LTE_b6GHz; SI was postponed at RAN #66 in RP-142196
conclusion: not treated

RP-150308 New WI: Channel modelling for frequency bands 6-100 GHz Nokia Networks WID new RAN1 REL-13 -
new WI for LTE only; leading WG: RAN1; WI code to be used: LTE_6_100GHz_channel_model; compare SI proposal RP-150219; no motivation paper; for information?
conclusion: not treated

13.1.2 WIs/SIs led by RAN2

LTE-WLAN:
RP-150180 Motivation for new SI proposal: LTE-WLAN Radio Level Integration Qualcomm Incorporated Disc motiv REL-13 -
conclusion: noted

RP-150262 New SI proposal: Study on LTE-WLAN Radio Level Integration and Interworking Enhancement Intel Corporation, China Telecom, Qualcomm Incorporated SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_WLAN_radio; SI was rejected at RAN#66 in RP-142280
discussion: Huawei: good that we merged the 2 solutions in one; spreading the TU allocation in time and reducing the TU in first quarter would be our suggestion
RAN vice-chair: we can take the TU discussion at a later stage
Fujitsu: 3 rapporteurs? one would be better
Broadcom: what is to be done by RAN3 in the first meeting?
RAN3 chair: has the same question, we have an ongoing SI looking at control plane aspects; on user plane aspects we would need input from RAN2
Qualcomm: RAN3 would have to look at feasibility of the architecture and they did already similar work
Orange: thanks Intel & Qualcomm for focussing the objectives; spreading the topic over several meetings would not be useful
SA chair (Nokia Networks): good to involve SA early but also to understand the scope for SA would be useful
Ericsson: we need to talk more about the scope of the SI
LG: agrees with Ericsson that scope of the SI is important, supporting 1A
conclusion: revised in RP-150481

RP-150481 New WI proposal: LTE-WLAN Radio Level Integration and Interworking Enhancement Intel Corporation, China Telecom, Qualcomm Incorporated WID new RAN2 REL-13 -
revision of RP-150262 (but now a WI instead of a SI); new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_WLAN_radio;
conclusion: revised in RP-150504

RP-150504 New WI proposal: LTE-WLAN Radio Level Integration and Interworking Enhancement Intel Corporation, China Telecom, Qualcomm Incorporated WID new RAN2 REL-13 -
discussion: AT&T: would like to discuss considered scenarios for 1 of the 3 hours in RAN2
RAN2 chair: is ok
RAN3 chair: work should not start in next quarter in RAN3
RAN4 chair: Perf. spec to be added and RAN4 as sec. resp. group
conclusion: revised in RP-150510; RAN3 will not work on this topic in Q2/2015

RP-150510 New WI proposal: LTE-WLAN Radio Level Integration and Interworking Enhancement Intel Corporation, China Telecom, Qualcomm Incorporated WID new RAN2 REL-13 -
conclusion: approved

RP-150307 Architecture Options for LTE-WLAN Radio Level Integration Ericsson Disc REL-13 -
conclusion: noted

RP-150397 Consideration on LTE-WLAN interworking architecture Qualcomm Incorporated Disc REL-13 -
conclusion: noted

MDT:

RP-150192 Motivation for New SI: Consideration on MDT Further Enhancements CMCC Disc motiv REL-13 -
conclusion: noted

RP-150193 New SID Proposal: Study on further Enhancements of Minimization of Drive Tests for E-UTRAN CMCC SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_eMDT2; SI was rejected at RAN #66 in RP-142242
discussion: CMCC: no change compared to proposal from RAN #66
conclusion: revised in RP-150472

RP-150472 New SID Proposal: Study on further Enhancements of Minimization of Drive Tests for E-UTRAN CMCC SID new RAN2 REL-13 -
conclusion: approved

Multicarrier Load Distribution of UEs in LTE:

RP-150201 Motivation paper for New WI: Multicarrier Load distribution of UEs in LTE Verizon, China Telecom, NTT DOCOMO, Inc, ZTE, Alcatel-Lucent Disc motiv REL-13 -
conclusion: noted

RP-150200 New WI Proposal: Multicarrier Load Distribution of UEs in LTE Verizon, China Telecom, NTT DOCOMO, Inc, ZTE, Alcatel-Lucent WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_MC_load; WI was rejected at RAN #66 in RP-142279
discussion: Verizon: no contents change, about 40 supporters now
Nokia: interesting area to look at, but since RAN2 has not really concluded a SI would be more appropriate than a WI
Verizon: prefers to have a study phase in the WI
Nokia: specs not listed, WG not as secondary resp., RAN1 should be involved
Verizon: topic was discussed online and offline in RAN2 for a while
Fujitsu: lack of clarity of the impact of this work as WID is not filled out properly (Core/Perf part not ticked, no impact whatsoever in section 9 & 10)
conclusion: revised in RP-150446

RP-150446 New WI Proposal: Multicarrier Load Distribution of UEs in LTE Verizon, China Telecom, NTT DOCOMO, Inc, ZTE, Alcatel-Lucent WID new RAN2 REL-13 -
conclusion: revised in RP-150491

RP-150491 New WI Proposal: Multicarrier Load Distribution of UEs in LTE Verizon, China Telecom, NTT DOCOMO, Inc, ZTE, Alcatel-Lucent WID new RAN2
conclusion: approved
Note: It was detected after RAN #67 that RP-150491 does not specify which spec is affected by the Core part WI and which spec is affected by the Perf. part WI. The rapporteur clarified 36.300, 36.214, 36.304, 36.331, 36.133 are affected by Core part and 36.133 is affected by Perf. part.

Dual connectivity:

RP-150211 Motivation for New WI: Dual Connectivity enhancements for LTE NTT DOCOMO, INC. Disc motiv REL-13 -
related to new WI RP-150156; revision of RP-141780
Nokia Networks presenting on behalf of NTT DOCOMO
conclusion: noted

RP-150157 Work Plan for LTE Dual Connectivity enhancement NTT DOCOMO, INC. Disc REL-13 -
Nokia Networks presenting on behalf of NTT DOCOMO
discussion: LG: RAN2 TU is too small, UL bearer split was discussed a lot but we could not decide anything in the past; leading WG should rather be RAN4 (as most objectives are for RAN4)
Nokia Networks: thought RAN2 is more appropriate
CATT: some time also in other groups could be considered (measurement definition)
NTT DOCOMO: RAN2 leadership more reasonable as previous WI was also led by RAN2
RAN2 vice-chair (LG): still thinks 1 TU is too optimistic; most objectives related to RAN4
Qualcomm: even if the WI is not approved some work for it will be needed in RAN4
conclusion: noted

RP-150156 New WI proposal: Dual Connectivity enhancements for LTE NTT DOCOMO, INC. WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_dualC_enh; follow-up WI of REL-12 WI LTE_SC_enh_dualC; revised in RP-150415
conclusion: revised in RP-150415

RP-150415 New WI proposal: Dual Connectivity enhancements for LTE NTT DOCOMO, INC. WID new RAN2 REL-13 -
revision of RP-150156; new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_dualC_enh; follow-up WI of REL-12 WI LTE_SC_enh_dualC
discussion: Nokia Networks: has a few more supporting companies now
conclusion: revised in RP-150490

RP-150490 New WI proposal: Dual Connectivity enhancements for LTE NTT DOCOMO, INC. WID new RAN2 REL-13 -
revision of RP-150415; new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_dualC_enh; follow-up WI of REL-12 WI LTE_SC_enh_dualC
conclusion: approved

DRX for LTE:

RP-150181 Motivation for new WI proposal: RAN enhancements for extended DRX in LTE Qualcomm Incorporated Disc motiv REL-13 -
discussion: LG: ongoing RAN2 WI on MTC so having 2 WIs at the same time is not beneficial; SI more appropriate to estimate gain of extended DRX
Qualcomm: we do not want to limit this to MTC only
Mediatek: topic is not addressed in the low cost MTC WI
Orange: also thinks this has been studied in REL-12 and does not see an overlap with the low cost MTC
AT&T: supports Orange; would help MTC a lot and we should not delay it by further studies
conclusion: noted

RP-150281 Motivation for new WI: eDRX for LTE Mediatek Inc Disc motiv REL-13 -
discussion: Mediatek: on top of DRX in idle mode we also see benefits to enhance DRX in connected mode
MCC: is this motivation also covered in RP-150182?
Mediatek: yes
conclusion: noted

RP-150182 New WI proposal: RAN enhancements for extended DRX in LTE Qualcomm Incorporated WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_extDRX; WI was rejected at RAN #66 in RP-142277
discussion: Qualcomm: Samsung is also supporting this WI
Nokia Networks: will SA2 also have a WI on this? RAN4 Core requirements completed in 1 meeting is too optimistic
Qualcomm: thought changing of value for DRX cycle will not take long

Ericsson: support Nokia Networks view that 1 meeting in RAN4 is not enough
conclusion: revised in RP-150493

RP-150493 New WI proposal: RAN enhancements for extended DRX in LTE Qualcomm Incorporated WID new RAN2 REL-13 -
conclusion: approved

Latency reduction for LTE:

RP-150310 Motivation for new SI: Study on Latency reduction techniques for LTE Ericsson Disc motiv REL-13 -
conclusion: noted

RP-150238 Motivation for a Rel-13 study on latency reduction in LTEHuawei, HiSilicon Disc motiv REL-13 -
discussion: Huawei: RP-150238 is also supporting RP-150309
conclusion: noted

RP-150309 New SI proposal: Study on Latency reduction techniques for LTEEricsson SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_LATRED; SI was postponed at RAN #66 in RP-142025; note: REL-10 WI LTE_LATRED-Core was terminated in RP-091449 at RAN #50
discussion: LG: how can backwards compatibility be kept with reduced subframe
Ericsson: will have to be studied in RAN1 (time multiplex)
LG: also processing times would need to be shortened to see real gains
Ericsson: can be studied in RAN1
CATT: TTI shortening will need quite some time in RAN1, should RAN1 not be the leading WG for this SI?
Ericsson: protocol enhancement and TTI shortening is both important; could consider a WI in REL-14
ALU: supports CATT view as majority of work is done in RAN1
Orange: we agree that latency reduction is important, but it is an end-to-end performance so we need to see where we lose performance (so tackling just the RAN part may not be sufficient); prefers to focus on items that could be standardized in REL-13
Nokia: RAN1 is the right group for this and should be the leading WG
Panasonic: supports to have a SI first
LG: we have several solutions for capacity enhancements so we also need to study solutions for latency reductions
Ericsson: the end-to-end latency consideration is speaking for having RAN2 as leading WG
conclusion: revised in RP-150465 (multiple versions of RP-150309 existed)

RP-150465 New SI proposal: Study on Latency reduction techniques for LTEEricsson SID new RAN2 REL-13 -
discussion: NEC: suggests to check SI in RAN1 first
conclusion: approved

Application specific Congestion control for Data Communication (ACDC):

RP-150166 Motivation of RAN aspects of Application specific Congestion control for Data Communication LG Electronics Inc. Disc motiv REL-13 -
conclusion: noted

RP-150167 New WI Proposal: RAN aspects of Application specific Congestion control for Data CommunicationLG Electronics Inc. WID new RAN2 REL-13 -
new WI for; leading WG: RAN2; WI code to be used: ACDC-RAN; note: ACDC is a REL-13 WI in SA
conclusion: revised in RP-150422

RP-150422 New WI Proposal: RAN aspects of Application specific Congestion control for Data CommunicationLG Electronics Inc. WID new RAN2 REL-13 -
conclusion: revised in RP-150466

RP-150466 New WI Proposal: RAN aspects of Application specific Congestion control for Data CommunicationLG Electronics Inc. WID new RAN2 REL-13 -
conclusion: at first approved but then revised in RP-150512 as time budget for UMTS in RAN2 was not indicated

RP-150512 New WI Proposal: RAN aspects of Application specific Congestion control for Data CommunicationLG Electronics Inc. WID new RAN2 REL-13 -

conclusion: approved
Note: This WI has only a Core and no Perf. part. It was detected after RAN #67 that the corresponding Core part box is not ticked in the WID.

Signalling reduction in LTE:

RP-150312 Motivation for new WI: Signalling Reduction for Idle-Active Transitions in LTE Ericsson Disc motiv REL-13 -
conclusion: noted

RP-150311 New WID proposal: Signalling Reduction for Idle-Active Transitions in LTE Ericsson, Intel Corporation WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_SigRed_Trans; WI was not treated at RAN #66 in RP-142030
discussion: Mediatek: UE has to come back from idle mode
Ericsson: one solution is to keep UE in connected mode but this comes with some cost; so keeping UEs in idle has some benefits if we optimize the signalling
conclusion: revised in RP-150426

RP-150426 New WID proposal: Signalling Reduction for Idle-Active Transitions in LTE Ericsson, Intel Corporation WID new RAN2 REL-13 -
conclusion: postponed

DL/UL PCell separation:

RP-150257 Motivation for DL/UL PCell separation CATT Disc motiv REL-13 -
conclusion: noted

RP-150258 New study item proposal: Study on DL/UL PCell separation in LTE CATT SID new RAN2 REL-13-
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_PCell_sep; SI was not treated at RAN #66 in RP-141952
discussion: AT&T: this applies to FDD & TDD?
CATT: yes
conclusion: postponed

Synchronous LTE networks:

RP-150297 Motivation for new WI: Improved Mobility via Synchronous Handovers in LTE Networks Nokia Networks, Nokia Corporation Disc motiv REL-13 -
conclusion: noted

RP-150296 New WI: Improved Mobility for Synchronous LTE Networks (MobSync) Nokia Networks, Nokia Corporation WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_mob_sync_netw; WI was not treated at RAN #66 in RP-142215
conclusion: postponed

HSDPA multiflow enhancements:

RP-150288 New WI proposal: Multiflow Enhancements for UTRA Nokia Networks, Nokia Corporation, Huawei, HiSilicon, China Unicom WID new RAN2 REL-13 -
new WI for UTRA only; leading WG: RAN2; WI code to be used: HSDPA_MFTX_enh; WI was postponed at RAN #66 in RP-142219; no motivation paper
conclusion: approved

Way forward on RAN2 led WIs:

RP-150480 Way forward on new RAN2-led Rel-13 Work and Study Items Ericsson, Huawei, HiSilicon, Qualcomm, Softbank Mobile, Sony, TeliaSonera, US Cellular, Inter Digital, Sierra Wireless, Telefonica, Light Squared, KDDI, Panasonic, Sprint, Verizon, Mediatek, T Mobile US, ZTE, Asustek, Motorola, US Dept of Commerce, China Telecom, Dish Network, SouthernLink, Telus, Elektrobit, Deutsche Telekom, Orange, Nokia Networks, III, ITRI, CoolPad, Telecom Italia Disc REL-13 -
Proposal:
Approve the following items with corresponding modifications to content and time budget
- *WI: WLAN / LTE Integration (RP-15xxxx); Time: spread TUs in Rel-13: (1.5, 1.5, 1.5, 1.5, 1.5)*
- *WI: Multicarrier Load Distribution (RP-15xxxx); Time: (1, 1, 1, 1, 0)*
- *SI: Low Latency (RP-15xxxx); RAN2 time: (0, 1, 1, 1, 1)*

RAN1 time: Start only in Q4, aim to complete in 2016. Budget 2015: (0, 0, 0, 0, 1), 2016 (2,2,2,0,0,0).
RAN2 content: Remove idle-to-connected mode latency study

- *SI: MDT (RP-150193)*
  RAN2 time (0.5, 0.5, 0.5, 0, 0)
  Content: Focus on MDT enhancements for VoLTE packet delay measurements. SNR measurements are to be discussed in RP-150200.
- *WI: Dual Connectivity enh. (RP-150156)*
  RAN2 Time: (0, 0, 0, 0.25, 0.25)
  Stage-3 UP aspects starting in April
- *WI: ACDC (RP-150182)*
  Approved for May but will be treated only if sufficient input is provided by CT1: (0, 0.25, 0.25, 0.25, 0)
  (and 0.25 additional time units in UMTS session for handling UMTS stage-3 aspects)
- *WI: RAN enhancements for extended DRX in LTE (RP-150182)*
  RAN2 time: (0, 1, 1, 1, 1)

discussion: RAN2 chair: 4,5 TU instead of original 4TUs is ok
Samsung: 1TU for low latency in RAN1 should be in [ ] as critical
AT&T: how can WLAN / LTE Integration be a WI? It should rather be a SI. Apart from this, we support the way forward
Broadcom: WLAN/LTE integration: should study the use cases first
RAN2 chair: agrees that with this there will not be time for more WIs/SIs
Orange: knows that a number of concerns were raised if we open it up again the consensus will break
Nokia Networks: 12 WIs/SIs in RAN2 with a short REL
NTT DOCOMO: why was latency increased to 2,2,2?
CMCC: low latency is going into REL-14?
Ericsson: starting in REL-13 and then going in REL-14
NEC: why is there urgency then to do low latency in REL-13?
CATT: would be useful to have the proposals available; clarify that low latency is for FDD/TDD
RAN chair: we are not discussing 5G here, so low latency for LTE is meant
NEC: has problem to endorse this way forward if WIDs are not yet available
MCC: Dual connectivity enh. 0TU in April and stage 3 UP starting in April is not a contradication?
RAN2 chair: UP aspects not included in the time budget

conclusion: noted, way forward is endorsed, WIDs/SIDs to be considered on Thu of RAN #67

less than 4 supporters, will be treated only if time allows:

Multi-profile UE capability in LTE:

RP-150183 Motivation for new WI proposal: Multi-Profile UE E-UTRA capability Qualcomm Incorporated Disc motiv REL-13 -
conclusion: not treated

RP-150184 New WI proposal: Multi-Profile UE E-UTRA capability Qualcomm Incorporated WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_multi_UEcap; WI was withdrawn at RAN #66 in RP-141996
conclusion: not treated

Partial control of Cell Management for UEs in LTE (PaCMan):

RP-150295 Motivation for New SI on Partial control of Cell Management for UEs in LTE (PaCMan)" Nokia Networks, Nokia Corporation Disc motiv REL-13 -
conclusion: not treated

RP-150294 New SI: Study on Partial control of Cell Management for UEs in LTE (PaCMan) Nokia Networks, Nokia Corporation SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_PaCMan; SI was not treated at RAN #66 in RP-142005
conclusion: not treated

Mobility enhancements LTE:

RP-150314 Motivation for new SI: Study on Mobility Enhancements for LTEEricsson Disc motiv REL-13 -
conclusion: not treated

RP-150313 New SI proposal: Study on Mobility Enhancements for LTE Ericsson SID new RAN2 REL-13 -
new SI for LTE only; leading WG: RAN2; WI code to be used: FS_LTE_mob_enh; SI was postponed at RAN #66 in RP-142036; compare RP-150283
conclusion: not treated

RP-150284 Motivation for New WI: Mobility Enhancements for LTE Mediatek Inc Disc motiv REL-13 LTE_mob_enh
conclusion: not treated

RP-150283 New WI proposal: Mobility Enhancements for LTE Mediatek Inc WID new RAN2 REL-13 -
new WI for LTE only; leading WG: RAN2; WI code to be used: LTE_mob_enh; WI was not treated at RAN #66 in RP-142047; compare RP-150313
conclusion: not treated

13.1.3 WIs/SIs led by RAN3

HSPA and LTE Joint Operation:

RP-150273 Motivation for New SI: HSPA and LTE Joint Operation China Unicom Disc motiv REL-13 -
discussion: AT&T: no RAN1 impact?
China Unicom: no RAN1 impact
conclusion: noted

RP-150268 New SID Proposal: Study on HSPA and LTE Joint Operation China Unicom SID new RAN3 REL-13 -
new SI for UTRA & LTE; leading WG: RAN3; WI code to be used: FS_UTRA_LTE_JOP; SI was rejected at RAN #66 in RP-141889
discussion: ALU: bigger RAN2 impact needs to be taken into account
conclusion: revised in RP-150471

RP-150471 New SID Proposal: Study on HSPA and LTE Joint Operation China Unicom SID new RAN3 REL-13 -
discussion: Ericsson: some important work to be done in RAN2 so strange that we start work in RAN3 without knowing when RAN2 can be done
RAN chair: only discussion in RAN3 intended?
China Unicom: yes, RAN2 can be considered after RAN3 has considered the feasibility
RAN3 chair: same problem as UPCON, something cannot start in RAN3 because of bottleneck in RAN2
ALU: has similar concerns as Ericsson that we may start work in RAN3 but RAN2 has no possibility to look at this topic
RAN chair: we will not add later RAN2 objectives here but just consider the SI in RAN3, is this possible?
RAN3 chair: so we discuss the scenarios?
RAN chair: yes, because feasibility cannot be studied without RAN2
RAN3 chair: so we should then reduce the scope and the lenght of the SI to one quarter
Qualcomm: is not a clean approach to only consider RAN3 aspects
RAN chair: other alternative: RAN can give an action to RAN3 to identify scenarios for this and to capture this in a RAN3 internal TR
RAN3 chair: so we would have an agenda item in RAN3
NEC: also network architecture?
RAN chair: no, otherwise we enter into a feasibility study
AT&T: supports to give a task to RAN3
Fujitsu: so it will have low priority
Qualcomm, Ericsson: do not like this approach
Ericsson: it seems we bypass the process of time budget planning by SIs at RAN and now with an ACTION
ALU: not supporting to set a precendence case, so does not want to see a TR for this

Vodafone: RAN3 only work, UE operating in both RATs, will RAN2 then have to work on this?
RAN chair: not intended
conclusion: postponed

User Plane Congestion management (UPCON) for UTRA & LTE:

RP-150290 Motivation for Proposed SI: RAN Aspects of Downlink Traffic Differentiation for UPCON NEC Disc motiv REL-13 -
conclusion: noted

RP-150291 Proposed SI: Study on RAN Aspects of Downlink Traffic Differentiation for UPCON NEC SID new RAN3 REL-13 -
new SI for UTRA & LTE; leading WG: RAN3; WI code to be used: FS_UTRA_LTE_UPCON; UPCON = User Plane Congestion management (is an SA REL-13 WI)
discussion: Nokia Networks: key objectives make more sense to start in RAN2 and not in RAN3
NEC: if not feasible is decided in RAN3 then we are done already, but agrees if feasible then RAN2 will have to work on it
Ericsson: 2TUs changed to 1TU but no change in objectives?
NEC: needs to check
AT&T: 1-2 TUs enough for RAN3?
RAN2 chair: will consume more than 1 meeting and more than 1 TU in RAN2
conclusion: postponed

RP-150497 Draft LS on Reporting to SA and SA2 on consequences for UPCON of RAN WI prioritisation NEC LSout REL-13 -
related to new SI proposal for UPCON in RP-150291
discussion: NEC: starting RAN3 only part would not be useful but we need to report back to SA2 that RAN cannot work on this
NEC: printing error: "when RAN can NOT" (NOT is missing)
ALU: why "before June 15"?
NEC: because this is the current deadline for stage 2 in REL-13
conclusion: revised in RP-150501

RP-150501 Draft LS on Reporting to SA and SA2 on consequences for UPCON of RAN WI prioritisation NEC LSout REL-13 -
conclusion: revised in RP-150514

RP-150514 LS on Consequence of RAN WI prioritisation for UPCON work in SA2 (to: SA2; cc: SA, RAN2, RAN3; contact: NEC) RAN LSout REL-13 UPCON
conclusion: approved

CS/PS coordination in UTRAN Shared Network:

RP-150306 Motivation for New WI: RAN aspects for improvements to CS/PS coordination in UTRAN Shared Network Ericsson Disc motiv REL-13 -
conclusion: noted

RP-150304 New WI: RAN aspects for improvements to CS/PS coordination in UTRAN Shared Network Ericsson WID new RAN3 REL-13 -
new WI for UTRA only; leading WG: RAN3; WI code to be used: CSPS_Coord-UTRA; note: CSPS_Coord is an SA2 REL-13 WI
discussion: RAN vice-chair: how many supporting companies?
Ericsson: so far only 3 but hopes for more
Huawei: agrees we need more supporting companies
RAN3 chair: GUSH work ongoing and relation to be checked
conclusion: revised in RP-150500

RP-150500 New WI: RAN aspects for improvements to CS/PS coordination in UTRAN Shared Network Ericsson WID new RAN3 REL-13 -
discussion: China Unicom: we have a SI so no WI needed
Ericsson: similar proposal in GERAN to finalize stage 3
TeliaSonera: this has nothing to do with a SI
RAN3 chair: GUSH SI is following SA1 WI and this one following an SA2 WI
conclusion: approved

RAN vice-chair: RAN3 chair was confirming that we have time budget in RAN3 for new WIs/SIs, nevertheless we have to take into account the impact on all WGs.

less than 4 supporters, will be treated only if time allows:

Licensed Shared Access (LSA) in LTE:

Note: There is also an incoming LS on this topic in RP-150020 (see AI 6.1).

RP-150108 Motivation for New SI: E-UTRAN support for Licensed Shared Access (LSA) Nokia Networks Disc motiv REL-13 -
conclusion: not treated

RP-150109 New SI proposal for information: Study on E-UTRAN support for Licensed Shared Access (LSA) Nokia Networks SID new RAN3 REL-13 -
new SI for LTE only; leading WG: RAN3; WI code to be used: FS_LTE_LSA; SI RP-141857 was not treated at RAN #66; for information?
conclusion: not treated

13.1.4 WIs/SIs led by RAN4

Interference mitigation for downlink control channels of LTE:

RP-150265 Motivation for new WI: Interference mitigation for downlink control channels of LTE Intel Corporation, ZTE Disc motiv REL-13 -
conclusion: noted

RP-150267 New WI: Interference mitigation for downlink control channels of LTE Intel Corporation, ZTE WID new RAN4 REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_IM_DLCCH; SI was rejected at RAN #66 in RP-142314 where it was proposed to be a RAN1-led SI, now proposed to be a RAN4-led WI
discussion: NTT DOCOMO: would this feature work for unsynchronous network?
Intel: intention is to focus on synchronous network first
NTT DOCOMO: for asynchronous network also interference from other cells need to be taken into account and mentioned in the WID
Intel: we are ok to focus the WI on synchronous case
Intel: WID has been submitted for one year now and figures show enough gain
NEC: considered transmission mode unclear
conclusion: revised in RP-150474

RP-150474 New WI: Interference mitigation for downlink control channels of LTE Intel Corporation, ZTE WID new RAN4 REL-13 -
conclusion: revised in RP-150494

RP-150494 New WI: Interference mitigation for downlink control channels of LTE Intel Corporation, ZTE WID new RAN4 REL-13 -
conclusion: postponed

Measurement gap:

RP-150274 Motivation for new SI: Measurement gap enhancement for LTE Intel Corporation Disc motiv REL-13 FS_LTE_meas_gap
conclusion: noted

RP-150276 New SI proposal: Study on Measurement gap enhancement for LTE Intel Corporation SID new RAN4 REL-13 -
new SI for LTE only; leading WG: RAN4; WI code to be used: FS_LTE_meas_gap; SI was postponed at RAN#66 in RP-142261
discussion: Intel: also Orange and Telecom Italia are supporting now
MCC: please do not tick Core part in a SID
conclusion: revised in RP-150475

RP-150475 New SI proposal: Study on Measurement gap enhancement for LTE Intel Corporation SID new RAN4 REL-13 -
conclusion: revised in RP-150515 (as multiple versions of RP-150475 exist)

RP-150515 New SI proposal: Study on Measurement gap enhancement for LTE Intel Corporation SID new RAN4 REL-13 -

conclusion: approved

4 Downlink Receive antenna ports in LTE:

RP-150143 Motivation paper for new WI on LTE DL 4 Rx antenna ports Ericsson Disc motiv REL-13 -
conclusion: noted

RP-150142 New Work Item: LTE DL 4 Rx antenna ports Ericsson WID new RAN4 REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_4Rx_AP_DL; follow-up WI of REL-13 SI FS_LTE_4Rx_AP_DL (see AI 12.4.9)
discussion: CATT: supports this WI and would like to be added as supporting company
conclusion: revised in RP-150427

RP-150427 New Work Item: LTE DL 4 Rx antenna ports Ericsson WID new RAN4 REL-13 -
conclusion: approved

RP-150212 Considerations on the 4Rx Work Item Scope Qualcomm Incorporated Disc REL-13 -
presentation on why it is important to allow opportunistic fallback to 2 Rx operation
proposals:
Proposal 1. Allow opportunistic fallback to 2Rx operation.
Proposal 2. Do not define any requirements for idle mode.
Concerning the scope of the RRM part, we propose the following:
Proposal 3. Limit the RRM scope to defining RLM requirements subject to feasibility study.
discussion: Ericsson: proposals 2 & 3 are already in line with WID; proposal 1 could be added in a revision of the WID, maybe with slightly different wording
Sprint: concerned about two autonomous fallbacks to 2 Rx
Qualcomm: UE will not fall back and forth so this will be a controlled behaviour
Huawei: sounding transmit antenna switching could be also considered
Ericsson: this is a DL enhancement feature, would not like to mix it with UL sounding
AT&T: for backward compatibility is it not normal that you will need 2Rx
Ericsson: could be also fallback to 2Rx to reduce power consumption
conclusion: noted

Positioning enhancements LTE:

RP-150240 Motivation of Rel-13 New Work Item proposal: Positioning enhancements for E-UTRA Huawei, HiSilicon Disc motiv REL-13 -
conclusion: noted

RP-150239 New Work Item proposal: Positioning enhancements for E-UTRA Huawei, HiSilicon WID new RAN4 REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LCSenh_LTE; follow-up WI of Rel-13 SI FS_LCSenh_LTE completed in Dec.14
discussion: Qualcomm: not sure why PRS TX diversity should be specified as it does not bring advantages in some scenarios
Huawei: this WI has a different scope compared to the indoor positioning
ALU: supports to remove PRS TX diversity
Ericsson: RAN1 & RAN2 need to be involved somehow
conclusion: postponed

Way forward:

RP-150469 Way forward on RAN4-led WI proposals for RAN#67 NTT DOCOMO, INC. Disc REL-13 -
discussion: RAN chair: 2 ways forward?
NTT DOCOMO: these are 2 proposals
ALU: does not want to approve way forward 1
RAN chair: we need a multiple company way forward
Intel: any limitation that one company can only have one WI for a WG
TeliaSonera: a draft of RP-150469 was distributed offline and supports way forward 1
conclusion: noted

RP-150473 Way forward on RAN4-led SI/WI Intel Disc REL-13 -
conclusion: not treated

RP-150508 Way forward on RAN4 led WI/SI of RAN #67 NTT DOCOMO, INC. Disc REL-13 -
way forward proposal:

The following WI/SI can be approved
- *Led by R4:*
  - *LTE DL 4 Rx antenna ports*
  - *Measurement gap enhancement for LTE*
- *Led by R2: (Follow final R2 decision)*
  - *Dual Connectivity enhancements for LTE*
  - *Multicarrier Load Distribution of UEs in LTE*
  - *RAN enhancements for extended DRX in LTE*
  - *Wireless LAN aggregation/inter working*
- *It is allowed for "interference mitigation for DL CCH of LTE" to be treated in the following manner: Even if the Study starts from R4#76bis, this can be preapproved if it is selected among the other proposed WI/SIs at R#68.*

conclusion: noted, way forward approved

less than 4 supporters, will be treated only if time allows:

common antenna MSR/LTE:

RP-150270 New WID: MSR BS configurations for LTE for common antenna case ZTE WID new RAN4 REL-13 -

new WI for LTE only?; leading WG: RAN4; WI code to be used: not allocated as affected system was unclear; original title: New MB-MSR BS configurations for common antenna case; no motivation paper; focus seems to be on RF requirements for LTE BS or MSR BS in case of common antenna with multi-band operation but WID in a bad shape (no Core/Perf part relation of specs & no system impact and just 1 supporting company)

conclusion: revised in RP-150464 as multiple versions of RP-150270 exist

RP-150464 New WID: RF requirements for LTE BS or MSR BS in case of common antenna with multi-band operation ZTE WID new RAN4 REL-13 -

new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_BS_Common_Ant; revision of RP-150270

conclusion: withdrawn (as not provided)

13.2 Spectrum related WIs/SIs

AWS extension:

RP-150195 Canadian Considerations for AWS Extension Band Plan Rogers CommunicationsDisc REL-13 -

recently published Canadian Government band plans for AWS3 and AWS4; provided for information

Rogers recommends that 3GPP should develop an AWS band plan that is harmonized for Region 2. As a first step, 3GPP should develop an AWS band plan that is compatible with the band plans recently adopted by the United States and Canada.

Rogers recommends that the AWS-3 and AWS-4 band plans recently adopted by the United States and Canada be considered as part of the associated work item.

conclusion: noted

RP-150150 Motivation for WID on AWS-Extension Band for LTEEricsson Disc motiv REL-13 -

conclusion: noted

RP-150148 New WID on AWS-Extension Band for LTE Ericsson WID new RAN4 s REL-13 -

new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_AWS_EXT; AWS = Advanced Wireless Services; to specify a band plan as follow-up of REL-13 SI FS_LTE_AWS_EXT (see TR 36.849); this is a paired band 1710-1780MHz / 2110-2200MHz with fixed duplex spacing; interoperability by means of CA is also proposed

discussion: RAN3 chair: impact on RAN3 specs need to be checked
Rogers is supporting the WI
Dish Network: some clarification in the objective section needed
Huawei: scope needs to be aligned with SI conclusions

conclusion: revised in RP-150428 (also wrong WI code is used, unclear whether TR 36.xxx is a TR 36.8xx or 36.9xx)

RP-150428 New WID on AWS-Extension Band for LTE Ericsson WID new RAN4 s REL-13 -

conclusion: approved

2DL inter-band CA:

RP-150171 New WID: Additional bandwidth combination set for LTE Advanced inter-band Carrier Aggregation of Band 5 and Band 7 Nokia Networks WID new RAN4 s (2DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B5_B7_BWset; note: LTE_CA_B5_B7 was a REL-12 WI
conclusion: approved
Note: It was detected after RAN #67, that TR 36.852-13 is listed under new without indicating whether it is impacted by Core or Perf. part. As TR 36.852-13 is created by WI LTE_CA_B3_B38-Core it must be listed as affected. Rapporteur confirmed that the TR is affected by the Core part.

