

Prague, Czech Republic, October 9 – 13, 2017

Agenda Item: 2.2

Source: ETSI MCC

Title: Report of 3GPP TSG RAN2#99 meeting, Berlin, Germany

Document for: Approval

**Report of 3GPP TSG RAN WG2 meeting #99
Berlin, Germany
21 - 25 August, 2017**

3GPP

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Organisation of the meeting

Meeting:	3GPP TSG RAN2#99	
Meeting location:	Berlin, Germany	
Duration:	21.08 - 25.08.2017	
Host:	EF3	
TSG RAN WG2 Chairman:	Richard Burbidge (Intel Corporation) (richard.c.burbidge@intel.com)	
TSG RAN WG2 Vice chairman:	Hu Nan (CMCC) (hunan@chinamobile.com)	
TSG RAN WG2 Vice chairman:	Diana Pani (Interdigital Communications) (diana.pani@interdigital.com)	
TSG RAN WG2 MCC Support:	Juha Korhonen (ETSI MCC) (juha.korhonen@etsi.org)	
Email reflector:	3GPP_TSG_RAN_WG2@LIST.ETSI.ORG	
Technical documents:	ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_99/Docs	
Next meetings:	TSG RAN#77	11.09 - 14.09.2017, Sapporo, Japan
	TSG RAN2#99bis	09.10 - 13.10.2017, Prague, Czech Republic
	TSG RAN2#100	27.11 - 01.12.2017, Reno, USA

Statistics/Executive Summary

TSG RAN2#99 was held in Berlin, Germany, hosted by European Friends of 3GPP (EF3). The meeting had 6 breakout sessions in addition to the main session. The main session was mainly about NR. The parallel sessions were:

- LTE and NR User Plane;
- LTE
- NB-IoT and MTC
- Positioning Accuracy Enhancements
- Rel-15 V2X
- Rel-15 MTC

The statistics from this meeting are:

- 269 participants checked in (registered: 343 participants).
- 2394 Tdocs allocated with 2368 available contributions. (See the attached tdoc list)
- 79 incoming liaison statements, out of which 72 were noted and 5 withdrawn (submitted for a second time by accident). The remaining 2 LSin will be handled in future meetings.
- 32 outgoing liaison statements.
- 49 email approvals/discussions scheduled after RAN2#99 meeting, see Annex F for details.
- Number of CRs submitted 366. Out of these, 119 were agreed. See Annex E for details.

1 Opening of the meeting (9 AM)

1.1 Call for IPR

The attention of the delegates of this Working Group is 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 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 Statement and the Licensing declaration forms (<http://webapp.etsi.org/Ipr/>).

NOTE: IPRs may be declared to the Director-General or Chairman of the SDO, but not to the RAN WG2 Chairman.

1.2 Network usage conditions

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 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)**

1.3 Other

In accordance with the Working Procedures it is reaffirmed that:

- (i) compliance with all applicable antitrust and competition laws is required;
- (ii) timely submissions of work items in advance of TSG or WG meetings are important to allow for full and fair consideration of such matters; and
- (iii) the chairman will conduct the meeting with strict impartiality and in the interests of 3GPP

Note on (i): In case of question please contact your legal counsel.

Note on (ii): WIDs don't need to be submitted to the RAN2 meeting and will typically not be discussed here either.

2 General

THANK YOU to companies that request TDoc numbers and submit contributions early before deadline (really appreciated). Will start to refrain from treating late documents.

2.1 Approval of the agenda

A draft schedule for the week is provided as a separate document, distributed via the RAN2 email reflector and made available during the meeting week in the RAN2\Inbox\Chairmans_Notes folder.

R2-1707600 Agenda for RAN2#99 Chairman agenda
=> Approved

2.2 Approval of the report of the previous meeting

R2-1707601 RAN2#98 meeting report MCC report
=> Approved

R2-1707602 RAN2 NR AdHoc#2 meeting report MCC report
=> Approved

2.3 Reporting from other meetings

Summary of RAN2 impacting NR items from RAN#76, June 2017 (same as sent via email to reflector)

NR

CSG - RAN agreed not to support CSG in NR Rel-15 but RAN2 is tasked to specify forward compatibility mechanisms so that a feature similar to the current CSG could be introduced in a future release (See RP-171479)

UE categories - In response to the questions raised in our LS, RAN concluded to let RAN WGs decide how the target peak data rate can be supported for LTE-NR DC and NR standalone (e.g. whether the existing concept of UE category is used or a new concept in defining the target peak data rate is introduced). In addition, RAN agreed to have an email discussion until RAN#77 to discuss the actual target peak data rates for LTE-NR DC and NR standalone. (See RP-171480)

Positioning - NR WID was updated to add support for positioning in order to meeting regulatory requirements related to emergency calls. The update assumes that LPP will be re-used to enable RAT independent positioning and RAT dependent positioning based on measurements of E-UTRA cells. (See revised WID in RP-171485) (Note that I do not plan to add positioning to the agenda for the June NR ad hoc)

NR ad hocs - We confirmed the need for a 5 day NR ad hoc in Q1 2018 (22-26 Jan 18) and a 5 day NR ad hoc in Q3 2018 (Date of 2-6 July 18 currently in 3GPP calendar is to be confirmed) (See RP-171509)

LTE

LTE connected to 5G-CN - WID was updated to add support for inactive state (See revised WID in RP-171432)

UDC - The TR was approved but the SI is extended until September. RAN agreed that additional information on the APDC solution is to be provided to RAN2 by 2017-06-26. At the next RAN2 meeting, we will analyse this additional information and update the TR via CRs. RAN#77 will make a decision between DEFLATE based solution and APDC solution (unless RAN2 is able to make a quick and easy decision). 1 TU is allocated for this activity in RAN2#99. (See SR in RP-171464)

feD2D - No RAN2 time was allocated to feD2D SI in RAN2#99 but it was agreed that we can discuss and respond to incoming liaisons.

Technically endorsed CRs - All technically endorsed CRs provided from RAN2 to RAN were approved (The 2 sets relating to UE categories and the set on E-UTRAN sharing enhancements)

NB-IOT - There was a prioritisation of items within the Rel-15 NB-IoT WI. The intention is that WGs provide running CRs for the prioritised items to RAN#78 (See revised WID in RP-171428)

CR submission to RAN

There have been a number of recent problems with CR submission to RAN plenary (involving RAN2 CRs as well as other WGs). Please read carefully the RAN secretary's email to the RAN WG reflectors. In summary, CR authors are requested to:

- 1 Subscribe also to the RAN reflector
- 2 Check the following for your CRs:
 - i/ correct submission of the agreed CR to the RAN
 - ii/ no clashes with other CRs that are for RAN approval
 - iii/ an error free implementation of the CR into the spec after approval
- 3 Inform MCC, the WG chairman and (if known) the spec rapporteur asap if you spot problems

2.4 Elections

Elections for the positions of Chairman and 2 Vice Chairmen will be held during the meeting.

2.5 Others

Rapporteur changes

Spec	former rapporteur	proposed new rapporteur
-------------	--------------------------	--------------------------------

Isolated impact analysis

Note that an isolated impact analysis is required for Rel-8 to Rel-14 CRs from Q3 2017 onwards.

Only corrections where there is a proven problem are allowed for frozen releases (Rel-8 to Rel-14).

RAN2 WG compendium

Latest version can always be found at ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Org/RAN2_Compendium/

Drafting rules

Note that specification drafting rules in TR 21.801 must be followed when drafting a CR and draft TS/TR.

Latest version can always be found at http://www.3gpp.org/ftp/specs/archive/21_series/21.801/

Time Budget

The time budget endorsed at RAN-76 is available in RP-171478

Offline discussion during RAN2 meeting

Chairs will allocate a number of offline discussions during the meeting. Create a folder containing this number within inbox/drafts and use this to share any documents relating to the offline discussion. Also use this number in the title of any reflector emails relating to this offline discussion. Do not share documents over the reflector during the meeting.

Managing number of docs submitted to the meeting

Over 2000 documents submitted to this meeting. This continues to be an unmanageable number of documents, preventing to both chairs and delegates from adequately preparing for the meeting. If you have comments or suggestion how to manage this then please discuss with me during this week.

3 Incoming liaisons

Note: LSs are moved to the respective agenda items if any.

- | | | | |
|------------|--|--------|--------|
| R2-1707633 | Reply to LS on EUTRAN sharing enhancement (R3-172026; contact: Ericsson) | RAN3 | LS in |
| | Rel-14 TEI14 | | |
| | => Noted | | |
| | | | |
| R2-1707641 | LS on EUTRAN sharing enhancement (S2-173701; contact: Ericsson) | SA2 | LS in |
| | Rel-15 TEI14 | | |
| | => Noted | | |
| | | | |
| R2-1707646 | LS on progress of enhanced VoLTE performance (S2-174844; contact: Huawei) | SA2 | LS in |
| | Rel-15 FS_eVoLP | | |
| | <ul style="list-style-type: none"> - Huawei have prepared a draft response. Huawei think it is feasible for eNB to take this information into account. | | |
| | => Discuss offline whether we can respond now or RAN2 contributions will be needed before we can reply (Huawei, Offline discussion #01) | | |
| | <ul style="list-style-type: none"> - Update from offline: Majority of companies think it is feasible for the eNB. One company thinks that it is RAN3 issue and another needs more time. - Nokia think it may be feasible but we should not provide any feedback without assessment. Think it is a RAN3 question to comment on. - Qualcomm think what they ask is more about RRM and hence RAN2 issue. | | |
| | => Reply to say: RAN2 have not concluded that this is feasible. One network vendors believe that it is feasible. We do not foresee any RAN2 spec impact. | | |
| | => Draft LS in R2-1709915 (Huawei, Offline discussion #52) | | |
| | | | |
| R2-1709915 | [Draft] Reply LS on progress of enhanced VoLTE performance | Huawei | LS out |
| | => Approved in R2-1709975 | | |
| | | | |
| R2-1707661 | LS on eVoLP parameters (S4-AHM355; contact: Qualcomm) | SA4 | LS in |
| | Rel-15 FS_eVoLP | | |
| | => Noted | | |
| | | | |
| R2-1707655 | LS on EPC QoS aspects for TSG RAN's lower latency features (S2-175276; contact: Ericsson) | | |
| | SA2 LS in Rel-15 LTE_STTlandPT-Core, EDCE5, NR_newRAT-Core | | |
| | <ul style="list-style-type: none"> - Ericsson draft in R2-1708319, and VDF reply in R2-1709670 | | |
| | => Discuss offline how to respond and try to avoid overlap with aspects that RAN1 is expected to cover. (Ericsson, Offline discussion #02) | | |

- R2-1709916 [Draft] Reply LS on EPC QoS aspects for TSG RAN's lower latency features, Ericsson, LS out
=> Change from divide to multiply
=> Approved in R2-1709976
- R2-1707659 Reply LS on LTE call redirection to GERAN (S3-171554; contact: Ericsson)SA3 LS in
Rel-12 TEI12
- Nokia think SA3 is having an e-meeting on this topic.
 - Ericsson think the changes now discussed in SA3 would cause significant extra complexity in network and UE.
- => Noted
- R2-1709883 LS to RAN2 on Text Proposals for 3GPP TR 36.746 (R1-1715120; contact: Intel)
- New LSi
- ✉ **[99#02][LTE/feD2D] Update to 36.746 (LG)**
To add TP from RAN1
Intended outcome: Agreed TR v2.0.0 for submission to RAN for approval
Deadline: Thursday 2017-08-31
=> The TR is agreed in R2-1709984.

Liasons with RAN2 in CC

- R2-1707632 Reply LS on MBMS Bearer Event Notification (R3-172007; contact: Ericsson) RAN3 LS in
Rel-15 MBMS_Mcservices, TEI15
- => Noted
- R2-1707662 Reply LS to RAN3 on MBMS bearer event notification (S6-171129; contact: Motorola Solutions)
SA6 LS in Rel-15 MBMS_Mcservices
- => Noted

Withdrawn

- R2-1707608 LS on the conclusions for the SI on a simplified HS-SCCH for UMTS (R1-1709326; contact: Ericsson) RAN1 LS in
FS_UTRA_simple_HSSCCH Rel-15
- R2-1707610 LS on enhanced scheduling for UMTS (R1-1709567; contact: Huawei) RAN1 LS in
Rel-15 FS_UTRA_CA_sched_enh

4-5 Void

6 LTE: Rel-12 and earlier releases

Including corrections related to the following WIs:

- (LTE-L23, leading WG: RAN2, REL-8, started: Sep. 06, closed: Dec. 08, WID: RP-080747)*
- (LTE_CA-Core, leading WG: RAN1, REL-10, started: Dec. 09, closed: June 11, WID: RP-100661)*
- (LTE_UL_MIMO-Core, leading WG: RAN1, REL-10, started: Dec.09, closed: June 11, WID: RP-100959)*
- (LTE_eDL_MIMO-Core, leading WG: RAN1, REL-10, started: Dec.09, closed: March 11, WID: RP-100196)*
- (LTE_Relay-Core, leading WG: RAN1, REL-10, started: Dec. 09, closed: June 11, WID: RP-110911)*
- (MBMS_LTE_enh-Core, leading WG: RAN2, REL-10, started: June 10, closed: March 11, WID: RP-101244)*
- (MDT_UMTSLTE-Core, leading WG: RAN2, REL-10, started: Dec. 09, closed: June 11, WID: RP-100360)*

(eICIC_LTE-Core, leading WG: RAN1, REL-10, started: March 10, closed: June 11, WID: RP-100383)
(SONenh_LTE-Core, leading WG: RAN3, REL-10, started: March 10, closed: June 11, WID: RP-101004)
(LTE_CA_enh-Core, leading WG: RAN1, REL-11, started: March 11, closed: Mar.13, WID: RP-121999)
(MBMS_LTE_SC-Core, leading WG: RAN2, REL-11, started: June 10, closed: Sep.12, WID: RP-120258)
(LTE_eDDA-Core, leading WG: RAN2, REL-11, started: March 11, closed: Dec.12, WID: RP-120256)
(LCS_LTE-NBPS-Core, leading WG: RAN2, REL-11, started: March 09, closed: June. 13, WID: RP-131259)
(eICIC_enh_LTE-Core, leading WG: RAN1, REL-11, started: March 11, closed: Dec. 12, WID: RP-120860)
(SPIA_IDC_LTE-Core, leading WG: RAN2, REL-11, started: Sep.11, closed: Dec. 12, WID: RP-111355)
(COMP_LTE_DL-Core, leading WG: RAN1, REL-11, started: Sep.11, closed: Dec.12, WID: RP-111365)
(COMP_LTE_UL-Core, leading WG: RAN1, REL-11, started: Sep.11, closed: Dec.12, WID: RP-111365)
(LTE_TDD_add_subframe, leading WG: RAN1, REL-11, started: March 12; closed: Sep. 12, WID: RP-120384)
(FS_HetNet_eMOB_LTE, leading WG: RAN2, REL-11, started: March 11, closed: Sep. 12, WID: RP-110709)
(LTE_enh_dl_ctrl-Core, leading WG: RAN1, REL-11, started: Dec. 11, closed: Dec. 12, WID: RP-120871)
(LTE_SC_enh_dualC-Core, leading WG: RAN2, REL-12, started: Dec.13, closed: Dec.14, WID: RP-141797)
(LTE_SC_enh_L1-Core, leading WG: RAN1, REL-12, started: Dec.13, closed: Dec.14, WID: RP-132073)
(LTE_D2D_Prox-Core, leading WG: RAN1, REL-12, started: Mar.14, closed: Mar.15, WID: RP-142043)
(MBMS_LTE_OS-Core, leading WG: RAN2, REL-12, started: Sep.13, closed: Dec.14, WID: RP-140282)
(LTE_NAICS-Core, leading WG: RAN1, Rel-12, started: Mar 14, closed: Dec.14, WID: RP-140519)
(LC_MTC_LTE-Core, leading WG: RAN1, REL-12, started: Jun 13, closed: Dec 14, WID: RP-140522)
(GCSE_LTE-MBMS_CM-Core, leading WG: RAN3, started: Sep. 14, closed: Mar. 2015, WID: RP-141035)
(LTE_CA_TDD_FDD-Core, leading WG: RAN1, REL-12, started: Jun 13, closed: Jun 14, WID: RP-140465)
(LCS_BDS-LTE-Core, leading WG: RAN2, REL-12, started: Mar 13, closed: Dec 13, WID: RP-130416)
(LTE_eDL_MIMO_enh-Core, leading WG: RAN1, REL-12, started: Sep 12, closed: June 14, WID: RP-121416)
(HetNet_eMOB_LTE-Core, leading WG: RAN2, REL-12, started: Dec.12, , closed: Sep 14, WID: RP-122007)
(Cov_Enh_LTE-Core, leading WG: RAN1, REL-12, started: Jun.13, closed: Jun.14, WID: RP-130833)
(LTE_TDD_eIMTA-Core, leading WG: RAN1, REL-12, started: Dec 12, closed: Jun.14, WID: RP-121772)
(SCM_LTE-Core, leading WG: RAN2, REL-12, started: Mar.14, closed: Sep.14, WID: RP-140434)

Including any LTE corrections related to the following joint UMTS/LTE WIs:

(SIMTC-RAN_OC-Core, leading WG: RAN2, REL-11, started: Sep.11, closed: Sep. 12, WID: RP-111373)
(eMDT_UMTSLTE-Core, leading WG: RAN2, REL-11, started: Sep.11, closed: Dec.12, WID: RP-121204)
(SONenh2_LTE_UTRA-Core, leading WG: RAN3, REL-11, started: Sep.11, closed: Dec.12, WID: RP-120314)
(rSRVCC-GERAN, leading WG: GERAN2, REL-11, started: Sep.11, closed: Nov.13, WID: GP-111290)
(EHNb_enh3-Core, leading WG: RAN3, REL-12, started: Sep.12, closed: Dec 13, WID: RP-130741)
(MTCe_RAN-Core, leading WG: RAN2, REL-12, started: Dec.13, closed: Sep.14, WID: RP-132053)
(UTRA_LTE_WLAN_interw-Core, leading WG: RAN2, REL-12, started: Dec.13, closed: Sep.14, WID: RP-132101)

(LTE_UTRA_IncMon-Core, leading: RAN4, REL-12, started: Dec.13, closed: Dec. 14, WID: RP-132061)

Including output from email discussion [98#41][LTE] NS extension (Nokia)

R2-1708477	Additional Spectrum Emission value range extension 36.331 10.20.0 2998 C Rel-10 TEI10	Nokia, Nokia Shanghai Bell	CR
	- Ericsson provide an alternative approach in R2-1709534 but it is quite different and can withdraw the proposal. - Nokia explain there could be a need to merge with PUCCH CRs - Samsung ask is a UE capability is needed for this. Nokia understand it will be related to band support so UEs with certain bands will need to support these extensions. Hence no UE capability signalling needed. => Check whether a merge with other CRs is needed. UE capability aspect can be discussed offline. (Offline discussion #29) => Revised in R2-1709836		
R2-1709836	Additional Spectrum Emission value range extension Rel-10 36.331 10.20.0 TEI10 2998 1 C	Nokia, Nokia Shanghai Bell	CR
	- Nokia explain it ws concluded not to add any UE capability information. => Agreed, but then revised: [MCC]: The cover sheet had wrong WI code (should be TEI10). => Agreed in R2-1709856.		
R2-1708478	Additional Spectrum Emission value range extension 36.331 11.17.0 2999 C Rel-11 TEI11	Nokia, Nokia Shanghai Bell	CR
	=> Revised in R2-1709837		
R2-1709837	Additional Spectrum Emission value range extension Rel-11 36.331 11.17.0 TEI11 2999 1 C	Nokia, Nokia Shanghai Bell	CR
	=> Agreed, but then revised: [MCC]: The cover sheet had wrong WI code and category. => Agreed in R2-1709857.		
R2-1708479	Additional Spectrum Emission value range extension 36.331 12.14.0 3000 C Rel-12 TEI12	Nokia, Nokia Shanghai Bell	CR
	=> Revised in R2-1709838		
R2-1709838	Additional Spectrum Emission value range extension Rel-12 36.331 12.14.0 TEI12 3000 1 C	Nokia, Nokia Shanghai Bell	CR
	=> Agreed, but then revised: [MCC]: The cover sheet had wrong WI code, category and spec version, => Agreed in R2-1709858.		
R2-1708480	Additional Spectrum Emission value range extension 36.331 13.6.1 3001 C Rel-13 TEI13	Nokia, Nokia Shanghai Bell	CR
	=> Revised in R2-1709839		
R2-1709839	Additional Spectrum Emission value range extension Rel-13 36.331 13.6.1 TEI13 3001 1 C	Nokia, Nokia Shanghai Bell	CR
	=> Agreed, but then revised: [MCC]: The cover sheet had wrong WI code and category. => Agreed in R2-1709859.		
R2-1708481	Additional Spectrum Emission value range extension 36.331 14.3.0 3002 C Rel-14 TEI14	Nokia, Nokia Shanghai Bell	CR
	=> Revised in R2-1709840		
R2-1709840	Additional Spectrum Emission value range extension Rel-14 36.331 14.3.0 TEI14 3002 1 C	Nokia, Nokia Shanghai Bell	CR

=> Agreed, but then revised:
 [MCC]: The cover sheet had wrong WI code and category.
 => Agreed in R2-1709860.

R2-1709841 [DRAFT] LS reply on extension of NS and CA_NS signalling space Nokia LS out Rel-14 TEI14
 To:RAN4

=> Approved in R2-1709977

R2-1709534 Extension of NS value in RRC signalling Ericsson discussion
 Rel-14 TEI14

=> Noted

Moved from 8.25 to 6

R2-1709535 DRAFT LS reply on extension of NS and CA_NS signalling space Ericsson discussion
 Rel-14 TEI14

Moved from 8.25 to 6

R2-1708030 Clarification on TAT restart without valid TA value MediaTek Inc. CR 36.321 12.9.0 1140
 F Rel-12 LTE_SC_enh_dualC-Core

- Huawei think the existing note is sufficient.
- LG think more checking is required.
- Nokia thinks it is aligned with the discussion we had in Rel-12

=> Offline discussion to conclude whether the CR is needed (MediaTek, Offline discussion #03)
 => Revised in R2-1709877

R2-1709877 Clarification on TAT restart without valid TA value MediaTek Inc. CR Rel-12 36.321
 12.9.0 LTE_SC_enh_dualC-Core 1140 1 F

=> Agreed

R2-1709878 Clarification on TAT restart without valid TA value MediaTek Inc. CR Rel-13 36.321
 LTE_CA_enh-Core, TEI12 1183 A

=> Revised to R2-1709932

R2-1709932 Clarification on TAT restart without valid TA value MediaTek Inc. CR Rel-13 36.321
 LTE_CA_enh-Core, TEI12 1183 1A

=> Agreed

R2-1709879 Clarification on TAT restart without valid TA value MediaTek Inc. CR Rel-14 36.321
 LTE_CA_enh-Core, TEI12 1184 A

=> Revised to R2-1709933

R2-17099933 Clarification on TAT restart without valid TA value MediaTek Inc. CR Rel-14 36.321
 LTE_CA_enh-Core, TEI12 1184 A

=> Agreed

R2-1708859 Correction on SR prohibit Huawei, HiSilicon, Nokia Shanghai Bell CR 36.321 12.9.0 1153
 F Rel-12 TEI12

- LG agree the current text is misleading and the CR is ok

=> Agreed

R2-1708872 Correction on SR prohibit Huawei, HiSilicon, Nokia Shanghai Bell CR 36.321 13.6.0 1154
 A Rel-13 TEI12

=> Agreed

R2-1708889 Correction on SR prohibit Huawei, HiSilicon, Nokia Shanghai Bell CR 36.321 14.3.0 1155
 A Rel-14 TEI12

=> Agreed

R2-1709015 Correction in PUSCH Config description Qualcomm Korea CR 36.331 12.14.0 3017
 F Rel-12 LTE_SC_enh_dualC-Core

=> Agreed

R2-1709010 Correction in PUSCH Config description Qualcomm Korea CR 36.331 13.6.1 3016
F Rel-13 LTE_CA_enh_b5C-Core, LTE_SC_enh_dualC-Core

=> Agreed

R2-1709021 Correction in PUSCH Config description Qualcomm Korea CR 36.331 14.3.0 3018
A Rel-14 LTE_CA_enh_b5C-Core, LTE_SC_enh_dualC-Core

=> Agreed

R2-1709050 Clarification on MBMS reception with 256QAM Intel Corporation CR 36.306
12.12.0 1496 F Rel-12 LTE_SC_enh_L1-Core

- LG wonder if there is a problem in Rel-14 as there could be UEs without any unicast capability but this CR would prevent this.

=> Impact analysis to be added to the cover page

=> Discuss offline the potential issue with the CR preventing a broadcast only UE. (Intel, Offline discussion #04).

=> Revised R2-1709852

R2-1709852 Clarification on MBMS reception with 256QAM Intel Corporation CR Rel-12
36.306 12.12.0 LTE_SC_enh_L1-Core 1496 1 F

=> Revised on R2-1709919

R2-1709919 Clarification on MBMS reception with 256QAM Intel Corporation CR Rel-12
36.306 12.12.0 LTE_SC_enh_L1-Core 1496 1 F

=> Agreed

R2-1709051 Clarification on MBMS reception with 256QAM Intel Corporation CR 36.306
13.6.0 1497 A Rel-13 LTE_SC_enh_L1-Core

=> Revised R2-1709853

R2-1709853 Clarification on MBMS reception with 256QAM Intel Corporation CR Rel-13
36.306 13.6.0 LTE_SC_enh_L1-Core 1497 1 A

=> Revised on R2-1709920

R2-1709920 Clarification on MBMS reception with 256QAM Intel Corporation CR Rel-13
36.306 13.6.0 LTE_SC_enh_L1-Core 1497 1 A

=> Agreed

R2-1709052 Clarification on MBMS reception with 256QAM Intel Corporation CR 36.306
14.3.0 1498 A Rel-14 LTE_SC_enh_L1-Core

=> Revised R2-1709854

R2-1709854 Clarification on MBMS reception with 256QAM Intel Corporation CR Rel-14
36.306 14.3.0 LTE_SC_enh_L1-Core 1498 1 A

=> Revised on R2-1709923

R2-1709923 Clarification on MBMS reception with 256QAM Intel Corporation CR Rel-14
36.306 14.3.0 LTE_SC_enh_L1-Core 1498 1 A

=> Agreed

R2-1709349 Correction on SR triggering Huawei, HiSilicon CR 36.321 12.9.0 1165
F Rel-12 TEI12

- Ericsson think it is not needed and the change is very confusing with and or in a single sentence.

- LG think this is already very clear from RRC.

=> Not pursued

R2-1709350 Correction on SR triggering Huawei, HiSilicon CR 36.321 13.6.0 1166
A Rel-13 TEI12

=> Not pursued

R2-1709351	Correction on SR triggering A Rel-14 TEI12 => Not pursued	Huawei, HiSilicon	CR	36.321	14.3.0	1167
R2-1709533	Secured redirect to GERAN Rel-12 TEI12 - Nokia think SA3 is still discussing other methods. For this approach the key part to be done is in CT1. Ericsson think there will need to be some procedure text in RRC. - Nokia suggest to wait for SA3 response and draft CRs at next meeting. => Wait for response from SA3 and CT1 before progressing. => Noted	Ericsson	discussion			
<i>Late</i>						
R2-1707812	Addition of extended NS values and correction to PUCCHConfig-Dedicated Shanghai Bell CR 36.331 13.6.1 2969 LTE_CA_enh_b5C-Core F Rel-13 TEI10,	Nokia, Nokia				
R2-1707813	Addition of extended NS values and correction to PUCCHConfig-Dedicated Shanghai Bell CR 36.331 14.3.0 2970 LTE_CA_enh_b5C-Core A Rel-14 TEI10,	Nokia, Nokia				
R2-1709213	Configuration continuity F Rel-10 TEI10	Nokia, Nokia Shanghai Bell	CR	36.331	10.20.0	3031
R2-1709214	Configuration continuity A Rel-11 TEI10	Nokia, Nokia Shanghai Bell	CR	36.331	11.17.0	3032
R2-1709215	Configuration continuity A Rel-12 TEI10	Nokia, Nokia Shanghai Bell	CR	36.331	12.14.0	3033
R2-1709216	Configuration continuity A Rel-13 TEI10	Nokia, Nokia Shanghai Bell	CR	36.331	13.6.1	3034
R2-1709217	Configuration continuity A Rel-14 TEI10	Nokia, Nokia Shanghai Bell	CR	36.331	14.3.0	3035
R2-1709556	Introduce a specific S1AP cause value for nonstandard UEs		CMCC	discussion		

7 LTE: Rel-13

7.1 WI: Licensed-Assisted Access using LTE

(LTE_LAA-Core, leading WG: RAN1, REL-13; started: June 15, closed: Dec. 15, WID: RP-151045)