RP-150282 New WI proposal: Additional bandwidth combination set for LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 5 Samsung WID new RAN4 s (2DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B3_B5_BWset; note: LTE_CA_B3_B5 was a REL-11 WI
conclusion: revised in RP-150425

RP-150425 New WI proposal: Additional bandwidth combination set for LTE Advanced inter-band Carrier Aggregation of Band 3 and Band 5 Samsung WID new RAN4 s (2DL/1UL) REL-13 -
discussion: MCC: TR is for 2DL/1UL?
Samsung: yes
conclusion: approved

3DL/1UL inter-band CA:

RP-150083 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL) of Band 1, Band 5 and Band 40 SK Telecom WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B5_B40; merged with RP-150085 (see RP-150418)
conclusion: withdrawn, see RP-150418 (4DL/1UL) instead

RP-150084 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL) of Band 3, Band 5 and Band 40 SK Telecom WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B3_B5_B40; merged with RP-150085 (see RP-150418)
conclusion: withdrawn, see RP-150418 (4DL/1UL) instead

RP-150111 New WI: Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 4, Band 4 and Band 7 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B4_B4_B7_BWset
conclusion: revised in RP-150429 (correct WI code, change TR 36.853 into TR 36.853-13 and TR 36.851 into 36.852-13 and indicate whether they are affected by Core or Perf part)

RP-150429 New WI: Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 4, Band 4 and Band 7 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150112 New WI: Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 4, Band 7 and Band 12 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B4_B7_B12_BWset
conclusion: revised in RP-150430 (correct WI code, change TR 36.853 into TR 36.853-13 and TR 36.851 into 36.852-13 and indicate whether they are affected by Core or Perf part)

RP-150430 New WI: Additional bandwidth combination set for LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 4, Band 7 and Band 12 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150113 New WI: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 7 and Band 12 Rogers Communications WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B7_B12
conclusion: revised in RP-150431 (change TR 36.853 into TR 36.853-13 and TR 36.851 into 36.852-13 and indicate whether they are affected by Core or Perf part)

RP-150431 New WI: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 7 and Band 12
Rogers CommunicationsWID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150114 New WI: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 4 and Band 7
Rogers CommunicationsWID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B4_B7
conclusion: revised in RP-150432 (change TR 36.853 into TR 36.853-13 and TR 36.851 into 36.852-13 and indicate whether they are affected by Core or Perf part)

RP-150432 New WI: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 4 and Band 7
Rogers CommunicationsWID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150121 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 3 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B3_B42
conclusion: approved

RP-150122 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 19 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B19_B42
conclusion: approved

RP-150123 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 1, Band 21 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B21_B42
conclusion: approved

RP-150124 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 3, Band 19 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B3_B19_B42
conclusion: approved

RP-150125 New WID: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 19, Band 21 and Band 42
NTT DOCOMO, INC. WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B19_B21_B42
conclusion: approved

RP-150144 New Work Item Proposal: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 7, Band 20 and Band 38Vodafone WID new RAN4 s (3DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B7_B20_B38
discussion: MCC: rapporteur, at least 2 supporting companies missing, tbd, TR is not new, 2DL TR missing
Qualcomm: makes some PCell assumptions, without it we could support it and take the PCell discussion separately
conclusion: revised in RP-150433 (remove TR 36.xxx from new specs and add TR 36.853-13 and TR 36.852-13 under affected specs indicating whether they are affected by Core or Perf. part; add a rapporteur, get at least 2 more supporting companies)

RP-150433 New Work Item Proposal: LTE Advanced 3 Band Carrier Aggregation (3DL/1UL) of Band 7, Band 20 and Band 38Vodafone WID new RAN4 s (3DL/1UL) REL-13 -
conclusion: approved

4DL/1UL inter-band CA:

RP-150073 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 4 and Band 12 T-Mobile USA WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B4_B4_B12
conclusion: approved

RP-150074 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 4 and Band 12 T-Mobile USA WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B2_B4_B12
conclusion: approved

RP-150075 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 2, Band 4 and Band 4 T-Mobile USA WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B2_B4_B4
conclusion: approved

RP-150085 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 5 and Band 40 SK Telecom WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B3_B5_B40; could include also RP-150083 and RP-150084;
conclusion: revised in RP-1500418 merging RP-150085 and RP-150083 and RP-150084

RP-150418 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 5 and Band 40 SK Telecom WID new RAN4 s (4DL/1UL) REL-13 -
revision of RP-150085 (also including RP-150083 and RP-150084 aspects); new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B3_B5_B40;
conclusion: revised in RP-150434 (change TR 36.8xx in section 10 into TR 36.854-13, add TR 36.853-13 as affected spec in section 10 and if also 2DL permutations need to be covered: also add TR 36.852-13 as affected spec in section 10)

RP-150434 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 5 and Band 40 SK Telecom WID new RAN4 s (4DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150172 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 7 and Band 8 Nokia Networks WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B1_B3_B7_B8
discussion: LG: supports the WI
MCC: 4DL, 3DL TR should be under affected
conclusion: revised in RP-150435 (TR 36.854-13 and TR 36.853-13 should be listed under affected specs)

RP-150435 New WID: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 1, Band 3, Band 7 and Band 8 Nokia Networks WID new RAN4 s (4DL/1UL) REL-13 -
conclusion: approved (unseen)

RP-150241 New work item proposal: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4, Band 5 and Band 29 Bell Mobility, TELUS, Huawei WID new RAN4 s (4DL/1UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_B2_B4_B5_B29
conclusion: revised in RP-150436 (Core/Perf part not ticked, Radio Access under section 1 not ticked, section 2.0 not filled out, section 9 not filled out, TR 36.8xx for 3DL should say TR 36.853-13, TR 36.8xx for 4DL should say TR 36.854-13)

RP-150436 New work item proposal: LTE Advanced 4 Band Carrier Aggregation (4DL/1UL) of Band 2, Band 4 Band 5 and Band 29 Bell Mobility, TELUS, Huawei WID new RAN4 s (4DL/1UL) REL-13 -
conclusion: approved (unseen)

2DL intra-band contiguous:

RP-150194 New WID Proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 8 CMCC WID new RAN4 s (C) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_C_B8;
conclusion: revised in RP-150416

RP-150416 New WID Proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 8 CMCC WID new RAN4 s (C) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_C_B8
discussion: Qualcomm: do we need 1.4MHz and 3MHz?
CMCC: RP-150416 has solved this already
Vodafone: concerned removing 3MHz (avoiding fragmentation)
conclusion: revised in RP-150437 (remove (2UL/2DL) from WI title, tick Radio Access in section 1, fill out section 2, section 9: no impact on AN?)

RP-150437 New WID Proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 8 CMCC WID new RAN4 s (C) REL-13 -
conclusion: approved

3DL intra-band non-contigous:

RP-150246 New WID: LTE Advanced intra-band non-contiguous Carrier Aggregation in Band 42 for 3DL
Huawei, Etisalat WID new RAN4 s (NC 3DL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_NC_B42_3DL
discussion: MCC: in the future we should replace the x in the new TR.
conclusion: approved
Note: The WID does not clarify whether the new TR is created by the Core part or the Perf. part. The rapporteur clarified that the TR is created by the Core part.

4DL intra-band contiguous:

RP-150198 New WI proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 42 for 4DL
CATT WID new RAN4 s (C 4DL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_C_B42_4DL
discussion: MCC: TR for Core or Perf. part?
Orange: table format is difficult to interpret; also a not that additional BW combis can be added
conclusion: revised in RP-150438

RP-150438 New WI proposal: LTE Advanced intra-band contiguous Carrier Aggregation in Band 42 for 4DL
CATT WID new RAN4 s (C 4DL) REL-13 -
conclusion: approved

2UL:

Note: So far we had 5 2UL classes in REL-12: A1/A2/A3/A4/A5 which were covering FDD-FDD cases. For REL-13 we defined so far classes A1/A2/A3 which also covered so far just FDD-FDD cases. RP-150064 intends to cover new FDD-TDD cases and in the same connection it was clarified that in REL-13 A1/A2/A3, the new A4 (see RP-150103) and a potentially future A5 have to cover TDD-TDD as well. This requires updated REL-13 WIDs for A1/A2/A3 and a revision of RP-150103 in RP-150410:

RP-150064 New WID: LTE Advanced dual uplink inter-band Carrier Aggregation FDD-TDD KDDI WID new RAN4 s (2UL) REL-13 -

new class

new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_2UL_FDD_TDD;
note: This will be another 2UL basket WI (covering e.g. B1_B42) for FDD-TDD cases while LTE_CA_2UL_R13-Ax covers FDD-FDD and TDD-TDD but TR 36.860-13 will also be used for combinations of LTE_CA_2UL_FDD_TDD
conclusion: approved

RP-150103 New WI proposal: LTE Advanced dual uplink inter-band Carrier Aggregation Class A4 Nokia Corporation WID (new) RAN4 s (2UL) REL-13 -
new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_2UL_R13-A4;
conclusion: revised in RP-150410 to clarify that TDD-TDD is part of this WI

RP-150410 New WI proposal: LTE Advanced dual uplink inter-band Carrier Aggregation Class A4 Nokia Corporation WID new RAN4 s (2UL) REL-13 -
revision of RP-150103 to add TDD-TDD; new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_2UL_R13-A4
conclusion: approved
Note: The TR 36.860-13 was created by WI LTE_CA_2UL_R13-A1-Core, therefore this new WI can only affect the TR 36.860-13. This WID does not clarify whether TR 36.860-13 is affected by the Core or the Perf. part. The rapporteur clarified after RAN #67 that TR 36.860-13 is affected by Core and Perf. part.

3DL/2UL inter-band:

Note: It was clarified that the WI RP-150105 includes only combinations of 3DL/1UL and 2UL which are already standardized.

RP-150105 New WI proposal: LTE Advanced 3DL/2UL inter-band Carrier Aggregation Nokia Corporation, LG Electronics WID new RAN4 s (3DL/2UL) REL-13 -

new class

new WI for LTE only; leading WG: RAN4; WI code to be used: LTE_CA_3DL_2UL
conclusion: revised in RP-150439

RP-150439 New WI proposal: LTE Advanced 3DL/2UL inter-band Carrier Aggregation Nokia Corporation, LG Electronics WID new RAN4 s (3DL/2UL) REL-13 -
discussion: Vodafone: concerned that combinations which are not yet completed could not be added later to the WID
conclusion: revised in RP-150479

RP-150479 New WI proposal: LTE Advanced 3DL/2UL inter-band Carrier Aggregation Nokia Corporation, LG Electronics WID new RAN4 s (3DL/2UL) REL-13 -
conclusion: approved

13.3 UE conformance testing WIs/SIs led by RAN5

RP-150071 New WI proposal: UE Conformance Test Aspects - Further DL MIMO Enhancement for LTE-Advanced ZTE WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5; WI code to be used: LTE_eDL_MIMO_enh-UEConTest; tested core part: LTE_eDL_MIMO_enh-Core
conclusion: approved

RP-150130 New WI proposal: UE Conformance Test Aspects - DCH Enhancements for UMTS Qualcomm Incorporated WID new RAN5 REL-12 -
new WI for UTRA only; leading WG: RAN5; WI code to be used: UTRA_DCHenh-UEConTest; tested core part: UTRA_DCHenh-Core;
conclusion: revised in RP-150412

RP-150412 New WI proposal: UE Conformance Test Aspects - DCH Enhancements for UMTS Qualcomm Incorporated WID new RAN5 REL-12 -
new WI for UTRA only; leading WG: RAN5; WI code to be used: UTRA_DCHenh-UEConTest; tested core part: UTRA_DCHenh-Core;
conclusion: approved

RP-150131 New WI proposal: UE Conformance Test Aspects – LTE Device-to-Device Proximity Services Qualcomm Incorporated WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5 ; WI code to be used: LTE_D2D_Prox-UEConTest; tested core part: LTE_D2D_Prox-Core
conclusion: approved

RP-150134 New WI proposal: UE Conformance Test Aspects - L-band for Supplemental Downlink in E-UTRA and UTRA Ericsson WID new RAN5 REL-12 -
new WI for UTRA & LTE; leading WG: RAN5; WI code to be used: LTE_UTRA_SDL_BandL-UEConTest; tested core part: LTE_UTRA_SDL_BandL-Core
conclusion: approved

RP-150135 New WI proposal: UE Conformance Test Aspects - Low cost & enhanced coverage MTC UE for LTE Ericsson WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5; WI code to be used: LC_MTC_LTE-UEConTest; tested core part: LC_MTC_LTE-Core
conclusion: approved

RP-150136 New WI proposal: UE Conformance Test Aspects - Further Rel-12 configurations for LTE Advanced Carrier Aggregation with 2UL Ericsson WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5; WI code not yet allocated (maybe LTE_CA_Rel12_2UL-UEConTest) as scope of the WI unclear; tested core parts (?): LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core;
new basket
discussion: MCC: This would be the 3rd basket WI for REL-12 CA testing WIs, the first basket is proposed to be completed at RAN #67 shifting parts into the 2nd ongoing basket of 3DL (reason for this unclear, danger that 2nd basket is handled in the same way and WI titles do no longer reflect what is in the basket);
conclusion: approved

RP-150137 New WI proposal: UE Conformance Test Aspects - Codec for Enhanced Voice Services (EVS) Ericsson WID new RAN5 REL-12 -
new WI for IMS (UTRA & LTE); leading WG: RAN5; WI code to be used: EVS_codec-UEConTest; tested core part: SA4 REL-12 WI EVS_codec
conclusion: approved

RP-150202 New WI proposal: UE Conformance Test Aspects - Smart Congestion Mitigation in E-UTRAN NTT DOCOMO, INC. WID new RAN5 REL-12 -

new WI for LTE only; leading WG: RAN5; WI code to be used: SCM_LTE-UEConTest; tested core part: SCM_LTE-Core
conclusion: approved

RP-150245 New WID Proposal: UE Conformance Test Aspects - Performance Requirements of Interference Cancellation and Suppression Receiver for SU-MIMO for E-UTRA Huawei, HiSilicon WID new RAN5 REL-12 -
new WI for LTE only; leading WG: RAN5; WI code to be used: LTE_SUMIMO_RX-UEConTest; tested: LTE_SUMIMO_RX-Perf (note: There was no Core part for this)
conclusion: approved

14 UE capabilities/FGIs

RAN2 CRs:

RP-150378 RAN agreed CRs on UE capability for modified MPR behavior RAN2 CR 36.306 set REL-8 LTE-L23, TEI10
conclusion: approved

RP-150379 RAN agreed CR on Introduction of UL64QAM based on split of DL and UL categories RAN2 CR 36.306 0261 1 F REL-8 LTE-L23, TEI12
Note: The corresponding signalling CR to TS 36.331 which was originally in R2-150714 CR1769r1 was merged into R2-150715 CR1768r1 on REL-12 ASN.1 review.
conclusion: approved

REL-12 UE capabilities:

RP-150032 LS on LTE Rel-12 UE feature list about RAN1 responsible features
(R1-150947; to: RAN; cc: RAN2, RAN4; contact: NTT DOCOMO) RAN1 LSin REL-12 -
RAN action requested;
conclusion: noted, no LS answer

RP-150034 LS on LTE Rel-12 UE feature list about RAN2 responsible features
(R2-150703; to: RAN; cc: RAN1, RAN4; contact: NTT DOCOMO) RAN2 LSin REL-12 -
RAN action requested;
conclusion: noted, no LS answer

RP-150036 LS on LTE Rel-12 UE feature list about RAN4 responsible features
(R4-151044; to: RAN; cc: RAN1, RAN2; contact: NTT DOCOMO) RAN4 LSin REL-12 -
RAN action requested;
conclusion: noted, no LS answer

RP-150178 Handling of Rel-12 UE features (RAN4 part) NTT DOCOMO, INC., SoftBank Mobile, T-Mobile USA, CMCC, Orange, Deutsche Telekom, TeliaSonera, Lightsquared, Telecom Italia, Telefónica Disc REL-12 TEI12
Tdoc is moved from AI 8.4.2 to AI 14
provides views on which Rel-12 RAN4 UE features should be mandatory or optional; compare LSin RP-150036 = R4-151044
proposal about Rel-12 UE features.
Proposal 1: #19-10: RSRQ on all symbols for LTE is mandatory for Rel-12 UE and onwards.
More specifically, "rsrqOnAllSymbols-r12"
Proposal 2: IncMon (#17-1) is mandatory for Rel-12 UEs and onwards except for category 0 (Rel-12 Low cost MTC) capable UEs.
More specifically,
- *For LTE: incMonEUTRA-r12, incMonUTRA-r12,*
- *For UTRA: Increased UE carrier monitoring UTRA, Increased UE carrier monitoring E-UTRA*

Proposal 3: The others (#18-1: SU-MIMO, #19-9: RSRQ lower value range) are optional
conclusion: noted

RP-150259 On Rel-12 UE eIMTA UE capabilities CATT Disc REL-12 LTE_TDD_eIMTA
discussion on eIMTA feature 7-1 for Rel-12 UEs
Proposal: phy-TDD-ReConfig-TDDPCell is mandatory for Rel-12 UEs supporting TDD.
conclusion: noted

RP-150209 Merged LTE Rel-12 UE feature list and leftover issues NTT DOCOMO, INC. Disc REL-12 TEI12
Proposal 1: TSG-RAN approves the RAN WG recommendation on mandatory/optional features as in the feature list.
Proposal 2: TSG-RAN discusses and decides mandatory/optional features listed in Table 1:

WI	#	Feature group	Responsible W	RAN WG recommendati	TSG-RAN decision
7. eIMTA	7-1	UL-DL re-configuration via L1 signaling for non-CA and CA (if supported) with TDD Pcell	RAN1	FFS	
17. Increasing the min. num. of freqs to monitor	17-1	Increased number of monitoring carriers for LTE and UTRA	RAN4	No consensus	
18. Interf. cancel and suppress	18-1	SU-MIMO Advanced receiver	RAN4	No consensus	
19. Group call eMBMS congestion management	19-1	MTCH suspension	RAN2/3	FFS	
20. TEI12	20-9	RSRQ lower value range extension	RAN4	No consensus	
	20-10	RSRQ on all symbols	RAN4	No consensus	

Proposal 3: The need of FDD/TDD differentiation for the small cell discovery features (3-3, 3-4 and 3-5 in the feature list) are decided later when their implementation becomes realistic.

WI	#	Feature group	Need of FDD/TDD differentiation
3. SCE Physical Layer	3-3	UE procedure related to Small cell on/off by CA SCell activation/deactivation	Same as 3-4
	3-4	CRS-based discovery signal/procedure	TBD
	3-5	CSI-RS-based discovery signal/procedure	Same as 3-4

discussion: proposal 2:
RAN chair: SU-MIMO Advanced and RSRQ lower value range extension could be made optional and others to be discussed?
Qualcomm, Intel, Samsung, Blackberry, LG: would like to see all features of proposal 2 optional
Orange, Telecom Italia: all features of proposal 2 should be mandatory (except SU-MIMO Advanced which can be optional)
AT&T: is there a signalling indication for 17-1 in RAN2? if yes, this can be optional
NTT DOCOMO: 17-1 is important feature for operators and vendors and should be mandatory
RAN chair: further offline discussion please
Telecom Italia: operators on one side and manufacturers on the other side will be difficult to converge

conclusion: noted

RP-150511 Way forward in handling of RAN4 features NTT DOCOMO, INC., Orange, TeliaSonera, AT&T, Telecom Italia, Softbank Mobile, Deutsche Telekom Disc REL-12 -

proposal:

- *The following two of the four capabilities for IncMon shall be mandatory for Rel-12 UEs and onwards except for category 0 (Rel-12 Low cost MTC) capable UEs to monitor more E-UTRA carriers.*
  - *incMonEUTRA-r12*
  - *Increased UE carrier monitoring E-UTRA*
- *The remaining following capabilities are FFS.*
  - *incMonUTRA-r12*
  - *Increased UE carrier monitoring UTRA*
- *The followings are handled as optional*
  - *SU-MIMO*
  - *RSRQ on all symbols*

- *RSRQ lower value range extension*

discussion: Deutsche Telekom: having it optional for cat. 0 is the only compromise that is possible
Qualcomm: is ok with the proposal but would suggest to have it optional for UTRA instead of ffs
Orange: prefers to keep it ffs
Microsoft: supports Qualcomm
RAN chair: it seems we cannot decide
Orange, Deutsche Telekom: think that we can decide on LTE and leave UMTS part ffs
Intel: that's not a compromise

conclusion: noted, way forward is not approved, discussion to continue until RAN #68

New UE categories:

RP-150096 Introduction of new UE categories Qualcomm Disc REL-12 TEI12

proposals:

- *The DL peak data rates of new UE categories should be a multiple of 200Mbps*
- *The following two new UE categories should be added:*
  - *Cat x: 1000Mbps DL*
  - *Cat y: 1600Mbps DL*
- *The 1000Mbps category should be defined for Rel-12, while the release for the 1600Mbps could be Rel-13+.*
- *The introduction of other UE Categories around 1000Mbps - in addition to 1000Mbps - can be also considered.*
- *The UL peak data rate(s) for the new categories is TBD.*

conclusion: noted

RP-150161 Introduction of new UE category KDDI Disc REL-12 ?

proposal:

- *Introduce a UE category of 1G DL peak data rate in Rel-12 with the following condition: Introducing 1G UE category should not restrict introducing other UE categories between 600M and 1G, or around 1Gbps*

discussion: KDDI: also Samsung supports this Tdoc
Qualcomm: is in line with our proposal RP-150096 so we support RP-150161
Ericsson: also supports KDDI Tdoc

conclusion: noted

RP-150207 Way forward on new UE categories in Rel-12 and 13 NTT DOCOMO, INC. Disc REL-12 TEI12

proposal:

- *Introduce a new UE category for DL 750 Mbps from Rel-12. The corresponding CR is prepared for RAN#68.*
- *Introduce new UE categories for 1 Gbps or beyond from Rel-13. The target rate will be continued to discuss and decided until RAN#69 (so that the corresponding CR can be prepared for RAN#70).*

conclusion: revised in RP-150367

RP-150367 Way forward on new UE categories in Rel-12 and 13 NTT DOCOMO, INC., AT&T, MediaTek, ACER, ASUS, CHT, HTC, ITRI, LGE, Panasonic, Sharp, Hitachi Disc REL-12 TEI12

proposal:

- *Introduce a new UE category for DL 750 Mbps from Rel-12.*

The corresponding CR is prepared for RAN#68.

- *Introduce new UE categories for 1 Gbps or beyond from Rel-13*

The target rate will be continued to discuss and decided until RAN#69 (so that the corresponding CR can be prepared for RAN#70).

discussion: KDDI: does not support NTT proposal, no need to postpone to REL-13

conclusion: noted

RP-150242 Way forward on new DL UE categories Huawei, HiSilicon Disc REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12

proposal:

Introduce in Rel-12:

- *a UE DL category around 800 Mbps*
- *a UE DL category around 1 Gbs*
- *a UE DL category around 1.2 Gbps*

discussion: Deutsche Telekom: concerned that we are introducing too many categories if we go now in steps of 200Mbytes

Microsoft: supports Deutsche Telekom, normal user does not care about the categories
Sprint: supports the Huawei proposal
RAN chair: offline discussion needed, we will come back on Thu
Deutsche Telekom: we had the principle to minimize the number of categories in the past
conclusion: noted

RP-150298 CR to 36.306 on new DL UE categories Huawei, HiSilicon CR36.306 0268 - C REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12
company contribution not related to RAN2 Tdocs
conclusion: revised in RP-150458 (as no CR number on CR cover of RP-150298)
RP-150458 CR to 36.306 on new DL UE categories Huawei, HiSilicon CR36.306 0268 1 C REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12
conclusion: not treated

RP-150299 CR to 36.331 on new DL UE categories Huawei, HiSilicon CR36.331 1799 - C REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12
company contribution not related to RAN2 Tdocs
conclusion: revised in RP-150459 (as no CR number on CR cover of RP-150299)
RP-150459 CR to 36.331 on new DL UE categories Huawei, HiSilicon CR36.331 1799 1 C REL-12 LTE_CA-Core, LTE_SC_enh_L1, TEI12
conclusion: not treated

On Thursday:
RP-150489 Way forward on new UE categories in Rel-12 KDDI, Sprint, CMCC, Huawei, HiSilicon, Qualcomm, Ericsson, Nokia Corporation, Nokia Networks, Samsung Disc REL-12 TEI12
proposal:
Introduce three new DL UE categories for 800 Mbps and 1Gbps, 1.2Gbps from Rel-12
- *256QAM should not be mandatory for any of these new categories*
- *RAN WGs work in 2015/2Q*
- *The corresponding CR is prepared for RAN#68*

discussion: NTT DOCOMO: any feasibility study for 4x4 plus 256QAM?
KDDI: we agreed to reduce the number of categories
Ericsson: does not agree with concerns from NTT DOCOMO
Deutsche Telekom: by far too many categories which would fragment the market
Microsoft: same view as Deutsche Telecom, 1Gbit/s is enough for REL-12
Huawei: what about agreeing the first 2 800 Mbps and 1Gbps for REL-12?
NTT DOCOMO: concerned about uncertain features
Nokia Networks: for HSPA we have 28 categories, it was never a problem but in fact just a few came to the market
Sprint: supports 1Gbps, 1.2Gbps from Rel-12
NTT DOCOMO: proposes 700Mbps for REL-12 and 1Gbps for REL-13
KDDI: cannot agree to 1Gbps just for REL-13
RAN chair: 800Mbps for REL-12 or 800Mbps + 1Gbps for REL-12

Show of hands:
1. 750/800Mbps only: 9 companies (DCM, LGE, Sierra, Sharp, MediaTek, NTT, MStar, CHTTL, ITRI)
2. 750/800Mbps and 1 Gbps: 19 companies (Softbank, Samsung, CMCC, Intel, MS, ALU, ASB, HUA-Dev, HUA, E///, QC, Sprint, KDDI, Nokia, Nokia Net, DT, HiSi, TD Tech, IDCC)

conclusion: noted; will go for option 2; RAN1 will decide if 750Mbps or 800Mbps and the feature combination to get to the category

15 Inter WG/TSG-related discussions & decisions

See also AI 11.3.5 for related MCPTT LSs.

RP-150380 MCPTT Project Plan Proposal SA WG2 Chairman, US Department of Commerce (Rapporteur), UK Home Office (Rapporteur), CESG Disc REL-13 MCPTT
A project plan to propose at SA, CT and RAN plenaries in March.

presented by SA2 chairman (Samsung)
RAN impact: RAN WG SI in Q2/Q3 2015, WI in Q4 2015
proposal: It is proposed that RAN, CT and SA discuss the coordination aspects of this plan.
The plan assumes that work is initiated and progresses at a certain rate. It is proposed to reassess the plan with respect to achieved progress at each plenary to identify how best to complete work on the MCPTT and dependent features within the release time frame.
discussion: RAN chair: any comments? none
RAN chair: anyway corresponding containers are in place (e.g. eD2D and PtM)
conclusion: noted

16 Outputs to other groups

No contributions

17 TSG RAN elections

NOTE: Elections for RAN chair and 3 RAN vice-chair positions will be carried out during RAN #67 and will start on Monday morning.

voting list: http://www.3gpp.org/ftp/webExtensions/elections/RAN/Elections2015/votingList_RAN_mtg-67r1.htm
179 Individual Members have the right to vote
candidatures received so far: http://www.3gpp.org/news-events/elections/1652
3GPP working procedures: ftp://ftp.3gpp.org/Information/Working_Procedures/3GPP_WP.zip
see esp. Article 22, 28, 35

17.1 Election of RAN chairman

Election took place on 09.03.2015:

Candidates:
Mr. Dino Flore Qualcomm Incorporated / ATIS

RAN vice-chairman Giovanni Romano asked TSG RAN participants whether there are any further candidates with a letter of support from the Individual Member that he/she represents (acc. to Article 22 of 3GPP working procedures).

No other candidate, Mr. Dino Flore is elected as RAN chairman for a 2nd term by acclamation.

17.2 Election of RAN vice-chairmen

Election took place on 09.03.2015:

Candidates:
Mr. Giovanni Romano TELECOM ITALIA S.p.A. / ETSI
Mr. Sharat Chander AT&T / ATIS
Mr. Takaharu Nakamura Fujitsu Limited / ARIB

RAN chair Dino Flore asked TSG RAN participants whether there are any further candidates with a letter of support from the Individual Member that he/she represents (acc. to Article 22 of 3GPP working procedures).

No other candidate.
Mr. Giovanni Romano is elected as RAN vice-chairman for a 2nd term by acclamation.
Mr. Sharat Chander is elected as RAN vice-chairman for a 2nd term by acclamation.
Mr. Takaharu Nakamura is elected as RAN vice-chairman for a 2nd term by acclamation.

18 Project management

5G:

LSs:

ITU-R related LSs RP-150041, RP-150031 and RP-150043 of AI 7.2.2 will be treated first.

RP-150019 LS on NGMN's 5G Initiative (2nd LS)
(NGMN_LS_141223; to: SA, RAN, CT; cc: -; contact: NGMN Office) NGMN
LSin - -
presented by Alcatel-Lucent
RAN action requested
discussion: RAN chair: NGMN suggests "standards ready end of 2018"
Huawei: reference is shifted compared to ITU
RAN chair: we will discuss our timeline here in 3GPP as we have to take into account also industry factors
Telecom Italia: do we plan to answer the LS?
RAN chair: can be decided later this week
conclusion: noted, no LS answer

5G Workplan:

RP-150056 Getting ready for "5G" RAN chairman (Qualcomm) Disc
discussion: Nokia Networks: supports a workshop in Sep. (could even go for Sat/Sun after RAN)
Telecom Italia: workshop open to non-3GPP members?
RAN chair: we do not be flooded by inputs but we could consider inputs from outside 3GPP as well
Microsoft: workshop should not impact REL-13, prefers workshop in Dec.
Mediatek: channel model ad hoc will have impact on WGs so we need to be careful
ALU: new radio below and above 6GHz have to be taken into account and they may have different time lines
ALU: for which band we consider the channel model needs to be decided as well
RAN chair: channel modelling group could look at this at the beginning
ALU: prefers to keep channel modelling in RAN1 but also sees impact on RAN1 then that has to be taken into account
Ericsson: supports the slides; slide 12: start of work in WGs: stage 3 freeze is in Dec. and WGs can work when they have finished REL-13
RAN chair: we can consider a disclaimer here regarding the freeze of REL-13
AT&T: agrees with the slides, workshop should happen in Sep.; having it before the RAN meeting would be more appropriate; does not support to have the workshop in the week-end
Samsung: supports chairman's slides; supports that WGs can start March 2016
Orange: "new radio": we do not yet know whether there is one or multiple; we need to be careful to not impact REL-13 as it is a big REL in a short time interval; time difference between NGMN and ITU-R: unclear what is contents of first REL
CMCC: 2 or 3 days workshop between RAN #69 and RAN #70 preferred; channel modelling should not impact REL-13 RAN1 work
Vodafone: if in Sep. then better after RAN #69
NTT DOCOMO: prefers workshop in Sep.15, would want to start channel model work in Sep.
Sprint: is for having workshop in Sep. and not on the week-end; Internet of things and tight integration will be key aspects of 5G so interworking will be essential
RAN chair: SA1 has already a 5G SI called SMARTER and a coordination with them will be useful in the future
Deutsche Telekom: RAN-SA coordination useful, workshop after RAN #69 is preferred (not necessarily on the week-end)
Fujitsu: we have to distinguish below and above 6GHz
RAN chair: the workshop will not be limited to one of them
Huawei: supports RAN workshop in Dec., before Nov.2015 (WRC) we will not know which bands are available; worshop on requirements or also technologies?
RAN chair: both possible, no restriction

LG: REL-14 could start in June 2016, 2 days not enough for enough, channel model part will involve RAN1 people busy with MIMO and LAA, would propose to use whole REL-14 for channel modelling
TeliaSonera: would like to see the workshop after RAN #69 in Sep. bit shift the RAN meeting to start earlier; starting work in WGs in March 16 is too early
SA2 chair (Samsung): also inputs from SA2 expected (not only SA1)
NEC: supports that RAN and SA are involved in the workshop; Sep.15 is good; having it before RAN #69 would be too early
Intel: RAN SI in Dec. is ok; workshop after Sep. is ok; RAN1 REL-13 and channel modelling should not collide
Telecom Italia: we can submit our requirements to ITU-R, LTE could be also part of the submission

conclusion: revised in RP-150467

RP-150217 5G Standardization Work Plan NTT DOCOMO, INC. Disc
conclusion: revised in RP-150440

RP-150440 5G Standardization Work Plan NTT DOCOMO, Fujitsu, Hitachi, Kyocera, Mitsubishi, NEC, NTC, NTT, Panasonic, Sharp, Sony, KDDI, Sumitomo Elec. Industries Disc
conclusion: noted

RP-150222 Timeline of RAN work for 5G Samsung Disc
conclusion: noted

RP-150244 Views on the timeline of 5G standardization and channel modeling activities in RAN Huawei, HiSilicon Disc
conclusion: noted

RP-150286 Discussion on 5G timeline in RAN CATR Disc
conclusion: noted

RP-150305 5G timing in RAN Ericsson Disc
conclusion: noted

RP-150316 Considerations on 5G Standardization CMCC Disc
note: Includes a draft SID for information.
conclusion: noted

after offline discussion during Tue lunch break:

- show of hands for workshop in 2 steps:
- Sep.15 or Q4 option
  - if Sep.15:
    a. in TSG week (RAN: Mon-Wed and workshop Thu/Fri, only SIs that move to WIs, spectrum/testing WIs will be considered) or
    b. after (Mon/Tue)
  - if Q4:
    a. in the middle of Q4 (place tbd) or
    b. immediately before Nov. WG meetings
    c. immediately before RAN #70 in Dec. (Thu/Fri)
- channel modelling: a SI in Sep.15 RAN #69 planned, RAN will identify the bands in RAN #70 and WGs will not start before 2016
- REL-13 schedule is kept
- scope of joint RAN-SA discussion on Wed during RAN #67: reporting from RAN about 5G plan and comments from SA, will not reopening the discussion (also schedule for TSG #69 will be shown)
- no limitation on the scope of the "RAN workshop on 5G" for Sep.15, workshop will be open for non-3GPP members but details tbd

Sep.15 option: 43
Q4 option: 22
=> Sep.15 option decided

in same week: 36
on Mon/Tue: 16

=> workshop will be in same week as RAN #69 (Mon-Wed RAN, Thu/Fri workshop)

RP-150467 Getting ready for "5G" RAN chairman (Qualcomm) Disc - -
planned to be presented to SA #67 in joint session on Wed evening
discussion: RAN4 chair: spectrum aspects excluded on slide 15
RAN chair: yes
RAN chair: there may be a problem for the host to get the room for Fri for the workshop; in case of problems the workshop will be moved to Mon/Tue in the week later; will be decided as soon as possible
Telecom Italia: concerns were raised that workshop is going on in parallel to SA and inviting SA1 chair will then not work
SA chair: we could swap CT and SA or condense CT/SA to 3 days
Telecom Italia: IMT2020 is still subject to some modifications
Fujitsu: it would also good to indicate a REL on slide 11
Telecom Italia: June 2019 on slide 11 is ITU-R deadline i.e. 3GPP has to do their part well in advance
Huawei: make sure that there is no 5G discussion in WGs in Q4
ALU: maybe it would be better to split usual aspects that are still for further discussions from RAN decisions (like the workshop)
NTT DOCOMO: scope/objectives of the workshop should be clarified in a separate Tdoc
Huawei: do we see an updated version?
RAN chair: no, only minor modifications will be done before SA submission
Orange: slide 18: concerned about "channel modelling will start"
conclusion: revised in RP-150483

RP-150483 Getting ready for "5G" RAN chairman (Qualcomm) Disc - -
conclusion: noted, will be presented to SA with minor modifications

beyond 6GHz:
Tdocs related to new SIs/WIs RP-150219, RP-150221, RP-150220 and RP-150308 of AI 13.1.1 will be handled here.