R2-1708943	RRM Measurement Clarification on Discovery Signals for LAA 36.331 13.6.1 3013 F Rel-13 LTE_LAA-Core	Qualcomm Korea	CR			
	- Nokia think the intent is ok but the wording is very strange. Nokia understand that it is used also for RRM and not only for RRM. If DTMC is defined it should be used for CSI as well as RRM reporting. => Offline discussion to conclude the wording (Qualcomm, Offline discussion #05) => Revised in R2-1709875					
R2-1709875	RRM Measurement Clarification on Discovery Signals for LAA Rel-13 36.331 13.6.1 LTE_LAA-Core 3013 1 F	Qualcomm Incorporated	CR			
	=> Impact analysis to be added => Agreed in R2-1709924					
R2-1708972	RRM Measurement Clarification on Discovery Signals for LAA 36.331 14.3.0 3014 A Rel-14 LTE_LAA-Core	Qualcomm Incorporated	CR			
	=> Revised in R2-1709876					

R2-1709876 RRM Measurement Clarification on Discovery Signals for LAA Qualcomm Incorporated CR
 Rel-14 36.331 14.3.0 LTE_LAA-Core 3014 1 A
 => Change marks need to be used
 => Agreed in R2-1709922

7.2 WI: Further LTE Physical Layer Enhancements for MTC

(LTE_MTCe2_L1-Core, leading WG: RAN1, REL-13; started: Sep. 14, closed: Mar. 16, WID: RP-150492)

Documents in this agenda item will be handled in a break out session

Incoming LS

R2-1707635 LS on RSRP range (R4-1706175; contact: Huawei) RAN4 LS in Rel-13
 LTE_MTCe2_L1-Core To:RAN2
 => **Already treated last meeting, Noted**

Other

R2-1708242 Capability differentiation between CE and non-CE modes Qualcomm Incorporated discussion
 Rel-13 LTE_MTCe2_L1-Core
 - Intel has concerns with this proposal and don't think there is an issue, and would prefer to analyse this case by case and think capabilities can be introduced if needed. LG agrees with Intel.
 - LG think higher layer capabilities is the same for CE modes.
 - QC think that e.g. tm9 could be a capability that need differentiation.
 - Chair think that the only way forward is to treat the current problem cases specifically, i.e. the option 1, and there is no opposition to fixing specific issues.
 => **Noted**

R2-1709887 No support of TM9 in Rel-13 CE Mode Qualcomm Inc CR Rel-13 36.331 13.6.1
 LTE_MTCe2_L1-Core 3066 F
 - Intel have not been involved in offline and would like to check. Suggests email discussion to next meeting and the scope should include to identify the features which should be a first phase. Huawei agrees to discuss by email, have not seen this before.
 - Ericsson think the points of QC makes sense but would like to discuss details.
 - Nokia also agrees with the intention but are ok with an email discussion

R2-1709888 No support of TM9 in Rel-13 CE Mode Qualcomm Inc CR Rel-13 36.306 13.6.0
 LTE_MTCe2_L1-Core 1505 F

R2-1709889 TM9 capabilities in CE mode Qualcomm Inc CR Rel-14 36.306 14.3.0
 LTE_MTCe2_L1-Core 1506 F

R2-1709890 TM9 capabilities in CE mode CR Rel-13 36.331 14.3.0 LTE_MTCe2_L1-Core 3067
 F
 4 tdocs above for email approval:

✉ **[99#15][MTC] UE capabilities for tm9 (Qualcomm)**
 Objective to discuss and agree CRs to 36.331 and 36.306 for Rel-13 and Rel-14, based on R2-1709887, R2-1709888, R2-1709889, R2-1709890
 => The CRs are agreed in R2-1709985, R2-1709986, R2-1709987 and R2-1709988.

R2-1708354 Clarification on SI repetition pattern NTT DOCOMO INC. CR Rel-13 36.331
 13.6.1 LTE_MTCe2_L1-Core, NB_IOT-Core 2991 F
 - Intel think this has been discussed several times, so they have sympathy for this, as we should have this change. LG also support. ZTE also support.
 - Blackberry also think there is room for improvement as the reference for the transmission seems missing.

- Nokia think that there should not be two “starting” in the NB-IoT text. This is confusing. Nokia think we should be careful to not change rel-8 texts.
- QC think this is already quite clear, and that the suggested change actually makes it less clear. If we change we should have a different wording. Huawei think nothing need to be clarified.
- QC would prefer to include the following: “The first transmission of the SI message happens in the first radio frame of the SI window”
- Huawei think this is not critical and would like to not have it for Rel-13.

⇒ **We aim to make clarification for NB-IoT and MTC, while we don’t change Rel-8 text.**

⇒ **Revised in R2-1709708 (rev 1)**

R2-1709708 Clarification on SI repetition pattern NTT DOCOMO INC. CR Rel-13 36.331
13.6.1 LTE_MTCe2_L1-Core, NB_IOT-Core 2991 1 F

- In the first and second changes remove the word “repetition”, and add a “the” in front of “SI message”.
- Huawei think that now the text is so similar to the original text so it is not useful to change.

⇒ **Revised in R2-1709732 (rev 2) which is agreed unseen.**

R2-1708355 Clarification on SI repetition pattern NTT DOCOMO INC. CR Rel-14 36.331
14.3.0 LTE_MTCe2_L1-Core, NB_IOT-Core 2992 A

⇒ **Revised in R2-1709709 (rev 1)**

R2-1709709 Clarification on SI repetition pattern NTT DOCOMO INC. CR Rel-14 36.331
14.3.0 LTE_MTCe2_L1-Core, NB_IOT-Core 2992 A

⇒ **Revised in R2-1709970 (rev 2) which is agreed unseen.**

R2-1709189 Clarification on the freqHoppingParametersDL during handover Intel Corporation CR
Rel-13 36.331 13.6.1 LTE_MTCe2_L1-Core 3024 F

- Proposal in the CR is 1.a
- The current issue that need code OR triggers the UE to release the value even though it might be provided by another way.
- Ericsson wonders if we could have condition HO2 instead as HO is used elsewhere.
- Cover page should only describe the problem/solution in the CR.

⇒ **There is an issue, and we will fix it.**

⇒ **Revised in R2-1709710 (rev 1)**

R2-1709710 Clarification on the freqHoppingParametersDL during handover Intel Corporation CR
Rel-13 36.331 13.6.1 LTE_MTCe2_L1-Core 3024 1 F

- Intel clarifies that the RRC rapporteur has reviewed the CRs.

⇒ **Agreed**

R2-1709190 Clarification on the freqHoppingParametersDL during handover Intel Corporation CR
Rel-14 36.331 14.3.0 LTE_MTCe2_L1-Core 3025 A

⇒ **Revised in R2-1709711 (rev 1)**

R2-1709711 Clarification on the freqHoppingParametersDL during handover Intel Corporation CR
Rel-14 36.331 14.3.0 LTE_MTCe2_L1-Core 3025 A

⇒ **Agreed**

R2-1709191 Clarification on rsrp-ThresholdsPrachInfoList during handover Intel Corporation CR
Rel-13 36.331 13.6.1 LTE_MTCe2_L1-Core 3026 F

- QC and Huawei think that condition MP should be used instead.

⇒ **Revised in R2-1709712 (rev 1)**

R2-1709712	Clarification on rsrp-ThresholdsPrachInfoList during handover Rel-13 36.331 13.6.1 LTE_MTCe2_L1-Core 3026 1	Intel Corporation F	CR
	⇒ agreed		
R2-1709192	Clarification on rsrp-ThresholdsPrachInfoList during handover Rel-14 36.331 14.3.0 LTE_MTCe2_L1-Core 3027 A	Intel Corporation	CR
	⇒ Revised in R2-1709713 (rev 1)		
R2-1709713	Clarification on rsrp-ThresholdsPrachInfoList during handover Rel-14 36.331 14.3.0 LTE_MTCe2_L1-Core 3027 1	Intel Corporation A	CR
	⇒ agreed		
R2-1709196	Clarification on number of RACH CE levels vs number of RSRP thresholds CR Rel-13 36.321 13.6.0 LTE_MTCe2_L1-Core 1161 F	Intel Corporation	
	- Chair wonders if this is a case of wrong configuration or not? - Huawei clarifies that the clarification was done in MAC for NB-IoT because for RRC there is no concept of CE levels.		
	⇒ Preference to have clarification in RRC instead of MAC, if needed.		
	⇒ Not pursued		
	⇒ RRC CR in R2-1709714 / R2-1709715		
R2-1709197	Clarification on number of RACH CE levels vs number of RSRP thresholds CR Rel-14 36.321 14.3.0 LTE_MTCe2_L1-Core 1162 A	Intel Corporation	
	⇒ Not pursued		
R2-1709714	Clarification on number of RACH CE levels vs number of RSRP thresholds CR Rel-13 36.331 13.x.x LTE_MTCe2_L1-Core xxxx F	Intel Corporation	
	⇒ Agreed		
R2-1709715	Clarification on number of RACH CE levels vs number of RSRP thresholds CR Rel-14 36.331 14.x.x LTE_MTCe2_L1-Core xxxx A	Intel Corporation	
	⇒ Agreed , but then revised: [MCC]: The coversheet is for Rel-13, needs an update.		
	⇒ Agreed in R2-1709759.		
R2-1709198	Adding reference to SystemInformationBlockType1-BR to the section on cell status and cell reservations Intel Corporation CR Rel-13 36.304 13.6.0 LTE_MTCe2_L1-Core 0385 F		
	⇒ Agreed		
R2-1709199	Adding reference to SystemInformationBlockType1-BR to the section on cell status and cell reservations Intel Corporation CR Rel-14 36.304 14.3.0 LTE_MTCe2_L1-Core 0386 A		
	⇒ Agreed , but then revised: [MCC]: Wrong CR number, should be 0386		
	⇒ Agreed in R2-1709757		
R2-1709200	Clarification on Bandwidth Reduced operation 36.331 13.6.1 LTE_MTCe2_L1-Core 3029 F	Intel Corporation	CR Rel-13
	- Ericsson think many of the changes are not needed. - Chair think the conditions need to be changed. - QC would be ok with the first change		

- Chair think that the main problem is just that UE in CE should regard the cell as barred only as long as the UE is in CE. Huawei think this is clear already, as it refers to "UE in CE".

⇒ **Revised in R2-1709730**

R2-1709730 Clarification on Bandwidth Reduced operation Intel Corporation CR Rel-13
36.331 13.6.1 LTE_MTCe2_L1-Core 3029 F

First change

- Nokia think that the first change in not needed and that the previous text is clear.
- Intel clarifies also that the "for CE operation" refers to both UEs in enhanced coverage and UEs in normal coverage using reduced bandwidth.
- Chair think that the current text doesn't work for the case of UEs in normal coverage using reduced bandwidth.
- Nokia think that "barred for CE operation does not cover the intention and is unclear"
- Intel proposes to change "for CE operation" to "for BR operation" for clarity, but could also be OK to just remove the word "operation".
- "in CE" when the UE is in normal coverage is unclear but can be clarified later.
- QC think we can make the changes at next meeting.
- Huawei think that we agree that the UE should not bar WB operation.

Second change

- Seems ok to everyone

⇒ **Agree that we correct the second change now, postpone the first**

⇒ **Revised in R2-1709808 (rev 2)**

R2-1709808 Clarification on Bandwidth Reduced operation Intel Corporation CR Rel-13
36.331 13.6.1 LTE_MTCe2_L1-Core 3029 2 F

⇒ **Agreed unseen**

R2-1709201 Clarification on Bandwidth Reduced operation Intel Corporation CR Rel-14
36.331 14.3.0 LTE_MTCe2_L1-Core 3030 A

⇒ **revised**

R2-1709809 Clarification on Bandwidth Reduced operation Intel Corporation CR Rel-14
36.331 14.3.0 LTE_MTCe2_L1-Core 3030 2 A

⇒ **Agreed unseen**, but then revised:

[MCC]: Wrong revision number

=> Agreed in R2-1709824.

☒ **[99#40][MTC] Email discussion on UE in CE (Intel)**

Objective to clarify UE in CE and the Tentative Issue that a UE in CE may bar a cell also for non-CE/BR operation.

R2-1709195 Clarification on systemInformationBlockType2Dedicated Intel Corporation CR
Rel-14 36.331 14.3.0 LTE_MTCe2_L1-Core 3028 F

The above tdoc was moved to this AI

- LG wonders if there is a problem when this is included in Handover
- Intel think that there would be ambiguity that UE receives the same information by two different fields, and if we introduce this condition we don't need to specify how the UE shall behave.

⇒ **Agreed**

R2-1709253 Clarification on UE behaviour for Contention Resolution with Padding Qualcomm
Incorporated CR Rel-14 36.321 14.3.0 LTE_feMTC-Core 1164 F

- LG think that the NOTE should be only for MTC. QC agrees. Ericsson disagrees. The note should be general.

- Huawei wonder if this is likely to happen in practice.
- Blackberry think a Note should not have the word "shall"
- Format should be NOTE: ...
- Check spelling.

⇒ **Revised in R2-1709716 (rev 1)**

R2-1709716 Clarification on UE behaviour for Contention Resolution with Padding Qualcomm
Incorporated CR Rel-14 36.321 14.3.0 LTE_feMTC-Core 1164 1 F
⇒ **Agreed**

R2-1709289 Target cell optional PBCH repetition status indication Qualcomm Incorporated CR Rel-
14 36.331 14.3.0 LTE_feMTC-Core 3037 F
- Intel wonders if this is related to SFN CR, and if related why not use the HO condition for SFN that was used? QC explains that SFN can be same but PBCH repetitions can be same or different. QC think it is not related to the SFN.
- Huawei think this is pointless to have a separate indication, and that the same-SFN indication is exactly to not need to read MIB.
- Ericsson wonders if this is an optimization or a correction? Ericsson think it works without it.
- Chair wonders if companies are ready to agree that same SFN indication would also have the meaning of same PBCH repetition pattern? Intel think this is OK. Ericsson think not. Ericsson would like to think more. Huawei may be ok with that.
After offline
- QC think there could be consensus now, maybe except for Huawei. Ericsson agree with the QC proposal.
- Huawei agree there is unclarity and agree the UE should know.
- Chair wonders if this is useful to have two bits. LG think "same-SFN" indication would be sufficient.
⇒ **The UE should know whether PBCH/MIB need to be acquired in the target cell**
⇒ **postpone**

R2-1709379 Corrections on TS 36.321 for Rel-13 MTC Huawei, HiSilicon CR Rel-13 36.321
13.6.0 LTE_MTCe2_L1-Core, NB_IOT-Core 1175 F
- LG think that for the first change SL should maybe not be mentioned. Huawei agrees.
- Intel think that for the first change this is already clear in the DRX section.
- QC think that for the first change it should refer to PDCCH reception.
- QC think that CE level is sufficiently clear.
- Ericsson think that we had CE-level in MAC but was changed to coverage level to avoid collision with control element.
⇒ **First change: Remove SL and add "reception" after PDCCH**
⇒ **Revised in R2-1709717 (rev 1)**

R2-1709717 Corrections on TS 36.321 for Rel-13 MTC Huawei, HiSilicon CR Rel-13 36.321
13.6.0 LTE_MTCe2_L1-Core, NB_IOT-Core 1175 1 F
⇒ **agreed**

R2-1709380 Corrections on TS 36.321 for Rel-13 MTC Huawei, HiSilicon CR Rel-14 36.321
14.3.0 LTE_MTCe2_L1-Core, NB_IOT-Core 1176 A
⇒ **Revised in R2-1709718 (rev 1)**

R2-1709718 Corrections on TS 36.321 for Rel-13 MTC Huawei, HiSilicon CR Rel-14 36.321
14.3.0 LTE_MTCe2_L1-Core, NB_IOT-Core 1176 1 A
⇒ **agreed**

R2-1709381 Corrections on TS 36.331 for Rel-13 MTC Huawei, HiSilicon CR Rel-13 36.331
13.6.1 LTE_MTCe2_L1-Core 3043 F

- QC think the first correction is not correct.
- Ericsson wonders what is the default value n3. Huawei and QC confirms that this was a R1 decision.
- Spelling error in the FD for prach-StartingSubframe: determined

⇒ **Check the first change offline (offline disc 309), fix the spelling mistake**

⇒ **Revised in R2-1709719 (rev 1)**

R2-1709719 Corrections on TS 36.331 for Rel-13 MTC Huawei, HiSilicon CR Rel-13 36.331
13.6.1 LTE_MTCe2_L1-Core 3043 1 F

- QC wonders if the network repeats in both subframes or can repeat in only one but not the other. Huawei think that either the additional repetitions are performed in all repetition "occasions" or not at all.
- Huawei think that the QC question is related to R1 TSes.
- Chair think that companies can check whether this is specified in R1 specs or not and bring contributions if there is a need to add something. The current tdoc doesn't attempt to clarify this aspect.

⇒ **Agreed**

R2-1709382 Corrections on TS 36.331 for Rel-13 MTC Huawei, HiSilicon CR Rel-14 36.331
14.3.0 LTE_MTCe2_L1-Core 3044 A

⇒ **Revised in R2-1709720 (rev 1)**

R2-1709720 Corrections on TS 36.331 for Rel-13 MTC Huawei, HiSilicon CR Rel-14 36.331
14.3.0 LTE_MTCe2_L1-Core 3044 1 A

⇒ **Agreed**

R2-1709383 Corrections on logical channel for Rel-13 MTC Huawei, HiSilicon CR Rel-13
36.322 13.3.0 LTE_MTCe2_L1-Core 0128 F

- QC wonders if this is a Cat F CR. Chair think Cat F is ok

⇒ **Agreed**

R2-1709384 Corrections on logical channel for Rel-13 MTC Huawei, HiSilicon CR Rel-14
36.322 14.0.0 LTE_MTCe2_L1-Core 0129 A

⇒ **Agreed**, but then revised:

[MCC]: Wrong spec version

⇒ **Agreed in R2-1709758**

R2-1709385 Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC and NB-IoT
Huawei, HiSilicon CR Rel-13 36.331 13.6.1 LTE_MTCe2_L1-Core, NB_IOT-Core
3045 F

- LG would like to correct a spelling mistake in 5.2.1.3, "that" should be "than".
- Blackberry think the text is unclear.
- Intel like the CR but think it is not consistent with agreements, as UEs could be capable to receive ETWS and CMAS, and could receive this although not mandated. Intel think we have agreed to not preclude this.

⇒ **postponed**

R2-1709726 Paging monitoring in RRC_CONNECTED in Rel-13 MTC Huawei, HiSilicon

- Huawei's main point is that paging and CMAS/ETWS in connected would at best be unreliable.
- Intel has now checked and would be ok with the proposal.
- Ericsson think that the network doesn't know this UE capability and cannot release the correct UEs to Idle for.
- Docomo think that UEs in Connected shall be able to receive ETWS. Propose to postpone

⇒ **Postpone this discussion**

⇒ **noted**

R2-1709386 Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC and NB-IoT
Huawei, HiSilicon CR Rel-14 36.331 14.3.0 LTE_MTCe2_L1-Core, NB_IOT-Core
3046 A

⇒ **postponed**

R2-1709387 Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC and NB-IoT
Huawei, HiSilicon CR Rel-13 36.300 13.8.0 LTE_MTCe2_L1-Core, NB_IOT-Core
1054 F

⇒ **postponed**

R2-1709388 Corrections on paging monitoring in RRC_CONNECTED in Rel-13 eMTC and NB-IoT
Huawei, HiSilicon CR Rel-14 36.300 14.3.0 LTE_MTCe2_L1-Core, NB_IOT-Core
1055 A

⇒ **postponed**

7.3 WI: Narrowband IOT

(NB_IOT-Core; leading WG: RAN1; started: Sep. 15; target: Jun. 16; WID: RP-152284)

Documents in this agenda item will be handled in a break out session

Incoming LS

R2-1707611 Monitoring of partial NPDCCH search spaces (R1-1709716; contact: Qualcomm) RAN1 LS in
Rel-13 NB_IOT-Core To:RAN2

⇒ **Already treated and responded to at last meeting**

R2-1709882 Support of early contention resolution in NB-IoT (R1-1714719; contact: Qualcomm)

- QC clarifies that early contention resolution means that contention resolution ID is sent by itself in a separate DL transmission.
- QC think there will need to be a CR to 36.300 for this and will bring a proposal to next meeting.
- Some discussion followed, the problem is that CSS is not monitored after RACH procedure end so the RRC message that configured USS must be sent together with contention resolution ID. This dependency between L1 and L2 is only for NB-IoT

⇒ **We take this into account.**

⇒ **Noted**

Other

R2-1707861 RoHC profile support for CIoT-only NB-IoT UE Qualcomm Incorporated CR Rel-13
36.306 13.6.0 NB_IOT-Core 1485 F

⇒ **agreed**

R2-1707862 RoHC profile support for CIoT-only NB-IoT UE Qualcomm Incorporated CR Rel-14
36.306 14.3.0 NB_IOT-Core 1486 A

⇒ **agreed**

R2-1708311 Clarification that DL only bands are not supported in NB-IoT Huawei, HiSilicon CR
Rel-13 36.331 13.6.0 NB_IOT-Core 2988 F

⇒ **agreed**

R2-1708312 Clarification that DL only bands are not supported in NB-IoT Huawei, HiSilicon CR
Rel-14 36.331 14.3.0 NB_IOT-Core 2989 A

⇒ **agreed**

- R2-1709182 RAR reception for NB-IoT Nokia, Nokia Shanghai Bell CR Rel-13 36.321 13.6.0
NB_IOT-Core 1159 F
- Huawei think we discussed this in Rel-13 and we rejected it then. Furthermore it seems non-backwards compatible. The backwards incompatibility is in the assumption on eNB scheduling after RAR.
 - Nokia wonders what are the consequences of not agreeing this. Will there be cases when the UE cannot successfully complete RACH. Huawei think RACH still works. QC think that there are cases when PDCCH and PDSCH cannot be sent within the window. LG also support the Nokia proposal.
 - LG wonders if Huawei think this can work due to early scheduling in the RAR window.
 - Huawei think PDSCH rx should start in the RAR window ..
 - ZTE also think that the issue is a corner case.
- After Offline:
- Nokia reports that there is significant support to fix this for rel-14 but there are concerns for Rel-13. ZTE has indicated that there might be R1 impact.
- ⇒ **There is a problem and we will fix it.**
- ⇒ **The Rel-13 CR is not pursued**
- R2-1709183 RAR reception for NB-IoT Nokia, Nokia Shanghai Bell CR Rel-14 36.321 14.3.0
NB_IOT-Core 1160 A
- Huawei suggests that the cover page should be updated. The impact looks worse from the text than it really is.
- ⇒ **We do this only in Rel-14.**
- ⇒ **We also need a R1 CR. We send a short LS ASAP, and hopefully R1 can agree a CR (e.g. by email). Attach the agreed R2 CR.**
- ⇒ **Revised in R2-1709900 (rev 1)**
- R2-1709900 RAR reception for NB-IoT Nokia, Nokia Shanghai Bell CR Rel-14 36.321 14.3.0
NB_IOT-Core 1160 1 F
- ⇒ **Agreed, but should be accompanied by a corresponding RAN1 CR.**
- ⇒ **After agreement it was found that the wrong WI code is used, but this CR has already been attached to an outgoing LS. Will ask secretary update the WI code for the plenary CR.**
- R2-1709901 Draft LS on RAR reception for NB-IoT to R1 LSout Nokia, Nokia Shanghai Bell
- ⇒ **Remove the 2nd sentence.**
- ⇒ **Approved with change, final version in R2-1709902**
- R2-1709345 Suspend and Resume procedure HTC Corporation CR Rel-13 36.304 13.6.0
NB_IOT-Core 0387 F
- Vodafone think the justification implies larger change.
 - Huawei think that if the UE tries to resume and it doesn't work the eNB can fallback to establishment.
 - QC think that NAS decides whether UE does establishment or resume.
 - LG think that this is not needed.
- ⇒ **Not pursued**
- R2-1709348 Suspend and Resume procedure HTC Corporation CR Rel-14 36.304 14.3.0
NB_IOT-Core 0388 A
- ⇒ **Not pursued**

7.4 Other LTE Rel-13 WIs

Including corrections related to the following WIs:

(LTE_LAA-Core, leading WG: RAN1, REL-13; started: June 15, closed: Dec. 15, WID: RP-151045)
 (LTE_CA_enh_b5C-Core, leading WG: RAN1, REL-13; started: Dec. 14, closed: Dec. 15, WID: RP-151984)
 (LTE_SC_PTM-Core, leading WG: RAN2, REL-13; started: June 15, closed: Dec. 15, WID: RP-151110)
 (LTE_eD2D_Prox-Core, leading WG: RAN2, REL-13; started: Dec. 14, closed: Mar. 16, WID: RP-150441)
 (LTE_MC_load-Core, leading WG: RAN2, started: Mar. 15, closed: Dec. 15, WID: RP-152181)
 (LTE_dualC_enh-Core, leading WG: RAN2, started: Mar. 15, closed: Dec. 15, WID: RP-151739)
 (LTE_extDRX-Core; leading WG: RAN2; started: Mar. 15; closed: Mar. 16; WID: RP-150493)
 (LTE_EBF_FDMIMO-Core; leading WG: RAN1; started: June. 15; closed: Dec. 15; WID: RP-151085)
 (LTE_eMDT2-Core; leading WG: RAN2; started: Sep. 15; closed: Dec 15; WID: RP-151611)
 (UTRA_LTE_iPos_enh-Core; leading WG: RAN2; started: Sep. 15; closed: Dec 15; WID: RP-152251)
 (LTE_WLAN_radio-Core, leading WG: RAN2, started: Mar. 15, closed: Mar. 16, WID: RP-152213)
 (LTE_WLAN_radio_legacy-Core; leading WG: RAN2; started: Sep. 15; closed: Mar 15; WID: RP-151615)

Including any LTE corrections related to the following joint UMTS/LTE WIs:

(ACDC-RAN-Core; leading WG: RAN2; REL-13; started: Mar. 15; closed: Dec. 15; RP-150662)

Including output from email discussion [98#42][LTE/Rel13] PUCCH-ConfigDedicated (Nokia)

R2-1707833	Clarification to PUCCH-ConfigDedicated 13.6.1 2806 2 F Rel-13 LTE_CA_enh_b5C-Core	Nokia, Nokia Shanghai Bell	CR	36.331
	=> Impact analysis to be clarified.			
	=> To be merged with CR on NS value extension in R2-1708477 (Nokia, Offline discussion #06). Merged CR should have an appropriate title to cover both issues.			
	=> UE capabilities to be considered offline.			
	=> Revised R2=1709892			
R2-1709892	Correction to PUCCH-ConfigDedication 36.331 13.6.1 LTE_CA_enh_b5C-Core 2806 3 F	Nokia, Nokia Shanghai Bell	CR	Rel-13
	- After further offline it was concluded that it was not needed to merge the CRs.			
	= >Agreed, but then revised:			
	[MCC]: Wrong tdoc number in the zip file (i.e., the tdoc and zip file have different numbers).			
	=> Agreed in R2-1709897.			
R2-1707834	Clarification to PUCCH-ConfigDedicated 14.3.0 2807 2 F Rel-14 LTE_CA_enh_b5C-Core	Nokia, Nokia Shanghai Bell	CR	36.331
	=> Revised in R2-1709893			
R2-1709893	Correction to PUCCH-ConfigDedication 36.331 14.3.0 LTE_CA_enh_b5C-Core 2807 3 F	Nokia, Nokia Shanghai Bell	CR	Rel-14
	=> Agreed, but then revised:			
	[MCC]: Wrong tdoc number in the zip file (i.e., the tdoc and zip file have different numbers).			
	=> Agreed in R2-1709898.			
R2-1707997	Correction on eCA with Dual Connectivity Rel-13 LTE_CA_enh_b5C-Core	ROHDE & SCHWARZ	discussion	
	- Nokia think the problem is in the field description only. Suggest a better wording can be found.			
	=> Offline discussion to find good clarification for the field description (R+S, Offline discussion #07)			

=> CRs in R2-1709701 36.331 R13 CR 3056, R2-1709702 36.331 R14 CR 3057

R2-1709701 Correction on eCA with Dual Connectivity ROHDE & SCHWARZ CR Rel-13 36.331
LTE_CA_enh_b5C-Core 3056 F

=> Agreed

R2-1709702 Correction on eCA with Dual Connectivity ROHDE & SCHWARZ CR Rel-14 36.331
LTE_CA_enh_b5C-Core 3057 A

=> Agreed

R2-1708372 Discussion on SFN mismatch issue NTT DOCOMO INC. discussion
LTE_extDRX-Core

- LG wonders if the problem is severe. With this analysis the problem can occur once in a month. Think a long interruption would be acceptable for this kind of UE.
- Intel do not see this as a critical issue to address. Wonder what is the urgency to apply the new system information for this case.
- Nokia think there could be other use cases for this proposed flag. Also wonder if the UE can even receive paging when there is an SFN mismatch.
- DOCOMO think the interruption is not acceptable. A UE with eDRX of 5 minutes would not be able to receive paging for 3 hours.
- Huawei think it can be addressed by UE implementation.
- Softbank think the interruption would not be acceptable even if it is rare.
- MediaTek think the UE will often to a pre-wake up to resync with the network but we never cover this in the spec.