Work plan:

RP-150017 3GPP Work Plan review at Plenary #67 (pre-TSG version)ETSI MCC Workplan - -
conclusion: revised in RP-150057

RP-150057 3GPP Work Plan review at Plenary #67 (past-TSG version) ETSI MCC Workplan - -
discussion: General Dynamics: status of MBMS enhancement should be a SI not a WI
Workplan manager: will be checked with SA secretary and then updated
conclusion: noted

Others:

RP-150018 3GPP Support Team Report ETSI MCC Report - -
conclusion: noted

RP-150050 Hanging paragraphs ETSI MCC CR21.8010040 - F REL-12 TEI12
Toughens up the drafting rules relating to hanging paragraphs; CR is for approval in SA
discussion: No comments from RAN
conclusion: endorsed

RP-150051 Tdoc and CR status valuesETSI MCC Disc - -
Discusses and seeks approval for philosophy of status value allocation
discussion: NEC: "withdrawn" preferred to avoid "rejected" and "partially approved" is not appropriate
NEC: will status be announced by the chair?
Specs manager: yes, apart from "withdrawn" which is up to the Tdoc author
NextNav: what about "not treated"?
Specs manager: "available" will be in the meeting report as "not addressed"
conclusion: noted

RP-150052 Use of multiple WI codes on CRs ETSI MCC Disc - -
Outlines the working practices and (undocumented) rules
discussion: NEC: changes relevant for a whole group of CA were often abbreviated
MCC: as these abbreviations can not tracked anywhere, this has to be avoided and the WI codes have to be listed
Huawei: in RAN1 we often merge multiple WIs in the same CR

MCC: If the CRs can not be split, that's ok. Often a common CR is considered because of time pressure but the draw back is that implementers or RAN5 will have difficulties to separate which changes are coming from which feature. So separate CRs is preferrable.

conclusion: noted

19 Future meeting schedule

Meeting schedule 2010/2011/2012/2013/2014/2015/2016:

MEETING	DATES	LOCATION	HOST
RAN #47	16 March – 19 March 2010	Vienna, Austria	EF3
RAN #48	1 June – 4 June 2010	Seoul, Korea	TTA
RAN #49	14 Sep. – 17 Sep. 2010	San Antonio, USA	NAF3
RAN #50	7 Dec. – 10 Dec. 2010	Istanbul, Turkey	EF3
RAN #51	15 March – 18 March 2011	Kansas City, USA	Sprint Nextel
RAN #52	31 May – 3 June 2011	Bratislava, Slovakia	EF3
RAN #53	13 Sep. – 16 Sep. 2011	Fukuoka, Japan	ARIB & TTC
RAN #54	6 Dec. – 9 Dec. 2011	Berlin, Germany	EF3
RAN #55	28 Feb. – 2 March 2012	Xiamen, China	ZTE, CMCC
workshop ***	11 June - 12 June 2012	Ljubljana, Slovenia	EF3
RAN #56	13 June – 15 June 2012	Ljubljana, Slovenia	EF3
RAN #57	4 Sep. – 7 Sep. 2012	Chicago, USA	NAF3
RAN #58	4 Dec. – 7 Dec. 2012	Barcelona, Spain	EF3
RAN #59	26 Feb. – 1 March 2013	Vienna, Austria	EF3
RAN #60	11 June – 14 June 2013	Oranjestad, Aruba	NAF3
RAN #61	3 Sep. – 6 Sep. 2013	Porto, Portugal	EF3
RAN #62	3 Dec. – 6 Dec. 2013	Busan, Korea	TTA
RAN #63 **	3 March – 6 March 2014	Fukuoka, Japan	ARIB & TTC
RAN #64	10 June – 13 June 2014	Sophia Antipolis, France	ETSI
workshop LTE-U	13 June 2014	Sophia Antipolis, France	ETSI
RAN #65	9 Sep. – 12 Sep. 2014	Edinburgh, Scotland	EF3
RAN #66 **	8 Dec. – 11 Dec. 2014	Maui, USA	NAF3
**RAN #67 ** **	**9 March – 12 March 2015**	**Shanghai, China**	**Huawei**
RAN #68 **	15 June – 18 June 2015	Malmö, Sweden	EF3
RAN #69 **	14 Sep. – 17 Sep. 2015	Phoenix, USA	NAF3
RAN #70 **	7 Dec. – 10 Dec. 2015	Sitges, Spain	EF3
RAN #71 **	7 March – 10 March 2016	Göteborg, Sweden (tbc)	EF3
RAN #72 **	13 June – 16 June 2016	tbd, Korea	TTA
RAN #73 **	19 Sep. – 22 Sep. 2016		
RAN #74 **	5 Dec. – 8 Dec. 2016	Vienna, Austria (tbc)	EF3

***: RAN Workshop on REL-12 and onwards

**: 1 week TSG i.e. in same week with CT and SA, therefore starting on Monday

20 Any other business

Nothing to report.

21 Closing of the meeting

The TSG RAN chairman Dino Flore (Qualcomm) thanked the delegates for participating and contributing to RAN meeting #67, he thanked the host for organizing the meeting and he closed the meeting on Thursday March.12th, 2015 at about 4:45pm.

EX-1016, 1698 of 1750

Annex A:
List of participants

The list of participants of this RAN meeting #67 is attached to this report.

Total number of participants: 229 (registered before the meeting: 310)

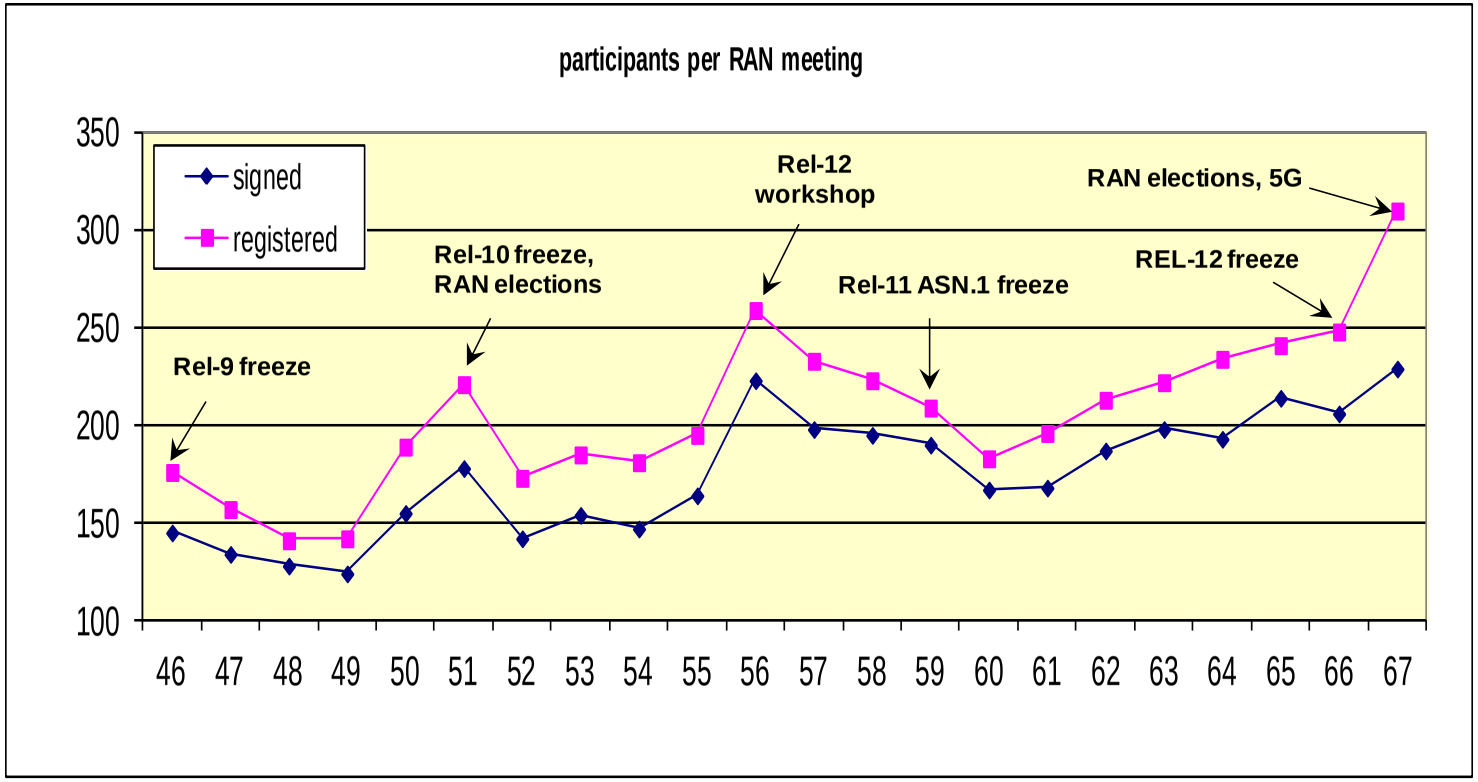


Fig. A-1: Participants per RAN meeting (registered beforehand and actual participants who signed)
(1 week TSG: #63, #66 and further meetings)

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

EX-1016, 1699 of 1750

Annex B:
List of Tdocs

The list of Tdocs of this RAN meeting #67 is attached to this report.

Total number of Tdocs: 519 (RP-150001 - RP-1500519) of which 509 Tdocs are available, i.e. 10 are not available and they are withdrawn.

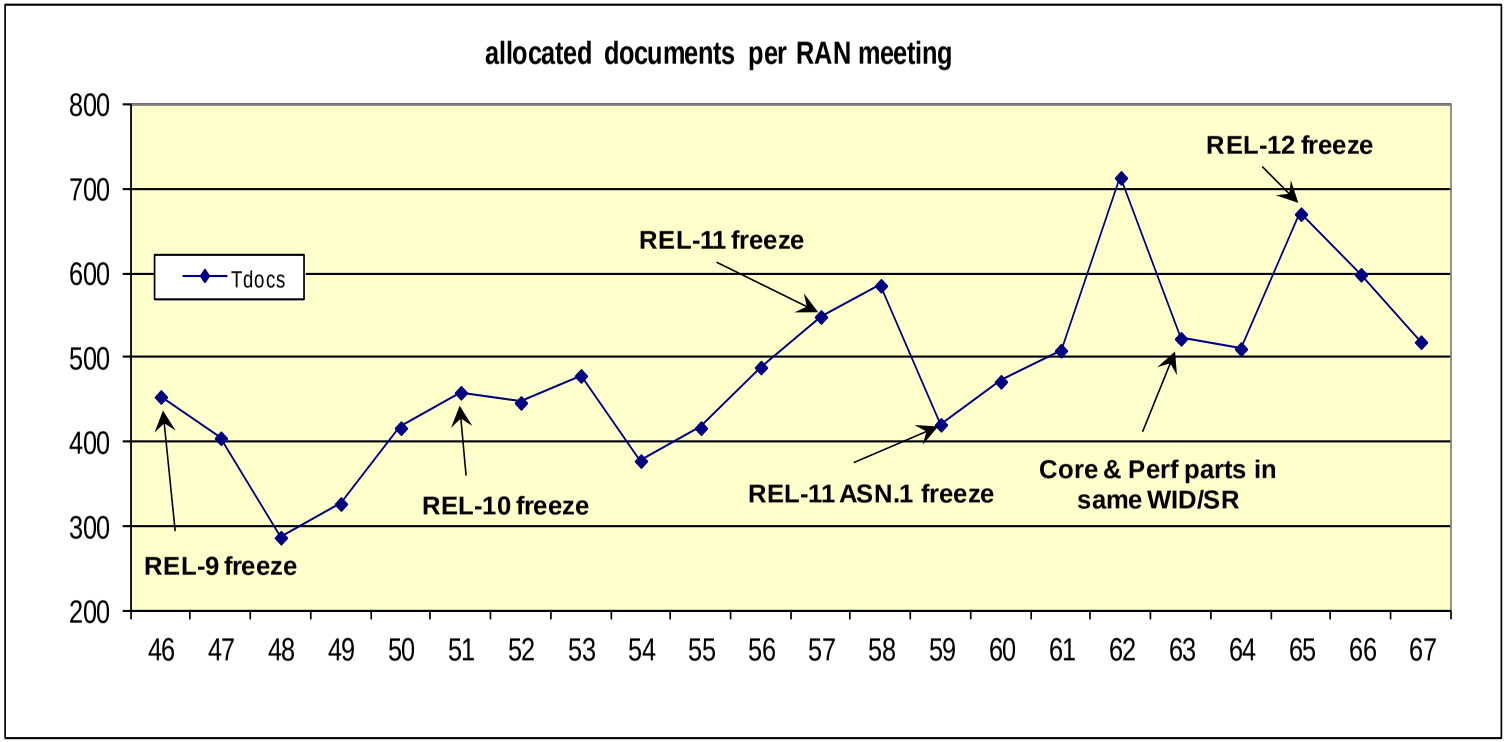


Fig. B-1: Number of allocated Tdocs per RAN meeting

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

EX-1016, 1700 of 1750

Annex C:
Incoming liaison statements (LSin)

In total 27 LSs/LTIs were received for RAN #67 (1 of them received during the meeting; 0 of them received after the meeting). 27 LSs/LTIs were treated.

RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	LS answer to source	additional comments
RP-150019	LS on NGMN's 5G Initiative (2nd LS) (NGMN_LS_141223; to: SA, RAN, CT; cc: -; contact: NGMN Office)	NGMN	-	-	yes	noted	none	LS treated under AI 18
RP-150020	LS on Licensed Shared Access (LSA) related Activities in TC RRS (ETSI TC RRS(14)028019r1; to: SA; cc: RAN, SA5; contact: Intel)	ETSI TC RRS	-	-	not explicitly	noted	none	RRS = Reconfigurable Radio Systems
RP-150021	LS on public safety discovery (S2-150691; to: RAN1, RAN2, SA3, RAN; cc: -; contact: Qualcomm)	SA2	REL-13	eProSe-Ext	not explicitly	noted	none	RAN1 answer see RP-150033; LS treated under AI 11.3.5
RP-150022	LS on support for ProSe one-to-one communication in Release 13 (S6-150076; to: RAN2; cc: SA2, RAN; contact: General Dynamics)	SA6	REL-13	MCPTT	no	noted	none	LS treated under AI 11.3.5
RP-150023	LS on Establishment of new working group TSG SA WG6 (SP-140884; to: OMA, ETSI TC TCCE, 3GPP TSG CT, SA2, SA6, ATIS; cc: TCCA, PCG, RAN, CT1, CT3, CT4, CT6, SA1, SA3, SA4, SA5; contact: SA6 convener)	SA	REL-13	MCPTT	no	noted	none	TCCE = TETRA and Critical Communications Evolution; TCCA = TETRA + Critical Communications Association; LS treated under AI 11.3.5
RP-150024	LS regarding coexistence of Licensed Assisted Access (LAA) and IEEE 802 (IEEE_802_LMSC_150202; to: RAN; cc: RAN1, IEEE 802, IEEE 802.19; contact: Chairman IEEE 802 LMSC)	IEEE 802 LMSC	REL-13	FS_LTE_LAA	not explicitly	noted	RP-150454	LMSC = Local and Metropolitan Area Network Standards Committee; RAN #66 received LSin RP-141747; RAN chair presented RP-150055 at IEEE 802 Interim Session on 13.01.2015 in Atlanta, USA; LS treated under AI 12.4.3
RP-150025	LS on Request for information sharing between ATIS COAST SYNC and 3GPP RAN on timing requirements for wireless base stations in the United States (ATIS_COAST_SYNC_150122_00007; to: RAN; cc: ATIS; contact: AT&T)	ATIS COAST SYNC	-	-	yes	noted	RP-150421	COAST = Copper/Optical Access, Synchronization and Transport Committee; SYNC = Synchronization Subcommittee
RP-150026	LS regarding CTIA MIMO OTA Test Plan Development (CTIA_LS_150203; to: RAN4, RAN5; cc: RAN; contact: AT&T)	CTIA MOSG	REL-13	LTE_MIMO_OTA-Core	no	noted	none	CTIA = Cellular Telecommunications & Internet Association; LS treated under AI 11.2.4

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	LS answer to source	additional comments
RP-150027	Reply LS to RP-142316 on OTA Test Requirement Work Plan (CTIA_LS_150202; to: RAN; cc: RAN4; contact: Spirent)	CTIA OTA WG	REL-13	LTE_UTRA_TRP_TRS-Core	no	noted	none	CTIA = Cellular Telecommunications & Internet Association; LS treated under AI 11.2.1
RP-150028	LS on current implementation of 700 MHz bandplan with 3GPP specification (ITU-R WP5D/TEMP/567; to: RAN4, RAN; cc: -; contact: ITU-R SG5 Counselor)	ITU-R WP5D	REL-11	LTE_DL_FDD700, LTE_APAC700	yes	noted	RP-150477	bands in 700-800MHz range: FDD: 12, 13, 14, 17 (all 4 from REL-8 LTE-RF), 28 (REL-11 LTE_APAC700); FDD DL: 29 (REL-11 LTE_DL_FDD700); TDD: 44 (REL-11 LTE_APAC700); LS treated under AI 7.2.2
RP-150029	LS to GCS proponents and transposing organizations on the provision of transposition references and certification C for draft revision 2 of Recommendation ITU-R M.2012 (ITU-R WP5D/TEMP/530; to: RAN, CT, SA, PCG, 3GPP2, ARIB, ATIS, CCSA, ETSI, IEEE, ITRI, TIA, TTA, TTC, WiMAX Forum; cc: -; contact: ITU-R SG5 Counsellor)	ITU-R WP5D	-	-	yes	noted	RP-150478	LS treated under AI 7.2.2; 3GPP ITU-R ad hoc prepared an answer in RP-150044
RP-150030	Response LS to S2-150658 on Support of a mix of IPv4 and IPv6 eNBs and Backhauls in eMBMS (R3-150489; to: SA2; cc: CT4, RAN, CT; contact: Alcatel-Lucent)	RAN3	REL-13	TEI13	no	noted	none	LS S2-150658 was not sent to/cc RAN but just to RAN3, CT4; LS S2-150658 and included SA2 CR related to SA2 REL-13 WI MBMS_enh (started at SA #66 and target: SA #69); RP-150030 includes RAN3 endorsed CRs to 36.300, 36.444, 36.443
RP-150031	LS to ext. organizations and research entities engaged in "5G" development requesting an update on IMT activities (ITU-R WP5D/TEMP/521(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor)	ITU-R WP5D	-	-	yes	noted	RP-150442	LS treated under AI 7.2.2
RP-150032	LS on LTE Rel-12 UE feature list about RAN1 responsible features (R1-150947; to: RAN; cc: RAN2, RAN4; contact: NTT DOCOMO)	RAN1	REL-12	-	yes	noted	none	LS treated under AI 14.

EX-1016, 1701 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	LS answer to source	additional comments
RP-150033	Response LS to S2-150691 = RP-150021 on public safety discovery (R1-150948; to: SA2; cc: RAN2, SA3, RAN; contact: Qualcomm)	RAN1	REL-13	eProSe-Ext-SA2	no	noted	none	LS treated under AI 11.3.5
RP-150034	LS on LTE Rel-12 UE feature list about RAN2 responsible features (R2-150703; to: RAN; cc: RAN1, RAN4; contact: NTT DOCOMO)	RAN2	REL-12	-	yes	noted	none	LS treated under AI 14.
RP-150035	LS reply to S6-150076 = RP-150021 on support for ProSe one-to-one communication in Release 13 (R2-150710; to: SA6; cc: SA2, RAN; contact: Intel)	RAN2	REL-13	MCPTT	no	noted	none	LS treated under AI 11.3.5
RP-150036	LS on LTE Rel-12 UE feature list about RAN4 responsible features (R4-151044; to: RAN; cc: RAN1, RAN2; contact: NTT DOCOMO)	RAN4	REL-12	-	yes	noted	none	LS treated under AI 14.
RP-150037	LS on impact of optional preconfigured parameters for D2D out of Network coverage mode (R4-151170; to: RAN1, RAN2, RAN5, SA2, RAN; cc: -; contact: Sprint)	RAN4	REL-12	LTE_D2D_Prox-Core	no	noted	none	LS treated under AI 10.6.5
RP-150038	Response LS to ATIS_COAST_SYNC_150122_00007 = RP-150025 on ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations (R4-151239; to: RAN; cc: -; contact: NSN)	RAN4	REL-12	-	yes	noted	none	RP-150038 is a reply proposal from RAN4 to LSin RP-150025; LS treated under AI 6.1 together with LSin RP-150025
RP-150039 ***	DRAFT Letter to ITU in reply to ITU-R WP5D/TEMP/567 = RP-150028 on CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION (R4-151242; to: RAN; cc: -; contact: Ericsson)	RAN4	REL-11	LTE_DL_FDD700, LTE_APAC700	yes	noted	none	RAN action requested; RP-150039 is a reply proposal from RAN4 to answer LSin RP-150028; corresponding REL-11 LTE_APAC700-Core CR is submitted to RAN #67 in R4-151155 (in RP-150384) to align REL-11 with REL-12; LS treated under AI 7.2.2
RP-150040	LS on preliminary draft new Report ITU-R M.[IMT.ABOVE 6 GHz] (ITU-R WP5D/TEMP/534(Rev.1); to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor)	ITU-R WP5D	-	-	not explicitly	noted	none	LS treated under AI 7.2.2

EX-1016, 1702 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

RAN Tdoc	title (incoming LS, to, cc, contact)	source	REL	WI	RAN action requested	status	LS answer to source	additional comments
RP-150041	LS on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (ITU-R WP5D/TEMP/577; to: RAN, CT, SA, 3GPP2, 4G Americas, 5G Infrastructure Public Private Partnership (Europe), 5G Innovation Centre, APT Wireless Group, Fifth Generation Mobile Communications Promotion Forum (Japan), ARIB, ATIS, CCSA, CDG, ETSI, EU METIS Project, GSMA, IEEE, IMT-2020 Promotion Group (China), ITRI, NGMN, NYU Wireless, TSDSI, TIA, TTA, TTC, UMTS Forum, WiMax Forum, WWRF; cc: -; contact: ITU-R SG5 Counselor)	ITU-R WP5D	-	-	yes	noted	RP-150442	LS treated under AI 7.2.2; 3GPP ITU-R ad hoc prepared an answer in RP-150043
RP-150042	LS on the introduction of the signalling for UL 64 QAM (R2-150733; to: RAN4; cc: RAN, RAN1; contact: Huawei)	RAN2	REL-12	LTE-L23, TEI12	no	noted	none	note: 64QAM UL functionality for LTE exists in 3GPP specs since REL-8; however, signalling of a UE capability in now introduced for REL-12 (see R2-150713 in RP-150378 and R2-150715 in RP-150377) and RF requirements will be introduced via REL-13 WI LTE_UL64QAM-Core
RP-150043	Draft letter to ITU in reply to ITU-R WP5D/TEMP/521(Rev.1) = RP-150031 and ITU-R WP5D/TEMP/577 = RP-150041 on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT) (RT-150009; to: RAN; cc: -; contact: Telecom Italia)	3GPP ITU-R ad hoc	-	-	yes	noted	none	3GPP ITU-R ad hoc prepared this draft answer to the LSin of ITU-R WP5D RP-150031 and RP-150041g LS treated under AI 7.2.2
RP-150044	Draft letter to ITU in reply to ITU-R WP5D/TEMP/530 = RP-150029 on 3GPP comments on draft revision 2 of Recommendation ITU-R M.2012 (RT-150010; to: CT, RAN; cc: -; contact: Telecom Italia)	3GPP ITU-R ad hoc	-	-	yes	noted	none	3GPP ITU-R ad hoc prepared this draft answer to the LSin of ITU-R WP5D RP-150029, LS treated under AI 7.2.2
RP-150443	CT-input to LETTER TO ITU ON 3GPP COMMENTS ON DRAFT REVISION 2 OF RECOMMENDATION ITU-R M.2012 (CP-150207; to: RAN; cc: -; contact: CT chair (Ericsson))	CT	-	-	no	noted	none	received on Tue of RAN #67; related to ITU-R LSin RP-150029 and triggered by RP-150044; LS treated under AI 7.2.2

***: uses Letter to ITU template (LTI)

EX-1016, 1750 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

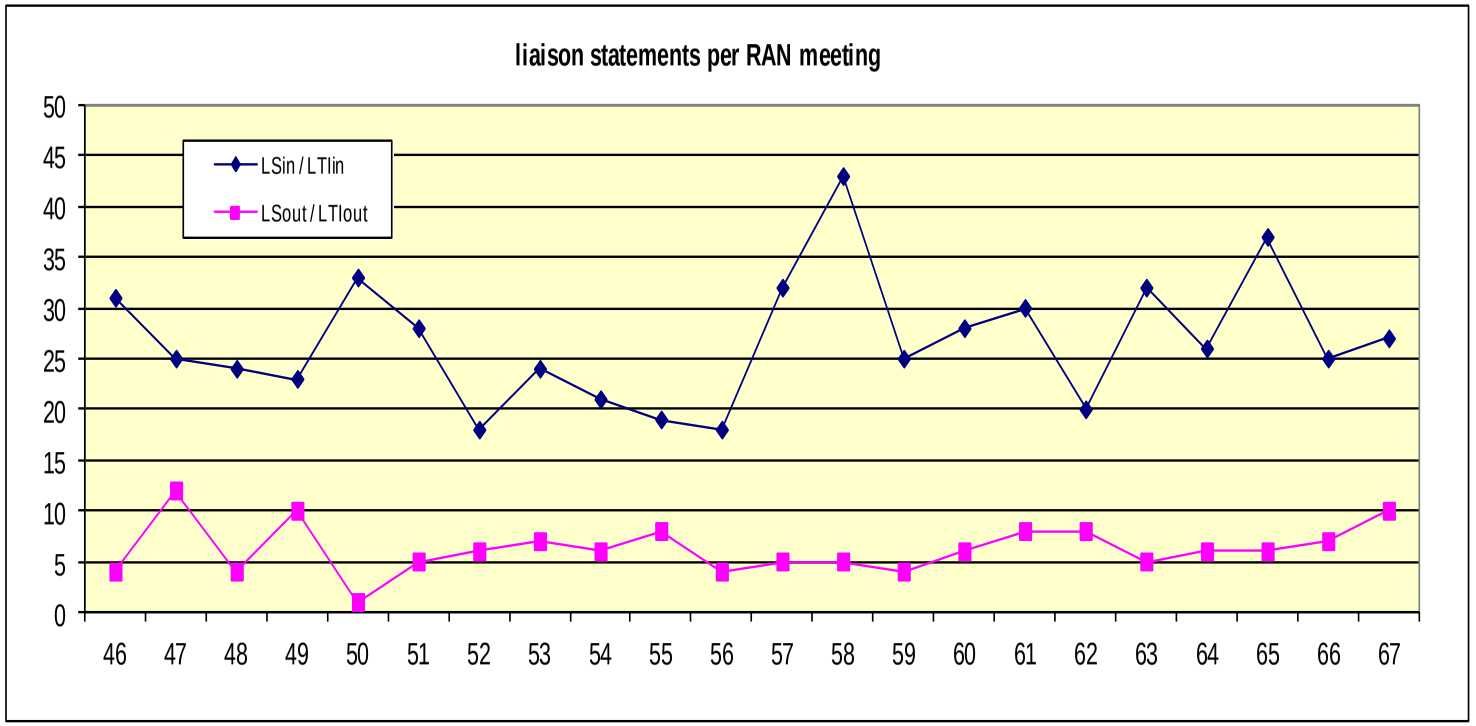


Fig. C-1: Number of incoming/outgoing Liason Statements (LS) and Letter to ITU (LTI) per RAN meeting

EX-1016, 1704 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

EX-1016, 1705 of 1750

Annex D:
Outgoing liaison statements (LSout)

Only final outgoing LSs are listed here.
10 outgoing LSs/LTIs of RAN #67 (2 of them approved by email after the meeting):

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
RP-150421	ATIS COAST SYNC and 3GPP RAN timing requirements for wireless base stations	ATIS COAST SYNC	-	Nokia Networks	ATIS_COAST_SYNC_150122_00007 = RP-150025	REL-12	-	based on RP-150038
RP-150442 ***	Draft letter to ITU on the detailed work plan, timeline, process and deliverables for the future development of International Mobile Telecommunications (IMT)	SA	-	Telecom Italia	ITU-R WP5D/TEMP/521(Rev.1) = RP-150031; ITU-R WP5D/TEMP/577 = RP-150041	-	-	will be provided to SA for review and from there to PCG for approval
RP-150454	Coexistence of Licensed Assisted Access (LAA) and IEEE 802	IEEE 802 LMSC	-	Ericsson	IEEE_802_LMSC_150202 = RP-150024	REL-13	FS_LTE_LAA	sent out on Wed of RAN #67
RP-150477	CURRENT IMPLEMENTATION OF 700 MHz BANDPLAN WITHIN 3GPP SPECIFICATION	ITU-R WP5D	-	Ericsson	ITU-R WP5D/TEMP/567 = RP-150028	REL-11	LTE_DL_FDD700, LTE_APAC700	will be sent out via 3GPP LS coordinator
RP-150478 ***	3GPP comments on draft revision 2 of Recommendation ITU-R M.2012	SA	-	Telecom Italia	ITU-R WP5D/TEMP/530 = RP-150029	-	-	will be provided to SA for review and from there to PCG for approval
RP-150505	Licensed-Assisted Access	ETSI BRAN	-	Ericsson	-	REL-13	FS_LTE_LAA	
RP-150509	3GPP RAN Study on regulatory aspects for flexible duplex for E-UTRAN	ECC PT1, FCC, RRA, National Communications Commission (TW), ARIB, CCSA, Wireless Adviser to the Government of India	-	Telecom Italia	-	REL-13	FS_LTE_flex_duplex_reg	approved via email discussion after RAN #67 and sent out on 27.03.2015

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
RP-150514	Consequence of RAN WI prioritisation for UPCON work in SA2	SA2	SA, RAN2, RAN3	NEC	-	REL-13	UPCON	related to new SI proposal for UPCON in RP-150291
RP-150516	D2D off network operation	CT1	SA2, RAN1, RAN2, RAN4, RAN5	Sprint	-	REL-12	LTE_D2D_Prox-Core	related to LSin RP-150037
RP-150520	DRAFT Letter to ITU on the schedule for updating Recommendation ITU-R M.1457 to Revision 13	CT	-	Telecom Italia	ITU-R WP5D/TEMP/473 = RP-141756	REL-12	-	agreed by email after RAN #67; email discussion started on 14.04.15 by ITU-R ad hoc convener via RAN reflector; LTI will be provided to CT for review and from there afterwards to SA for review, finally it has to be approved by PCG on 28.04.15; note: This is a 2nd reply to RP-141756 (first reply was in RP-142247) and a final reply will be sent from RAN #70 in Dec.15

***: uses Letter to ITU template (LTI)

EX-1016, 1706 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

EX-1016, 1707 of 1750

Annex E:
List of Change Requests (CRs)

This list of 916 CRs includes all CRs submitted to RAN #67 with 909 approved CRs.

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
25.101	1060	-	Rel-12	F	RP-150385	R4-150790	approved	TX UE spurious emissions alignment with 36.101	12.6.0	12.7.0	R4	TEI12
25.101	1061	-	Rel-12	F	RP-150385	R4-150791	approved	RX UE spurious emissions simplification	12.6.0	12.7.0	R4	TEI12
25.101	1062	-	Rel-12	F	RP-150385	R4-150876	approved	Removal of square brackets of cubic metric (MPR) for UMTS HetNet Enhancements	12.6.0	12.7.0	R4	UTRA_hetnet_enh-Core
25.133	1393	1	Rel-12	F	RP-150386	R4-151133	approved	Clarification of IncMon requirements for UTRA idle/CELL_PCH/URA_PCH states	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
25.133	1394	1	Rel-12	F	RP-150386	R4-151134	approved	Clarification of IncMon requirements for UTRA CELL_FACH/CELL_DCH states	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
25.133	1395	1	Rel-11	F	RP-150384	R4-151099	approved	Corrections to FE-FACH DRX tests and core requirement	11.9.0	11.10.0	R4	Cell_FACH_enh-Perf
25.133	1396	-	Rel-12	A	RP-150384	R4-150847	approved	Corrections to FE-FACH DRX tests and core requirement	12.6.0	12.7.0	R4	Cell_FACH_enh-Perf
25.133	1397	-	Rel-12	F	RP-150385	R4-150865	approved	Corrections of table 8.0b	12.6.0	12.7.0	R4	EDCH_enh-Core
25.133	1398	-	Rel-12	F	RP-150389	R4-150919	approved	25.133 CR to correct DL_DCH_FET_Config reference number to point to 25.212	12.6.0	12.7.0	R4	TEI12
25.214	0735	1	Rel-12	F	RP-150360	R1-150714	approved	Clarifications to UMTS Heterogeneous Network Enhancements	12.1.0	12.2.0	R1	UTRA_HetNet_enh-Core
25.215	0200	2	Rel-12	C	RP-150361	R1-150250	approved	New E-UTRA RSRQ measurement definition	12.0.0	12.1.0	R1	TEI12
25.225	0103	3	Rel-12	C	RP-150361	R1-150251	approved	New E-UTRA RSRQ measurement definition	12.0.0	12.1.0	R1	TEI12
25.304	0385	1	Rel-12	F	RP-150373	R2-150685	approved	Cleanup on RAN-assisted WLAN interworking	12.4.0	12.5.0	R2	UTRA_LTE_WLAN_interw-Core
25.304	0386	-	Rel-12	F	RP-150373	R2-150599	approved	Correction on provision of WLAN identifiers	12.4.0	12.5.0	R2	UTRA_LTE_WLAN_interw-Core
25.306	0485	-	Rel-12	D	RP-150376	R2-150587	approved	Editorial corrections	12.4.0	12.5.0	R2	TEI12
25.306	0486	-	Rel-12	F	RP-150372	R2-150583	approved	Clarification for DRX enhancements	12.4.0	12.5.0	R2	EDCH_enh-Core
25.331	5735	-	Rel-12	D	RP-150376	R2-150586	approved	Rapporteur corrections for 25.331 RRC specification	12.4.0	12.5.0	R2	TEI12
25.331	5736	-	Rel-12	F	RP-150372	R2-150581	approved	Clarifications for Further EUL enhancements sub-feature Enhanced TTI switching	12.4.0	12.5.0	R2	EDCH_enh-Core
25.331	5737	-	Rel-12	F	RP-150372	R2-150582	approved	Pre-configuration for Enhanced TTI switching at upswitch to CELL_DCH	12.4.0	12.5.0	R2	EDCH_enh-Core
25.331	5739	-	Rel-12	F	RP-150373	R2-150585	approved	Cleanup corrections for increased UE carrier monitoring	12.4.0	12.5.0	R2	LTE_UTRA_IncMon-Core
25.331	5741	-	Rel-12	F	RP-150373	R2-150584	approved	Clarification for SIB23 reading	12.4.0	12.5.0	R2	UTRA_LTE_WLAN_interw-Core
25.331	5753	-	Rel-12	F	RP-150376	R2-150615	approved	Clarification on RSRQ Type	12.4.0	12.5.0	R2	TEI12
25.331	5754	1	Rel-10	B	RP-150370	R2-150595	approved	Introduction of network-requested LTE CA band combination capability reporting	10.18.0	10.19.0	R2	TEI10
25.331	5755	1	Rel-11	B	RP-150370	R2-150596	approved	Introduction of network-requested LTE CA band combination capability reporting	11.12.0	11.13.0	R2	TEI11
25.331	5756	1	Rel-12	F	RP-150370	R2-150597	approved	Correction to network-requested LTE CA band combination capability reporting	12.4.0	12.5.0	R2	TEI12