=> Offline discussion to try to conclude (DOCOMO, Offline discussion #08)

- Update from offline: There is common understanding that the mis-match can happen. Some UE vendors say the UE implementations will acquire MIB and in these cases the issue will not happen. Some companies also felt the issue would not happen in synchronised network, but can in unsynchronised network.
- Intel think the issue can also be addressed by network in an unsynchronised case
- Qualcomm think it is not a good idea to force the UE to reacquire.

=> RAN confirm that this problem can occur in some cases.

R2-1708526 Introduction of systemInfoModification-eDRX-SFN NTT DOCOMO INC. CR 36.331
14.3.0 3003 B Rel-14 LTE_extDRX-Core

R2-1708527 Introduction of systemInfoModification-eDRX-SFN NTT DOCOMO INC. CR 36.306
14.3.0 1495 B Rel-14 LTE_extDRX-Core

R2-1708760 Truncated eDRX cycle at H-SFN wrap around Nokia, Nokia Shanghai Bell, Softbank
discussion Rel-13 LTE_extDRX-Core

- DOCOMO confirm this is the correct understanding. Huawei also agree with the understanding and add that actually this case cannot happen in NB-IoT

=> RAN2 understanding is that PH calculation according to the formula from 36.304 other than using incremental of eDRX cycle value after the initial calculation, hence it is possible to have a truncated eDRX cycle or an extended eDRX cycle at H-SFN wrap around boundary when the eDRX cycle value is not divisible by 1024.

R2-1709039 Clarification on PUCCH SCell configuration Intel Corporation discussion
LTE_CA_enh_b5C-Core

- Ericsson is not against this but would prefer to avoid eNB requirements. Suggest to discuss to find some good text.
 - Qualcomm think more clarification of the observation 3 is needed. Wonders whether this implies autonomous remapping. Intel think autonomous remapping is only applies for one case of PUCCH SCell to SCell, but it is not described in the spec.
 - Nokia think there should be no problems as we agreed the eNB should do a release and add.
- => Offline discussion to conclude (Intel, Offline discussion #09)
- Update from offline: Draft CR was provided but little feedback received. Intention seems to be agreeable.

✉ **[99#03][LTE/CA] Clarification on PUCCH SCell configuration (Intel)**

Intended outcome: Agreed CR

Deadline: Thursday 2017-08-31

=> The CRs are agreed in R2-1709748, R2-1709749, R2-1709750, R2-1709751,

R2-1709040 Unnecessary mandatory IE in UE capability signaling Intel Corporation discussion
LTE_CA_enh_b5C-Core

- Nokia think this should have been optional but all the content is optional and hence the signalling is not broken, but just inefficient. To fix this would be an optimisation which then would not be Rel-13.
- Samsung thought it was 3 bits per cell and hence ok. Intel clarify that it is 7 bits per carrier which could add up to be significant.
- Ericsson has some sympathy with the change but would like to discuss during the week.
- => Offline discussion to conclude (Intel, Offline discussion #10)
- Update from offline: Message size estimates were provided for discussion.

✉ **[99#19][LTE/] Unnecessary mandatory IE in UE capability signalling (Intel)**

Progress the issue to the next meeting

Intended outcome: Report and possible CR to the next meeting

Deadline: Thursday 2017-09-21

8 LTE Rel-14

8.1 WI: Enhanced LAA for LTE

(LTE_eLAA-Core; leading WG: RAN1; REL-14; started: Dec. 15; closed: Mar. 17; WID:RP-162229)

This agenda item is for correction CRs to the closed WI.

Documents in this agenda item will be handled in a break out session

R2-1708890 Correction on eLAA Huawei, HiSilicon CR Rel-14 36.321 14.3.0 LTE_eLAA-
Core 1156 F
=> The CR is agreed

R2-1709347 Correction to eLAA configuration HTC Corporation CR Rel-14 36.331 14.3.0
LTE_eLAA-Core 3041 F
[CB]

8.2 WI: Support for V2V services based on LTE sidelink

(LTE_SL_V2V-Core; leading WG: RAN1; started: Dec. 15; closed: Sept 16; WID: RP-161603)

This agenda item is for correction CRs to the closed WI.

Documents in this agenda item will be handled in a break out session

R2-1709195 Clarification on systemInformationBlockType2Dedicated Intel Corporation CR Rel-
14 36.331 14.3.0 LTE_feMTC-Core 3028 F
=> Not treated

8.2.1 User plane

8.2.2 Control plane

- R2-1707710 Correction on SPS assistance information in TS 36.331 36.331 OPPO CR Rel-14 36.331
 14.3.0 LTE_SL_V2V-Core 2961 F
 => The CR is revised in R2-1709790
- R2-1709790 Correction on SPS assistance information in TS 36.331 36.331 OPPO CR Decision
 36.331 2961 1 F LTE_SL_V2V-Core Rel-14
 => The CR is agreed, but then revised:
 [MCC]: Source to TSG is empty.
 => Agreed in R2-1709820.

8.3 Void

8.4 Void

8.5 WI: Enhanced LTE-WLAN Aggregation (eLWA)

(LTE_WLAN_aggr-Core; leading WG: RAN2; REL-14; started: Mar. 16; closed: Mar. 17; WID: RP-160923)

This agenda item is for correction CRs to the closed WI.

- R2-1707658 Reply LS on on providing WT MAC address to the UE using eNB signalling (S3-171528; contact: Intel) SA3 LS in Rel-15 LTE_WLAN_aggr-Core
 => Noted
- R2-1709046 Clarification on WLAN-SuspendConfig field description Intel Corporation CR
 36.331 14.3.0 3019 F Rel-14 LTE_WLAN_aggr-Core
 - Nokia wonder whether the previous wording was wrong. Intel thing this just aligned to the conventions used in the spec.
 => Can align with wording used elsewhere for similar cases.
 => Revised in R2-1709733 (Offline discussion #11)
- R2-1709733 Clarification on WLAN-SuspendConfig field description Intel Corporation CR
 36.331 14.3.0 3019 F Rel-14 LTE_WLAN_aggr-Core
 => Not pursued

8.6 WI: Further mobility enhancements in LTE

(LTE_eMob-Core; leading WG: RAN2; REL-14; started: Mar. 16; closed: Mar. 17; WID: RP-162503)

This agenda item is for correction CRs to the closed WI

Documents in this agenda item will be handled in a break out session

- R2-1708385 Discussion on TAT in RACH-less handover Huawei, HiSilicon discussion Rel-14
 LTE_eMob-Core
 => Noted
- R2-1708386 Correction on TAT in RACH-less handover in 36.321 Huawei, HiSilicon CR Rel-14
 14 36.321 14.3.0 LTE_eMob-Core 1144 F
 - Samsung think it in principle is fine.
 => Improve the wording
 => Revised in R2-1709735. Offline number is 200. **CB on Friday**



R2-1708387	Correction on TAT in RACH-less handover in 36.331 14 36.331 14.3.0 LTE_eMob-Core 2994 F	Huawei, HiSilicon	CR	Rel-14
	- Samsung would like to know the relation between this CR and the issue.			
	- Nokia think removing the action is not proper.			
	=> Find a better way rather than removing the action.			
	CBF: => Revised in R2-1709736 (offline 201)			
R2-1708974	Correction of RACH-less handover LTE_eMob-Core 1032 2 F	Kyocera	CR	Rel-14 36.300 14.3.0
	- Qualcomm think it is not necessary.			
	- Samsung support the clarification.			
	- Intel suggest offline discussion for better wording.			
	CBF: => Revised in R2-1709737 for better wording. (offline 202)			
R2-1708388	Correction on SR trigger in RACH-less handover 36.321 14.3.0 LTE_eMob-Core 1145 F	Huawei, HiSilicon	CR	Rel-14
	=> Not pursued			
R2-1709503	Discussion on SR trigger in RACH-less handover discussion Rel-14 LTE_eMob-Core	HUAWEI Technologies Japan K.K.		
	- Intel thin the change is not needed.			
R2-1709810	Clarification of the PTAG value for the RACH-less handover 36.331 14.3.0 F LTE_eMob-Core	Samsung	CR#3059	
	=> CR is agreed			

8.7 WI: Further Indoor Positioning enhancements for UTRA and LTE

(UTRA_LTE_iPos_enh2-Core; leading WG: RAN2; REL-14; started: Mar. 16; closed: Dec. 16; WID: RP-162026)

This agenda item is for correction CRs to the closed WI

Documents in this agenda item will be handled in a break out session

8.8 WI: L2 latency reduction techniques for LTE

(LTE_LATRED_L2-Core; leading WG: RAN2; REL-14; started: Mar. 16; closed: Sep. 16; WID: RP-160667)

This agenda item is for correction CRs to the closed WI

Documents in this agenda item will be handled in a break out session

8.9 Void

8.10 WI: eMBMS enhancements for LTE

(MBMS_LTE_enh2-Core; leading WG: RAN1; REL-14; started: Mar. 16; target: Sep. 17; WID:RP-162231)

This agenda item is for correction CRs to the WI that is completed from RAN2 point of view.

Documents in this agenda item will be handled in a break out session

R2-1707866	Correction of MBMS-dedicated cell definition 36.300 14.3.0 MBMS_LTE_enh2-Core 1043 F	Qualcomm Incorporated	CR	Rel-14
	=> Withdrawn			
R2-1709632	Correction of MBMS-dedicated cell definition 36.300 14.3.0 MBMS_LTE_enh2-Core 1057 F	Qualcomm Incorporated	CR	Rel-14
	=> Add the impact analysis			
	=> With the change above, the CR is agreed in R2-1709738.			

8.11 WI: Enhancements of NB-IoT

(NB_IOTenh-Core; leading WG: RAN1; REL-14; started: June 16; closed: Jun. 17; WID: RP-171060)

This agenda item is for correction CRs to the closed WI

Note: SC-PTM for eNB-IoT is handled under 8.12.1

Documents in this agenda item will be handled in a break out session

Incoming LS

- R2-1707605 LS on Solution 9 (Option 2) for CN overload control for CP data (C1-172759; contact: Huawei)
CT1 LS in Rel-14 ClOT_Ext-CT To:SA2, RAN3 Cc:RAN2
- There are papers in R2 on this.
 - Huawei suggest to wait for R3 and SA2. Intel and Ericsson agree.
 - Intel wonders if the proposed possible solution is to add establishment causes.
 - LG think that R2 should be involved and think that there is a difference between release and reject.
 - Chair think we should wait for R3 (and SA2).

⇒ **Noted**

- R2-1707647 Reply LS on UE capabilities for MBMS (S2-175071; contact: Qualcomm) SA2 LS in Rel-14
LTE_feMTC-Core, NB_IOTenh-Core To:RAN1, RAN2, RAN3 Cc:CT3, CT4
- Qualcomm think that this do not require any further changes in RAN TSes.

⇒ **Noted**

- R2-1709884 New configuration and UE capabilities for NB-IoT (R1-1715149; contact: Qualcomm)
- this is not backwards compatible in Rel-14.

⇒ **Noted**

Related proposals

- R2-1709894 Introduction of interference randomization in NB-IoT
- Chair think that the main method for carrier selection in Rel-14 is a UE based method and think that a capability + dedicated configuration doesn't help much. Those Rel-14 features would not work in that case as they are not dependent on dedicated configurations. It anyway need to be mandatory for all Rel-14 UEs and Rel-13 UEs don't support this at all.
 - Huawei think we should use British English and use s instead of z.
 - Huawei wonders why we need a Capability for Connected mode as the feature is anyway not backwards compatible for Idle mode UEs.

- R2-1709895 Introduction of interference randomization in NB-IoT
- CR needs change, and ASN.1 change is non-compatible ..

DISCUSSION

- Q1: Is a dedicated capability needed?

⇒ **RAN2 understands that the parts for non-anchor RACH and Paging in Idle mode would need to be mandatory and that Rel-14 specifications without this cannot be used.**

⇒ **RAN2 understands that a capability would determine the configuration the UE receives in RRC, i.e. configuration applicable only after this point in time.**

☒ **[99#16][NB-IoT] email discussion on Interference Randomisation in NB-IoT (Qualcomm)**

Objective to agree CRs (for upcoming RP), and determine whether a Capability is needed or not, based on R2-1709894, R2-1709895.

⇒ The CRs are agreed in R2-1709940 and R2-1709941.

8.11.1 RRM Power Consumption

8.11.1 Treated together with AI 9.13.3 and 9.14.4

Neighbour cell measurements? Specified? Configured? UE detection of condition? Mobility state?

Including output from email discussion [98#52][NB-IoT] Power Consumption for RRM (Ericsson)

R2-1708230 Power saving for Cat-M UEs in weak signal conditions Sierra Wireless, S.A. discussion
Rel-15

Above tdoc moved from 9.14.4

Proposal: RAN2 is asked to consider that the solutions for relaxed monitoring for static NB-IoT UEs in weak signal conditions should be considered for application to category M1 and M2 UEs

- Chair: there seems to be common proposals for MTC and NB-IoT.
- QC think that the applicability can be for LTE rather than cat M1 and M2.
- Ericsson think we can have some commonality but would like to apply for MTC but not in general for LTE. Huawei agrees this should not
- Nokia further think we need to define "static".
- Intel think this could be for LTE. Blackberry support the proposal and think it could be for LTE

⇒ **The use case is M2M, we aim to have similar solutions for RRM measurement relaxation as far as reasonable for at least NB-IoT and LTE M2M UEs (FFS if this is Cat M1/M2).**

R2-1708277 [98#52][NB-IoT] Power Consumption for RRM Ericsson report Rel-14 NB_IOTenh-Core

Above tdoc moved from 9.13.3

Chair proposes to discuss proposal 2:

- Nokia support proposal 2 as it seems difficult to define "stationary".
- Gemalto think this increases the scope a lot.
- Mediatek think that the case for mobile UEs only applies to such UE when they detect that they are stationary or almost stationary.
- Intel wonders if this the applies to all UEs
- Nokia think that the UE need to know whether it is allowed to use the relaxed monitoring.

⇒ **Introduce a relaxed monitoring solution that works for both UEs that are fixed and can be mobile.**

R2-1708273 Relaxed monitoring in NB-IoT Ericsson discussion Rel-14 NB_IOTenh-Core

Above tdoc moved from 9.13.3

P1:

- Gemalto are OK but wonders about positioning. Chair proposes not to discuss positioning.
- ZTE think we might need some background measurement.

P5:

- ZTE wonder if we need relaxed monitoring of serving cell. Chair think we address the serving cell power consumption under the enh system acquisition. Ericsson thin that if we address serving cell we need to do this in R4. Nokia agrees with this. ZTE still think that servin cell measurements are problematic.
- Nokia think that a mechanism based on serving cell measurements is not very reliable. Nokia wonders what exactly the proposal is. Ericsson clarifies that the UE detect change in serving cell RSRP. Mediatek think this can be a baseline. SW agrees. Gemalto agrees.
- Chair think there are three options. A) based on serving cell RSRP B) based on cell change count.

- Ericsson think that just counting cells is too non-reliable. Huawei also think this is problematic as we don't count cells in PSM mode. Huawei think option B doesn't work well, as the only way to move is then to have cell selection. Nokia think the UE also doesn't do serving cell measurements in PSM mode ..
- Gemalto think that cell change count is preferable. ZTE also like to include this option.
- Blackberry think that with option A we might need R4 involvement and cell count seems more attractive. LG and Nokia also prefer cell count.
- Gemalto think we can do something quick for Rel-14 and have higher ambition level for Rel-15.

⇒ **Relaxed monitoring applies to neighbour cell measurements in Idle mode.**

⇒ **We specify how the UE detect when to do measurement relaxation**

Specify email discussion scope: Chair think we could aim to discuss the a) two mechanisms on the table (counting cells/detect cell change, RSRP measurement serving cell), and b) discuss in more detail how this is configured.

✉ **[99#41][NB-IoT/MTC] Email discussion on measurement relaxation (Ericsson)**

Objective to discuss the a) mechanisms to detect whether measurement relaxation applies or not, focusing on the mechanisms on the table (counting cells/detect cell change, RSRP measurement serving cell) including stage-3 details, and b) discuss in more detail how this is configured (per UE, per cell etc).

R2-1708278	Relaxed monitoring in MTC	Ericsson	discussion	Rel-15	LTE_eMTC4-Core		
Above tdoc moved from 9.14.4							
R2-1708316	Relaxed monitoring NB_IOTenh2-Core	Huawei, HiSilicon, Neul	discussion	Rel-15	NB_IOTenh-Core,		
Above tdoc moved from 9.13.3							
R2-1709338	Relaxed monitoring for cell reselection for Rel-15 MTC	Huawei, HiSilicon	discussion	Rel-15	LTE_eMTC4-Core		
Above tdoc moved from 9.14.4							
R2-1709193	Relax monitoring for cell reselection for eFeMTC and FeNB-IoT	Intel Corporation	discussion	Rel-15	LTE_eMTC4-Core		
Above tdoc moved from 9.14.4							
R2-1708369	Consideration on relaxed monitoring for cell reselection in FeNB-IoT	ZTE Wistron Telecom	discussion	Rel-15	NB_IOTenh2-Core		
Above tdoc moved from 9.13.3							
R2-1708376	Consideration on relaxed monitoring for cell reselection in eFeMTC	ZTE Wistron Telecom	discussion	Rel-15	LTE_eMTC4-Core		
Above tdoc moved from 9.14.4							
R2-1707757	Measurement considerations for NB-IoT	Gemalto N.V.	discussion				
Above tdoc moved from 8.11							
R2-1708258	Solutions for reducing power consumption for measurements of neighbour cells in NB-IoT		discussion	Rel-14	NB_IOTenh	III	
R2-1709339	Delta scheme for relaxed monitoring in Rel-15 MTC	Huawei, HiSilicon	discussion	Rel-15	LTE_eMTC4-Core		
Above tdoc moved from 9.14.4							
R2-1708306	Introduction of relaxed monitoring for NB-IoT in 36.304 14 36.304 14.3.0 NB_IOTenh-Core, TEI14	Huawei, HiSilicon	CR	Rel-14	0384 C		
R2-1708307	Introduction of relaxed monitoring for NB-IoT in 36.306 14 36.306 14.3.0 NB_IOTenh-Core, TEI14	Huawei, HiSilicon	CR	Rel-14	1492 C		

R2-1708308	Introduction of relaxed monitoring for NB-IoT in 36.331	Huawei, HiSilicon	CR	Rel-
14	36.331 14.3.0 NB_IOTenh-Core, TEI14	2987 C		
R2-1708274	Introduction of relaxed monitoring in NB-IoT	Ericsson	CR	Rel-14 36.331
	14.3.0 NB_IOTenh-Core 2986 B			
R2-1708275	Introduction of relaxed monitoring in NB-IoT	Ericsson	CR	Rel-14 36.304
	14.3.0 NB_IOTenh-Core 0383 B			
R2-1708276	Introduction of relaxed monitoring in NB-IoT	Ericsson	CR	Rel-14 36.306
	14.3.0 NB_IOTenh-Core 1491 B			

Above 3 tdocs moved from 9.13.3

8.11.2 Other

General

R2-1708247	RRC Connection Re-establishment for Control Plane CIoT EPS Optimization	MediaTek Inc.
CR	Rel-14 36.331 14.3.0 NB_IOTenh-Core 2985 F	

Above tdoc moved from 8.11

- LG wonders if there are cases when security is started for a CP solution UE. Huawei think this can happen, the MME can decide to move a UE from CP solution to UP solution.
- Huawei disagrees with the coversheet but this the problem is there, and that the problem is the following: a) UE without security performs re-establishment, and SRB1 gets hanging in suspended state, b) if later security is to be started, it doesn't work as SRB1 is still suspended.
- QC wonder what happens in LTE for this. Ericsson think this is already fixed for LTE.

⇒ **Revised offline (offline disc 301), in R2-1709703 (rev 1) (Mediatek)**

R2-1709703	RRC Connection Re-establishment for Control Plane CIoT EPS Optimization	MediaTek Inc.
CR	Rel-14 36.331 14.3.0 NB_IOTenh-Core 2985 1 F	

- LG think we may have a problem when SRB1 is resumed with zero security algorithms. Several companies don't see a problem.
- Change the level2 bullet to "except for a UE that only supports the Control Plane CIoT EPS optimisation"

⇒ **Revised in R2-1709903 (rev 2)**

R2-1709903	RRC Connection Re-establishment for Control Plane CIoT EPS Optimization	MediaTek Inc.
CR	Rel-14 36.331 14.3.0 NB_IOTenh-Core 2985 2 F	

⇒ **Agreed unseen**

R2-1709224	Correction for connEstFailOffset	Nokia	CR	Rel-14	36.331	14.3.0	NB_IOTenh-Core
	3036 F						

- LG think this is not needed as the Field Description already covers this.
- Nokia think that the correction is needed as there are two interpretations among UE implementations.
- QC support the CR but the word description is misspelled on the cover page.

⇒ **Agreed**

Above tdoc moved from 8.11

R2-1707865	Correction on UE states for MBMS reception	Qualcomm Incorporated	CR	Rel-14
	36.300 14.3.0 NB_IOTenh-Core 1042 F			

⇒ **Agreed**

- R2-1708314 Cleanup for NB-IoT Enhancements Huawei, HiSilicon CR Rel-14 36.331
14.3.0 NB_IoTEnh-Core 2990 F
- Intel wonders what “for RRC connection re-establishment for the Control Plane CIoT EPS optimisation” actually means? Does it means “using”, “using only”, “supporting”? E.g. if the UE is using both Data over NAS and security at the same time. QC think the exsiting text was clearer. Huawei would be ok to not have this change.
- ⇒ **We don’t do the change to “for RRC connection re-establishment for the Control Plane CIoT EPS optimisation” (and the related changes), keep the previous wording.**
- ⇒ **Revised in R2-1709704 (rev 1), can also check and update other details offline.**
- R2-1709704 Cleanup for NB-IoT Enhancements Huawei, HiSilicon CR Rel-14 36.331
14.3.0 NB_IoTEnh-Core 2990 1 F
- ⇒ **Agreed**
- R2-1708317 Miscellaneous corrections for NB-IoTEnh and feMTC Huawei, HiSilicon CR Rel-14 36.321 14.3.0 LTE_feMTC-Core, NB_IoTEnh-Core 1143 F
- LG suggest to also correct alignment of the bullet before the first change.
 - LG support the CR.
- ⇒ **Agreed**
- R2-1708842 Reconsideration of RA failure handling in NB-IoT LG Electronics Inc. discussion Rel-14 NB_IoTEnh-Core
- Proposal. When the RA procedure is failed before reaching maximum preamble retransmission, a UE in RRC_IDLE state should stay on the anchor carrier and a UE in RRC_CONNECTED state should stay on the configured carrier during the backoff time duration.
- Huawei think that acc to RRC, the UE during RACH is not supposed to receive paging or be scheduled, only measurements for cell reselection is continued. Huawei think that measurements could be stopped as well but don’t see a need for any other change.
 - QC think that if the backoff time is long, normal IDLE / CONNECTED procedures should continue.
 - Intel wonders if there is a problem also for LTE, and in this case would like more time to think.
- After offline
- For Idle the Spec seems clear
 - For RRC Connected case the MAC spec seems clear, but overall the UE behaviour is not crystal clear and suggest that we can discuss at the next meeting.
- ⇒ **Can discuss more next meeting**
- R2-1708843 Reconsideration of RA failure handling in NB-IoT LG Electronics Inc. CR Rel-14 36.321 14.3.0 NB_IoTEnh-Core 1152 F
- ⇒ **postponed**
- R2-1709315 Support of extended wait time for CP data in RRC Connection Reject (NB-IOT) LG Electronics Inc. discussion Rel-14
- ⇒ **Not treated**
- R2-1709316 Draft LS on Overload control for control plane data only (NB-IOT) LG Electronics Inc. discussion Rel-14
- ⇒ **Not treated**
- R2-1709322 Support of extended wait time for CP data (NB-IOT) LG Electronics UK CR Rel-14 36.331 14.3.0 NB_IoTEnh 3038 F
- ⇒ **postpone**

R2-1709499 Corrections to RLC for re-establishment for NB-IoT using control plane Qualcomm
Incorporated CR Rel-14 36.322 14.0.0 NB_IOTenh-Core 0130 F

⇒ **agreed**

R2-1709680 Backward compatibility of contention-free RA in NB-IoT Huawei, HiSilicon, Neul discussion
Rel-14 NB_IOTenh-Core

Above tdoc Late

- QC agrees with the problem. QC wonders if we could just say that “if the UE can determine that the network is at least Rel-14, then use CFRA”, i.e. a generalization of option 4.
- Ericsson think that it can be handled by the eNB only signalling preamble index 0, and think it is easier to just fix this in the network end. Any UE solution requires the UE to know whether the eNB is rel-13 or rel-14++, and would prefer an explicit signalled solution in that case. LG supports this.
- HW think that we cannot prevent Rel-13 eNB to use index <> 0. Docomo agrees and think we need a standardized solution and prefer the option 2.
- ZTE think that a UE can know that it is served by a Rel-14 network as we have introduced many new IEs. ZTE think that if we need to change something, the option 2 would be quite ok.
- Options: The Rel-14 UE adapts his behaviour (CFRA/CBRA) based on
 - o Option 2: RNTI signalled in RAR
 - o Option 4x: An explicit new?/existing? IE signalled at connection establishment or in system information.
- Huawei think that anyway the indication need to be explicit. If we go for option 4x it is preferred to change in dedicated signalling.
- Chair wonders what is the problem with option 2.
- QC think option 4x is cleaner. Blackberry agrees.

⇒ **There is a problem and it should be fixed without restricting the Rel-13 eNB behaviour.**

⇒ **Add a new IE in connection establishment/resume signalling (in “MSG4”), in MAC-MainConfig.**

R2-1709706 Correction to contention free random access Huawei, HiSilicon CR Rel-14
36.331 14.3.0 NB_IOTenh-Core 3064 F

- Docomo think we need to have a capability bit.
- Huawei think we can a) make it mandatory for Rel-14, b) link it to NPRACH on non-anchor capability/iot bit c) a new capability.
- QC think we can go with a). Huawei agrees.
- QC think that the variable name need to be changed to follow RRC convention
- Docomo think we should have a notification on the 3GPP Website that earlier versions of Rel-14 should not be used. Chair think that this is also the case for the R1 interference randomization.

⇒ **This is a change of mandatory functions.**

⇒ **RAN2 notes that these CRs are not backwards compatible but they correct another non-backwards compatibility problem.**

⇒ **Revised in R2-1709905 (rev 1), agreed unseen**

R2-1709707 Correction to contention free random access Huawei, HiSilicon CR Rel-14
36.321 14.3.0 NB_IOTenh-Core 1181 F

⇒ **Use the MAC style of “if the UE is an NB-IoT UE ..”**

⇒ **Revised in R2-1709906 (rev 1), agreed unseen**

R2-1709692 Discussion on Non-contention based RA procedure for NB-IoT NTT DOCOMO, INC.
discussion Rel-14 NB_IOTenh-core

Above tdoc Late

- Proposal is to have a rel-14 UE select the same “preamble” as a rel-13 UE in case the UE is in a rel-13 Network.
- ⇒ **a rel-14 UE selects the same “preamble” as a rel-13 UE in case the UE is in a rel-13 Network (based on the mechanism above)**
- ⇒ **include in CRs above.**

Positioning

- | | | | | | |
|------------|---|----------|------------|--------|------------|
| R2-1708281 | E-CID measurements in Idle mode
Core | Ericsson | discussion | Rel-14 | NB_IOTenh- |
|------------|---|----------|------------|--------|------------|
- QC think that the UE shall measure Neighbour cells for positioning regardless of measurements for positioning. QC would just regard this to be assistance information rather than requirements.
 - LG think that the UE does not need to measure neighbour cells when signal strength better than Sxsearch threshold but agrees that the UE can ignore the threshold for positioning.
 - Huawei think this should be a R4 performance requirement, not a Stage-2 item.
 - Blackberry think that the issue is the number of cells and frequencies, and the item may require more discussion.
 - Gemalto agrees with the proposal.
 - ⇒ **When NRSRP/NRSRQ measurements are requested the UE is required to measure NRSRP/NRSRQ on intra-frequency cells, and inter-frequency neighbour cells when interFreqCarrierFreqList is provided in SIB5-NB.**
- | | | | | |
|------------|---|----------|----|--------|
| R2-1708282 | Clarification to positioning measurement in idle state
36.305 14.2.0 NB_IOTenh-Core 0070 F | Ericsson | CR | Rel-14 |
|------------|---|----------|----|--------|
- ⇒ **revised**
- | | | | | |
|------------|---|----------|----|--------|
| R2-1709728 | Clarification to positioning measurement in idle state
36.305 14.2.0 NB_IOTenh-Core 0070 1 F | Ericsson | CR | Rel-14 |
|------------|---|----------|----|--------|
- QC think “requested to measure” should be changed such that is understood that the UE is requested to provide measurements but leave open when those measurements were actually done. Ericsson agrees
- ⇒ **Change to: “For E-CID positioning method, when NRSRP/NRSRQ measurements are requested the UE is requested to provide NRSRP/NRSRQ measurements for intra-frequency neighbour cells and for inter-frequency neighbour cells. The UE may use inter-frequency information in system information of the serving cell specified in [14] to decide on which inter-frequency cells to measure”**
- ⇒ **Revised in R2-1709904 (rev 2), which is agreed unseen.**

8.12 WI: Further Enhanced MTC for LTE

(LTE_feMTC-Core; leading WG: RAN1; REL-14; started: June 16; closed: Jun. 17; WID: RP-170532)

This agenda item is for correction CRs to the closed WI

Documents in this agenda item will be handled in a break out session

8.12.1 Multicast for feMTC and eNB-IoT

- | | | | | |
|------------|--|-------------------|----|--------|
| R2-1708313 | Corrections for SC-PTM in NB-IoTenh and feMTC
36.300 14.3.0 NB_IOTenh-Core, LTE_feMTC-Core 1049 F | Huawei, HiSilicon | CR | Rel-14 |
|------------|--|-------------------|----|--------|
- Intel think that SC-MCCH should not be mentioned.
 - QC wonders what is defined in MAC.
 - ⇒ **Not pursued**

8.12.2 Other

Positioning

Including output from email discussion [98#53][feMTC] PRS Occasion Group (ZTE)

R2-1708382 Summary of email discussion [98#53][feMTC] PRS Occasion Group ZTE Wistron Telecom
AB report Rel-14 LTE_feMTC-Core

- QC think that P2 is wrong, both the first and the second part, e.g. bec this is not correct wrt LTE indoor positioning.
- ZTE think that restrictions that has been agreed by R1 for MTC should be specified somewhere. QC think that positioning services are available to UEs based on positioning capability, not "MTC" capability.
- Chair wonders if it is possible to understand what a valid/invalid configuration is. QC think that P2 doesn't address invalid configurations but think this can be added later.