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
25.331	5757	2	Rel-12	F	RP-150377	R2-150732	approved	ASN.1 corrections	12.4.0	12.5.0	R2	TEI12
25.331	5758	1	Rel-12	F	RP-150373	R2-150683	approved	Correction on provision of WLAN identifiers	12.4.0	12.5.0	R2	UTRA_LTE_WLAN_interw-Core
25.331	5763	2	Rel-12	F	RP-150368	R2-150705	approved	Correction of GLONASS system time	12.4.0	12.5.0	R2	RANimp-ANSS, TEI12
25.413	1290	-	Rel-12	F	RP-150356	R3-150048	approved	Correction of RSRQ type values	12.3.0	12.4.0	R3	TEI12
25.413	1291	1	Rel-12	F	RP-150356	R3-150390	approved	Rapporteur Review-ASN.1 consistency check	12.3.0	12.4.0	R3	TEI12
25.423	1861	1	Rel-12	F	RP-150350	R3-150373	approved	Add missing new SIB for IncMon	12.3.0	12.4.0	R3	LTE_UTRA_IncMon-Core
25.423	1862	1	Rel-12	F	RP-150349	R3-150371	approved	Correction on the value of Activation Delay	12.3.0	12.4.0	R3	EDCH_enh-core
25.423	1863	-	Rel-12	F	RP-150356	R3-150336	approved	Corrections following Rel12 ASN.1 review	12.3.0	12.4.0	R3	TEI12
25.425	0185	2	Rel-11	F	RP-150347	R3-150301	approved	Correction: add Extended S-RNTI in the Iur user plane	11.3.0	11.4.0	R3	TEI11
25.433	2060	-	Rel-12	F	RP-150349	R3-150117	approved	Correction on the value of Activation Delay	12.3.0	12.4.0	R3	EDCH_enh-core
25.433	2062	-	Rel-12	F	RP-150349	R3-150340	approved	Correction of ASN.1 for Fast TTI switching Mode Supported	12.3.0	12.4.0	R3	EDCH_enh-core
25.466	0055	1	Rel-12	F	RP-150356	R3-150372	approved	Correction of the reference	12.1.0	12.2.0	R3	TEI12
25.469	0106	2	Rel-12	F	RP-150356	R3-150389	approved	Rapporteur Review-ASN.1 consistency check	12.3.0	12.4.0	R3	TEI12
34.108	0971	-	Rel-11	F	RP-150322	R5-150096	approved	Correction to Contents of System Information Block Type 5 for condition B2 & B3	11.12.0	11.13.0	R5	TEI8_Test
34.108	0972	-	Rel-11	F	RP-150322	R5-150153	approved	Correction to default value of System Information Block type 5 for FDD	11.12.0	11.13.0	R5	TEI8_Test
34.108	0973	-	Rel-11	F	RP-150325	R5-150541	approved	Corrections in the default RADIO BEARER SETUP message for DC-HSDPA with MIMO	11.12.0	11.13.0	R5	TEI9_Test
34.108	0974	-	Rel-11	F	RP-150327	R5-150542	approved	Corrections in the default RADIO BEARER SETUP message for 4C-HSDPA	11.12.0	11.13.0	R5	TEI10_Test
34.108	0975	-	Rel-11	F	RP-150339	R5-150544	approved	Corrections in the default RADIO BEARER SETUP message for Multiflow	11.12.0	11.13.0	R5	HSDPA_MFTX-UEConTest
34.108	0976	-	Rel-11	F	RP-150322	R5-150605	approved	Correction to UTRAN Radio Bearer Setup Message for condition A30	11.12.0	11.13.0	R5	TEI8_Test
34.108	0977	-	Rel-11	F	RP-150321	R5-150619	approved	Correction to the default RADIO BEARER SETUP message for A28a MIMO/nonMIMO	11.12.0	11.13.0	R5	TEI7_Test
34.121-1	1597	-	Rel-12	F	RP-150338	R5-150893	approved	Update Test Tolerance analyses for enhCELL_FACH Test cases 8.3.5.2B and 8.3.5.2D	11.6.0	12.0.0	R5	Cell_FACH_enh-UEConTest
34.122	0435	-	Rel-11	F	RP-150325	R5-150473	approved	Correction to test procedure of TC 8.7.15 and 8.7.17	11.9.0	11.10.0	R5	TEI9_Test
34.123-1	3705	-	Rel-11	F	RP-150320	R5-150172	approved	Correction to 8.1.5.7: addition of new capabilities	11.5.0	11.6.0	R5	TEI_Test
34.123-1	3706	-	Rel-11	F	RP-150321	R5-150173	approved	Correction to Rel-7 MIMO/nonMIMO test cases 8.2.271 and 8.2.2.72	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3707	-	Rel-11	F	RP-150322	R5-150487	approved	Correction to MAC-i/is test case 7.1.7.3	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3708	-	Rel-11	F	RP-150322	R5-150491	approved	Correction to Rel-8 CSG testcase 12.3.1.10	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3709	-	Rel-11	F	RP-150322	R5-150492	approved	Correction to Rel-8 Supplementary Services testcase 15.8.9	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3710	-	Rel-11	F	RP-150339	R5-150545	approved	Addition of a new Multiflow test case 7.1.11	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-1	3711	-	Rel-11	F	RP-150321	R5-150556	approved	Correction to Rel-7 MIMO/nonMIMO test cases 8.3.11.17 and 8.3.11.18	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3712	-	Rel-11	F	RP-150321	R5-150614	approved	Correction to NISPCA test case 11.3.2a	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3713	-	Rel-11	F	RP-150322	R5-150620	approved	Correction to UTRAN test case 7.1.8.7	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3714	-	Rel-11	F	RP-150322	R5-150621	approved	Correction to idle mode test case 6.3.2.1	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3715	-	Rel-11	F	RP-150322	R5-150622	approved	Correction to ETWS test case 8.1.1.13	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3716	-	Rel-11	F	RP-150322	R5-150623	approved	Correction to SS test case 15.7.11 and 15.7.12	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3717	-	Rel-11	F	RP-150322	R5-150624	approved	Correction to SS test case 15.8.8	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3718	-	Rel-11	F	RP-150320	R5-150625	approved	Correction to SMS test case 16.1.1 and 16.1.2	11.5.0	11.6.0	R5	TEI_Test

EX-1016, 1708 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
34.123-1	3719	-	Rel-11	F	RP-150320	R5-150626	approved	Correction to SMS test case 16.2.1 and 16.2.2	11.5.0	11.6.0	R5	TEI_Test
34.123-1	3720	-	Rel-11	F	RP-150321	R5-150627	approved	Correction to test case 11.1.5.2	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3721	-	Rel-11	F	RP-150325	R5-150628	approved	Correction to DC-HSUPA test case 8.3.4.20	11.5.0	11.6.0	R5	TEI9_Test
34.123-1	3722	-	Rel-11	F	RP-150322	R5-150629	approved	Correction to Rel-8 Absolute Priority Cell reselection testcase 8.3.1.52	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3723	-	Rel-11	F	RP-150322	R5-150630	approved	Correction to Rel-8 Absolute Priority Cell reselection testcase 8.3.1.53	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3724	-	Rel-11	F	RP-150322	R5-150631	approved	Correction to Rel-8 Absolute Priority Cell reselection testcase 8.3.1.54	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3725	-	Rel-11	F	RP-150327	R5-150634	approved	Correction to Rel-10 testcase 9.4.3.3a	11.5.0	11.6.0	R5	TEI10_Test
34.123-1	3726	-	Rel-11	F	RP-150327	R5-150635	approved	Correction to Rel-10 testcase 12.4.1.4f	11.5.0	11.6.0	R5	TEI10_Test
34.123-1	3727	-	Rel-11	F	RP-150325	R5-150636	approved	Correction of test case 8.2.2.77	11.5.0	11.6.0	R5	TEI9_Test
34.123-1	3728	-	Rel-11	F	RP-150325	R5-150637	approved	Correction of test case 8.2.2.78	11.5.0	11.6.0	R5	TEI9_Test
34.123-1	3729	-	Rel-11	F	RP-150322	R5-150638	approved	Correction of Improved L2 UL MAC test case 7.2.2.15	11.5.0	11.6.0	R5	TEI8_Test
34.123-1	3730	-	Rel-11	F	RP-150338	R5-150716	approved	Correction to Further Enhancement to CELL_FACH test cases 8.3.1.49b	11.5.0	11.6.0	R5	Cell_FACH_enh-UEConTest
34.123-1	3731	-	Rel-11	F	RP-150338	R5-150717	approved	Correction to Further Enhancement to CELL_FACH test cases 8.3.1.49c	11.5.0	11.6.0	R5	Cell_FACH_enh-UEConTest
34.123-1	3732	-	Rel-11	F	RP-150339	R5-150723	approved	Correction to Multiflow RLC test cases 7.2.5.4 and 7.2.5.5	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-1	3733	-	Rel-11	F	RP-150339	R5-150724	approved	Addition of new Multiflow HSDPA test case 8.2.2.85.2 test	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-1	3734	-	Rel-11	F	RP-150339	R5-150725	approved	Addition of new Multiflow test cases 7.2.5.1 and 7.2.5.2	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-1	3735	-	Rel-11	F	RP-150321	R5-150727	approved	Correction to CPC test case 7.1.6.2.11	11.5.0	11.6.0	R5	TEI7_Test
34.123-1	3736	-	Rel-11	F	RP-150339	R5-150738	approved	Correction to Multiflow HSDPA clause 8.2.2.85 and test case 8.2.2.85.1	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-2	0725	-	Rel-11	F	RP-150321	R5-150148	approved	Corrections to title in applicability table for test case 8.2.2.63a	11.5.0	11.6.0	R5	TEI7_Test
34.123-2	0726	-	Rel-11	F	RP-150339	R5-150494	approved	Adding applicability for new test cases 8.2.2.85.2	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-2	0727	-	Rel-11	F	RP-150321	R5-150502	approved	Correction of test case 8.1.7.3	11.5.0	11.6.0	R5	TEI7_Test
34.123-2	0728	-	Rel-11	F	RP-150339	R5-150549	approved	Addition of new MAC-ehs and RLC test cases for Multiflow	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-2	0729	-	Rel-12	F	RP-150320	R5-150639	approved	Correction to the applicability condition for the Test cases 11.1.1.1 and 12.2.1.5a	11.5.0	12.0.0	R5	TEI_Test
34.123-2	0730	-	Rel-11	F	RP-150320	R5-150640	approved	Correction to the applicability condition for the Test case 12.2.1.11	11.5.0	11.6.0	R5	TEI_Test
34.123-2	0731	-	Rel-11	F	RP-150325	R5-150641	approved	Correction of applicability condition for IMS Emergency test cases 13.4.1 to 13.4.5	11.5.0	11.6.0	R5	TEI9_Test
34.123-2	0732	-	Rel-11	F	RP-150322	R5-150642	approved	Update to GMM Test case 12.3.1.10 applicability condition	11.5.0	11.6.0	R5	TEI8_Test
34.123-2	0733	-	Rel-11	F	RP-150339	R5-150726	approved	Remove Multiflow RLC test case 7.2.5.5	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-3	3295	-	Rel-11	F	RP-150322	R5-150098	approved	Addition of TC 12.4.2.5e to the list of cases which requires more than two radio frequencies	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3296	-	Rel-11	F	RP-150339	R5-150124	approved	HSDPA Multiflow Test Model for RLC test cases	11.5.0	11.6.0	R5	HSDPA_MFTX-UEConTest
34.123-3	3297	-	Rel-11	F	RP-150338	R5-150125	approved	Addition of Further Enhanced CELL_FACH Test Model	11.5.0	11.6.0	R5	Cell_FACH_enh-UEConTest
34.123-3	3298	-	Rel-11	F	RP-150320	R5-150728	approved	Routine maintenance for TS 34.123-3	11.5.0	11.6.0	R5	TEI_Test
34.123-3	3299	-	Rel-11	F	RP-150331	R5s141119	approved	Corrections for WI-010 UTRA SMS test cases 16.1.2, 16.1.9.1, 16.1.9.2, 16.1.10, 16.2.2, 16.2.10	11.5.0	11.6.0	R5	TEI_Test
34.123-3	3300	-	Rel-11	F	RP-150331	R5s141242	approved	Correction to TTCN implementation for test case 9.5.2	11.5.0	11.6.0	R5	TEI_Test
34.123-3	3301	-	Rel-11	F	RP-150331	R5s141290	approved	Correction to GCF WI-140 NISPC test case 11.3.2a	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3302	-	Rel-11	F	RP-150331	R5s141328	approved	Correction in Rel-7 Uplink 16 QAM test cases	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3303	-	Rel-11	F	RP-150331	R5s141348	approved	Correction to UTRA SS Test Cases on IWD wk49	11.5.0	11.6.0	R5	TEI8_Test

EX-1016, 1709 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
34.123-3	3304	-	Rel-11	B	RP-150331	R5s141355	approved	Addidtion of Rel-10 NAS testcase 12.4.1.4f to UTRAN testsuite	11.5.0	11.6.0	R5	TEI10_Test
34.123-3	3305	-	Rel-11	F	RP-150331	R5s141357	approved	Correction to Rel-8 CSG TCs 12.2.1.5e, 12.2.2.7e and 12.4.2.5e	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3306	-	Rel-11	B	RP-150331	R5s141382	approved	Addition of WI-131 Rel-8 Enh. Cell FACH UL Test Case 7.1.8.7 to HSPA8_ENH ATS	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3307	-	Rel-11	B	RP-150331	R5s141390	approved	Addidtion of Rel-10 NAS testcase 9.4.3.3a to UTRAN testsuite	11.5.0	11.6.0	R5	TEI10_Test
34.123-3	3308	-	Rel-11	F	RP-150331	R5s150002	approved	Correction to UTRAN Rel-7 test case 11.3.2a	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3309	-	Rel-11	B	RP-150331	R5s150015	approved	Addidtion of Rel-7 NISPC testcase 11.1.5.2 to UTRAN testsuite	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3310	-	Rel-11	F	RP-150331	R5s150018	approved	Correction to MAC-I/Is test case 7.1.7.3	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3311	-	Rel-11	B	RP-150331	R5s150020	approved	Addidtion of Rel-8 RRC testcase 8.3.1.52 to HSPA8_ENH testsuite	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3312	-	Rel-11	B	RP-150331	R5s150022	approved	Addidtion of Rel-8 RRC testcase 8.3.1.53 to HSPA8_ENH testsuite	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3313	-	Rel-11	B	RP-150331	R5s150024	approved	Addidtion of Rel-8 RRC testcase 8.3.1.54 to HSPA8_ENH testsuite	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3314	-	Rel-11	B	RP-150331	R5s150032	approved	Addition of WI-131 Rel-8 Enh. Cell FACH UL Test Case 8.2.1.42 to HSPA8_ENH ATS	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3315	-	Rel-11	F	RP-150331	R5s150040	approved	Correction to GCF WI-070 UTRA CPC Testcase 7.1.6.2.11	11.5.0	11.6.0	R5	TEI7_Test
34.123-3	3316	-	Rel-11	F	RP-150331	R5s150043	approved	General Corrections to all test suites for support of A5/4 and GEA4	11.5.0	11.6.0	R5	TEI_Test
34.123-3	3317	-	Rel-11	B	RP-150331	R5s150044	approved	Addition of WI-187 Rel-9 A5/4 and UEA1/UIA1 test case 8.3.7.1c to HSPA9_ENH ATS	11.5.0	11.6.0	R5	TEI9_Test
34.123-3	3318	-	Rel-11	B	RP-150331	R5s150046	approved	Addition of WI-187 Rel-9 A5/4 and UEA2/UIA2 test case 8.3.7.1d to HSPA9_ENH ATS	11.5.0	11.6.0	R5	TEI9_Test
34.123-3	3319	-	Rel-11	B	RP-150331	R5s150050	approved	Addition of WI-188 Rel-9 GEA4 and UEA2/UIA2 test case 8.3.11.1c to HSPA9_ENH ATS	11.5.0	11.6.0	R5	TEI9_Test
34.123-3	3320	-	Rel-11	F	RP-150331	R5s150052	approved	Corrections to UTRA CSG test case 6.3.1.4	11.5.0	11.6.0	R5	TEI9_Test
34.123-3	3321	-	Rel-11	B	RP-150331	R5s150058	approved	Addition of WI-130 MAC-IS/I 7.1.7.5 to HSPA8_ENH ATS	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3322	-	Rel-11	F	RP-150331	R5s150083	approved	Correction to Attach Accept procedures for UTRAN34 testcases	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3323	-	Rel-11	F	RP-150331	R5s150084	approved	Correction to Rel-8 Supplementary service test cases based on 14wk49 ATS	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3324	-	Rel-11	F	RP-150331	R5s150111	approved	Corrections to GCF WI-158 UTRA CSG test case 12.3.1.10	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3325	-	Rel-11	F	RP-150331	R5s150112	approved	Corrections to the UTRA CSG test case 6.3.1.1	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3326	-	Rel-11	F	RP-150331	R5s150117	approved	Corrections to UTRA CSG test case 6.3.2.2	11.5.0	11.6.0	R5	TEI8_Test
34.123-3	3327	-	Rel-11	F	RP-150330	-	approved	CR to 34.123-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.123-3 (prose), Annex A	11.5.0	11.6.0	R5	TEI8_Test
34.229-1	0620	-	Rel-12	F	RP-150325	R5-150128	approved	Correction to IMS test case 8.16	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0621	-	Rel-12	F	RP-150325	R5-150247	approved	Correction to Test case 19.5.8	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0622	-	Rel-12	F	RP-150322	R5-150248	approved	Correction to Test case 15.10a	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0623	-	Rel-12	F	RP-150325	R5-150250	approved	Correction to Test case 19.5.7	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0624	-	Rel-12	F	RP-150325	R5-150251	approved	Add reference document of RFC4488	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0625	-	Rel-12	F	RP-150322	R5-150267	approved	Correction to GCF WI-154 IMS Emergency call Testcase 19.5.7	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0626	-	Rel-12	F	RP-150322	R5-150268	approved	Correction to GCF WI-154 IMS Emergency call Testcases	12.4.1	12.5.0	R5	TEI8_Test

EX-1016, 1710 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
34.229-1	0627	-	Rel-12	F	RP-150325	R5-150338	approved	Correction to IMS Emergency Call test case 19.1.5	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0628	-	Rel-12	F	RP-150325	R5-150345	approved	Correction to IMS Emergency Call test case 19.5.7	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0629	-	Rel-12	F	RP-150322	R5-150384	approved	Three way session creation	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0630	-	Rel-12	F	RP-150322	R5-150385	approved	Updating RFC 4244 to RFC 7044	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0631	-	Rel-12	F	RP-150322	R5-150386	approved	s-lines in SDP	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0632	-	Rel-12	F	RP-150340	R5-150584	approved	Updates to A.1 default REGISTER messages	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0633	-	Rel-12	F	RP-150340	R5-150585	approved	Updates to A.8 default messages for CS to PS SRVCC	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0634	-	Rel-12	F	RP-150340	R5-150586	approved	Updates to annex C.39	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0635	-	Rel-12	F	RP-150322	R5-150692	approved	Contact header in UPDATE requests	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0636	-	Rel-12	F	RP-150322	R5-150694	approved	Correction for generic test procedure for IMS MO call	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0637	-	Rel-12	F	RP-150340	R5-150696	approved	Correction to the procedure of C.40	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0638	-	Rel-12	F	RP-150325	R5-150698	approved	Correction to the inconsistency in 19.1.3a	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0639	-	Rel-12	F	RP-150325	R5-150699	approved	Correction to the missing part on TC19.3.2	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0640	-	Rel-12	F	RP-150325	R5-150700	approved	Correction to IMS Emergency Call test case 19.1.3	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0641	-	Rel-12	F	RP-150322	R5-150701	approved	Updating draft-montemurro-gsma-imei-urn to RFC	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0642	-	Rel-12	F	RP-150322	R5-150702	approved	Addressing Action Point AP#65.02 on o-lines in SDP	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0643	-	Rel-12	F	RP-150322	R5-150703	approved	Correction to GCF WI-198 IMS Video call Testcase 12.22	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0644	-	Rel-12	F	RP-150325	R5-150704	approved	Correction to test case 19.3.2b	12.4.1	12.5.0	R5	TEI9_Test
34.229-1	0645	-	Rel-12	F	RP-150322	R5-150705	approved	Corrections to IMS test case 15.15	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0646	-	Rel-12	F	RP-150322	R5-150706	approved	ACK request in C.31	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0647	-	Rel-12	F	RP-150322	R5-150707	approved	183 Session Progress in TC 15.8	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0648	-	Rel-12	F	RP-150322	R5-150708	approved	Add test case for GBA	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0649	-	Rel-12	F	RP-150322	R5-150709	approved	Directionality attribute in MO and MT calls	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0650	-	Rel-12	F	RP-150322	R5-150711	approved	Update annex C.29.2	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0651	-	Rel-12	F	RP-150340	R5-150713	approved	Updates to annex C.40	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0652	-	Rel-12	F	RP-150340	R5-150714	approved	Updates to annex C.42	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-1	0653	-	Rel-12	F	RP-150322	R5-150734	approved	Correction to C.25 - Generic test procedure for setting up MTSI MO video call for EPS	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0654	-	Rel-12	F	RP-150322	R5-150736	approved	Update of SDP message content for test case 17.1	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0655	-	Rel-12	F	RP-150322	R5-150745	approved	Correction to WI-103 Conference Call TC	12.4.1	12.5.0	R5	TEI8_Test
34.229-1	0656	-	Rel-12	F	RP-150340	R5-150931	approved	Addition of new generic procedure for UE receiving SIP REFER request for transfer of additional CS to PS Call	12.4.1	12.5.0	R5	rSRVCC-UEConTest
34.229-2	0136	-	Rel-12	F	RP-150322	R5-150537	approved	Add applicability for new GBA test case	12.3.0	12.4.0	R5	TEI8_Test
34.229-2	0137	-	Rel-12	F	RP-150322	R5-150712	approved	Add capability for GBA	12.3.0	12.4.0	R5	TEI8_Test
34.229-2	0138	-	Rel-12	F	RP-150322	R5-150737	approved	Clarification on A.12/23 vs A.12/35	12.3.0	12.4.0	R5	TEI8_Test
34.229-3	0253	-	Rel-10	F	RP-150322	R5-150355	approved	Routine maintenance for TS 34.229-3	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0254	-	Rel-10	B	RP-150333	R5s141155	approved	Addition of GCF WI-154 IMS emergency call testcase 19.3.1 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0255	-	Rel-10	F	RP-150333	R5s141212	approved	Correction of IMS test case 8.1: sip-instance	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0256	-	Rel-10	B	RP-150333	R5s141221	approved	Addition of GCF WI-198 MO MTSI Video Call test case 12.21 ^^(using 36.523-3 test model)	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0257	-	Rel-10	F	RP-150333	R5s141232	approved	Correction to IMS Emergency call test case 19.4.1	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0258	-	Rel-10	B	RP-150333	R5s141237	approved	Addition of GCF WI-154 Emergency Call Testcase 19.3.4 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0259	-	Rel-10	F	RP-150333	R5s141244	approved	Correction of o-lines in SDP bodies sent by SS	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0260	-	Rel-10	F	RP-150333	R5s141273	approved	Correction to GCF WI-171 IMS SSAC test case 12.18	10.5.0	10.6.0	R5	TEI9_Test

EX-1016, 1711 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
34.229-3	0261	-	Rel-10	B	RP-150333	R5s141286	approved	Addition of GCF WI-154 IMS Emergency Call test case 19.1.5	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0262	-	Rel-10	F	RP-150333	R5s141322	approved	Correction to IMS Registration Procedure	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0263	-	Rel-10	F	RP-150333	R5s141326	approved	Correction to GCF WI-103 IMS test case 11.2	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0264	-	Rel-10	B	RP-150333	R5s141329	approved	Addition of GCF WI-198 MO MTSI Video Call test case 12.22 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0265	-	Rel-10	F	RP-150333	R5s141335	approved	Correction to GCF WI-154 IMS emergency test case 19.5.6 and 19 5.7	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0266	-	Rel-10	F	RP-150333	R5s141336	approved	Correction to GCF WI-198 IMS MO Video Call Testcase 12.21	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0267	-	Rel-10	F	RP-150333	R5s141337	approved	Correction to GCF WI-154 IMS emergency test case 19.3.4	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0268	-	Rel-10	B	RP-150333	R5s141341	approved	Addition of GCF WI-103 IMS Conference Call Testcase 15.17 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0269	-	Rel-10	B	RP-150333	R5s141343	approved	Addition of GCF WI-103 IMS Conference Call Testcase 15.19 over 36.523-3 Test Model	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0270	-	Rel-10	F	RP-150333	R5s141350	approved	Correction of IMS TC 15.10a: not-registered condition	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0271	-	Rel-10	F	RP-150333	R5s141351	approved	Correction to GCF WI-103 IMS 15.x XCAP Testcases	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0272	-	Rel-10	F	RP-150333	R5s141353	approved	Correction of XCAP TCs on usage of str2oct	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0273	-	Rel-10	F	RP-150333	R5s141370	approved	Correction of IMS Emergency Call testcase 19.4.5	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0274	-	Rel-10	F	RP-150333	R5s141381	approved	Correction of IMS SSAC Testcases 12.18, 12.19, 12.20, 12.18a, 12.19a and 12.20a	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0275	-	Rel-10	F	RP-150333	R5s150030	approved	Correction of prefix to XCAP Root Uri	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0276	-	Rel-10	F	RP-150333	R5s150035	approved	Correction to UPDATE message for IMS MT Call Testcases	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0277	-	Rel-10	F	RP-150333	R5s150039	approved	Correction for record-route header in IMS MT call scenarios	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0278	-	Rel-10	F	RP-150333	R5s150054	approved	Correction to cr_UE_RadioAccessCapability template for IMS UTRA test cases	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0279	-	Rel-10	F	RP-150333	R5s150055	approved	Correction to IMS Multiple PDN	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0280	-	Rel-10	F	RP-150333	R5s150085	approved	Correction to DNS Query procedure for IMS Testcases	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0281	-	Rel-10	F	RP-150333	R5s150086	approved	Correction to SessionID in IMS signalling procedures	10.5.0	10.6.0	R5	TEI8_Test
34.229-3	0282	-	Rel-10	B	RP-150333	R5s150115	approved	Addition of GCF WI-171 MO MTSI Video Call test case 12.19 ^^(using 36.523-3 test model)	10.5.0	10.6.0	R5	TEI9_Test
34.229-3	0283	-	Rel-10	F	RP-150332	-	approved	CR to 34.229-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 34.229-3 (prose), Annex A	10.5.0	10.6.0	R5	TEI8_Test
34.902	0022	-	Rel-11	F	RP-150338	R5-150894	approved	Add Test Tolerance analysis for 34.121-1 RRM Test cases 8.3.5.2b and 8.3.5.2d	9.5.0	11.0.0	R5	Cell_FACH_enh-UEConTest
36.101	2760	2	Rel-12	B	RP-150387	R4-151196	approved	Introduce additional bands of LC MTC	12.6.0	12.7.0	R4	LC_MTC_LTE-Core
36.101	2761	-	Rel-12	F	RP-150387	R4-150027	approved	CR on corrections to Dual-Layer Spatial Multiplexing with multiple CSI-RS config Rel-12	12.6.0	12.7.0	R4	TEI12
36.101	2763	-	Rel-11	D	RP-150384	R4-150059	approved	Correction for timing offset test for intraband non-contiguous CA	11.11.0	11.12.0	R4	TEI11
36.101	2765	1	Rel-12	B	RP-150392	R4-151138	approved	CR for applicability and test rules for TDD-FDD CA performance requirements	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2766	-	Rel-12	B	RP-150392	R4-150062	approved	Introduction of CQI tests for TDD-FDD CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2767	1	Rel-12	B	RP-150395	R4-151081	approved	CR to introduce the SU-MIMO whitening verification test	12.6.0	12.7.0	R4	LTE_SUMIMO_RX-Perf
36.101	2768	1	Rel-12	B	RP-150392	R4-151086	approved	CR on power imbalance test for 3DL CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2769	-	Rel-12	B	RP-150392	R4-150109	approved	CR on sustained data rate test for TDD FDD CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2770	1	Rel-12	B	RP-150394	R4-151077	approved	CR for introduction of 256QAM demodulation performance requirements	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf
36.101	2772	1	Rel-12	B	RP-150393	R4-151084	approved	CR: DC UE performance requirements	12.6.0	12.7.0	R4	LTE_SC_enh_dualC-Perf

EX-1016, 1712 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.101	2773	1	Rel-12	B	RP-150390	R4-151053	approved	CR: MTC demodulation performance requirements	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2774	1	Rel-12	B	RP-150390	R4-151054	approved	CR: MTC CSI requirements	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2775	1	Rel-12	B	RP-150396	R4-151058	approved	Introduction of the eIMTA functional PDSCH demodulation test	12.6.0	12.7.0	R4	LTE_TDD_eIMTA-Perf
36.101	2776	3	Rel-12	B	RP-150387	R4-151273	approved	CR on RF core requirements for D2D	12.6.0	12.7.0	R4	LTE_D2D_Prox-Core
36.101	2777	-	Rel-12	F	RP-150387	R4-150239	approved	Modification of CSI reference measurement channel Rel-12	12.6.0	12.7.0	R4	TEI12
36.101	2778	-	Rel-11	F	RP-150384	R4-150240	approved	Modification of CSI reference measurement channel Rel-11	11.11.0	11.12.0	R4	TEI11
36.101	2779	-	Rel-12	D	RP-150388	R4-150241	approved	Editorial correction for CA_18A-28A	12.6.0	12.7.0	R4	LTE_CA_B18_B28-Core
36.101	2781	-	Rel-12	F	RP-150388	R4-150246	approved	Removing brackets for CA_1A-28A MSD requirements	12.6.0	12.7.0	R4	LTE_CA_B1_B28-Core
36.101	2782	-	Rel-11	F	RP-150384	R4-150259	approved	Editorial correction on symbols for enhanced performance requirements type A	11.11.0	11.12.0	R4	LTE_Interf_Rej-Perf
36.101	2783	-	Rel-12	A	RP-150384	R4-150260	approved	Editorial correction on symbols for enhanced performance requirements type A	12.6.0	12.7.0	R4	LTE_Interf_Rej-Perf
36.101	2784	-	Rel-12	F	RP-150387	R4-150310	approved	Corrections on reference measurement channel	12.6.0	12.7.0	R4	TEI12
36.101	2792	-	Rel-12	F	RP-150388	R4-150361	approved	Correction of TS 36.101 for the Pcell support of 25+41	12.6.0	12.7.0	R4	LTE_CA_B25_B41_B41-Core
36.101	2793	1	Rel-12	B	RP-150395	R4-151082	approved	CR for single cell demodulation test for SU-MIMO	12.6.0	12.7.0	R4	LTE_SUMIMO_RX-Perf
36.101	2794	-	Rel-12	B	RP-150391	R4-150441	approved	Introduction of CA_3A-42A and CA_3A-42C into 36.101	12.6.0	12.7.0	R4	LTE_CA_B3_B42_B42-Core
36.101	2795	-	Rel-10	F	RP-150382	R4-150451	approved	UL HARQ in PDSCH and PDCCH/PCFICH demod test cases for eICIC with MBSFN ABS	10.17.0	10.18.0	R4	eICIC_LTE-Perf
36.101	2796	-	Rel-11	F	RP-150384	R4-150452	approved	UL HARQ in PDSCH and PDCCH/PCFICH demod test cases for eICIC/feICIC with MBSFN ABS	11.11.0	11.12.0	R4	eICIC_LTE-Perf, eICIC_enh_LTE-Perf
36.101	2797	-	Rel-12	A	RP-150384	R4-150453	approved	UL HARQ in PDSCH and PDCCH/PCFICH demod test cases for eICIC/feICIC with MBSFN ABS	12.6.0	12.7.0	R4	eICIC_LTE-Perf
36.101	2798	-	Rel-10	F	RP-150382	R4-150454	approved	Correction to eICIC aggressor cell configurations	10.17.0	10.18.0	R4	eICIC_LTE-Perf
36.101	2799	-	Rel-11	A	RP-150382	R4-150455	approved	Correction to eICIC aggressor cell configurations	11.11.0	11.12.0	R4	eICIC_LTE-Perf
36.101	2800	-	Rel-12	A	RP-150382	R4-150456	approved	Correction to eICIC aggressor cell configurations	12.6.0	12.7.0	R4	eICIC_LTE-Perf
36.101	2801	-	Rel-12	F	RP-150387	R4-150504	approved	R4-73AH-0040: Correction for uplik CA configuration in TS 36.101 Rel-12	12.6.0	12.7.0	R4	LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core, LTE_CA_NC_2UL-Core
36.101	2802	1	Rel-12	F	RP-150387	R4-151160	approved	Correction of MSD levels for CA_1A-8A in TS 36.101 rel-12	12.6.0	12.7.0	R4	LTE_CA_2UL-A4-Core
36.101	2803	-	Rel-10	F	RP-150382	R4-150526	approved	Removal of eDL-MIMO term from specification	10.17.0	10.18.0	R4	LTE_eDL_MIMO-Core
36.101	2804	-	Rel-11	A	RP-150382	R4-150527	approved	Removal of eDL-MIMO term from specification	11.11.0	11.12.0	R4	LTE_eDL_MIMO-Core
36.101	2805	-	Rel-12	F	RP-150387	R4-150528	approved	Removal of eDL-MIMO term from specification	12.6.0	12.7.0	R4	LTE_eDL_MIMO-Core, LC_MTC_LTE-Core
36.101	2809	-	Rel-12	F	RP-150388	R4-150533	approved	Clarification of 2UL/3DL contiguous intraband CA REFSENS test	12.6.0	12.7.0	R4	LTE_CA_C_B41_3DL-Core
36.101	2811	1	Rel-12	B	RP-150392	R4-151085	approved	CR on TM4 normal demodulation test for 3DL CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2812	-	Rel-12	F	RP-150392	R4-150552	approved	CR on introducing new DL referece measurement channels	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2813	1	Rel-12	B	RP-150392	R4-151087	approved	CR on normal demodulation test for TDD-FDD CA	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf

EX-1016, 1713 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.101	2815	-	Rel-12	F	RP-150388	R4-150568	approved	Additions of bandwidth combination set reference	12.6.0	12.7.0	R4	LTE_CA_B1_B42_B42-Core, LTE_CA_B2_B4_B4-Core, LTE_CA_B2_B2_B5-Core, LTE_CA_B2_B12_B12-Core, LTE_CA_B2_B2_B13-Core, LTE_CA_B2_B2_B29-Core, LTE_CA_B3_B3_B7-Core, LTE_CA_B4_B4_B5-Core, LTE_CA_B4_B4_B12-Core, LTE_CA_B4_B12_B12-Core, LTE_CA_B4_B4_B13-Core
36.101	2816	-	Rel-12	F	RP-150388	R4-150569	approved	Correction of band number in Table 5.6A.1-2a for LTE_CA_B4_B12_B30	12.6.0	12.7.0	R4	LTE_CA_B4_B12_B30-Core
36.101	2817	-	Rel-10	F	RP-150382	R4-150610	approved	UE to UE co-existence between B42/B43	10.17.0	10.18.0	R4	RInImp8-UMTSLTE3500, LTE-RF
36.101	2818	-	Rel-11	A	RP-150382	R4-150611	approved	UE to UE co-existence between B42/B43	11.11.0	11.12.0	R4	RInImp8-UMTSLTE3500, LTE-RF
36.101	2819	-	Rel-12	F	RP-150382	R4-150612	approved	UE to UE co-existence between B42/B43	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500, LTE-RF
36.101	2820	-	Rel-10	F	RP-150382	R4-150613	approved	Corrections to CA in-band emissions requirement	10.17.0	10.18.0	R4	TEI10
36.101	2821	-	Rel-11	A	RP-150382	R4-150614	approved	Corrections to CA in-band emissions requirement	11.11.0	11.12.0	R4	TEI10
36.101	2822	-	Rel-12	A	RP-150382	R4-150615	approved	Corrections to CA in-band emissions requirement	12.6.0	12.7.0	R4	TEI10
36.101	2827	-	Rel-9	F	RP-150381	R4-150623	approved	Uplink RMCs for sustained data rate test	9.21.0	9.22.0	R4	TEI9
36.101	2828	-	Rel-10	A	RP-150381	R4-150624	approved	Uplink RMCs for sustained data rate test	10.17.0	10.18.0	R4	TEI9
36.101	2829	-	Rel-11	A	RP-150381	R4-150625	approved	Uplink RMCs for sustained data rate test	11.11.0	11.12.0	R4	TEI9
36.101	2830	-	Rel-12	A	RP-150381	R4-150626	approved	Uplink RMCs for sustained data rate test	12.6.0	12.7.0	R4	TEI9
36.101	2831	-	Rel-10	F	RP-150382	R4-150628	approved	Corrections to the CA power imbalance test	10.17.0	10.18.0	R4	TEI10
36.101	2832	-	Rel-11	A	RP-150382	R4-150629	approved	Corrections to the CA power imbalance test	11.11.0	11.12.0	R4	TEI10
36.101	2833	-	Rel-12	A	RP-150382	R4-150630	approved	Corrections to the CA power imbalance test	12.6.0	12.7.0	R4	TEI10
36.101	2839	1	Rel-12	B	RP-150392	R4-151088	approved	CR for soft buffer tests for TDD-FDD CA in 36.101 in Rel-12	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2840	-	Rel-10	F	RP-150392	R4-150705	approved	Editorial CR for CA UE performance tests in 36.101 in Rel-10	10.17.0	10.18.0	R4	LTE_CA_Mult-Perf
36.101	2841	-	Rel-11	A	RP-150392	R4-150706	approved	Editorial CR for CA UE performance tests in 36.101 in Rel-11	11.11.0	11.12.0	R4	LTE_CA_Mult-Perf
36.101	2842	-	Rel-12	F	RP-150392	R4-150707	approved	Editorial CR for CA UE performance tests in 36.101 in Rel-12	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.101	2845	-	Rel-10	F	RP-150382	R4-150787	approved	UE spurious emissions structure correction for CA	10.17.0	10.18.0	R4	TEI10
36.101	2846	-	Rel-11	F	RP-150384	R4-150788	approved	UE spurious emissions structure correction for CA	11.11.0	11.12.0	R4	TEI11
36.101	2847	-	Rel-12	F	RP-150387	R4-150789	approved	UE spurious emissions structure correction for CA	12.6.0	12.7.0	R4	TEI12
36.101	2848	1	Rel-10	F	RP-150382	R4-151204	approved	Removal of Pcmax requirements for UL inter-band CA in early release	10.17.0	10.18.0	R4	LTE_CA-Core
36.101	2849	-	Rel-11	A	RP-150382	R4-150802	approved	Removal of Pcmax requirements for UL inter-band CA in early release	11.11.0	11.12.0	R4	LTE_CA-Core
36.101	2850	-	Rel-12	F	RP-150387	R4-150803	approved	Correction of PCMAX for uplink inter-band and intra-band carrier aggregation	12.6.0	12.7.0	R4	LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core

EX-1016, 1714 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.101	2851	-	Rel-12	F	RP-150387	R4-150805	approved	Exceptions for spurious response for UL CA	12.6.0	12.7.0	R4	LTE_CA_2UL-A1-Core, LTE_CA_2UL-A2-Core, LTE_CA_2UL-A3-Core, LTE_CA_2UL-A4-Core, LTE_CA_2UL-A5-Core
36.101	2852	1	Rel-12	F	RP-150388	R4-151162	approved	Correction of REFSENS, OOBB and uplink configuration for 3DL/1UL CA	12.6.0	12.7.0	R4	LTE_CA-Core
36.101	2853	-	Rel-12	B	RP-150390	R4-150868	approved	SNR definition for category 0 UE	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2854	1	Rel-12	B	RP-150390	R4-151051	approved	FRC for category 0 UE PDSCH performance requirements	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2855	1	Rel-12	B	RP-150390	R4-151052	approved	Introduction of new PHICH and PBCH performance requirements for category 0 UE	12.6.0	12.7.0	R4	LC_MTC_LTE-Perf
36.101	2861	-	Rel-12	F	RP-150387	R4-150989	approved	Correction to FOOB reference in definition of MPR for contiguous CA with non-contiguous resource allocation	12.6.0	12.7.0	R4	TEI12
36.101	2862	-	Rel-12	F	RP-150387	R4-150996	approved	Band 31 update	12.6.0	12.7.0	R4	TEI12
36.101	2865	-	Rel-11	F	RP-150384	R4-151155	approved	Band 28 UE emissions correction	11.11.0	11.12.0	R4	LTE_APAC700-Core
36.101	2866	-	Rel-11	F	RP-150384	R4-151211	approved	Implementation of CA configurations specified in later releases	11.11.0	11.12.0	R4	LTE_CA-Core
36.101	2867	-	Rel-12	A	RP-150384	R4-151212	approved	Implementation of CA configurations specified in later releases	12.6.0	12.7.0	R4	LTE_CA-Core
36.104	0627	-	Rel-12	F	RP-150382	R4-150362	approved	Co-location between Band 42 and Band 43 in TS 36.104	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500
36.104	0629	-	Rel-12	B	RP-150391	R4-150438	approved	Introduction of CA_3A-42A and CA_3A-42C into 36.104	12.6.0	12.7.0	R4	LTE_CA_B3_B42_B42-Core
36.104	0636	-	Rel-12	F	RP-150388	R4-150817	approved	MB and TDD+FDD	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
36.112	0004	1	Rel-12	F	RP-150384	R4-151165	approved	Update annex C.2 to match Release 11.	12.1.0	12.2.0	R4	LCS_LTE-NBPS-Core
36.116	0010	-	Rel-11	F	RP-150384	R4-150359	approved	Corrections for TS 36.116 cluase 7.6: Blocking characteristics	11.3.0	11.4.0	R4	LTE_Relay2-Core
36.116	0011	-	Rel-12	A	RP-150384	R4-150360	approved	Corrections for TS 36.116 cluase 7.6: Blocking characteristics	12.0.0	12.1.0	R4	LTE_Relay2-Core
36.133	2746	-	Rel-11	F	RP-150384	R4-150008	approved	CR to Correct Implementation Errors in Intra-Frequency RSTD Measurement Reporting Delay Test Cases	11.11.0	11.12.0	R4	TEI11
36.133	2747	-	Rel-12	F	RP-150387	R4-150009	approved	CR to Correct Implementation Error in FDD RSTD Measurement Reporting Delay Test Case and to Update Io Levels for Certain RSTD Test Cases	12.6.0	12.7.0	R4	TEI12
36.133	2748	-	Rel-10	F	RP-150382	R4-150014	approved	Remove incorrect note from CA RSTD Accuracy tests	10.17.0	10.18.0	R4	TEI10
36.133	2749	-	Rel-11	A	RP-150382	R4-150015	approved	Remove incorrect note from CA RSTD Accuracy tests	11.11.0	11.12.0	R4	TEI10
36.133	2750	-	Rel-12	A	RP-150382	R4-150016	approved	Remove incorrect note from CA RSTD Accuracy tests	12.6.0	12.7.0	R4	TEI10
36.133	2751	-	Rel-12	F	RP-150387	R4-150017	approved	Change Nprs value for 5MHz CA RSTD Accuracy tests	12.6.0	12.7.0	R4	TEI12
36.133	2752	1	Rel-10	F	RP-150382	R4-151105	approved	Maximum allowed layers for multiple monitoring for CA	10.17.0	10.18.0	R4	LTE_CA-Perf
36.133	2753	1	Rel-11	A	RP-150065	-	approved	Maximum allowed layers for multiple monitoring for CA	11.11.0	11.12.0	R4	LTE_CA-Core
36.133	2753	-	Rel-11	A	RP-150383	R4-150040	revised	Maximum allowed layers for multiple monitoring for CA	11.11.0		R4	LTE_CA-Perf
36.133	2754	1	Rel-12	A	RP-150066	-	approved	Maximum allowed layers for multiple monitoring for CA	12.6.0	12.7.0	R4	LTE_CA-Core
36.133	2754	-	Rel-12	F	RP-150383	R4-150041	revised	Maximum allowed layers for multiple monitoring for CA	12.6.0		R4	LTE_CA-Perf
36.133	2756	-	Rel-12	F	RP-150387	R4-150044	approved	DRX correction for interruption with dual connectivity	12.6.0	12.7.0	R4	LTE_SC_enh_dualC-Perf
36.133	2757	-	Rel-12	F	RP-150388	R4-150045	approved	Correction of Interruptions with RSTD Measurements for 3DL CA	12.6.0	12.7.0	R4	LTE_CA_B1_B19_B21-Core, LTE_CA_B1_B3_B20-Core, LT
36.133	2761	1	Rel-12	B	RP-150387	R4-151126	approved	RRM requirements for ProSe	12.6.0	12.7.0	R4	LTE_D2D_Prox-Core
36.133	2763	1	Rel-12	F	RP-150396	R4-151055	approved	Updating the requirements applicability for TDD config 0	12.6.0	12.7.0	R4	LTE_TDD_eIMTA-Perf
36.133	2764	1	Rel-12	F	RP-150394	R4-151059	approved	Cleanup for RSRQ measurement requirement for SCE	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf
36.133	2774	1	Rel-12	F	RP-150394	R4-151074	approved	Clean up the correction on discovery signal measurements	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf
36.133	2775	1	Rel-12	F	RP-150387	R4-151114	approved	Correction on MBSFN measurements	12.6.0	12.7.0	R4	MBMS_LTE_OS-Core
36.133	2776	-	Rel-12	F	RP-150394	R4-150305	approved	Introduce CA measurement accuracy requirements for SCE	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf

EX-1016, 1715 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.133	2777	-	Rel-12	F	RP-150382	R4-150306	approved	Correction on Io in carrier aggregation test cases	12.6.0	12.7.0	R4	LTE_CA-Perf
36.133	2783	-	Rel-12	B	RP-150387	R4-150345	approved	Introducing accuracy requirement for new RSRQ	12.6.0	12.7.0	R4	TEI12
36.133	2784	-	Rel-11	F	RP-150384	R4-150457	approved	Time-domain measurement resource restriction pattern for serving cell in feICIC RSRP and RSRQ test cases	11.11.0	11.12.0	R4	eICIC_enh_LTE-Perf
36.133	2785	-	Rel-12	A	RP-150384	R4-150458	approved	Time-domain measurement resource restriction pattern for serving cell in feICIC RSRP and RSRQ test cases	12.6.0	12.7.0	R4	eICIC_enh_LTE-Perf
36.133	2790	-	Rel-11	F	RP-150384	R4-150491	approved	CR on typo of referencing section name in CA measurements	11.11.0	11.12.0	R4	TEI11
36.133	2791	-	Rel-12	A	RP-150384	R4-150492	approved	CR on typo of referencing section name in CA measurements	12.6.0	12.7.0	R4	TEI11
36.133	2797	1	Rel-12	F	RP-150393	R4-151063	approved	Clarification including PSCell in Note 1 for Ecat	12.6.0	12.7.0	R4	LTE_SC_enh_dualC-Perf
36.133	2798	1	Rel-12	F	RP-150386	R4-151135	approved	Clarification of IncMon requirements for E-UTRA idle state	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
36.133	2799	1	Rel-12	F	RP-150386	R4-151136	approved	Clarification of IncMon requirements for E-UTRA connected state	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
36.133	2800	1	Rel-12	F	RP-150386	R4-151112	approved	Clarification concerning IncMon scaling for non-gap-assisted measurements	12.6.0	12.7.0	R4	LTE_UTRA_Incmon-Core
36.133	2801	-	Rel-10	F	RP-150382	R4-150616	approved	Correction of RMC and OCNG pattern in event triggered tests without measurement gap	10.17.0	10.18.0	R4	TEI10
36.133	2802	-	Rel-11	A	RP-150382	R4-150617	approved	Correction of RMC and OCNG pattern in event triggered tests without measurement gap	11.11.0	11.12.0	R4	TEI10
36.133	2803	-	Rel-12	A	RP-150382	R4-150618	approved	Correction of RMC and OCNG pattern in event triggered tests without measurement gap	12.6.0	12.7.0	R4	TEI10
36.133	2804	-	Rel-12	B	RP-150394	R4-150645	approved	CR on RSRQ requirements for CRS based discovery signal	12.6.0	12.7.0	R4	LTE_SC_enh_L1-Perf
36.133	2807	-	Rel-11	F	RP-150384	R4-150652	approved	UE Behaviour after Measurement Gap	11.11.0	11.12.0	R4	TEI11
36.133	2808	-	Rel-12	F	RP-150387	R4-150653	approved	Correction to RRM test cases	12.6.0	12.7.0	R4	TEI12
36.133	2809	-	Rel-12	F	RP-150388	R4-150655	approved	Correction to CA Testing with Different CA Configurations	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
36.133	2811	-	Rel-12	B	RP-150393	R4-150660	approved	Principle to test synchronous and asynchronous DC requirements	12.6.0	12.7.0	R4	LTE_SC_enh_dualC-Perf
36.133	2814	-	Rel-12	F	RP-150387	R4-150855	approved	Further revision of RSRP requirement for 36.133 release 12	12.6.0	12.7.0	R4	TEI12
36.133	2815	-	Rel-12	F	RP-150387	R4-150857	approved	Additional bandwidths for EUTRAN activation and deactivation of known and unknown SCell in non-DRX	12.6.0	12.7.0	R4	TEI12
36.133	2816	1	Rel-12	F	RP-150387	R4-151125	approved	High Doppler measurement accuracy requirements	12.6.0	12.7.0	R4	TEI12
36.133	2817	1	Rel-12	A	RP-150384	R4-151100	approved	36.133 CR to change CPICH Ec/No to CPICH Ec/Io in EUTRA FDD to UTRA FDD HO test cases	12.6.0	12.7.0	R4	TEI11
36.133	2818	-	Rel-11	F	RP-150384	R4-150921	approved	36.133 CR to change CPICH Ec/No to CPICH Ec/Io in EUTRA FDD to UTRA FDD HO test cases	11.11.0	11.12.0	R4	TEI11
36.133	2822	-	Rel-12	F	RP-150388	R4-150046	approved	Maximum Transmission Timing Difference in 3DL CA	12.6.0	12.7.0	R4	LTE_CA_B1_B19_B21-Core, LTE_CA_B1_B3_B20-Core, LT
36.133	2824	-	Rel-12	F	RP-150053	-	approved	Correction to the implementation of CR 2471r3 (Clarification for ACK/NACK feedback of CGI measurement)	12.6.0	12.7.0	R4	LTE_TDD_eIMTA-Core
36.141	0696	-	Rel-12	F	RP-150382	R4-150363	approved	Co-location between Band 42 and Band 43 in TS 36.141	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500
36.141	0698	-	Rel-12	B	RP-150391	R4-150439	approved	Introduction of CA_3A-42A and CA_3A-42C into 36.141	12.6.0	12.7.0	R4	LTE_CA_B3_B42_B42-Perf
36.141	0707	-	Rel-12	F	RP-150388	R4-150818	approved	MB and TDD+FDD	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
36.201	0009	2	Rel-12	B	RP-150366	R1-150899	approved	Introduction of D2D feature into 36.201	12.1.0	12.2.0	R1	LTE_D2D_Prox-Core
36.211	0196	7	Rel-12	B	RP-150366	R1-150961	approved	Inclusion of ProSe	12.4.0	12.5.0	R1	LTE_D2D_Prox-Core
36.211	0198	-	Rel-12	F	RP-150364	R1-150895	approved	Correction on 256QAM applicability to PMCH	12.4.0	12.5.0	R1	LTE_SC_enh_L1-Core
36.211	0199	-	Rel-12	F	RP-150364	R1-150954	approved	Correction of discovery signal transmission	12.4.0	12.5.0	R1	LTE_SC_enh_L1-Core
36.212	0162	3	Rel-12	B	RP-150366	R1-150959	approved	Introduction of D2D feature into 36.212	12.3.0	12.4.0	R1	LTE_D2D_Prox-Core

EX-1016, 1716 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.213	0492	2	Rel-12	B	RP-150366	R1-150962	approved	Introduction of D2D feature into 36.213	12.4.0	12.5.0	R1	LTE_D2D_Prox-Core
36.213	0494	1	Rel-12	F	RP-150363	R1-150770	approved	Correction to PUCCH procedures in case of FDD Pcell and TDD Scell in TDD-FDD CA	12.4.0	12.5.0	R1	LTE_CA_TDD_FDD-Core
36.213	0498	-	Rel-12	F	RP-150364	R1-150586	approved	Correction on higher layer parameter names for 256QAM	12.4.0	12.5.0	R1	LTE_SC_enh_L1-Core
36.213	0499	-	Rel-11	F	RP-150359	R1-150831	approved	TM10 CSI-IM Interference Measurements	11.9.0	11.10.0	R1	COMP_LTE_DL-Core
36.213	0500	-	Rel-12	A	RP-150359	R1-150832	approved	TM10 CSI-IM Interference Measurements	12.4.0	12.5.0	R1	COMP_LTE_DL-Core
36.213	0501	-	Rel-11	F	RP-150358	R1-150922	approved	Clarification on common search reception related to MBMS	11.9.0	11.10.0	R1	LTE-Phys, TEI11
36.213	0502	-	Rel-12	A	RP-150358	R1-150923	approved	Clarification on common search reception related to MBMS	12.4.0	12.5.0	R1	LTE-Phys, TEI11
36.213	0503	-	Rel-12	F	RP-150364	R1-150957	approved	Correction to Discovery in Small Cell Enhancement feature	12.4.0	12.5.0	R1	LTE_SC_enh_L1-Core
36.213	0504	1	Rel-12	F	RP-150365	R1-150963	approved	Corrections to Dual Connectivity feature	12.4.0	12.5.0	R1	LTE_SC_enh_dualC-Core
36.214	0021	2	Rel-12	C	RP-150361	R1-150249	approved	New E-UTRA RSRQ measurement definition	12.1.0	12.2.0	R1	TEI12
36.214	0026	2	Rel-12	C	RP-150366	R1-150252	approved	Inclusion of measurement for ProSe	12.1.0	12.2.0	R1	LTE_D2D_Prox-Core
36.300	0691	-	Rel-12	F	RP-150373	R2-150656	approved	Clarification on DC	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0692	-	Rel-12	F	RP-150373	R2-150655	approved	Addition of PDCP-PDU retransmission to PDCP functions	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0693	-	Rel-12	F	RP-150374	R2-150645	approved	Corrections to stage 2 description of ProSe	12.4.0	12.5.0	R2	LTE_D2D_Prox-Core
36.300	0698	1	Rel-12	F	RP-150373	R2-150725	approved	Minor corrections on DC 36.300	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0700	-	Rel-12	B	RP-150375	R2-150697	approved	Introduction of MBMS congestion management for Public Safety Group Call	12.4.0	12.5.0	R2	GCSE_LTE-MBMS_CM-Core
36.300	0705	-	Rel-12	F	RP-150373	R2-150661	approved	Clarification on SCG change definition	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0706	-	Rel-11	F	RP-150348	R2-150720	approved	Correction of the Usage of the MultibandInfoList IE	11.12.0	11.13.0	R2	TEI11
36.300	0707	-	Rel-12	A	RP-150348	R2-150721	approved	Correction of the Usage of the MultibandInfoList IE	12.4.0	12.5.0	R2	TEI11
36.300	0708	-	Rel-12	F	RP-150373	R2-150722	approved	Clarification of the description of the NAICS procedure	12.4.0	12.5.0	R2	LTE_NAICS-Core
36.300	0709	-	Rel-12	F	RP-150373	R2-150723	approved	Correction on SeNB behaviour for distinguishing uplink PDCP PDUs	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.300	0710	-	Rel-12	F	RP-150373	R2-150724	approved	Correction on DL Data Forwarding for Split Bearer	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.302	0059	-	Rel-12	F	RP-150376	R2-150672	approved	Removal of unnecessary requirement to receive MIB on SCell	12.2.0	12.3.0	R2	TEI12
36.304	0260	-	Rel-12	F	RP-150373	R2-150559	approved	UE capability signaling for WLAN/3GPP radio interworking	12.3.0	12.4.0	R2	UTRA_LTE_WLAN_interw-Core
36.304	0264	1	Rel-12	B	RP-150374	R2-150699	approved	Introduction of ProSe	12.3.0	12.4.0	R2	LTE_D2D_Prox-Core
36.304	0265	1	Rel-12	F	RP-150373	R2-150572	approved	Cleanup on RAN-assisted WLAN interworking	12.3.0	12.4.0	R2	UTRA_LTE_WLAN_interw-Core
36.304	0266	-	Rel-12	F	RP-150373	R2-150579	approved	Correction on WLAN identifiers	12.3.0	12.4.0	R2	UTRA_LTE_WLAN_interw-Core
36.306	0253	-	Rel-12	F	RP-150373	R2-150675	approved	Introduction of total L2 buffer sizes for UEs supporting split bearers	12.3.0	12.4.0	R2	LTE_SC_enh_dualC-Core
36.306	0257	-	Rel-12	F	RP-150373	R2-150654	approved	Correction to UE capabilities for Low Complexity UEs	12.3.0	12.4.0	R2	LC_MTC_LTE-Core
36.306	0258	-	Rel-12	F	RP-150373	R2-150663	approved	Extended number of measurement identities capability	12.3.0	12.4.0	R2	LTE_UTRA_IncMon-Core, LTE_SC_enh_dualC-Core
36.306	0259	-	Rel-12	F	RP-150373	R2-150659	approved	Clarificatoin of TDD DC capability	12.3.0	12.4.0	R2	LTE_SC_enh_dualC-Core
36.306	0261	1	Rel-12	F	RP-150379	R2-150713	approved	Introduction of UL64QAM based on split of DL and UL categories	12.3.0	12.4.0	R2	LTE-L23, TEI12
36.306	0263	-	Rel-10	F	RP-150378	R2-150628	approved	UE capability for modified MPR behavior	10.11.0	10.12.0	R2	LTE-L23, TEI10
36.306	0264	-	Rel-11	A	RP-150378	R2-150629	approved	UE capability for modified MPR behavior	11.9.0	11.10.0	R2	LTE-L23, TEI10
36.306	0265	-	Rel-12	A	RP-150378	R2-150630	approved	UE capability for modified MPR behavior	12.3.0	12.4.0	R2	LTE-L23, TEI10
36.306	0266	1	Rel-12	C	RP-150376	R2-150702	approved	Change related to configuration of the priority for frequency bands in mFBI	12.3.0	12.4.0	R2	TEI12
36.306	0267	-	Rel-12	B	RP-150374	R2-150700	approved	Introduction of ProSe	12.3.0	12.4.0	R2	LTE_D2D_Prox-Core

EX-1016, 1717 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.306	0268	1	Rel-12	C	RP-150458	-	-	new DL UE categories	12.3.0		R2	LTE_CA-Core, LTE_SC_enh_L1, TEI12
36.306	0268	-	Rel-12	C	RP-150298	-	revised	new DL UE categories	12.3.0		R2	LTE_CA-Core, LTE_SC_enh_L1, TEI12
36.307	0462	-	Rel-11	F	RP-150387	R4-150502	approved	R4-73AH-0112: Correction of UE RF requirements for dual uplik to TS 36.307 Rel-11	11.10.0	11.11.0	R4	LTE_CA_2UL-A1-Perf, LTE_CA_2UL-A2- Perf, LTE_CA_2UL-A3- Perf, LTE_CA_2UL-A4- Perf, LTE_CA_2UL-A5- Perf, LTE_CA_NC_2UL-Core
36.307	0463	-	Rel-12	F	RP-150387	R4-150503	approved	R4-73AH-0113: Correction of UE RF requirements for dual uplik to TS 36.307 Rel-12	12.6.0	12.7.0	R4	LTE_CA_2UL-A1-Perf, LTE_CA_2UL-A2- Perf, LTE_CA_2UL-A3- Perf, LTE_CA_2UL-A4- Perf, LTE_CA_2UL-A5- Perf, LTE_CA_NC_2UL-Core
36.307	0466	-	Rel-10	F	RP-150392	R4-150708	approved	CR for 36.307 on CA UE performance requirement in Rel-10	10.13.0	10.14.0	R4	LTE_CA_Mult-Perf
36.307	0467	-	Rel-11	F	RP-150392	R4-150709	approved	CR for 36.307 on CA UE performance requirement in Rel-11	11.10.0	11.11.0	R4	LTE_CA_Mult-Perf
36.307	0468	-	Rel-12	F	RP-150392	R4-150710	approved	CR for 36.307 on CA UE performance requirement in Rel-12	12.6.0	12.7.0	R4	LTE_CA_Mult-Perf
36.307	0469	-	Rel-12	F	RP-150387	R4-150854	approved	Further revision of RSRP requirement for 36.307 release 12	12.6.0	12.7.0	R4	TEI12
36.307	0476	1	Rel-11	F	RP-150388	R4-151147	approved	Release independent requirements for CA_42C	11.10.0	11.11.0	R4	LTE_CA_C_B42-Core
36.321	0751	-	Rel-12	F	RP-150373	R2-150562	approved	Clarification on the Logical channel prioritization in DC	12.4.0	12.5.0	R2	LTE_SC_enh_dualC-Core
36.321	0755	1	Rel-12	B	RP-150374	R2-150717	approved	Introduction of ProSe in MAC	12.4.0	12.5.0	R2	LTE_D2D_Prox-Core
36.321	0756	-	Rel-11	F	RP-150371	R2-150621	approved	Uplink transmission time difference	11.5.0	11.6.0	R2	LTE_CA_enh-Core
36.321	0762	1	Rel-12	B	RP-150375	R2-150698	approved	Introduction of MBMS congestion management for Public Safety Group Call	12.4.0	12.5.0	R2	GCSE_LTE-MBMS_CM-Core
36.321	0763	2	Rel-12	F	RP-150371	R2-150719	approved	Uplink transmission time difference	12.4.0	12.5.0	R2	LTE_CA_enh-Core, TEI12
36.322	0105	1	Rel-12	F	RP-150376	R2-150564	approved	RLC concatenation for extended LI field	12.1.1	12.2.0	R2	TEI12
36.322	0107	-	Rel-12	B	RP-150374	R2-150570	approved	Introduction of ProSe Direct Communication	12.1.1	12.2.0	R2	LTE_D2D_Prox-Core
36.323	0133	-	Rel-12	F	RP-150373	R2-150563	approved	Reconfiguration of PDCP reordering timer	12.2.0	12.3.0	R2	LTE_SC_enh_dualC-Core
36.323	0135	-	Rel-12	B	RP-150374	R2-150571	approved	Introduction of ProSe Direct Communication	12.2.0	12.3.0	R2	LTE_D2D_Prox-Core
36.331	1726	-	Rel-10	F	RP-150370	R2-150634	approved	Presence of codebookSubsetRestriction	10.15.0	10.16.0	R2	TEI10
36.331	1737	-	Rel-12	F	RP-150373	R2-150614	approved	Clarification on the setting of measScaleFactor without reducedMeasPerformance	12.4.1	12.5.0	R2	LTE_UTRA_IncMon-Core
36.331	1746	-	Rel-11	F	RP-150371	R2-150617	approved	Clarification on Measurement Configuration handling	11.10.0	11.11.0	R2	TEI11
36.331	1747	-	Rel-12	A	RP-150371	R2-150618	approved	Clarification on Measurement Configuration handling	12.4.1	12.5.0	R2	TEI11
36.331	1748	-	Rel-10	F	RP-150370	R2-150631	approved	Clarification on CSI measurement subframe set	10.15.0	10.16.0	R2	eICIC_LTE-Core
36.331	1749	-	Rel-11	A	RP-150370	R2-150632	approved	Clarification on CSI measurement subframe set	11.10.0	11.11.0	R2	eICIC_LTE-Core
36.331	1751	-	Rel-12	F	RP-150370	R2-150633	approved	Clarification on CSI measurement subframe set	12.4.1	12.5.0	R2	eICIC_LTE-Core, LTE_SC_enh_dualC-Core
36.331	1764	-	Rel-11	F	RP-150371	R2-150626	approved	Clarification to usage of field deltaTxD-OffsetPUCCH-Format1bCS-r11 in dedicated uplink power control parameter signalling	11.10.0	11.11.0	R2	LTE_CA_enh-Core
36.331	1765	-	Rel-12	A	RP-150371	R2-150627	approved	Clarification to usage of field deltaTxD-OffsetPUCCH-Format1bCS-r11 in dedicated uplink power control parameter signalling	12.4.1	12.5.0	R2	LTE_CA_enh-Core

EX-1016, 1718 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.331	1768	2	Rel-12	F	RP-150377	R2-150735	approved	Miscellaneous changes resulting from review for REL-12 ASN.1 freeze	12.4.1	12.5.0	R2	TEI12
36.331	1770	2	Rel-12	B	RP-150374	R2-150734	approved	Introduction of ProSe	12.4.1	12.5.0	R2	LTE_D2D_Prox-Core
36.331	1772	-	Rel-11	F	RP-150371	R2-150635	approved	Correction of DRB establishment in case of fullConfig	11.10.0	11.11.0	R2	TEI11
36.331	1780	-	Rel-10	F	RP-150368	R2-150624	approved	The absence of supportedMIMO-CapabilityUL-r10	10.15.0	10.16.0	R2	LTE-L23, TEI10
36.331	1782	-	Rel-11	F	RP-150368	R2-150619	approved	Handling of WB RSRQ parameters	11.10.0	11.11.0	R2	LTE-L23, TEI11
36.331	1794	-	Rel-11	A	RP-150368	R2-150676	approved	The absence of supportedMIMO-CapabilityUL-r10	11.10.0	11.11.0	R2	LTE-L23, TEI10
36.331	1795	-	Rel-12	A	RP-150368	R2-150677	approved	The absence of supportedMIMO-CapabilityUL-r10	12.4.1	12.5.0	R2	LTE-L23, TEI10
36.331	1797	-	Rel-11	A	RP-150370	R2-150692	approved	Presence of codebookSubsetRestriction	11.10.0	11.11.0	R2	TEI10
36.331	1798	-	Rel-12	A	RP-150370	R2-150693	approved	Presence of codebookSubsetRestriction	12.4.1	12.5.0	R2	TEI10
36.331	1799	1	Rel-12	C	RP-150459	-	-	new DL UE categories	12.4.1		R2	LTE_CA-Core, LTE_SC_enh_L1, TEI12
36.331	1799	-	Rel-12	C	RP-150299	-	revised	new DL UE categories	12.4.1		R2	LTE_CA-Core, LTE_SC_enh_L1, TEI12
36.355	0125	1	Rel-12	F	RP-150376	R2-150726	approved	LPP clean-up	12.3.0	12.4.0	R2	TEI12
36.355	0126	2	Rel-12	F	RP-150369	R2-150704	approved	Correction of GLONASS system time	12.3.0	12.4.0	R2	LCS_LTE, TEI12
36.401	0069	1	Rel-12	F	RP-150351	R3-150401	approved	Correction on AP IDs for Dual Connectivity	12.1.0	12.2.0	R3	LTE_SC_enh_dualC-Core
36.413	1230	6	Rel-12	B	RP-150353	R3-150319	approved	ProSe UE Authorization in S1AP	12.4.0	12.5.0	R3	LTE_D2D_Prox-Core
36.413	1276	1	Rel-12	F	RP-150356	R3-150450	approved	Corrections of SON configuration transfer	12.4.0	12.5.0	R3	TEI12
36.413	1281	2	Rel-12	F	RP-150356	R3-150388	approved	Rapporteur Review-ASN.1 consistency check	12.4.0	12.5.0	R3	TEI12
36.413	1285	2	Rel-12	F	RP-150352	R3-150377	approved	Correction of reloading PWS Alerts	12.4.0	12.5.0	R3	REP_WMD-RFR_PWS
36.423	0693	5	Rel-12	B	RP-150353	R3-150039	approved	ProSe authorized indication	12.4.2	12.5.0	R3	LTE_D2D_Prox-Core
36.423	0782	1	Rel-12	F	RP-150351	R3-150402	approved	Corrections on the usage of SeNB UE AMBR in dual connectivity	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.423	0790	1	Rel-12	F	RP-150351	R3-150404	approved	Corrections of Dual Connectivity in general	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.423	0797	1	Rel-12	F	RP-150356	R3-150405	approved	Correction on DC stage3	12.4.2	12.5.0	R3	TEI12
36.423	0800	1	Rel-11	F	RP-150348	R3-150380	approved	Correction of the Usage of the MultibandInfoList IE	11.8.0	11.9.0	R3	TEI11
36.423	0801	1	Rel-12	A	RP-150348	R3-150381	approved	Correction of the Usage of the MultibandInfoList IE	12.4.2	12.5.0	R3	TEI11
36.423	0802	1	Rel-12	F	RP-150351	R3-150426	approved	Introduction of Cause values for Dual Connectivity	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.423	0803	1	Rel-12	F	RP-150356	R3-150386	approved	ASN.1 Corrections for X2AP	12.4.2	12.5.0	R3	TEI12
36.423	0804	2	Rel-12	F	RP-150351	R3-150406	approved	Corrections for Dual Connectivity	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.423	0805	-	Rel-12	D	RP-150356	R3-150391	approved	Miscellaneous Editorials for X2AP	12.4.2	12.5.0	R3	TEI12
36.423	0806	1	Rel-12	F	RP-150351	R3-150471	approved	Correction on SeNB behaviour for distinguishing uplink PDCP PDUs	12.4.2	12.5.0	R3	LTE_SC_enh_dualC-Core
36.424	0021	1	Rel-12	F	RP-150351	R3-150407	approved	Correction on Data Transmission over X2	12.1.0	12.2.0	R3	LTE_SC_enh_dualC-Core
36.425	0001	1	Rel-12	F	RP-150351	R3-150408	approved	Correction on DL USER DATA (PDU Type 0) Format for multiple PDCP PDUs	12.0.0	12.1.0	R3	LTE_SC_enh_dualC-Core
36.443	0092	1	Rel-12	F	RP-150356	R3-150376	approved	Add missing behavior for MBMS Service Counting procedure	12.1.0	12.2.0	R3	TEI12
36.443	0098	-	Rel-11	F	RP-150347	R3-150367	approved	Correction of M2AP Scheduling Information	11.3.0	11.4.0	R3	TEI11
36.443	0099	-	Rel-12	A	RP-150347	R3-150368	approved	Correction of M2AP Scheduling Information	12.1.0	12.2.0	R3	TEI11
36.443	0101	1	Rel-12	B	RP-150355	R3-150495	approved	Support for eMBMS congestion management, via MBMS Scheduling Information procedure	12.1.0	12.2.0	R3	GCSE_LTE-MBMS_CM-Core
36.443	0102	-	Rel-12	B	RP-150354	R3-150494	rejected	Support for eMBMS congestion management, via new procedure	12.1.0		R3	GCSE_LTE-MBMS_CM-Core
36.444	0070	1	Rel-12	D	RP-150356	R3-150385	approved	Rapporteur Review on 36444	12.1.0	12.2.0	R3	TEI12
36.455	0050	1	Rel-12	D	RP-150356	R3-150387	approved	ASN.1 Corrections for LPPa	12.1.0	12.2.0	R3	TEI12
36.459	0009	-	Rel-12	F	RP-150356	R3-150210	approved	Correction of Error Indication	12.1.0	12.2.0	R3	TEI12