⇒ **P1 is agreed**

Offline discussion on further clarifications (311) (ZTE).

- ZTE reports that the offline agreement is to just keep the P1, and think that if RAN1 sees problems with the RAN2 configuration this can be addressed later,

R2-1708384 Correction on definition of PRS Occasion Group ZTE Wistron Telecom AB CR Rel-
14 36.355 14.2.0 LTE_feMTC-Core 0182 F

⇒ **revised**

R2-1709729 Correction on definition of PRS Occasion Group ZTE Wistron Telecom AB CR Rel-
14 36.355 14.2.0 LTE_feMTC-Core 0182 1 F

⇒ **agreed**, but then revised:

[MCC]: Source to TSG should be R2.

⇒ **Agreed in R2-1709760.**

R2-1709392 Minor corrections on TS 36.355 for Rel-14 MTC Huawei, HiSilicon CR Rel-14
36.355 14.2.0 LTE_feMTC-Core 0185 F

- Cover sheet is wrong, wrong TS

⇒ **Revised in R2-1709721 (rev 1)**

⇒ **Agreed unseen**

Other

R2-1709447 AS RAI FOR CAT-M Gemalto N.V.,INTEL,SEQUANS,ERICSSON,SIERRA
WIRELESS,QUALCOMM discussion Rel-14

- Proposal: Introduce AS RAI procedure for UE category M1 and M2 in REL-14.
- LG support this. Huawei also support this, but we might need time to check whether it can be applicable more widely. Ericsson would not like to expand beyond cat M1 and M2.
- Intel think that this can be applied for any Cat UE. LG think that this is for specific traffic characteristic. Intel think there are m2m devices also for Cat 1 etc. Blackberry support this
- Nokia wonders if this means that the procedure we have specified for NB-IoT is now more widely applicable. Gemalto clarifies that the same mechanism as for NB-IoT is intended. Nokia wonders if RRC is impacted. Is the use of this feature configured? Ericsson think this feature is configured by RRC. Nokia then wonders about a prohibit timer. Nokia think that without a prohibit timer this cannot be configured.
- SW think this is mostly applicable to cat M1 and M2.

⇒ **Introduce the AS RAI procedure for UE category M1 and M2 in REL-14.**

R2-1709864 Introduction of Release Assistance Indication Gemalto N.V. CR Rel-14
36.300 14.3.0 LTE_feMTC-Core 1058 B

- Chair think that CR category should be F. Huawei would accept cat C.

- Nokia wonders what is a BL UE. Does it include a 5MHz? Gemalto think yes, and it refers to Cat M1 and M2.

⇒ **Cat C**

⇒ **Revised in R2-1709957, agreed unseen**, but then revised:
[MCC]: Wrong tdoc number in the cover sheet.

⇒ **Agreed in R2-1709989.**

R2-1709865 Introduction of Release Assistance Indication Gemalto N.V. CR Rel-14
36.306 14.3.0 LTE_feMTC-Core 1504 B

- QC think that for NB-IoT we say any category NB. Gemalto think that in other places for Cat Mx, Cat-M1 and Cat-M2 are spelled out.

⇒ **Cat C**

⇒ **Revised in R2-1709958, agreed unseen**, but then revised:

⇒ **[MCC]: Wrong tdoc number in the cover sheet. Agreed in R2-1709990.**

R2-1709866 Introduction of Release Assistance Indication Gemalto N.V. CR Rel-14
36.321 14.3.0 LTE_feMTC-Core 1182 B

- Nokia think that it is confusing that the cover page says Cat M1 Cat M2 but the text says BL.

⇒ **Cat C**

⇒ **revised in R2-1709959, agreed unseen**, but then revised:
[MCC]: Wrong tdoc number in the cover sheet.

⇒ **Agreed in R2-1709991.**

R2-1709867 Introduction of Release Assistance Indication Gemalto N.V. CR Rel-14
36.331 14.3.0 LTE_feMTC-Core 3065 B

- Huawei think we should not use xy but use the numbers instead "40" as the release is frozen,
- Ericsson think we can write "no" in the column FDD/TDD difference.

⇒ **Cat C + changes above**

⇒ **Revised in R2-1709960, agreed unseen**, but then revised:
[MCC]: Wrong tdoc number in the cover sheet.

⇒ **Agreed in R2-1709992.**

R2-1709180 Cat-M1 indication by Cat-M2 UE Nokia, Nokia Shanghai Bell CR Rel-14 36.306
14.3.0 LTE_feMTC-Core 1499 F

⇒ **agreed**

R2-1709181 Cat-M1 indication by Cat-M2 UE Nokia, Nokia Shanghai Bell CR Rel-14 36.331
14.3.0 LTE_feMTC-Core 3022 F

⇒ **agreed**

R2-1709184 Miscellaneous ASN.1 corrections Nokia, Nokia Shanghai Bell CR Rel-14 36.331
14.3.0 LTE_feMTC-Core 3023 F

⇒ **agreed**

R2-1709313 Support of extended wait time for CP data in RRC Connection Reject (feMTC) LG
Electronics Inc. discussion Rel-14

⇒ **not treated**

R2-1709314 Draft LS on Overload control for control plane data only (feMTC) LG Electronics Inc.
discussion Rel-14

⇒ **not treated**

R2-1709325 Support of extended wait time for CP data (feMTC) LG Electronics UK CR Rel-14
36.331 14.3.0 LTE_feMTC 3039 F

⇒ **postpone**

R2-1709389 Corrections on Bandwidth preference indication for Rel-14 MTC Huawei, HiSilicon CR
Rel-14 36.331 14.3.0 LTE_feMTC-Core 3047 F

- Ericsson agrees with the intention, but wonders if the name change causes problem. Chair think this is a RRC internal name.

⇒ **Agreed**

R2-1709390 Corrections on TS 36.331 for Rel-14 MTC Huawei, HiSilicon CR Rel-14 36.331
14.3.0 LTE_feMTC-Core 3048 F

- The change to mpdcch-PDSCH-MaxBandwidth-SC-MTCH is to correct a CR implementation issue

- QC wonders if the notation should be sub-frame or subframe.

⇒ **Revised in R2-1709727**

R2-1709727 Corrections on TS 36.331 for Rel-14 MTC Huawei, HiSilicon CR Rel-14 36.331
14.3.0 LTE_feMTC-Core 3048 1 F

⇒ **agreed**

R2-1709391 Corrections on TS 36.306 for Rel-14 MTC Huawei, HiSilicon CR Rel-14 36.306
14.3.0 LTE_feMTC-Core 1500 F

⇒ **Agreed**

R2-1708298 AS RAI for CAT - M Gemalto N.V., Sierra Wireless, Qualcomm, Sequans, Intel
discussion Rel-14

Above tdoc Withdrawn

8.13 WI: LTE-based V2X Services

(LTE_V2X-Core, leading WG: RAN1; REL-14; started: June 16; closed: Mar. 17; WID: RP-162519)

This agenda item is for correction CRs to the closed WI

Documents in this agenda item will be handled in a break out session

R2-1707609 Response LS on resource reselection for P2X UEs (R1-1709334; contact: Nokia) RAN1 LS in
Rel-14 LTE_V2X-Core To:RAN2

=> Noted

8.13.1 Stage 2

Not treated

R2-1707958 Miscellaneous correction to V2X in TS 36.300 Huawei, HiSilicon CR Rel-14
36.300 14.3.0 LTE_V2X-Core 1047 F

R2-1707959 Correction to V2X descriptions in TS 36.302 Huawei, HiSilicon CR Rel-14
36.302 14.3.0 LTE_V2X-Core 0113 F

R2-1708524 CR for the V2X sidelink communication in 36.300 ZTE Corporation CR Rel-14
36.300 14.3.0 LTE_V2X-Core 1050 F

R2-1708670 Stage-2 corrections for V2X Nokia, Nokia Shanghai Bell CR Rel-14 36.300
14.3.0 LTE_V2X-Core 1051 F

R2-1708671	Discussion on applicable SL resource pools Rel-14 LTE_V2X-Core	Nokia, Nokia Shanghai Bell	discussion	
R2-1709137	Correction on synchronization and CBR in 36.300 36.300 14.3.0 LTE_V2X-Core 1052 F	LG Electronics Inc.	CR	Rel-14
R2-1709252	Operating Bands for V2X Services via Uu 14 LTE_V2X-Core	Nokia, Nokia Shanghai Bell	discussion	Rel-14

8.13.2 User plane

R2-1707960	Correction on congestion control for V2X sidelink communication in TS 36.321 (Opt1) Huawei, HiSilicon	CR	Rel-14	36.321 14.3.0 LTE_V2X-Core 1136 F	=> Not treated
R2-1707961	Correction on congestion control for V2X sidelink communication in TS 36.321 (Opt2) Huawei, HiSilicon	CR	Rel-14	36.321 14.3.0 LTE_V2X-Core 1137 F	=> Not treated
R2-1707962	Correction to P2X related procedures in TS 36.321 36.321 14.3.0 LTE_V2X-Core 1138 F	Huawei, HiSilicon	CR	Rel-14	=> Not treated
R2-1707963	Correction to P2X related procedures in TS 36.331 36.331 14.3.0 LTE_V2X-Core 2976 F	Huawei, HiSilicon	CR	Rel-14	=> Not treated
R2-1707964	Correction to UL and V2X SL prioritization in TS 36.321 14 36.321 14.3.0 LTE_V2X-Core 1139 F	Huawei, HiSilicon	CR	Rel-14	=> Not treated
R2-1709138	Prioritization for V2X sidelink communication 14 LTE_V2X-Core	LG Electronics Inc.	discussion	Rel-14	=> Not treated
R2-1709360	Corrections to UL-SL Prioritization Core 1171 F CB whether something needs to be specified Huawei thinks we can add a note: If the UE is not capable of simultaneous tx of SL discovery and V2X SL transmission it is up to UE implementation how to prioritize them. => The CR is postponed	Ericsson	CR	Rel-14 36.321 14.3.0 LTE_V2X-Core	
R2-1708596	Random selection based resource reservation for V2P Rel-14 36.321 14.3.0 LTE_V2X-Core 1151 F	Nokia, Nokia Shanghai Bell	CR		=> Not treated
R2-1708059	Correction on V2X in TS 36.321 F	CATT	CR	Rel-14 36.321 14.3.0 LTE_V2X-Core 1142	=> Not treated
R2-1708448	Correction to SPS resource collision 14.3.0 LTE_V2X-Core 1146 F	LG Electronics Inc.	CR	Rel-14 36.321	=> Not treated

R2-1708594	Multiple UL SPS configuration collision handling 14 36.321 14.3.0 LTE_V2X-Core 1150 F => Not treated	Nokia, Nokia Shanghai Bell	CR	Rel-14	
R2-1709367	Handling collisions between multiple SPS configurations 14 LTE_V2X-Core => Not treated	Ericsson	discussion	Rel-14	
R2-1708517	Out of sequence reception of V2V data Core => Not treated	ZTE Corporation	discussion	LTE_V2X-	
Not treated					
R2-1708519	CR on out of sequence reception in V2X 14.3.0 LTE_V2X-Core 1148 F	ZTE Corporation	CR	Rel-14	36.321
R2-1708522	CR for the V2X sidelink communication in 36.321 14.3.0 LTE_V2X-Core 1149 F	ZTE Corporation	CR	Rel-14	
R2-1709001	CR for resource selection for P-UE in TS 14 36.321 14.3.0 LTE_V2X-Core 1157 F	Samsung Electronics France	SACR	Rel-14	
R2-1709357	Corrections to Multiple SPS Collisions Handling 14.3.0 LTE_V2X-Core 1168 F	Ericsson	CR	Rel-14	36.321
R2-1709358	Correction to uplink time alignment LTE_V2X-Core 1169 F	Ericsson	CR	Rel-14	36.321 14.3.0
R2-1709359	Corrections to SL SPS Grant Reception LTE_V2X-Core 1170 F	Ericsson	CR	Rel-14	36.321 14.3.0
R2-1709361	Editorial Corrections to Resource Reselection Counter 36.321 14.3.0 LTE_V2X-Core 1172 F	Ericsson	CR	Rel-14	
R2-1709362	Handling Non-Overlapping Transmission Parameter Configuration 14 36.321 14.3.0 LTE_V2X-Core 1173 F	Ericsson	CR	Rel-14	
R2-1709374	SPS confirmation for sidelink => Noted	Ericsson	discussion	Rel-14	LTE_V2X-Core
R2-1709363	Introduce Sidelink SPS confirmation LTE_V2X-Core 1174 F => Not treated	Ericsson	CR	Rel-14	36.321 14.3.0
R2-1709372	Packet Reordering for Sidelink - ZTE acknowledges the problem, however, thinks that we should first start by restricting the transmission. Ericsson thinks that for V2X we have to take care of latency impacts. This also has impacts on latency reduction of reselections. - Ericsson thinks is a basic functionality of V2X and very important for Rel-14 - Oppo, LG agrees with Ericsson - ZTE wouldn't want to leave the value to T-reordering to UE implementation => Introduce sidelink RLC UM reordering for V2X sidelink communications. CRs are provided in [2][3]. => As in legacy Uu, a UM window size = 16 is used for a 5-bit RLC SN field length. => The value of t-Reordering is set by the UE implementation => Noted	Ericsson	discussion	Rel-14	LTE_V2X-Core
R2-1709364	Packet Reordering for Sidelink Core 0127 F => inter-operability needs to be added	Ericsson	CR	Rel-14	36.322 14.0.0 LTE_V2X-

- => category needs to be updated to C
- => The CR is revised in R2-1709780

R2-1709780	Packet Reordering for Sidelink	Ericsson	CR	36.322	0127	1
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- => Update inter-operability section to include UE
- => The CR is agreed in R2-1709794 r2

R2-1709781	Packet Reordering for Sidelink	Ericsson	CR	36.331	3042	1
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- => Add new row for Uni-directional UM RLC and window size set to 0 for “sidelink communication” and put spec version number
- => The CR is agreed in R2-1709795 with change above

R2-1709368	Handling Non-Overlapping Transmission Parameter Configuration Rel-14 LTE V2X-Core	Ericsson	discussion
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- Nokia asks if we can leave it up to UE implementation. Ericsson agrees but it would be better to randomize UE behaviour.
- Oppo thinks this is a corner case and we should stick to original agreement. Also the solution is not reasonable.
- Huawei thinks that it can be handled by eNB implementation.
- Oppo and CATT thinks that in this case the UE should not transmit. This is an incorrect implementation.