EX-1016, 1719 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.508	0567	-	Rel-12	F	RP-150342	R5-150103	approved	Correction to CA_19A-21A, CA_39A-41A	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0568	-	Rel-12	F	RP-150323	R5-150127	approved	Support of 2nd PDN connectivity at UE registration - Corrections for C2K	12.4.1	12.5.0	R5	TEI8_Test
36.508	0569	-	Rel-12	F	RP-150345	R5-150933	approved	Addition of UE Positioning testing to State 3A	12.4.1	12.5.0	R5	TEI12_Test
36.508	0570	-	Rel-12	F	RP-150326	R5-150273	approved	Correction of MFBI Test Frequencies for Band 38->41	12.4.1	12.5.0	R5	TEI9_Test
36.508	0571	-	Rel-12	F	RP-150341	R5-150367	approved	Addition of CA_8A-20A to Clause 6.2.3.2 of TS 36.508	12.4.1	12.5.0	R5	TEI11_Test
36.508	0572	-	Rel-12	F	RP-150343	R5-150480	approved	Addition of CA_1A-20A to Clause 6.2.3.2 of TS 36.508	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0573	-	Rel-12	F	RP-150342	R5-150936	approved	Addition of Signalling test frequecies to 36.508 for CA_23B	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0574	-	Rel-12	F	RP-150342	R5-150937	approved	Addition of Signalling test frequecies to 36.508 for CA_23A-29A	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0575	-	Rel-12	F	RP-150342	R5-150679	approved	Correction to TDD CA contiguous Intra-band setting for signalling test	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0576	-	Rel-12	F	RP-150342	R5-150680	approved	Addition of Signalling test frequecies to 36.508 for CA_1A-7A	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0577	-	Rel-12	F	RP-150343	R5-150682	approved	Addition of CA_2A-30A to Clause 6.2.3.2 of TS 36.508.	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0578	-	Rel-12	F	RP-150343	R5-150683	approved	Addition of CA_4A-30A to Clause 6.2.3.2 of TS 36.508.	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0579	-	Rel-12	F	RP-150343	R5-150684	approved	Addition of CA_5A-30A to Clause 6.2.3.2 of TS 36.508.	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0580	-	Rel-12	F	RP-150342	R5-150722	approved	Addition of Signalling test frequencies to 36.508 for CA_5A-25A and CA_12A-25A	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0581	-	Rel-12	F	RP-150343	R5-150743	approved	Correction to CA_18A-28A SIG test frequency in 36.508	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0582	-	Rel-12	F	RP-150342	R5-150859	approved	Addition of test frequency table for Band 23B to 36.508	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0583	-	Rel-12	F	RP-150343	R5-150864	approved	Addition of test frequencies for CA_18A-28A in 36.508	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0584	-	Rel-12	F	RP-150343	R5-150895	approved	Addition of 3DL Intra-band Contiguous and Non-contiguous Test Frequencies	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.508	0585	-	Rel-12	F	RP-150342	R5-150896	approved	Addition of further test frequencies for Intra-band Non-contiguous 2DL CA	12.4.1	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.508	0586	-	Rel-12	F	RP-150343	R5-150912	approved	Update of SCC configuration for 3DL CA RF/RRM tests	12.4.1	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1744	-	Rel-12	F	RP-150343	R5-150112	approved	Addition of CA_2-30 to Clause 5.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1745	-	Rel-12	F	RP-150343	R5-150135	approved	Addition of CA_5-30 to Clause 5.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1746	-	Rel-12	F	RP-150343	R5-150136	approved	Addition of CA_5A-30A to Clause 5.4.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1747	-	Rel-12	F	RP-150343	R5-150169	approved	Addition of CA_4A-5A-30A to Clause 5.4.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1748	-	Rel-12	F	RP-150341	R5-150181	approved	Addition of new TC 9.3.6.1_F.2 FDD CQI Reporting under fading conditions with Three CSI processes for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1749	-	Rel-12	F	RP-150341	R5-150184	approved	Addition of new TC 9.3.6.2_F.2 TDD CQI Reporting under fading conditions with Three CSI processes for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1750	-	Rel-12	F	RP-150323	R5-150209	approved	Corrections to 1 PRB allocation performance in presence of MBSF	12.4.0	12.5.0	R5	TEI8_Test

EX-1016, 1720 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.521-1	1751	-	Rel-12	F	RP-150327	R5-150210	approved	Corrections to the Common Test Parameters for User-specific Reference Symbols	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1752	-	Rel-12	F	RP-150341	R5-150214	approved	Test Tolerances for 8.3.1.2.1_D_1 FDD PDSCH Dual-layer Spatial Multiplexing for eDL-MIMO Rel-11	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1753	-	Rel-12	F	RP-150341	R5-150215	approved	Test Tolerances for 8.3.2.2.1_D_1 TDD PDSCH Dual-layer Spatial Multiplexing for eDL-MIMO Rel-11	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1754	-	Rel-12	F	RP-150341	R5-150216	approved	Uncertainties and Test Tolerances to Annex F for PDSCH for eDL-MIMO Rel-11	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1755	-	Rel-12	F	RP-150327	R5-150234	approved	CA RF: Corrections to power imbalance test	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1756	-	Rel-12	F	RP-150341	R5-150252	approved	Update of non-contiguous CA Rx Test Cases	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1757	-	Rel-12	F	RP-150341	R5-150364	approved	ePDCCH RF: Corrections to sustained data rate test	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1758	-	Rel-12	F	RP-150342	R5-150373	approved	Introduction of new CA band combinations 5+25 and 12+25 for Transmitter Characteristics	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1759	-	Rel-12	F	RP-150323	R5-150409	approved	Correction in cl.3 of 36.521-1	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1760	-	Rel-12	F	RP-150327	R5-150415	approved	Correction to message exceptions for eICIC performance test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1761	-	Rel-12	F	RP-150327	R5-150416	approved	Clean up on Performance and CSI test cases for eICIC and feICIC	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1762	-	Rel-12	F	RP-150341	R5-150417	approved	Correction to test procedure in CQI Reporting under AWGN for feICIC	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1763	-	Rel-12	F	RP-150341	R5-150420	approved	Correction to minimum test time for feICIC performance tests in G.3A.5	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1764	-	Rel-12	F	RP-150342	R5-150437	approved	New CA band combination CA_1A-28A - Updates of 5.2A Operating bands	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1765	-	Rel-12	F	RP-150342	R5-150438	approved	New CA band combination CA_1A-28A - Updates of 5.4.2A Channel bandwidth	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1766	-	Rel-12	F	RP-150342	R5-150440	approved	New CA band combination CA_1A-28A - Updates of 6.2.5.3 Delta TIB	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1767	-	Rel-12	F	RP-150342	R5-150441	approved	New CA band combination CA_1A-28A - Updates of 7.3.3 Delta RIB	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1768	-	Rel-12	F	RP-150343	R5-150452	approved	New CA band combination CA_1A-18A-28A - Updates of 5.4.2A Channel bandwidth	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1769	-	Rel-12	F	RP-150343	R5-150453	approved	New CA band combinations (CA_1A-41A, CA_1A-41C) - Updates of 5.2A Operating bands	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1770	-	Rel-12	F	RP-150343	R5-150455	approved	New CA band combinations (CA_26A-41A, CA_26A-41C) - Updates of 5.2A Operating bands	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1771	-	Rel-12	F	RP-150343	R5-150456	approved	New CA band combination CA_1A-18A-28A - Updates of 5.2A Operating bands	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1772	-	Rel-12	F	RP-150343	R5-150460	approved	Correction to the description of duplex mode related to CA_18A-28A	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1773	-	Rel-12	F	RP-150343	R5-150461	approved	Correction to the test frequencies and test CC combinations for CA_18A-28A	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1774	-	Rel-12	F	RP-150342	R5-150472	approved	Correction to requirements for test case 7.6.2A.1 and 7.6.2A.2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1775	-	Rel-12	F	RP-150327	R5-150476	approved	Removal of Note 1 in requirements of TC 6.2.2A	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1776	-	Rel-12	F	RP-150327	R5-150478	approved	Addition of &#916:RIB,c to requirements of blocking and spurios response test cases	12.4.0	12.5.0	R5	TEI10_Test

EX-1016, 1721 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.521-1	1777	-	Rel-12	F	RP-150327	R5-150479	approved	Correction to PUSCH configuration details for 36.521-1 4x2 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1778	-	Rel-12	F	RP-150342	R5-150505	approved	Added TT in annex for TDD inter band CA performance tests	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1779	-	Rel-12	F	RP-150342	R5-150506	approved	Updated TT in TDD inter band CA performance tests	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1780	-	Rel-12	F	RP-150343	R5-150522	approved	Addition of CA_1A-20A to TS 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1781	-	Rel-12	F	RP-150342	R5-150543	approved	Addition of 2A-12A and 5A-13A 2DL Interband CA to 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1782	-	Rel-12	F	RP-150323	R5-150606	approved	Clarification on bandwidth to be tested	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1783	-	Rel-12	F	RP-150323	R5-150800	approved	Correction to 6.6.3.2 of Tx Spurious	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1784	-	Rel-12	F	RP-150327	R5-150801	approved	Correction in 6.2.5A and 6.5.1A of 36.521-1	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1785	-	Rel-12	F	RP-150327	R5-150802	approved	Fixing numbering in Table 6.6.2.3A.1.4.1-1	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1786	-	Rel-12	F	RP-150323	R5-150803	approved	Change of test points for A-MPR in band 26	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1787	-	Rel-12	F	RP-150342	R5-150809	approved	Addition of BCS1 to 25A-25A CA	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1788	-	Rel-12	F	RP-150342	R5-150810	approved	Introduction of CA_1A-7A to TS 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1789	-	Rel-12	F	RP-150342	R5-150811	approved	Correction to test points for intra-band contiguous receiver test cases	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1790	-	Rel-12	F	RP-150343	R5-150816	approved	Addition of CA_2A-30A to Clause 7.3.3 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1791	-	Rel-12	F	RP-150343	R5-150817	approved	Addition of CA_2A-30A to Clause 6.2.5 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1792	-	Rel-12	F	RP-150343	R5-150818	approved	Addition of CA_2A-30A to Clause 5.4.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1793	-	Rel-12	F	RP-150343	R5-150819	approved	Addition of CA_4A-30A to Clause 7.3.3 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1794	-	Rel-12	F	RP-150343	R5-150820	approved	Addition of CA_4A-30A to Clause 6.2.5 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1795	-	Rel-12	F	RP-150343	R5-150821	approved	Addition of CA_4-30 to Clause 5.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1796	-	Rel-12	F	RP-150343	R5-150822	approved	Addition of CA_4A-30A to Clause 5.4.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1797	-	Rel-12	F	RP-150343	R5-150823	approved	Addition of CA_5A-30A to Clause 7.3.3 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1798	-	Rel-12	F	RP-150343	R5-150824	approved	Addition of CA_5A-30A to Clause 6.2.5 of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1799	-	Rel-12	F	RP-150343	R5-150825	approved	Addition of CA_4-5-30 to Clause 5.2A of TS 36.521-1.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1800	-	Rel-12	F	RP-150343	R5-150826	approved	Addition of new TC FDD PDSCH Single Antenna Port Performance for CA (3DL CA)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1801	-	Rel-12	F	RP-150343	R5-150827	approved	Addition of CA_2A-2A-13A to TS 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1802	-	Rel-12	F	RP-150343	R5-150828	approved	Addition of 40D,41D,41C-41A and 25A-25A BCS1 to Channel BW for CA tables	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1803	-	Rel-12	F	RP-150343	R5-150829	approved	Addition of multiple interband 3DL CA Combinations to Channel BW for CA tables	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1804	-	Rel-12	F	RP-150341	R5-150848	approved	Addition of new TC 9.3.6.1_F.1 FDD CQI Reporting under fading conditions with Single CSI process for CoMP	12.4.0	12.5.0	R5	TEI11_Test

EX-1016, 1722 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.521-1	1805	-	Rel-12	F	RP-150341	R5-150849	approved	Addition of new TC 9.3.6.1_F.3 FDD CQI Reporting under fading conditions with Four CSI processes for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1806	-	Rel-12	F	RP-150341	R5-150850	approved	Addition of new TC 9.3.6.2_F.1 TDD CQI Reporting under fading conditions with Single CSI process for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1807	-	Rel-12	F	RP-150341	R5-150851	approved	Addition of new TC 9.3.6.2_F.3 TDD CQI Reporting under fading conditions with Four CSI processes for CoMP	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1808	-	Rel-12	F	RP-150342	R5-150860	approved	Introduction of new CA band combinations 5+25 and 12+25 for Receiver Characteristics	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1809	-	Rel-12	F	RP-150343	R5-150861	approved	Addition of CA_1A-7A-20A to TS 36.521-1	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1810	-	Rel-12	F	RP-150343	R5-150862	approved	Update of minimum requirements for TC 6.2.5 Configured UE transmitted Output Power	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1811	-	Rel-12	F	RP-150343	R5-150863	approved	Updates of minimum requirement to reference sensitivity for CA	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1812	-	Rel-12	F	RP-150343	R5-150865	approved	Addition of new TC TDD PDSCH Single Antenna Port Performance for CA (3DL CA)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1813	-	Rel-12	F	RP-150343	R5-150866	approved	Addition of new TC FDD Sustained data rate performance for CA (3DL CA)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1814	-	Rel-12	F	RP-150343	R5-150867	approved	Addition of new TC TDD Sustained data rate performance for CA (3DL CA)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1815	-	Rel-12	F	RP-150343	R5-150870	approved	New CA band combinations (CA_1A-41A, CA_1A-41C) - Updates of 5.4.2A Channel bandwidth	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1816	-	Rel-12	F	RP-150343	R5-150871	approved	New CA band combinations (CA_26A-41A, CA_26A-41C) - Updates of 5.4.2A Channel bandwidth	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1817	-	Rel-12	F	RP-150327	R5-150935	approved	Change in UE co-existence 6.6.3.2 harmonic emissions exceptions	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1818	-	Rel-12	F	RP-150327	R5-150874	approved	CA RF: Updates to in-band emissions requirements	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1819	-	Rel-12	F	RP-150345	R5-150875	approved	Correction to test procedure of TC 7.6.1A.4	12.4.0	12.5.0	R5	TEI12_Test
36.521-1	1820	-	Rel-12	F	RP-150327	R5-150880	approved	Update of CA sustained data rate tests	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1821	-	Rel-12	F	RP-150327	R5-150881	approved	Aligning Bandwidth Combination Sets with latest core specification	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1822	-	Rel-12	F	RP-150341	R5-150892	approved	Update to TC 7.5A.4 Adjacent Channel Selectivity (ACS) for CA (intra-band non-contiguous DL CA without UL CA)	12.4.0	12.5.0	R5	TEI11_Test
36.521-1	1823	-	Rel-12	F	RP-150342	R5-150897	approved	New CA band combination CA_1A-28A - Updates of 7.3A Refsens	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-1	1824	-	Rel-12	F	RP-150323	R5-150928	approved	Updates to Spurious emission band UE co-existence test case 6.6.3.2	12.4.0	12.5.0	R5	TEI8_Test
36.521-1	1825	-	Rel-12	F	RP-150327	R5-150906	approved	Updates to FDD and TDD RI Reporting test cases for CoMP	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1827	-	Rel-12	F	RP-150327	R5-150929	approved	Addition of CA capability in Rx tests	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1828	-	Rel-12	F	RP-150327	R5-150927	approved	Addition of Multi-Cluster PUSCH with One Uplink Carrier test cases to 36.521-1	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1829	-	Rel-12	F	RP-150327	R5-150915	approved	Addition of CA capability and applicability changes to Section 8 36.521-1 FDD TM3 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1830	-	Rel-12	F	RP-150327	R5-150916	approved	Changes to Annex F of 36.521-1 related to CA capability and applicability changes to FDD CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1831	-	Rel-12	F	RP-150327	R5-150917	approved	Correction to CA applicability and test rules	12.4.0	12.5.0	R5	TEI10_Test

EX-1016, 1723 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.521-1	1832	-	Rel-12	F	RP-150327	R5-150918	approved	Addition of CA capability and applicability changes to 36.521-1 FDD TM1 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1833	-	Rel-12	F	RP-150327	R5-150919	approved	Update to LTE CA Sustained Data rate test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1834	-	Rel-12	F	RP-150327	R5-150920	approved	CA demod Soft Buffer test case variants merge	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1835	-	Rel-12	F	RP-150327	R5-150921	approved	Addition of CA capability and applicability changes to Section 8 36.521-1 FDD TM4 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1836	-	Rel-12	F	RP-150327	R5-150922	approved	Addition of CA capability and applicability changes to FDD chap9 CA test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-1	1837	-	Rel-12	F	RP-150343	R5-150925	approved	Introduction of Test Case for Maximum input level for 3DL CA	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1838	-	Rel-12	F	RP-150343	R5-150926	approved	Addition of new TC of reference sensitivity for 3DL CA	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1839	-	Rel-12	F	RP-150343	R5-150869	approved	Addition of Cell IDs for 3DL CA Rx tests	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-1	1840	-	Rel-12	F	RP-150341	R5-150186	approved	Addition of TT for new TCs 9.3.6.1_F.1, 9.3.6.1_F.2, 9.3.6.1_F.3, 9.3.6.2_F.1, 9.3.6.2_F.2 and 9.3.6.2_F.3	12.4.0	12.5.0	R5	TEI11_Test
36.521-2	0221	-	Rel-12	F	RP-150342	R5-150298	approved	Introduction of CA_1A-7A to TS 36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0222	-	Rel-12	F	RP-150323	R5-150304	approved	Corrections to title of RRM test case 8.7.1 in applicability table	12.4.0	12.5.0	R5	TEI8_Test
36.521-2	0223	-	Rel-12	F	RP-150328	R5-150365	approved	CA: Corrections to CA capability tables	12.4.0	12.5.0	R5	TEI10_Test
36.521-2	0224	-	Rel-12	F	RP-150342	R5-150374	approved	Introduction of RF applicability for CA band combinations 5+25 and 12+25	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0225	-	Rel-12	F	RP-150342	R5-150444	approved	New CA band combination CA_1A-28A - Updates of Table A.4.6.3-3	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0226	-	Rel-12	F	RP-150343	R5-150524	approved	Addition of CA_1A-20A to TS 36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0227	-	Rel-12	F	RP-150342	R5-150546	approved	Addition of 2A-12A and 5A-13A 2DL Interband CA to 36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0228	-	Rel-12	F	RP-150328	R5-150558	approved	Applicability conditions added to TCs 9.1.12.x and 9.2.11.x	12.4.0	12.5.0	R5	TEI10_Test
36.521-2	0229	-	Rel-12	F	RP-150343	R5-150564	approved	Addition of CA_2A-2A-13A to TS 36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0230	-	Rel-12	F	RP-150323	R5-150805	approved	Update of FGI definitions in TS 36.521-2	12.4.0	12.5.0	R5	TEI8_Test
36.521-2	0231	-	Rel-12	F	RP-150343	R5-150830	approved	Addition of CA_2-30 to Annex A.4.6 of TS 36.521-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0232	-	Rel-12	F	RP-150343	R5-150831	approved	Addition of CA_4-30 to Annex A.4.6 of TS 36.521-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0233	-	Rel-12	F	RP-150343	R5-150832	approved	Addition of CA_5-30 to Annex A.4.6 of TS 36.521-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0234	-	Rel-12	F	RP-150341	R5-150858	approved	Update of applicability statements for CoMP - TCs being split	12.4.0	12.5.0	R5	TEI11_Test
36.521-2	0235	-	Rel-12	F	RP-150343	R5-150872	approved	Addition of applicability for 3DL CA test cases	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-2	0236	-	Rel-12	F	RP-150342	R5-150876	approved	Addition of applicability for CA_39C in TS36.521-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.521-2	0238	-	Rel-12	F	RP-150345	R5-150882	approved	Addition of applicability for newly added 20MHz+10MHz RRM test cases	12.4.0	12.5.0	R5	TEI12_Test
36.521-2	0239	-	Rel-12	F	RP-150345	R5-150883	approved	Addition of applicability for newly added RSRP accuracy RRM test cases	12.4.0	12.5.0	R5	TEI12_Test
36.521-2	0240	-	Rel-12	F	RP-150343	R5-150904	approved	Addition of a new table for Supported CA configurations for Inter-band CA (three bands)	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest

EX-1016, 1724 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.521-2	0241	-	Rel-12	F	RP-150328	R5-150914	approved	Addition of applicability for Multi-Cluster PUSCH with One Uplink Carrier test cases	12.4.0	12.5.0	R5	TEI10_Test
36.521-2	0242	-	Rel-12	F	RP-150328	R5-150923	approved	CA demod test case variants merge in 36.521-2	12.4.0	12.5.0	R5	TEI10_Test
36.521-3	1043	-	Rel-12	F	RP-150341	R5-150213	approved	Corrections to multicarrier handover from E-UTRA to UTRA requirements	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1044	-	Rel-12	F	RP-150323	R5-150218	approved	Test Tolerances for 4.3.1.3 E-UTRAN FDD - UTRAN FDD cell re-selection	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1045	-	Rel-12	F	RP-150323	R5-150220	approved	Test Tolerance for 4.3.4.3 EUTRA TDD-UTRA TDD cell reselection	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1046	-	Rel-12	F	RP-150323	R5-150222	approved	Test Tolerances for 8.5.2 E-UTRAN FDD - UTRAN FDD SON ANR cell search reporting	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1047	-	Rel-12	F	RP-150323	R5-150224	approved	Test Tolerances for 8.7.3 E-UTRAN TDD - UTRAN TDD SON ANR cell search reporting	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1048	-	Rel-12	F	RP-150323	R5-150226	approved	Test Tolerances for 8.9.1 E-UTRAN FDD - UTRAN TDD event triggered reporting	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1049	-	Rel-12	F	RP-150323	R5-150228	approved	Test Tolernaces for 8.8.1+8.10.1 E-UTRAN - GSM event triggered reporting	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1050	-	Rel-12	F	RP-150323	R5-150230	approved	Test Tolerances for 8.8.2+8.10.2 E-UTRAN - GSM event triggered reporting when DRX is used	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1051	-	Rel-12	F	RP-150323	R5-150232	approved	Uncertainties to Annex F for RRM test cases	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1052	-	Rel-12	F	RP-150323	R5-150242	approved	Update Uncertainties for Test case 5.1.5	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1053	-	Rel-12	F	RP-150323	R5-150244	approved	Update Uncertainties for Test case 5.1.6	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1054	-	Rel-12	F	RP-150323	R5-150246	approved	Update Uncertainties for Test case 5.2.3, 5.2.6	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1055	-	Rel-12	F	RP-150343	R5-150256	approved	Introduction of Test Cases for RSRQ Accuracy for TDD-FDD CA	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.521-3	1056	-	Rel-12	F	RP-150345	R5-150306	approved	Uncerts and Test Tols for TCs 8.16.11+8.16.12 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1057	-	Rel-12	F	RP-150345	R5-150310	approved	Uncerts and Test Tols for TCs 8.16.15+8.16.16 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1058	-	Rel-12	F	RP-150345	R5-150314	approved	Uncerts and Test Tols for TCs 9.1.18.2+9.1.19.2 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1059	-	Rel-12	F	RP-150345	R5-150316	approved	Uncerts and Test Tols for TCs 9.1.20.1+9.1.21.1 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1060	-	Rel-12	F	RP-150345	R5-150318	approved	Uncerts and Test Tols for TCs 9.1.20.2+9.1.21.2 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1061	-	Rel-12	F	RP-150328	R5-150320	approved	RRM: Corrections to event triggered tests without measurement gap	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1062	-	Rel-12	F	RP-150345	R5-150324	approved	Uncerts and Test Tols for TCs 9.2.23.1+9.2.24.1 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1063	-	Rel-12	F	RP-150345	R5-150327	approved	Uncerts and Test Tols for TCs 9.2.23.2+9.2.24.2 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1064	-	Rel-12	F	RP-150345	R5-150328	approved	Correction to RRM TCs 9.1.6.2 and 9.1.7.2	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1065	-	Rel-12	F	RP-150345	R5-150361	approved	Addition of cell mapping for some test cases	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1066	-	Rel-12	F	RP-150328	R5-150381	approved	Update of Annex E and F for TCs 9.1.12 and 9.2.11	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1067	-	Rel-12	F	RP-150328	R5-150390	approved	Correction to test procedure for LTE CA event reporting test case	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1068	-	Rel-12	F	RP-150328	R5-150421	approved	Correction to message exceptions in eICIC MBSFN ABS	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1069	-	Rel-12	F	RP-150341	R5-150423	approved	Correction to feICIC common exceptions in AnnexH	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1070	-	Rel-12	F	RP-150341	R5-150424	approved	Clean up on cl.7 and cl.8 feICIC RRM test cases	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1071	-	Rel-12	F	RP-150341	R5-150425	approved	Clean up on cl.9 feICIC RRM test cases	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1072	-	Rel-12	F	RP-150328	R5-150517	approved	Error correction to TDD Absolute RSRQ Accuracy for E-UTRA Carrier Aggregation	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1073	-	Rel-12	F	RP-150345	R5-150523	approved	Cell configuration mapping for Rel 12 and forward absolute RSRP accuracy RRM cases	12.4.1	12.5.0	R5	TEI12_Test

EX-1016, 1725 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.521-3	1074	-	Rel-12	F	RP-150323	R5-150526	approved	Update R8 intra frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1075	-	Rel-12	F	RP-150323	R5-150527	approved	Update R8 inter frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1076	-	Rel-12	F	RP-150326	R5-150529	approved	Update R9 inter frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI9_Test
36.521-3	1077	-	Rel-12	F	RP-150328	R5-150530	approved	Update R10 intra frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1078	-	Rel-12	F	RP-150328	R5-150531	approved	Update TDD RSRP Accuracy requirements for Carrier Aggregation	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1079	-	Rel-12	F	RP-150345	R5-150806	approved	New TCs: intra frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1080	-	Rel-12	F	RP-150345	R5-150807	approved	New TCs: inter frequency absolute RSRP accuracy requirements	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1081	-	Rel-12	F	RP-150345	R5-150808	approved	New TCs: RSRP absolute accuracy for E-UTRA CA	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1082	-	Rel-12	F	RP-150345	R5-150812	approved	New TC: E-UTRAN TDD event triggered reporting under deactivated SCell in non-DRX for 20MHz+10MHz	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1083	-	Rel-12	F	RP-150345	R5-150813	approved	New TC: E-UTRAN TDD event triggered reporting on deactivated SCell with PCell interruption in non-DRX for 20MHz+10MHz bandwidth	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1084	-	Rel-12	F	RP-150345	R5-150814	approved	New TC: TDD RSRP Accuracy for E-UTRAN Carrier Aggregation for 20MHz + 10MHz	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1085	-	Rel-12	F	RP-150345	R5-150815	approved	New TC: TDD RSRQ Accuracy for E-UTRAN Carrier Aggregation for 20MHz + 10MHz	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1086	-	Rel-12	F	RP-150328	R5-150841	approved	Corrections to on time to identify the target UTRA TDD cell for blind redirection	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1087	-	Rel-12	F	RP-150328	R5-150842	approved	Update of TCs 9.1.12 for FDD RSRP Accuracy for CA 20MHz	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1088	-	Rel-12	F	RP-150328	R5-150843	approved	Update TCs 9.2.11 for FDD RSRQ Accuracy for CA 20MHz	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1089	-	Rel-12	F	RP-150328	R5-150844	approved	Correction to eICIC Radio link monitoring test cases	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1090	-	Rel-12	F	RP-150328	R5-150845	approved	Clean up on cl.7 and cl.9 eICIC RRM test cases	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1092	-	Rel-12	F	RP-150345	R5-150847	approved	Update R11 RSRP Accuracy for E-UTRA Carrier Aggregation for 10MHz+5MHz	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1093	-	Rel-12	F	RP-150345	R5-150852	approved	Uncerts and Test Tols for TCs 8.16.13+8.16.14 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1094	-	Rel-12	F	RP-150345	R5-150856	approved	Uncerts and Test Tols for TCs 8.16.9+8.16.10 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1095	-	Rel-12	F	RP-150345	R5-150884	approved	Cell configuration mapping for 20MHz +10MHz CA RRM new cases	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1096	-	Rel-12	F	RP-150328	R5-150885	approved	Editorial correction to 8.14.2 and 8.15.2	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1097	-	Rel-12	F	RP-150323	R5-150886	approved	Corrections to RRM test cases in clauses 5 and 8	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1098	-	Rel-12	F	RP-150345	R5-150887	approved	Uncerts and Test Tols for TCs 9.1.18.1+9.1.19.1 36.521-3 CR	12.4.1	12.5.0	R5	TEI12_Test
36.521-3	1099	-	Rel-12	F	RP-150328	R5-150901	approved	CA RRM: Correction to test frequencies and Cell-IDs	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1100	-	Rel-12	F	RP-150328	R5-150902	approved	Addition of CA capability in RRM tests	12.4.1	12.5.0	R5	TEI10_Test
36.521-3	1101	-	Rel-12	F	RP-150341	R5-150903	approved	feICIC RRM: Corrections to Cell-IDs	12.4.1	12.5.0	R5	TEI11_Test
36.521-3	1102	-	Rel-12	F	RP-150323	R5-150930	approved	RRM: Consideration of unsent measurement reports	12.4.1	12.5.0	R5	TEI8_Test
36.521-3	1103	-	Rel-12	F	RP-150328	R5-150908	approved	Updates of test procedures in activation and deactivation test cases	12.4.1	12.5.0	R5	TEI10_test
36.521-3	1104	-	Rel-12	F	RP-150323	R5-150857	approved	RRM: Inter-frequency testing for Band 30	12.4.1	12.5.0	R5	TEI8_Test
36.523-1	2839	-	Rel-12	F	RP-150324	R5-150062	approved	Correction of Idle mode test case 6.1.1.2	12.4.0	12.5.0	R5	TEI8_Test

EX-1016, 1726 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.523-1	2840	-	Rel-12	F	RP-150324	R5-150063	approved	Correction of Idle mode test case 6.1.1.9	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2841	-	Rel-12	F	RP-150329	R5-150068	approved	Forgotten removal of TC 6.3.12 from TS 36.523-1	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2842	-	Rel-12	F	RP-150341	R5-150089	approved	Correction to eMDT test case 8.6.4.5	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2843	-	Rel-12	F	RP-150341	R5-150090	approved	Correction to eMDT test case 8.6.6.6	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2844	-	Rel-12	F	RP-150326	R5-150100	approved	Correction to MFBI test case 6.1.2.20	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2845	-	Rel-12	F	RP-150341	R5-150101	approved	Correction to test case 6.2.4.3	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2846	-	Rel-12	F	RP-150329	R5-150151	approved	Update of Idle mode test case 6.2.3.35	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2847	-	Rel-12	F	RP-150345	R5-150270	approved	Correction of EUTRA<>UTRA bSRVCC Testcase 13.4.3.20	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2848	-	Rel-12	F	RP-150324	R5-150271	approved	Correction to GCF WI-082 EUTRA ESM test case 10.4.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2849	-	Rel-12	F	RP-150329	R5-150277	approved	Correction the parameter in TC 13.4.3.28	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2850	-	Rel-12	F	RP-150341	R5-150321	approved	Correction to CA intra band non-contiguous clause 7.1 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2851	-	Rel-12	F	RP-150345	R5-150322	approved	Correction to CA intra band non-contiguous clause 7.1 rel-12 test cases	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2852	-	Rel-12	F	RP-150341	R5-150323	approved	Correction to CA intra band non-contiguous clause 8.2 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2853	-	Rel-12	F	RP-150345	R5-150329	approved	Correction to CA intra band non-contiguous clause 8.2 rel-12 test cases	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2854	-	Rel-12	F	RP-150341	R5-150330	approved	Correction to CA intra band non-contiguous clause 8.3 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2855	-	Rel-12	F	RP-150341	R5-150331	approved	Correction to CA intra band non-contiguous clause 8.4 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2856	-	Rel-12	F	RP-150341	R5-150332	approved	Correction to CA intra band non-contiguous clause 8.5 rel-11 test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2857	-	Rel-12	F	RP-150324	R5-150339	approved	Correction to ESM test case 10.4.2 test case	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2858	-	Rel-12	F	RP-150326	R5-150340	approved	Correction to IMS Emergency Call test case 11.2.4	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2859	-	Rel-12	F	RP-150326	R5-150341	approved	Correction to IMS Emergency Call test case 11.2.5	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2860	-	Rel-12	F	RP-150326	R5-150342	approved	Correction to IMS Emergency Call test case 11.2.8 and 11.2.8a	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2861	-	Rel-12	F	RP-150329	R5-150348	approved	Correction to LTE-A Carrier Aggregation test cases 8.2.4.23.x	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2862	-	Rel-12	F	RP-150329	R5-150362	approved	Updates to MDT test case 8.6.5.1	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2863	-	Rel-12	F	RP-150324	R5-150397	approved	Update of SRVCC test case 13.4.3.2	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2864	-	Rel-12	F	RP-150329	R5-150398	approved	Update of aSRVCC test case 13.4.3.14 and 13.4.3.16	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2865	-	Rel-12	F	RP-150345	R5-150399	approved	Update of bSRVCC test case 13.4.3.18	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2866	-	Rel-12	F	RP-150324	R5-150401	approved	Update of EMM test case 9.1.5.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2867	-	Rel-12	F	RP-150340	R5-150426	approved	New TC 13.4.3.31 Inter-system mobility / GERAN CS voice to E-UTRA voice / rSRVCC	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2868	-	Rel-12	F	RP-150340	R5-150427	approved	New TC 13.4.3.33 Inter-system mobility / GERAN CS voice to E-UTRA voice / alerting / rSRVCC / MO call	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2869	-	Rel-12	F	RP-150340	R5-150428	approved	New TC 13.4.3.35 Inter-system mobility / GERAN CS voice to E-UTRA voice / alerting / rSRVCC / MT call	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2870	-	Rel-12	F	RP-150340	R5-150429	approved	New TC 13.4.3.37 Inter-system mobility / GERAN CS voice to E-UTRA voice / rSRVCC / HO cancelled	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2871	-	Rel-12	F	RP-150326	R5-150934	approved	Correction to IMS Emergency Call test case 11.2.7	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2872	-	Rel-12	F	RP-150340	R5-150589	approved	Updates to TC 13.4.3.32	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2873	-	Rel-12	F	RP-150340	R5-150590	approved	Updates to TC 13.4.3.34	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2874	-	Rel-12	F	RP-150340	R5-150591	approved	Updates to TC 13.4.3.36	12.4.0	12.5.0	R5	rSRVCC-UEConTest

EX-1016, 127 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.523-1	2875	-	Rel-12	F	RP-150340	R5-150592	approved	Updates to TC 13.4.3.38	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2876	-	Rel-12	F	RP-150326	R5-150599	approved	Remove of test case 8.2.4.22	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2877	-	Rel-12	F	RP-150341	R5-150600	approved	Correction to eMBMS-SC test case 17.4.2	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2878	-	Rel-12	F	RP-150329	R5-150607	approved	Correction to RFT-117 EUTRA MFBI Testcase 6.2.3.35	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2879	-	Rel-12	F	RP-150324	R5-150648	approved	Correction to EUTRA Idle Mode test cases 6.1.1.8 and 6.1.1.9	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2880	-	Rel-12	F	RP-150324	R5-150649	approved	Correction to short DRX cycle test case 7.1.6.3	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2881	-	Rel-12	F	RP-150341	R5-150650	approved	Correction to UL-Comp test case 7.1.10.1	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2882	-	Rel-12	F	RP-150341	R5-150651	approved	Correction to UL-Comp test case 7.1.10.2	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2883	-	Rel-12	F	RP-150341	R5-150652	approved	Correction to ePDCCH test case 7.1.3.14	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2884	-	Rel-12	F	RP-150341	R5-150653	approved	Correction to ePDCCH test case 7.1.3.15	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2885	-	Rel-12	F	RP-150341	R5-150654	approved	New test case 8.5.4.2 for Network-requested CA Band Combination Capability Signalling	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2886	-	Rel-12	F	RP-150341	R5-150655	approved	New test case 8.5.4.3 for Network-requested CA Band Combination Capability Signalling	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2887	-	Rel-12	F	RP-150324	R5-150656	approved	Correction to EUTRA RRC test case 8.5.4.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2888	-	Rel-12	F	RP-150341	R5-150657	approved	Correction to CA test case 8.2.4.16.x	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2889	-	Rel-12	F	RP-150329	R5-150658	approved	Correction to CA test case 8.2.4.20.x	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2890	-	Rel-12	F	RP-150329	R5-150659	approved	Update of eICIC test case 8.3.1.20	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2891	-	Rel-12	F	RP-150341	R5-150660	approved	Correction to eMDT test case 8.6.2.3a	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2892	-	Rel-12	F	RP-150341	R5-150661	approved	Correction to eMDT test case 8.6.2.10	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2893	-	Rel-12	F	RP-150341	R5-150662	approved	Correction to eMDT test case 8.6.2.11	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2894	-	Rel-12	F	RP-150341	R5-150663	approved	Correction to test cases 8.6.4.9 and 8.6.8.2	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2895	-	Rel-12	F	RP-150329	R5-150664	approved	Correction to test cases 8.6.5.2, 8.6.5.3 and 8.6.6.2	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2896	-	Rel-12	F	RP-150324	R5-150666	approved	Correction to GCF WI-086 EUTRA EMM test case 9.2.1.2.1b	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2897	-	Rel-12	F	RP-150329	R5-150668	approved	Correction to aSRVCC test case 13.4.3.28	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2898	-	Rel-12	F	RP-150345	R5-150669	approved	Correction of Multilayer bSRVCC TC 13.4.3.19	12.4.0	12.5.0	R5	TEI12_Test
36.523-1	2899	-	Rel-12	F	RP-150326	R5-150670	approved	New test case "Inter-system mobility / E-UTRA PS voice to GSM CS voice / HO cancelled / Notification procedure / SRVCC"	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2900	-	Rel-12	F	RP-150329	R5-150671	approved	Correction to eMBMS test case 17.3.2	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2901	-	Rel-12	F	RP-150341	R5-150673	approved	Correction to eMBMS-SC test case 17.4.2	12.4.0	12.5.0	R5	TEI11_Test
36.523-1	2902	-	Rel-12	F	RP-150324	R5-150932	approved	up of IE 'cs-FallbackIndicator' value in clause 13 xSRVCC handover test cases	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2903	-	Rel-12	F	RP-150340	R5-150715	approved	Addition of Test case - "Inter-system mobility / UTRA CS voice + PS data to E-UTRA voice + PS data / rSRVCC" to rSRVCC Work Plan	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2904	-	Rel-12	F	RP-150324	R5-150718	approved	Update of IDLE mode test case 6.2.2.5	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2905	-	Rel-12	F	RP-150329	R5-150730	approved	Correction to test Case 8.3.1.19	12.4.0	12.5.0	R5	TEI10_Test
36.523-1	2906	-	Rel-12	F	RP-150326	R5-150732	approved	Correction to IMS Emergency Call test case 11.2.3	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2907	-	Rel-12	F	RP-150326	R5-150733	approved	Correction to IMS Emergency Call test case 11.2.6	12.4.0	12.5.0	R5	TEI9_Test
36.523-1	2908	-	Rel-12	F	RP-150340	R5-150740	approved	Addition of Test Case - Intersystem mobility / UTRA CS voice to E-UTRA voice / rSRVCC / Multiple voice calls with mid-call feature	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-1	2910	-	Rel-12	F	RP-150324	R5-150746	approved	Correction to EMM test case 9.2.1.1.28a	12.4.0	12.5.0	R5	TEI8_Test
36.523-1	2911	-	Rel-12	F	RP-150324	R5-150731	approved	Update of Test Case 9.1.5.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0692	-	Rel-12	F	RP-150341	R5-150094	approved	Correction to applicability for CA test cases 8.2.4.16.3, 8.2.4.18.3 and 8.2.4.20.3	12.4.0	12.5.0	R5	TEI11_Test

EX-1016, 1728 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.523-2	0693	-	Rel-12	F	RP-150341	R5-150368	approved	Addition of CA_8A-20A to Annex A.4.3.3 of TS 36.523-2	12.4.0	12.5.0	R5	TEI11_Test
36.523-2	0694	-	Rel-12	F	RP-150342	R5-150375	approved	Introduction of SIG applicability for CA band combinations 5+25 and 12+25	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.523-2	0695	-	Rel-12	F	RP-150324	R5-150403	approved	Applicability update of IDLE mode test case 6.2.2.5	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0696	-	Rel-12	F	RP-150340	R5-150430	approved	Addition of applicability statements for new rSRVCC to GERAN test cases	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-2	0697	-	Rel-12	F	RP-150343	R5-150432	approved	Addition of CA_1-41 and CA_26-41 in 36.523-2	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0698	-	Rel-12	F	RP-150343	R5-150481	approved	Addition of CA_1A-20A to Annex A.4.3.3 of TS 36.523-2	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0699	-	Rel-12	F	RP-150324	R5-150490	approved	Correction to the applicability of EUTRA to UTRA HSUPA test case 8.4.1.5	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0700	-	Rel-12	F	RP-150326	R5-150539	approved	Update of applicability for TC 8.3.4.4 'Inter-RAT SI acquisition / RRC_CONNECTED / UMTS member CSG cell'	12.4.0	12.5.0	R5	TEI9_Test
36.523-2	0701	-	Rel-12	F	RP-150342	R5-150548	approved	Addition of Multiple 2DL Interband CA combinations to 36.523-2 Table A.4.3.3.3-3	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.523-2	0702	-	Rel-12	F	RP-150324	R5-150557	approved	Update of FGI definitions in TS 36.523-2	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0703	-	Rel-12	F	RP-150342	R5-150581	approved	Addition of CA_1-7, CA_23 and CA_23-29 to TS 36.523-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.523-2	0704	-	Rel-12	F	RP-150326	R5-150601	approved	Remove applicability for test case 8.2.4.22	12.4.0	12.5.0	R5	TEI9_Test
36.523-2	0705	-	Rel-12	F	RP-150341	R5-150674	approved	Correction to Applicability for eMDT test cases	12.4.0	12.5.0	R5	TEI11_Test
36.523-2	0706	-	Rel-12	F	RP-150324	R5-150675	approved	Corrections in applicability conditions of Table 4-1a for 1x CS Fallback test cases	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0707	-	Rel-12	F	RP-150324	R5-150676	approved	Corrections to applicability statements for MIMO test cases 8.2.4.12 and 12.3.1	12.4.0	12.5.0	R5	TEI8_Test
36.523-2	0708	-	Rel-12	F	RP-150341	R5-150677	approved	Applicability of new test cases 8.5.4.2 and 8.5.4.3 (Network-requested CA Band Combination Capability Signalling)	12.4.0	12.5.0	R5	TEI11_Test
36.523-2	0709	-	Rel-12	F	RP-150326	R5-150678	approved	Addition of applicability statements for new test case "Inter-system mobility / E-UTRA PS voice to GSM CS voice / HO cancelled / Notification procedure / SRVCC"	12.4.0	12.5.0	R5	TEI9_Test
36.523-2	0710	-	Rel-12	F	RP-150343	R5-150685	approved	Addition of CA_2-30 to Annex A.4.3 of TS 36.523-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0711	-	Rel-12	F	RP-150343	R5-150686	approved	Addition of CA_4-30 to Annex A.4.3 of TS 36.523-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0712	-	Rel-12	F	RP-150343	R5-150687	approved	Addition of CA_5-30 to Annex A.4.3 of TS 36.523-2.	12.4.0	12.5.0	R5	LTE_CA_Rel12_3DL-UEConTest
36.523-2	0713	-	Rel-12	F	RP-150340	R5-150721	approved	Applicability of new test cases 13.4.3.39 and 13.4.3.40	12.4.0	12.5.0	R5	rSRVCC-UEConTest
36.523-2	0714	-	Rel-12	F	RP-150342	R5-150744	approved	Addition of CA_41-42 to TS 36.523-2	12.4.0	12.5.0	R5	LTE_CA_Rel12-UEConTest
36.523-3	2499	-	Rel-12	F	RP-150324	R5-150123	approved	Routine maintenance for TS 36.523-3	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2500	-	Rel-12	F	RP-150340	R5-150356	approved	rSRVCC Test Model	12.0.0	12.1.0	R5	rSRVCC-UEConTest
36.523-3	2501	-	Rel-12	F	RP-150335	R5s140966	approved	Correction to GCF WI-177 EUTRA MDT Test cases 8.6.4.5	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2502	-	Rel-12	F	RP-150335	R5s141159	approved	Correction to test case 9.1.5.1, function fl_TC_9_1_5_1_Body() in NAS_EMMInformation.ttcn	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2503	-	Rel-12	B	RP-150335	R5s141198	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.4.8	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2504	-	Rel-12	B	RP-150335	R5s141200	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.4.8	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2505	-	Rel-12	F	RP-150335	R5s141219	approved	Corrrection to function f_GERAN_CreatePhyCombinedCellControlCh	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2506	-	Rel-12	B	RP-150335	R5s141228	approved	Addition of Rel-11 EUTRA RRC eMDT test case 8.6.2.10	12.0.0	12.1.0	R5	TEI11_Test

EX-1016, 1729 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.523-3	2507	-	Rel-12	B	RP-150335	R5s141230	approved	LTE_TDD: Addition of Rel-11 EUTRA RRC eMDT test case 8.6.2.10	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2508	-	Rel-12	B	RP-150335	R5s141233	approved	Addition of GCF WI-162 EUTRA RRC Carrier Aggregation test case 8.2.4.16.1	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2509	-	Rel-12	B	RP-150335	R5s141235	approved	Addition of GCF WI-162 LTE-A Carrier Aggregation RRC test case 8.2.4.16.2	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2510	-	Rel-12	B	RP-150335	R5s141239	approved	LTE_TDD: Addition of GCF WI-191 LTE-A additional special subframe configuration test case 7.1.3.13	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2511	-	Rel-12	F	RP-150335	R5s141241	approved	Correction to common function f_GetTestcaseAttrib_DlCcchMsgInSeparateMacPdu() for eMDT test cases	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2512	-	Rel-12	B	RP-150335	R5s141245	approved	Addition of LTE-A Carrier Aggregation test case 8.2.4.23.2	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2513	-	Rel-12	B	RP-150335	R5s141247	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.2.5.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2514	-	Rel-12	B	RP-150335	R5s141249	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.4.17.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2515	-	Rel-12	B	RP-150335	R5s141251	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.4.21.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2516	-	Rel-12	B	RP-150335	R5s141253	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.3.1.17.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2517	-	Rel-12	B	RP-150335	R5s141255	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.3.1.18.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2518	-	Rel-12	B	RP-150335	R5s141257	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.3.1.22.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2519	-	Rel-12	B	RP-150335	R5s141259	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.5.1.7.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2520	-	Rel-12	B	RP-150335	R5s141261	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.2.3.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2521	-	Rel-12	B	RP-150335	R5s141263	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.2.4.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2522	-	Rel-12	B	RP-150335	R5s141265	approved	Addition of LTE-A (Rel-11) Carrier Aggregation test case 8.2.4.23.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2523	-	Rel-12	B	RP-150335	R5s141267	approved	LTE_TDD: Addition of GCF WI-156 MFBI Idle Mode test case 6.1.2.21	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2524	-	Rel-12	B	RP-150335	R5s141269	approved	LTE_TDD: Addition of LTE-A Enhanced Minimization of Drive Tests (eMDT) Testcase 8.6.11.1	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2525	-	Rel-12	B	RP-150335	R5s141271	approved	LTE_TDD: Addition of GCF WI-177 EUTRA RRC test Case 8.6.7.1	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2526	-	Rel-12	B	RP-150335	R5s141275	approved	Addition of LTE-A Carrier Aggregation test case 8.2.4.23.1	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2527	-	Rel-12	F	RP-150335	R5s141277	approved	LTE_TDD : Correction to GCF WI-086 EUTRA RRC test case 8.1.3.7	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2528	-	Rel-12	B	RP-150335	R5s141278	approved	Addition of Rel-11 LTE-A Carrier Aggregation MAC test case 7.1.9.1.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2529	-	Rel-12	B	RP-150335	R5s141280	approved	Addition of Rel-11 LTE-A Carrier Aggregation RRC test case 8.2.4.16.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2530	-	Rel-12	B	RP-150335	R5s141282	approved	Addition of Rel-11 LTE-A Carrier Aggregation test case 8.2.4.18.3	12.0.0	12.1.0	R5	TEI11_Test

EX-1016, 1730 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.523-3	2531	-	Rel-12	B	RP-150335	R5s141284	approved	Addition of Rel-11 LTE-A Carrier Aggregation test case 8.2.4.20.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2532	-	Rel-12	B	RP-150335	R5s141288	approved	Addition of LTE-A (Rel-11) CA Handover from UTRAN test case 8.4.2.7.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2533	-	Rel-12	B	RP-150335	R5s141292	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.2.12	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2534	-	Rel-12	B	RP-150335	R5s141294	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.2.12	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2535	-	Rel-12	B	RP-150335	R5s141297	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.4.9	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2536	-	Rel-12	B	RP-150335	R5s141299	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.4.9	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2537	-	Rel-12	B	RP-150335	R5s141301	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.6.6	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2538	-	Rel-12	B	RP-150335	R5s141303	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.6.6	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2539	-	Rel-12	B	RP-150335	R5s141305	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.8.5	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2540	-	Rel-12	B	RP-150335	R5s141307	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.8.6	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2541	-	Rel-12	B	RP-150335	R5s141309	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.8.6	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2542	-	Rel-12	B	RP-150335	R5s141311	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.2.11	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2543	-	Rel-12	B	RP-150335	R5s141313	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.2.11	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2544	-	Rel-12	F	RP-150335	R5s141317	approved	Correction to GCF WI-081 EUTRA RRC test case 8.5.1.4 and WI-082 EMM test case 9.2.3.1.9a	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2545	-	Rel-12	B	RP-150335	R5s141319	approved	Addition of LTE-A Carrier Aggregation test case 8.2.4.23.1	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2546	-	Rel-12	F	RP-150335	R5s141324	approved	Correction to function fl_IP_AddrServers_Stop	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2547	-	Rel-12	F	RP-150335	R5s141325	approved	Correction to Importing of Parameters in UTRAN_RAB_Functions for LTE, POS and IMS test suites	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2548	-	Rel-12	F	RP-150335	R5s141327	approved	Correction to GCF WI-082 EUTRA ESM Test cases 10.4.1	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2549	-	Rel-12	F	RP-150335	R5s141331	approved	LTE_TDD : Correction to EUTRA MAC TDD-SSC test cases 7.1.3.12, 7,1,3,12a, 7.1.3.13, 7.1.3.13a	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2550	-	Rel-12	F	RP-150335	R5s141332	approved	Correction to common function f_GERAN_SwitchPowerOff()	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2551	-	Rel-12	F	RP-150335	R5s141334	approved	Correction to WI-086 EUTRA Multi-layer test cases 13.1.2, 13.1.2a, 13.1.3, 13.1.15	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2552	-	Rel-12	F	RP-150335	R5s141338	approved	Correction of LTE-A Carrier Aggregation test cases 8.3.1.18.x	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2553	-	Rel-12	B	RP-150335	R5s141339	approved	Addition of GCF WI-154 IMS Emergency Call test case 11.2.3	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2554	-	Rel-12	F	RP-150335	R5s141345	approved	Correction of GCF WI-154 IMS Emergency Call over EPS test case 11.2.1	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2555	-	Rel-12	F	RP-150335	R5s141349	approved	Correction to f_EUTRA_CA_InitFrequenciesInterBand() function for CA_3A-7A_Rev band combination	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2556	-	Rel-12	F	RP-150335	R5s141352	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2557	-	Rel-12	F	RP-150335	R5s141354	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.7	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2558	-	Rel-12	F	RP-150335	R5s141358	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.1	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2559	-	Rel-12	F	RP-150335	R5s141361	approved	Correction to EUTRA multilayer aSRVCC test case 13.4.3.28	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2560	-	Rel-12	F	RP-150398	R5s141362	approved	Correction to EUTRA bSRVCC testcases 13.4.3.19	12.0.0	12.1.0	R5	TEI12_Test
36.523-3	2561	-	Rel-12	F	RP-150335	R5s141363	approved	Correction to function f_SS_HS_DSCH_PDSCH_Cfg_DPCH_Modify_TDD	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2562	-	Rel-12	F	RP-150335	R5s141364	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.2	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2563	-	Rel-12	F	RP-150335	R5s141365	approved	LTE_TDD : Correction to Multilayer test case 13.4.2.4	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2564	-	Rel-12	F	RP-150335	R5s141366	approved	Correction of GCF WI-150 MFBI Testcase 6.1.2.20	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2565	-	Rel-12	F	RP-150335	R5s141367	approved	Correction of QCI value in EPS bearer context no.2	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2566	-	Rel-12	B	RP-150335	R5s141368	approved	Addition of Rel-8 EUTRA Idle Mode LTE<>GERAN test case 6.2.3.29	12.0.0	12.1.0	R5	TEI8_Test

EX-1016, 1731 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.523-3	2567	-	Rel-12	F	RP-150335	R5s141371	approved	Correction to LTE-A CA test cases 8.2.4.16.x, 8.2.4.18.3 and 8.2.4.20.3	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2568	-	Rel-12	F	RP-150398	R5s141372	approved	Correction to EUTRA<>UTRA bSRVCC testcase 13.4.3.20	12.0.0	12.1.0	R5	TEI12_Test
36.523-3	2569	-	Rel-12	F	RP-150335	R5s141373	approved	Correction to LTE-A CA test case 7.1.9.1.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2570	-	Rel-12	F	RP-150335	R5s141374	approved	Correction to GCF WI-164 eMBMS test case 17.1.3	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2571	-	Rel-12	B	RP-150335	R5s141375	approved	Addition of GCF WI-103 ESM test case 10.4.2	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2572	-	Rel-12	F	RP-150335	R5s141384	approved	Correction to LTE-GERAN aSRVCC test cases 13.4.3.26 & 13.4.3.28	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2573	-	Rel-12	B	RP-150335	R5s141385	approved	LTE_TDD : Addition of GCF WI-172 LTE-GERAN aSRVCC test case 13.4.3.26	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2574	-	Rel-12	B	RP-150335	R5s141387	approved	LTE_TDD : Addition of GCF WI-172 LTE-GERAN aSRVCC test case 13.4.3.28	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2575	-	Rel-12	F	RP-150335	R5s141389	approved	Corrections to coordinate XID and IPv6 procedures	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2576	-	Rel-12	F	RP-150398	R5s141393	approved	Correction to multilayer bSRVCC test case 13.4.3.21	12.0.0	12.1.0	R5	TEI12_Test
36.523-3	2577	-	Rel-12	F	RP-150335	R5s141394	approved	Correction to EUTRA RRC Inter-mode test case 8.2.4.15a	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2578	-	Rel-12	B	RP-150335	R5s141395	approved	Addition of Rel-11 LTE-A CA MAC test case 7.1.3.11.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2579	-	Rel-12	B	RP-150335	R5s141397	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.8.5	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2580	-	Rel-12	F	RP-150335	R5s141399	approved	Corrections to IMS emergency call test case 11.2.5	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2581	-	Rel-12	F	RP-150335	R5s141400	approved	Correction to GCF WI-082 SMS over SGs test cases 11.1.3, 11.1.4, 11.1.5, 11.1.6	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2582	-	Rel-12	F	RP-150335	R5s150001	approved	Updates to multi-PDNs implementation for CDMA2000-related procedures	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2583	-	Rel-12	B	RP-150335	R5s150003	approved	Addition of Rel-8 EUTRA Idle Mode LTE<>GERAN test case 6.2.3.26	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2584	-	Rel-12	B	RP-150335	R5s150005	approved	Addition of EMM test case 9.2.1.1.29	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2585	-	Rel-12	B	RP-150335	R5s150007	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation MAC test case 7.1.9.1.2	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2586	-	Rel-12	F	RP-150335	R5s150009	approved	Correction to GCF WI-086 EMM test case 9.2.3.3.1	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2587	-	Rel-12	F	RP-150335	R5s150010	approved	Correction to GCF WI-081 Idle mode test cases 6.1.1.4, 6.1.1.6 and 6.1.1.6a.	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2588	-	Rel-12	F	RP-150335	R5s150019	approved	Correction to LTE-GERAN test case 6.2.3.1a	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2589	-	Rel-12	F	RP-150335	R5s150026	approved	Correction of GCF WI-178 LTE-A eMBMS-SC test case 17.4.1, 17.4.1a, 17.4.3, 17.4.3a 17.4.4	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2590	-	Rel-12	F	RP-150335	R5s150031	approved	Corrections for LTE test case execution with IMS-enabled device	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2591	-	Rel-12	F	RP-150335	R5s150034	approved	Correction to EUTRA test cases 8.2.4.14a and 8.2.4.15	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2592	-	Rel-12	F	RP-150335	R5s150036	approved	Corrections for eMDT test case 8.6.2.3a and 8.6.2.10	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2593	-	Rel-12	F	RP-150335	R5s150037	approved	Correction to LTE-A Carrier Aggregation Enhancement test cases	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2594	-	Rel-12	F	RP-150335	R5s150038	approved	Implementation of Prose CR R5-145793	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2595	-	Rel-12	F	RP-150335	R5s150053	approved	Corrections to IMS emergency call test case 11.2.3	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2596	-	Rel-12	F	RP-150335	R5s150057	approved	Corrections to EUTRA Testcases with IMS enabled UE	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2597	-	Rel-12	B	RP-150335	R5s150062	approved	Addition of EUTRA DRX Testcase 7.1.6.3	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2598	-	Rel-12	B	RP-150335	R5s150066	approved	LTE_TDD:Addition of EUTRA DRX Testcase 7.1.6.3	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2599	-	Rel-12	F	RP-150335	R5s150070	approved	Correction to GCF WI-162 LTE-A CA test cases 7.1.9.1.x	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2600	-	Rel-12	F	RP-150335	R5s150071	approved	Correction to GCF WI-087 EUTRA EMM test case 9.2.1.2.1b	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2601	-	Rel-12	F	RP-150335	R5s150074	approved	Correction for IP_PTC for IMS-enabled UEs	12.0.0	12.1.0	R5	TEI8_Test

EX-1016, 1732 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.523-3	2602	-	Rel-12	B	RP-150335	R5s150076	approved	Addition of Rel-11 LTE-A eMDT test case 8.6.4.10	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2603	-	Rel-12	B	RP-150335	R5s150078	approved	LTE_TDD: Addition of Rel-11 LTE-A eMDT test case 8.6.4.10	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2604	-	Rel-12	F	RP-150335	R5s150081	approved	Correction to GCF WI-159 LTE<> 1xRTT testcase 13.4.4.1	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2605	-	Rel-12	F	RP-150335	R5s150082	approved	Multi-PDN related correction to EUTRA RRC test case 8.1.2.8	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2606	-	Rel-12	F	RP-150335	R5s150089	approved	Correction of GCF WI-178 LTE Advanced eMBMS-SC test case 17.4.2 & 17.4.2a	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2607	-	Rel-12	F	RP-150335	R5s150090	approved	Correction of GCF WI-178 LTE Advanced eMBMS-SC test case 17.4.7	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2608	-	Rel-12	B	RP-150335	R5s150092	approved	Addition of RFT-117 EUTRA MFBI Testcase 6.2.3.35	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2609	-	Rel-12	B	RP-150335	R5s150096	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.2.2.4.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2610	-	Rel-12	B	RP-150335	R5s150098	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.2.2.5.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2611	-	Rel-12	B	RP-150335	R5s150100	approved	LTE_TDD:Addition of LTE-A Carrier Aggregation test case 8.2.4.18.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2612	-	Rel-12	B	RP-150335	R5s150102	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.3.1.17.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2613	-	Rel-12	B	RP-150335	R5s150104	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.3.1.18.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2614	-	Rel-12	B	RP-150335	R5s150106	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation test case 8.3.1.22.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2615	-	Rel-12	B	RP-150335	R5s150108	approved	LTE_TDD:Addition of LTE-A Carrier Aggregation test case 8.5.1.7.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2616	-	Rel-12	B	RP-150335	R5s150113	approved	LTE_TDD: Addition of LTE-A Carrier Aggregation MAC test case 7.1.9.1.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2617	-	Rel-12	F	RP-150335	R5s150118	approved	Further correction for LTE TC execution with IMS-enabled devices	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2618	-	Rel-12	B	RP-150335	R5s150119	approved	LTE_TDD: Addition of Rel-11 LTE_CA_enh test case 8.4.2.7.3	12.0.0	12.1.0	R5	TEI11_Test
36.523-3	2619	-	Rel-12	F	RP-150335	R5s150121	approved	Addition of GEA4 and A5/4 ciphering algorithms	12.0.0	12.1.0	R5	TEI9_Test
36.523-3	2620	-	Rel-12	F	RP-150335	R5s150122	approved	Correction of GCF WI-87 EUTRA<>GERAN Testcase 6.2.3.28	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2621	-	Rel-12	F	RP-150335	R5s150123	approved	Correction of GCF WI-87 EUTRA<>GERAN Testcase 6.2.3.29	12.0.0	12.1.0	R5	TEI8_Test
36.523-3	2622	-	Rel-12	B	RP-150335	R5s150133	approved	LTE_TDD:Addition of GCF WI-172 TD_LTE<>TDSCDMA Testcase 13.4.3.9	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2623	-	Rel-12	B	RP-150335	R5s150135	approved	LTE_TDD:Addition of GCF WI-172 TD_LTE<>TDSCDMA Testcase 13.4.3.11	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2624	-	Rel-12	B	RP-150335	R5s150137	approved	LTE_TDD:Addition of GCF WI-172 TD_LTE<>TDSCDMA Testcase 13.4.3.13	12.0.0	12.1.0	R5	TEI10_Test
36.523-3	2625	-	Rel-12	F	RP-150334	-	approved	CR to 36.523-3: Add new verified and e-mail agreed TTCN test cases in the TC lists in 36.523-3 (prose), Annex A	12.0.0	12.1.0	R5	TEI12_Test
36.844	0010	-	Rel-13	F	RP-150420	R4-150028	approved	Corrections and Clarifications of UE specifications in TR 36.844 [FS_LTE_FDD_1670_US]	13.1.0	13.2.0	R4	FS_LTE_FDD_1670_US
36.850	0002	-	Rel-11	F	RP-150059	-	approved	CR to TR 36.850 v11.1.0 changing the TR into a pointer to the new TR 36.852-11	11.1.0	11.2.0	R4	TEI11
36.853-12	0001	-	Rel-12	F	RP-150388	R4-150468	approved	Addition of 3 Band Carrier Aggregation (3DL/1UL) of Band 25, Band 41 and Band 41	12.0.0	12.1.0	R4	LTE_CA_B25_B41_B41-Core
36.853-12	0002	-	Rel-12	F	RP-150388	R4-150470	approved	Addition of Coexistence Studies for 3 Band Carrier Aggregation (3DL/1UL) of Band 25, Band 41 and Band 41	12.0.0	12.1.0	R4	LTE_CA_B25_B41_B41-Core

EX-1016, 1733 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.853-12	0003	-	Rel-12	F	RP-150413	R4-150476	approved	Clean-up of 3 Band Carrier Aggregation (3DL/1UL) of Band 2, Band 2 and Band 12	12.0.0	12.1.0	R4	LTE_CA_B2_B2_B12-Core
36.873	0003	-	Rel-12	F	RP-150362	R1-150929	approved	Change of XPR model standard deviation value and correction of sorting function for normalized delay	12.0.0	12.1.0	R1	FS_LTE_3D_channel
36.903	0152	-	Rel-12	F	RP-150329	R5-150078	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.1 and 10.2	12.4.0	12.5.0	R5	TEI10_Test
36.903	0153	-	Rel-12	F	RP-150329	R5-150079	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.1A and 10.2A	12.4.0	12.5.0	R5	TEI10_Test
36.903	0154	-	Rel-12	F	RP-150329	R5-150080	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.1B and 10.2B	12.4.0	12.5.0	R5	TEI10_Test
36.903	0155	-	Rel-12	F	RP-150329	R5-150081	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.1C and 10.2C	12.4.0	12.5.0	R5	TEI10_Test
36.903	0156	-	Rel-12	F	RP-150329	R5-150083	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.3B and 10.4B	12.4.0	12.5.0	R5	TEI10_Test
36.903	0157	-	Rel-12	F	RP-150329	R5-150084	approved	Add Test Tolerance Analyses for TS 37.571-1 Test Cases 10.3C and 10.4C	12.4.0	12.5.0	R5	TEI10_Test
36.903	0158	-	Rel-12	F	RP-150324	R5-150219	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 4.3.1.3	12.4.0	12.5.0	R5	TEI8_Test
36.903	0159	-	Rel-12	F	RP-150324	R5-150221	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 4.3.4.3	12.4.0	12.5.0	R5	TEI8_Test
36.903	0160	-	Rel-12	F	RP-150324	R5-150223	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.5.2	12.4.0	12.5.0	R5	TEI8_Test
36.903	0161	-	Rel-12	F	RP-150341	R5-150225	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.7.3	12.4.0	12.5.0	R5	TEI11_Test
36.903	0162	-	Rel-12	F	RP-150324	R5-150227	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.9.1	12.4.0	12.5.0	R5	TEI8_Test
36.903	0163	-	Rel-12	F	RP-150324	R5-150229	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.8.1+8.10.1	12.4.0	12.5.0	R5	TEI8_Test
36.903	0164	-	Rel-12	F	RP-150324	R5-150231	approved	Update Test Tolerance Analysis for TS 36.521-3 TC 8.8.2+8.10.2	12.4.0	12.5.0	R5	TEI8_Test
36.903	0165	-	Rel-12	F	RP-150345	R5-150293	approved	Add Test Tolerance analysis for TCs 8.16.9+8.16.10 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0166	-	Rel-12	F	RP-150345	R5-150305	approved	Add Test Tolerance analysis for TCs 8.16.11+8.16.12 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0167	-	Rel-12	F	RP-150345	R5-150307	approved	Add Test Tolerance analysis for TCs 8.16.13+8.16.14 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0168	-	Rel-12	F	RP-150345	R5-150309	approved	Add Test Tolerance analysis for TCs 8.16.15+8.16.16 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0169	-	Rel-12	F	RP-150345	R5-150311	approved	Add Test Tolerance analysis for TCs 9.1.18.1+9.1.19.1 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0170	-	Rel-12	F	RP-150345	R5-150313	approved	Add Test Tolerance analysis for TCs 9.1.18.2+9.1.19.2 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0171	-	Rel-12	F	RP-150345	R5-150315	approved	Add Test Tolerance analysis for TCs 9.1.20.1+9.1.21.1 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0172	-	Rel-12	F	RP-150345	R5-150317	approved	Add Test Tolerance analysis for TCs 9.1.20.2+9.1.21.2 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0173	-	Rel-12	F	RP-150345	R5-150319	approved	Add Test Tolerance analysis for TCs 9.2.23.1+9.2.24.1 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0174	-	Rel-12	F	RP-150345	R5-150325	approved	Add Test Tolerance analysis for TCs 9.2.23.2+9.2.24.2 36.903 CR	12.4.0	12.5.0	R5	TEI12_Test
36.903	0175	-	Rel-12	F	RP-150324	R5-150853	approved	Update Test Tolerance analyses for TS 36.521-3 Test case 5.1.5	12.4.0	12.5.0	R5	TEI8_Test

EX-1016, 1734 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
36.903	0176	-	Rel-12	F	RP-150324	R5-150854	approved	Update Test Tolerance analyses for TS 36.521-3 Test case 5.1.6	12.4.0	12.5.0	R5	TEI8_Test
36.903	0177	-	Rel-12	F	RP-150324	R5-150855	approved	Update Test Tolerance analyses for TS 36.521-3 Test case 5.2.3, 5.2.6	12.4.0	12.5.0	R5	TEI8_Test
36.904	0019	-	Rel-11	F	RP-150341	R5-150217	approved	Test Tolerance Analysis for TS 36.521-1 TC 8.3.1.2.1_D_1+8.3.2.2.1_D_1	11.2.0	11.3.0	R5	TEI11_Test
37.104	0250	-	Rel-12	F	RP-150382	R4-150364	approved	Co-location between Band 42 and Band 43 in TS 37.104	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500
37.104	0251	-	Rel-12	F	RP-150388	R4-150819	approved	MB and TDD+FDD	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
37.141	0375	-	Rel-12	F	RP-150382	R4-150365	approved	Co-location between Band 42 and Band 43 in TS 37.141	12.6.0	12.7.0	R4	RInImp8-UMTSLTE3500
37.141	0382	-	Rel-12	F	RP-150388	R4-150820	approved	MB and TDD+FDD	12.6.0	12.7.0	R4	LTE_CA_TDD_FDD-Core
37.571-1	0113	-	Rel-12	F	RP-150326	R5-150051	approved	Updates to RSTD values and terminology following changes in RAN 4	12.1.0	12.2.0	R5	TEI9_Test
37.571-1	0114	-	Rel-12	F	RP-150329	R5-150074	approved	Remove incorrect note from CA RSTD accuracy tests	12.1.0	12.2.0	R5	TEI10_Test
37.571-1	0115	-	Rel-12	F	RP-150329	R5-150082	approved	Uncertainties and Test Tolerances for RSTD test cases 10.1, 10.1A, 10.1B, 10.1C, 10.2, 10.2A, 10.2B, and 10.2C	12.1.0	12.2.0	R5	TEI10_Test
37.571-1	0116	-	Rel-12	F	RP-150329	R5-150085	approved	Uncertainties and Test Tolerances for RSTD test cases 10.3B, 10.3C, 10.4B, and 10.4C	12.1.0	12.2.0	R5	TEI10_Test
37.571-1	0117	-	Rel-12	F	RP-150326	R5-150107	approved	Corrections to table headings in CA RSTD tests	12.1.0	12.2.0	R5	TEI9_Test
37.571-1	0118	-	Rel-12	F	RP-150341	R5-150378	approved	Very minor corrections to references for feICIC test cases, 8.1.5 and 8.1.6	12.1.0	12.2.0	R5	TEI11_Test
37.571-1	0119	-	Rel-12	F	RP-150344	R5-150609	approved	Abbrevation Corrections for BDS in 37.571-1	12.1.0	12.2.0	R5	LCS_BDS-UEConTest
37.571-1	0120	-	Rel-12	F	RP-150344	R5-150833	approved	Addition of BDS ICD reference	12.1.0	12.2.0	R5	LCS_BDS-UEConTest
37.571-1	0121	-	Rel-12	F	RP-150344	R5-150834	approved	Corrections to BDS Test Requirements for Minimum Performance tests	12.1.0	12.2.0	R5	LCS_BDS-UEConTest
37.571-1	0122	-	Rel-12	F	RP-150329	R5-150835	approved	The Io Unit Parameter is Incorrect	12.1.0	12.2.0	R5	TEI10_Test
37.571-1	0123	-	Rel-12	F	RP-150326	R5-150836	approved	Inconsistent Text Referenced	12.1.0	12.2.0	R5	TEI9_Test
37.571-1	0124	-	Rel-12	F	RP-150326	R5-150837	approved	Missing Abbreviations in Specification	12.1.0	12.2.0	R5	TEI9_Test
37.571-1	0125	-	Rel-12	F	RP-150345	R5-150888	approved	New TC: TDD RSTD Measurement Accuracy for Carrier Aggregation for 20MHz+10MHz bandwidth	12.1.0	12.2.0	R5	TEI12_Test
37.571-1	0126	-	Rel-12	F	RP-150329	R5-150911	approved	New TC: TDD RSTD Measurement Reporting Delay for Carrier Aggregation for 20MHz +10MHz Bandwidth	12.1.0	12.2.0	R5	TEI10_Test
37.571-2	0051	-	Rel-12	F	RP-150344	R5-150741	approved	Abbrevation Corrections for BDS in 37.571-2	12.0.0	12.1.0	R5	LCS_BDS-UEConTest
37.571-3	0025	-	Rel-12	F	RP-150329	R5-150075	approved	Remove incorrect note from CA RSTD accuracy tests	12.1.0	12.2.0	R5	TEI10_Test
37.571-3	0026	-	Rel-12	F	RP-150344	R5-150608	approved	Typo in name of parameter pc_BDS_B1I	12.1.0	12.2.0	R5	LCS_BDS-UEConTest
37.571-3	0027	-	Rel-12	F	RP-150326	R5-150838	approved	Missing Abbreviations in Specification	12.1.0	12.2.0	R5	TEI9_Test
37.571-3	0028	-	Rel-12	F	RP-150326	R5-150889	approved	Missing Fine Time Assistance Conditions	12.1.0	12.2.0	R5	TEI9_Test
37.571-3	0029	-	Rel-12	F	RP-150345	R5-150890	approved	Applicability for new 20+10MHz RSTD test cases	12.1.0	12.2.0	R5	TEI12_Test
37.571-4	0046	-	Rel-12	F	RP-150344	R5-150735	approved	Addition of BeiDou Test Model	10.8.0	12.0.0	R5	LCS_BDS-UEConTest
37.571-4	0047	-	Rel-10	F	RP-150337	R5s141359	approved	Correction of errors in implementation of positioning CRs	10.8.0	10.9.0	R5	TEI9_Test
37.571-4	0048	-	Rel-10	B	RP-150337	R5s150027	approved	Addition of GCF WI-166 EUTRA UE Positioning test case 7.3.4.1.4s	10.8.0	10.9.0	R5	TEI9_Test
37.571-4	0049	-	Rel-10	F	RP-150336	-	approved	Add new verified and e-mail agreed TTCN test cases in the TC lists in 37.571-4 (prose), Annex A	10.8.0	10.9.0	R5	TEI9_Test
37.571-5	0107	-	Rel-12	F	RP-150326	R5-150052	approved	Updates to expectedRSTD values following changes in RAN 4	12.0.0	12.1.0	R5	TEI9_Test
37.571-5	0108	-	Rel-12	F	RP-150329	R5-150106	approved	Change Nprs value in tests 10.3B, 10.3C, 10.4B, 10.4C	12.0.0	12.1.0	R5	TEI10_Test
37.571-5	0109	-	Rel-12	F	RP-150344	R5-150237	approved	LBS Perf: Correction to simulated BDS satellites	12.0.0	12.1.0	R5	LCS_BDS-UEConTest
37.571-5	0110	-	Rel-12	F	RP-150326	R5-150839	approved	Missing Abbreviations in Specification	12.0.0	12.1.0	R5	TEI9_Test

EX-1016, 1735 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Spec	CR	Rev	Phase	Cat	Plenary doc	WG doc	TSG status	Subject	CR written to	Resulting vers	WG	Workitem
37.571-5	0111	-	Rel-12	F	RP-150329	R5-150840	approved	Missing OTDOA CA Test Cases	12.0.0	12.1.0	R5	TEI10_Test
37.571-5	0112	-	Rel-12	F	RP-150344	R5-150891	approved	Abbreviation Corrections for BDS in 37.571-5	12.0.0	12.1.0	R5	LCS_BDS-UEConTest
37.822	0001	2	Rel-12	F	RP-150356	R3-150308	approved	Inclusion of solution evaluation for MRO Re-establishment scenarios	12.1.0	12.2.0	R3	TEI12

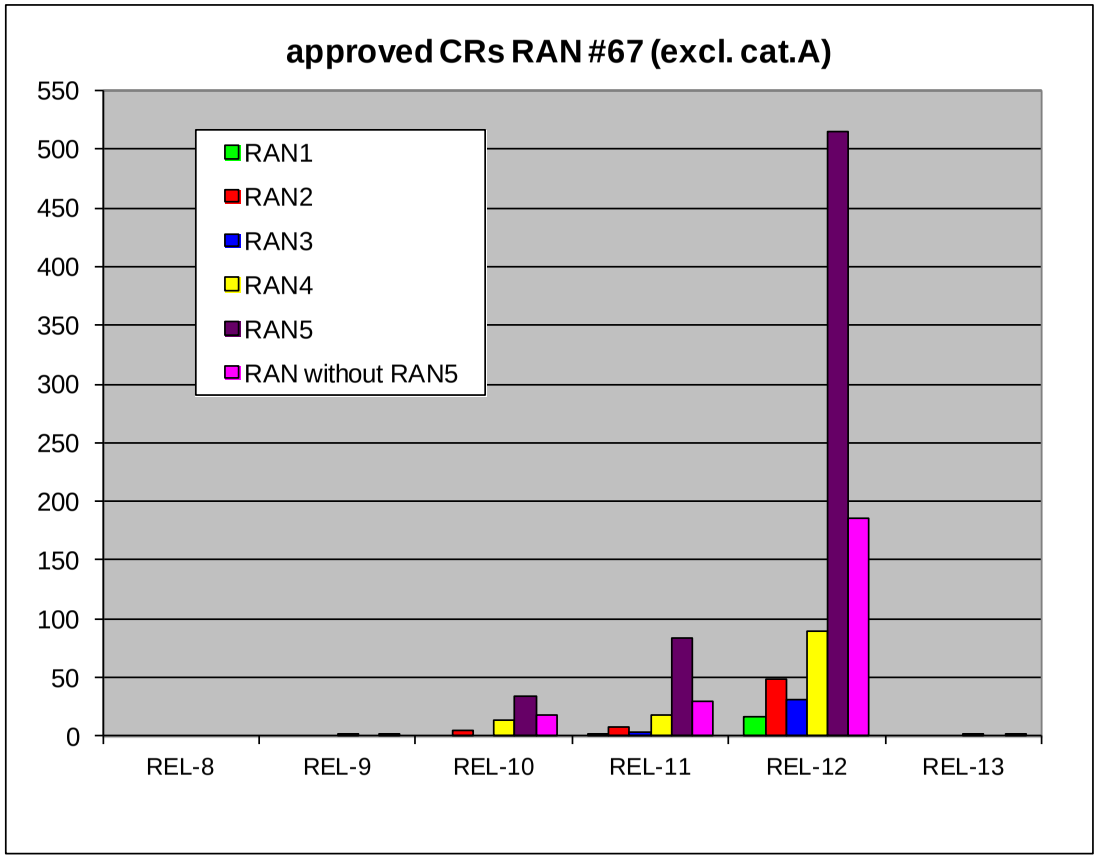


Fig. E-1: Approved CRs (<u>excluding</u> category A CRs) of RAN #67 per WG and release

EX-1016, 1736 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

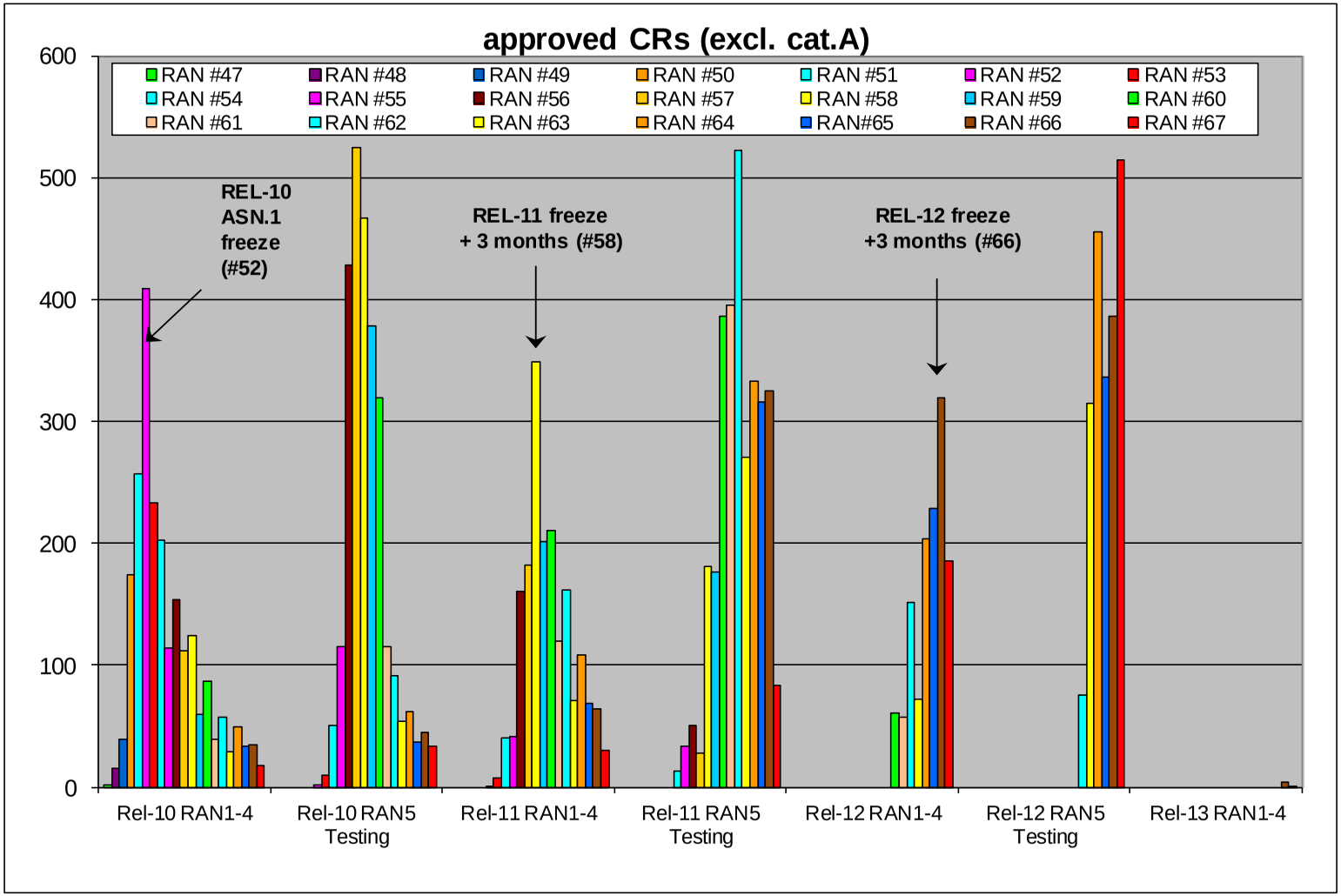


Fig. E-2: Approved CRs (<u>excluding</u> category A CRs) of previous RAN meetings per release
<u>REL freeze</u>: REL-8: RAN #42, REL-9: RAN #46, REL-10: RAN #51, REL-11: RAN #57, REL-12: RAN #65
<u>ASN.1 freeze</u>: REL-8: RAN #43 (713 CRs), REL-9: RAN #47 (355 CRs), REL-10: RAN #52 (apart from Un), REL-11: RAN #59, REL-12: RAN #67

EX-1016, 1737 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

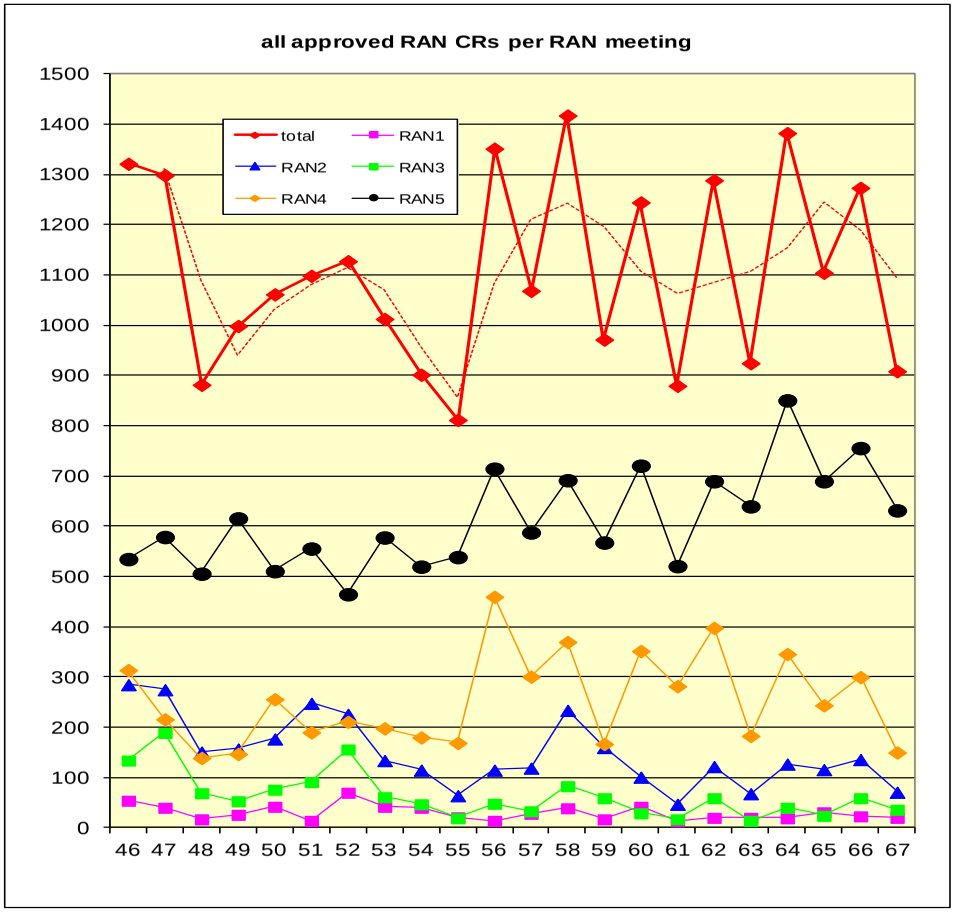


Fig. E-3: Approved CRs (all releases <u>including</u> category A CRs) per RAN WG and per RAN meeting
REL freeze: REL-9: RAN #46, REL-10: RAN #51, REL-11: RAN #57, REL-12: RAN #65
ASN.1 freeze: REL-8: RAN #43, REL-9: RAN #47, REL-10: RAN #52 (apart from Un), REL-11: RAN #59, REL-12: RAN #67

EX-1016, 1738 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

EX-1016, 1739 of 1750

Annex F:
Summary of RAN work items (WI) and study items (SI)

An overview of recent RAN work items and study items (starting from REL-9 and including the new WIs & SIs approved at this meeting) is attached to this report.

This overview is used as input for the 3GPP workplan which lists all 3GPP work and study items.

status after RAN #67:

REL-7:		
REL-7 stage 1 freeze:	Sep.05	TSG #29
REL-7 stage 2 freeze:	Sep. 06	TSG #33
REL-7 freeze:	March 07	TSG #35
REL-7 ASN.1 freeze:	March 08	TSG #39
REL-8:	7 quarters	
REL-8 stage 1 freeze:	Dec.07	TSG #38
REL-8 stage 2 freeze:	June 08	TSG #40
REL-8 freeze:	Dec.08	TSG #42
REL-8 ASN.1 freeze:	March 09	TSG #43
REL-9:	4 quarters	
REL-9 stage 1 freeze:	Dec.08	TSG #42
REL-9 stage 2 freeze:	June 09	TSG #44
REL-9 freeze:	Dec.09	TSG #46
REL-9 ASN.1 freeze:	March 10	TSG #47
REL-10:	5 quarters	
REL-10 stage 1 freeze:	March 10	TSG #47
REL-10 stage 2 freeze:	Sep.10	TSG #49
REL-10 freeze:	March 11	TSG #51
REL-10 ASN.1 freeze:	June 11	TSG #52 (apart from Un for Relays: frozen in Sep.11 at TSG #53)
REL-11:	6 quarters	
REL-11 stage 1 freeze:	Sep.11	TSG #53
REL-11 stage 2 freeze:	March 12	TSG #55
REL-11 freeze:	Sep.12	TSG #57
REL-11 ASN.1 freeze:	March 13	TSG #59

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

REL-12:	8 quarters	
REL-12 stage 1 freeze:	March 13	TSG #59
REL-12 stage 2 freeze:	Dec.13	TSG #62
REL-12 freeze:	Sep.14	TSG #65
REL-12 ASN.1 freeze:	March 15	TSG #67
REL-13:	5 quarters	
REL-13 stage 1 freeze:	Sep.14	TSG #65
REL-13 stage 2 freeze:	June 15	TSG #68 (planned)
REL-13 freeze:	Dec.15	TSG #70 (planned)
REL-13 ASN.1 freeze:	March 16	TSG #71 (planned)

EX-1016, 1740 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

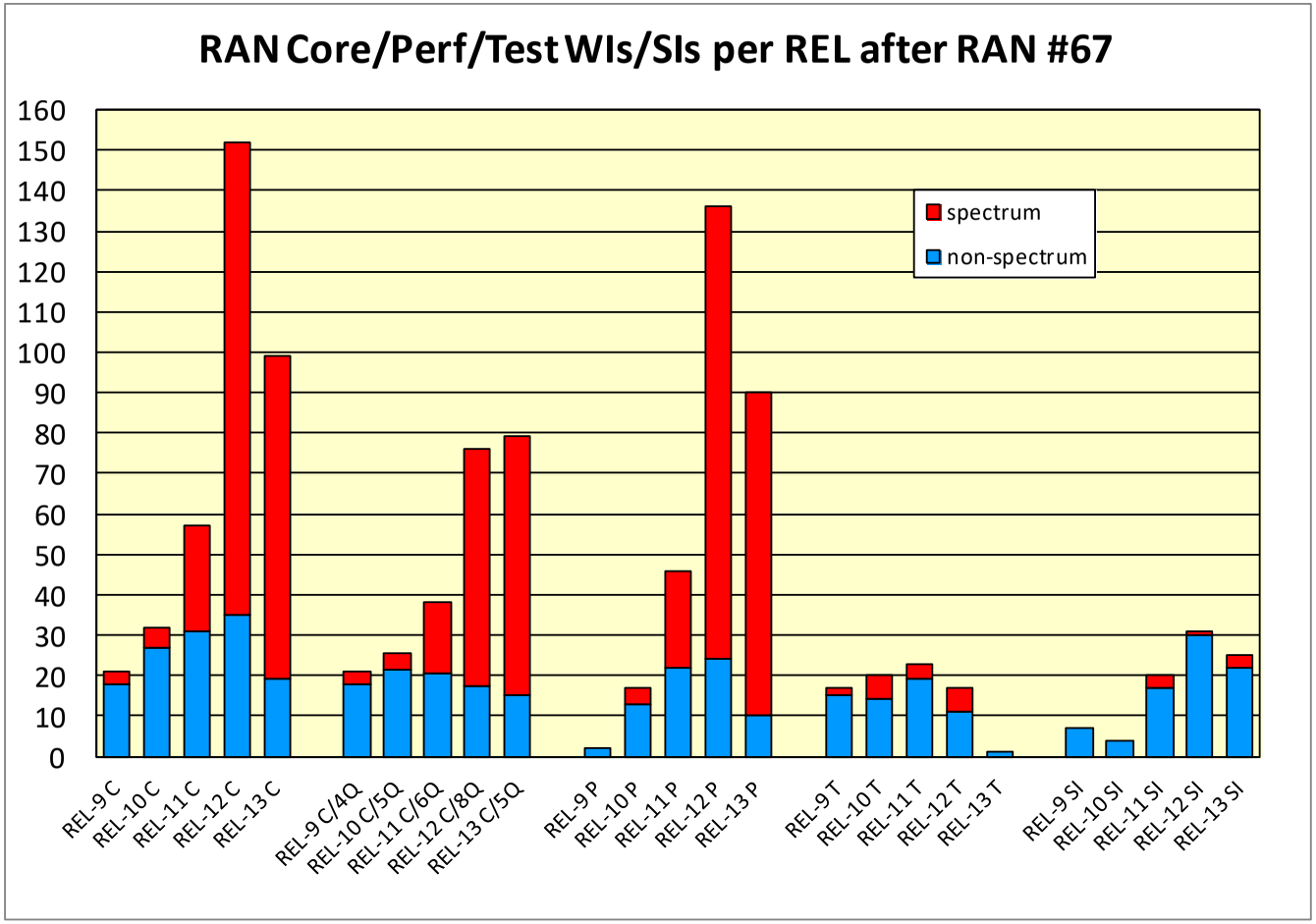


Fig. F-1: Statistics of all approved RAN WIs/SIs of REL-9/10//11/12/13 (status: after RAN #67) split into spectrum and non-spectrum related topics (<u>including</u> already completed WIs/SIs)

EX-1016, 1741 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

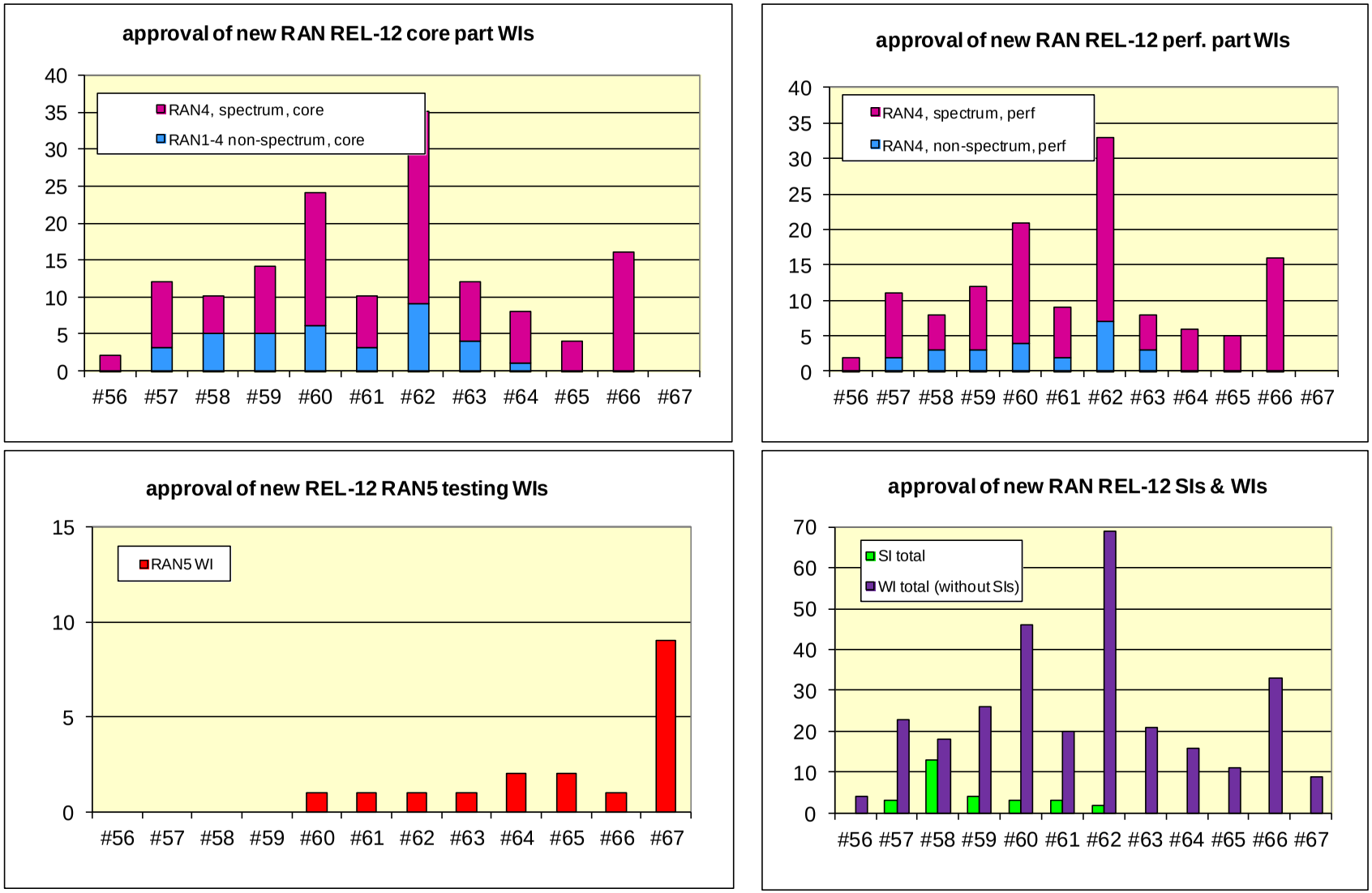


Fig. F-2: Overview of <u>new</u> REL-12 WIs and SIs per RAN meeting (REL-11 freeze: RAN #57, REL-12 freeze: RAN #65) (including WIs started as REL-13 WIs and then completed as REL-12 WIs)

EX-1016, 1742 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

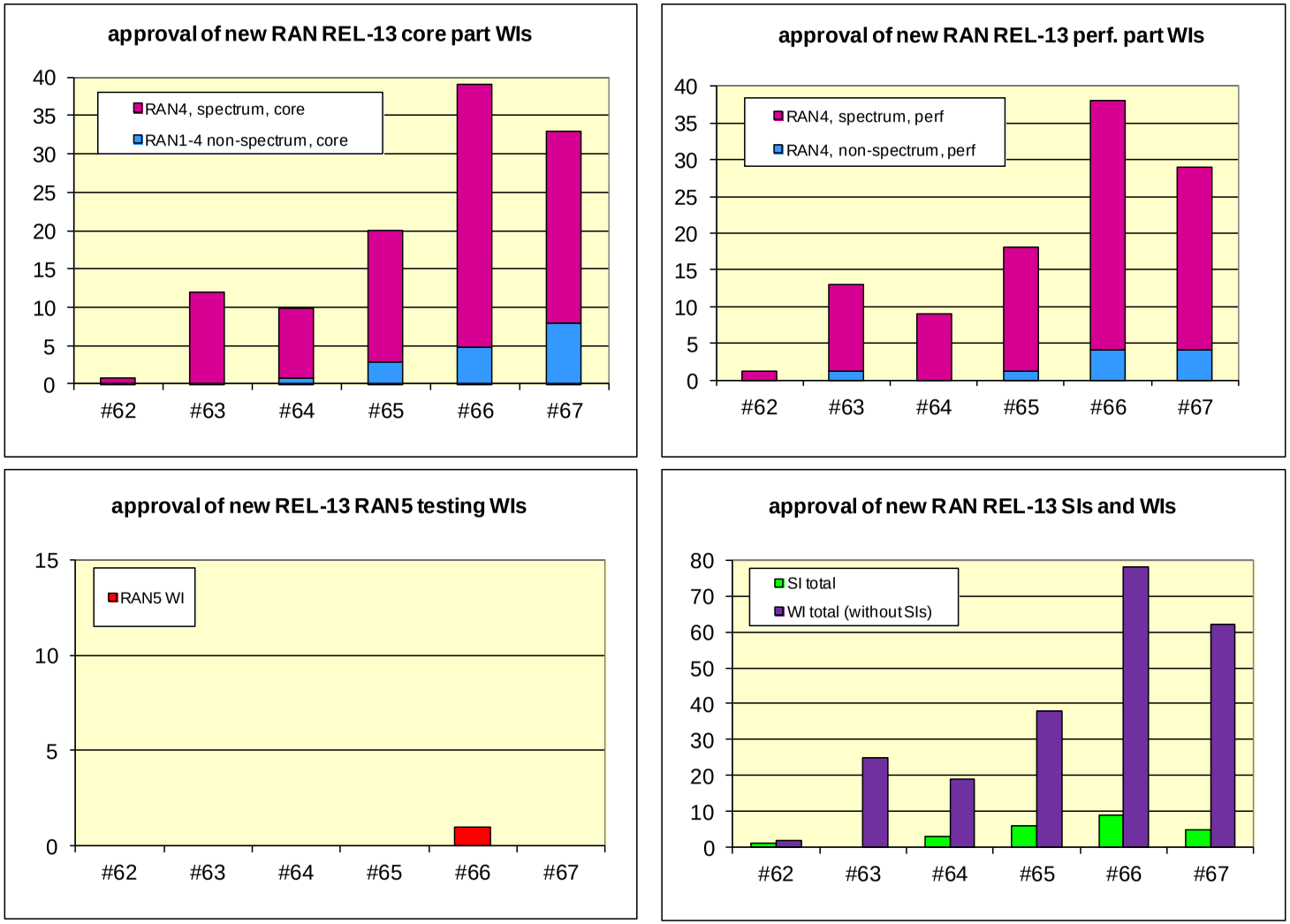


Fig. F-3: Overview of <u>new</u> REL-13 WIs and SIs per RAN meeting (REL-12 freeze: RAN #65, REL-13 freeze: planned for RAN #70) (including WIs shifted from REL-12 to REL-13)

EX-1016, 1743 of 1750

Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex G:
Actions decided by RAN #67

No Actions allocated.

EX-1016, 1744 of 1750
Samsung Electronics Co., Ltd. v. Asus Tech Licensing

Annex H:
History

Document history		
Date	**TSG RAN Tdoc**	**Subject**
08.03.2015	-	Skeleton report for RAN #67 provided before the meeting.
13.03.2015	-	Draft report of RAN #67 v1.0 (this version is also submitted as SP-150153 to SA #67 for information)
31.05.2015	RP-150526	Draft report of RAN #67 v2.0
15.06.2015	RP-150581	Report of RAN #67 as approved by RAN #68

In case of comments/questions/corrections please contact:

Author: **Dr. Joern Krause (3GPP TSG RAN MCC Support)**

ETSI Mobile Competence Centre (MCC)
Tel. +33-492-94 4261
email: Joern.Krause@etsi.org

APPENDIX 36

www.3gpp.org / ftp / Specs / archive / 36_series / 36.321

sort by name/desc	sort by date/desc	sort by size/desc
36321-100.zip	2007/09/10 14:45	133,9 KB
36321-110.zip	2014/12/10 17:37	139,1 KB
36321-200.zip	2007/12/11 7:58	219,8 KB
36321-800.zip	2007/12/20 9:15	218,3 KB
36321-810.zip	2008/03/17 9:47	311,9 KB
36321-820.zip	2008/06/17 7:18	306,6 KB
36321-830.zip	2008/09/18 13:08	315 KB
36321-840.zip	2009/01/05 8:52	474 KB
36321-850.zip	2009/03/23 8:46	582,4 KB
36321-860.zip	2009/06/18 6:13	584,1 KB
36321-870.zip	2009/09/22 16:22	584,7 KB
36321-880.zip	2009/12/28 12:12	584,2 KB
36321-890.zip	2010/06/18 7:34	578,6 KB
36321-8a0.zip	2011/09/28 11:33	582,2 KB
36321-8b0.zip	2011/12/20 12:16	581,5 KB
36321-8c0.zip	2012/03/15 15:55	582,2 KB
36321-900.zip	2009/09/22 16:23	577,6 KB
36321-910.zip	2009/12/28 12:13	620,3 KB
36321-920.zip	2010/04/21 8:20	605,5 KB
36321-930.zip	2010/06/17 13:32	600,8 KB
36321-940.zip	2011/09/30 20:21	610,1 KB
36321-950.zip	2011/12/20 12:18	609,8 KB
36321-960.zip	2012/03/15 15:56	610,5 KB
36321-a00.zip	2010/12/17 23:49	668,5 KB
36321-a10.zip	2011/04/05 11:25	652,4 KB
36321-a20.zip	2011/06/21 22:40	654,3 KB
36321-a30.zip	2011/09/28 18:41	648,9 KB
36321-a40.zip	2011/12/20 12:19	657,6 KB
36321-a50.zip	2012/03/15 15:59	658,3 KB
36321-a60.zip	2012/09/21 0:34	657,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
36321-a70.zip	2013/01/02 0:26	649,6 KB
36321-a80.zip	2013/03/13 18:19	658,5 KB
36321-a90.zip	2013/06/29 15:50	659,1 KB
36321-aa0.zip	2014/01/06 10:26	659,1 KB
36321-b00.zip	2012/09/21 22:59	651,9 KB
36321-b10.zip	2013/01/02 0:28	746 KB
36321-b20.zip	2013/03/13 18:20	755,8 KB
36321-b30.zip	2013/06/29 15:51	756,9 KB
36321-b40.zip	2014/01/06 10:27	757,1 KB
36321-b50.zip	2014/03/20 13:17	747,7 KB
36321-b60.zip	2015/03/26 10:19	716,7 KB
36321-c00.zip	2014/01/06 10:55	759,5 KB
36321-c10.zip	2014/03/20 13:17	751,4 KB
36321-c20.zip	2014/07/01 8:28	722,5 KB
36321-c21.zip	2014/07/10 14:02	753,1 KB
36321-c30.zip	2014/09/20 7:56	753,4 KB
36321-c40.zip	2014/12/31 18:08	886,3 KB
36321-c50.zip	2015/03/25 15:58	1125,2 KB
36321-c60.zip	2015/06/30 22:42	1150,7 KB
36321-c70.zip	2015/09/24 8:09	1139,6 KB
36321-c80.zip	2015/12/21 10:09	1140,6 KB
36321-c90.zip	2016/03/30 16:35	1140,8 KB
36321-ca0.zip	2017/09/25 23:51	1132,7 KB
36321-d00.zip	2016/01/14 15:26	1260,3 KB
36321-d10.zip	2016/04/01 16:18	1288,6 KB
36321-d20.zip	2016/07/07 9:43	1323,6 KB
36321-d30.zip	2016/10/03 12:19	1352,5 KB
36321-d40.zip	2016/12/30 1:20	1382,5 KB
36321-d50.zip	2017/03/21 17:27	1371,6 KB
36321-d60.zip	2017/06/23 21:52	1366,3 KB
36321-d70.zip	2017/09/25 23:52	1355 KB
36321-d80.zip	2018/04/02 0:03	1362 KB
36321-d90.zip	2018/07/06 12:20	1361,4 KB
36321-e00.zip	2016/10/03 12:26	1374,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
36321-e10.zip	2016/12/30 1:25	1422,4 KB
36321-e20.zip	2017/03/22 9:22	1503,3 KB
36321-e21.zip	2017/04/27 16:44	1504 KB
36321-e30.zip	2017/06/23 21:53	1490,6 KB
36321-e40.zip	2017/09/25 23:52	1494,9 KB
36321-e50.zip	2018/01/07 13:40	1497,4 KB
36321-e60.zip	2018/04/02 0:04	1490,3 KB
36321-e70.zip	2018/07/06 13:08	1491 KB
36321-e80.zip	2018/09/28 14:04	1498,3 KB
36321-e90.zip	2019/01/11 0:51	1501,8 KB
36321-ea0.zip	2019/04/11 15:58	1489 KB
36321-eb0.zip	2019/06/27 12:15	1487,6 KB
36321-ec0.zip	2020/01/07 14:43	1486,5 KB
36321-ed0.zip	2020/10/02 11:06	1490,5 KB
36321-f00.zip	2018/01/07 13:41	1497 KB
36321-f10.zip	2018/04/02 0:05	1498,6 KB
36321-f20.zip	2018/07/06 20:36	1607,9 KB
36321-f30.zip	2018/10/01 12:29	1611 KB
36321-f40.zip	2019/01/13 0:20	1758,4 KB
36321-f50.zip	2019/04/11 15:58	1727,8 KB
36321-f60.zip	2019/06/27 21:08	1776,3 KB
36321-f70.zip	2019/09/26 16:12	1776,6 KB
36321-f80.zip	2020/01/07 14:44	1777,1 KB
36321-f90.zip	2020/07/24 20:53	1780,1 KB
36321-fa0.zip	2020/10/02 11:07	1781,6 KB
36321-fb0.zip	2021/01/06 1:23	1782,9 KB
36321-g00.zip	2020/04/08 14:40	1797,5 KB
36321-g10.zip	2020/07/24 15:06	1800,7 KB
36321-g20.zip	2020/10/02 11:07	1803,6 KB
36321-g30.zip	2021/01/06 1:23	1807,1 KB
36321-g40.zip	2021/03/29 16:35	1899,5 KB
36321-g50.zip	2021/07/07 22:16	1900,3 KB
36321-g60.zip	2021/09/27 17:09	1900,5 KB
36321-g70.zip	2022/04/15 16:34	1901,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
36321-g80.zip	2022/07/17 21:25	1902,7 KB
36321-g90.zip	2024/01/12 20:49	1903,3 KB
36321-h00.zip	2022/04/19 10:09	1934,1 KB
36321-h10.zip	2022/07/17 21:25	1927,5 KB
36321-h20.zip	2022/10/03 15:20	1926,2 KB
36321-h30.zip	2023/01/13 19:48	1928,4 KB
36321-h40.zip	2023/03/29 22:18	1932,7 KB
36321-h50.zip	2023/06/30 17:57	1932,7 KB
36321-h60.zip	2023/09/26 21:45	1933,3 KB
36321-h70.zip	2024/01/12 20:50	1934,4 KB
36321-i00.zip	2024/01/12 20:50	1957,8 KB
36321-i10.zip	2024/04/02 11:29	1958,3 KB
36321-i20.zip	2024/07/12 20:13	1957,8 KB

111 items.