=> When there is no overlapping between the sets of speed-dependent and CBR-dependent configurations, it is up to UE implementation whether the UE transmits and which transmitting parameters the UE should select from the allowed values if it transmits something.

=> Noted

R2-1709518	Corrections to resource reselection for P2X 14.3.0 LTE V2X-Core 1179 F	Ericsson	CR	Rel-14	36.321
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=> Not treated

8.13.3 Control plane

R2-1707754	Discussion on Further Optimization for SIB21 Rel-14 LTE V2X-Core	Huawei, OPPO, HiSilicon	discussion
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- Samsung wonders how many ITS carrier we should support. According to the calculations at least 2 can be supported. Huawei explains that Europe has already allocated 3 ITS safety carriers.
- Huawei understands that to support two carriers we need to limit pool configuration to 1.
- CATT thinks that we should touch ASN.1 and fix it via implementations. Huawei indicates that with Option 1 this can be done in backward compatible way.
- LG agrees with Huawei and there are different ways to fix it.
- Nokia thinks that maybe we can fix this in the Rel-15 WI
- Ericsson points out that RAN4 is only specifying two carriers and the enhancements done last meetings are sufficient for now.

=> Further SIB21 size enhancements will not be pursued for Rel-14. How to handle this in Rel-15 eV2X can be discussed in eV2X.

=> Noted

R2-1709134	Extending SIB21 capacity	LG Electronics Inc.	discussion	Rel-14	LTE	V2X-Core
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=> Noted

R2-1707755	CR on Further Optimizations for SIB21 (Option 1)	14	36.331	14.3.0	LTE	V2X-Core	2962	F	CR	Rel-
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=> Not treated

R2-1707756	CR on Further Optimizations for SIB21 (Option 2)	Huawei, HiSilicon	CR	Rel-14
	36.331 14.3.0 LTE V2X-Core 2963 F			

=> Not treated

- R2-1707965 Miscellaneous correction to V2X in TS 36.331 Huawei, HiSilicon CR Rel-14
 36.331 14.3.0 LTE_V2X-Core 2977 F
 => Change 2 should not remove interfreqlist and add "or SIB21"
 - CATT thinks that there are some parameters missing for PSCCH. Oppo explains that there is no need and we should check the formula
 => Check the formula and whether PSCCH needs to be included
 => The CR is revised in R2-1709770
- R2-1709770 Miscellaneous correction to V2X in TS 36.331 Huawei, HiSilicon CR Rel-14
 36.331 14.3.0 LTE_V2X-Core 2977 F
 => The CR is agreed
- R2-1707966 Discussion on NS-Value Configuration for V2X Sidelink Communication Huawei, HiSilicon
 discussion Rel-14 LTE_V2X-Core
 - Oppo asks if this parameter can be linked with a geographical area. Ericsson agrees with Oppo and even for discovery these parameters are not provided from eNB.
 => RAN2 will include in the new values (NS33, 34) in the specification at least in the pre-configuration and SIB21. Details on how to signal it
 Aftercomeback
 - LG explains that the NS values are only needed for inter-frequency
 - Ericsson asks if we should just be more complete and not preclude how we signal it.
 => Noted
- R2-1707967 Introduction of new NS values for V2X sidelink communication Huawei, HiSilicon CR
 Rel-14 36.331 14.3.0 LTE_V2X-Core 2978 B
 - Nokia indicates that the first change is the other CRS
 - Nokia asks whether for the second change we need a choice. Huawei explain that this is to cover the value 1. Ericsson explains that one possible way to do that is by stating that if the field is not present the default value is 1
 => Signalling needs to allow signalling value 1, 33, and 34
 => In addition to pre-configuration, the NS value is added in inter-frequency list, *SL-InterFreqInfoListV2X* IE
 => The CR is revised in R2-1709785
- R2-1709785 Introduction of new NS values for V2X sidelink communication Huawei, HiSilicon CR
 Approval 36.331 2978 1
 => The CR is revised in R2-1709956
- R2-1709956 Introduction of new NS values for V2X sidelink communication Huawei, HiSilicon CR
 Approval 36.331 2978 2 B LTE_V2X-Core Rel-14 14.3.0
 [CB 108]
- R2-1708060 Adding abstract syntax notation one description of sidelink pre-configuration CATT CR
 Rel-14 36.331 14.3.0 LTE_V2X-Core 2980 F
 => Update the change to only: The RRC PDU contents in clause 6, 9.3.2, and clause 10
 => The change should be applicable from Rel-12.
 => CRs from Rel-12 will be prepared by CATT
 => Change category to A
 => change above and cat. A
 => The CR is revised in R2-1709775
- R2-1709775 Adding abstract syntax notation one description of sidelink pre-configuration CATT CR
 Rel-14 36.331 14.3.0 LTE_V2X-Core 2980 F
 => the CR is agreed
 => include the Rel-12/Rel-13 WI codes
 => add "clause" in front of 9.2.3
 => The CR is agreed in R2-1709805, but then revised:
 [MCC]: Wrong revision number
 => Agreed in R2-1709821.

- R2-1709776 Adding abstract syntax notation one description of sidelink pre-configuration CATT CR
36.331 3060 F LTE_V2X-Core Rel-12 14.3.0
=> include the Rel-12/Rel-13 WI codes
=> add "clause" in front of 9.2.3
=> The CR is agreed in R2-1709806 with the changes above
[MCC]: Wrong revision number
=> Agreed in R2-1709822.
- R2-1709777 Adding abstract syntax notation one description of sidelink pre-configuration CATT CR
36.331 3061 A LTE_V2X-Core Rel-13 14.3.0
=> include the Rel-12/Rel-13 WI codes
=> add "clause" in front of 9.2.3
=> The CR is agreed in R2-1709807 with the changes above
[MCC]: Wrong revision number
=> Agreed in R2-1709823.
- R2-1708061 Miscellaneous corrections on V2X CATT CR Rel-14 36.331 14.3.0 LTE_V2X-Core 2981
F
=> *v2x-BandwidthClass* only is added to the description.
=> *dataTxParameters*
=> Change - *SL-V2X-PreconfigCommPool* to *v2x-commtxpoollist* and *p2x-commtxpoollist*
=> the change on the correct clause is 14.2.1.3 is agreed
=> The changes above are agreeable and will be merged in R2-1709770
- R2-1708684 Description of V2X-BandwidthClass IE Qualcomm Incorporated CR Rel-14 36.331
14.3.0 LTE_V2X-Core 3011 F
=> Not treated
- R2-1708377 CR on conditon for RRC connection establishment for V2X sidelink communication Huawei, HiSilicon CR Rel-14 36.331 14.3.0 LTE_V2X-Core 2993 F
- Nokia asks what the understanding of UE behaviour is:
1. the UE goes to RRC connected to request the pool resources
2. the UE goes to the indicated frequencies to acquire the resource pools in SIB21
- LG thinks that interpretation one is the correct one
- Oppo thinks that this is complicated as for discovery the network can indicate explicitly whether the UE should move to RRC connected
- Qualcomm thinks that both options should be possible as the network may not have cross carrier scheduling capability.
- Ericsson thinks that the discovery behaviour should be followed

- Huawei suggest to add "nor the concerned frequency is included in SIB21"
=> The CR will be combined with R2-1708685 and R2-1709136 and discussed together in R2-1709771
- R2-1709771 CR on conditon for RRC connection establishment for V2X sidelink communication Huawei, HiSilicon CR Rel-14 36.331 14.3.0 LTE_V2X-Core 2993 F
- Ericsson and Nokia don't think that we should specify network behaviour. The eNB may not give the resources even in dedicated signalling. Huawei thinks that the eNB can handle the case by just de-configuring the frequency listed in SIB21.
- Qualcomm ask what happens if the UE doesn't get the resources. Intel explains that there are many things the UE can do, but it is up to UE implementation.
- Samsung thinks that once the UE enters connected mode the eNB can either give the resource or decided to handover the UE to another frequency.
=> If the network provides only frequency in the SIB21, the UE should trigger a RRC connection establishment. RAN2 understanding, that the resources can be provided to the UE via dedicated signalling. No specification changes are needed.

- => The CR will also capture change nr. 5 in 5.10.13.1 in R2-1708672 – companies will check the conditions are properly captured
- => Update inter-operability section
- => The CR is revised in R2-1709791

R2-1709791 CR on condition for RRC connection establishment for V2X sidelink communication Huawei, HiSilicon CR Approval 36.331 2993 2 F LTE_V2X-Core Rel-14 14.3.0

- => The CR is agreed

R2-1708672 Stage-3 corrections for V2X Nokia, Nokia Shanghai Bell CR Rel-14 36.331 14.3.0 LTE_V2X-Core 3009 F

- Intel thinks that SIB21 reading is already an implicit conditions
- Oppo is concerned that the section on SIB21 collides with the previous agreement that the UE doesn't have to read SIB21 if frequency only is provided.
- => First change is not needed
- ZTE explains that it is already clear that *mobilityControlInfoV2X* is for handover case. Huawei explains that this is already specified in field description
- => The second change is not needed
- LG thinks that the understanding is that if the UE is in dedicated it will measure only pools from dedicated signalling. Huawei and Samsung have similar view
- => The third change is not agreed
- => Fourth change already addressed in R2-1707965. Check that it addressed all points
- On change 5, Huawei thinks that this is enabling the case that the resources are provided via broadcast even for RRC connected UEs.
- Nokia confirms but notes that there is a new condition to be covered for the pre-configuration case.
- Intel thinks, Section 5.10.13 should be checked to see if changes are needed to cover the scenario in which the concerned frequency doesn't have a SIB21, for non-operator managed carrier, and the UE should use the pre-configuration.
- => The changes for 5.10.13 are not adopted. The else if condition will be checked and merged with R2-1709771 if deemed necessary.
- On last change, Huawei is concerned that it will impact backward compatibility. Nokia explains that it is not used anywhere.
- => The last change is agreed and will be merged in R2-1709770

R2-1708685 Correction on conditions for Transmission of V2X sidelink communication Qualcomm Incorporated CR Rel-14 36.331 14.3.0 LTE_V2X-Core 3012 F

R2-1709136 Correction on condition for sidelink UE information in 36.331 LG Electronics Inc. CR Rel-14 36.331 14.3.0 LTE_V2X-Core 3021 F

- => Not treated

R2-1708377 CR on condition for RRC connection establishment for V2X sidelink communication Huawei, HiSilicon CR Rel-14 36.331 14.3.0 LTE_V2X-Core 2993 F

- => Not treated

R2-1708592 Multiple UL SPS configuration collision handling Nokia, Nokia Shanghai Bell discussion Rel-14 LTE_V2X-Core

- Ericsson agrees with Nokia that it would be beneficial for the system to know which resource the UE will be using, especially for blind decoding.
- LG thinks that if there is a collision the network can activate/deactivate the resources.
- Intel doesn't think this problem occurs often.
- Huawei further thinks that the eNB can handle it via eNB implementation and anyways dynamic scheduling can be used in extreme cases. CATT also thinks that this optimization is not necessary.
- Nokia thinks that reconfiguration is not optimal and this would save signalling overhead.
- => Noted

R2-1708593	Multiple UL SPS configuration collision handling 14 36.331 14.3.0 LTE_V2X-Core 3005	Nokia, Nokia Shanghai Bell	CR	Rel-
R2-1708595	Random selection based resource reservation for V2P Rel-14 36.331 14.3.0 LTE_V2X-Core 3006	Nokia, Nokia Shanghai Bell	CR	
R2-1709519	Corrections to resource reselection for P2X 14.3.0 LTE_V2X-Core 3050	Ericsson	CR	Rel-14 36.331
R2-1709002	CR for resource selection for P-UE in TS 36.331 14 36.331 14.3.0 LTE_V2X-Core 3015	Samsung Electronics France	SACR	Rel-
Discussion Two models of reservation 1) the RRC defines the new mode 2) the RRC just selects the pool and the MAC does the random selection with resource reservation - LG thinks that the second model is better. - Huawei thinks that we should avoid using terminologies such as reservations. - Ericsson agrees with LG and we should use similar modelling as today - LG emphasize that the only difference now is that we will use an existing behaviour for random selection so we should re-use terminology. => Second model will be adopted => Terminology to use should be based on existing terminology in MAC specs for resource reservation				
R2-1708056	Discussion on Resource Reservation for Random Selection		CATT	discussion
	=> Not treated			
R2-1708057	Corrections to resource reservation for random selection in TS 36.321 14 36.321 14.3.0 LTE_V2X-Core 1141		CATT	CR Rel-
	=> Not treated			
R2-1708058	Correction on transmission of P2X related V2X sidelink communication in TS 36.331 CR Rel-14 36.331 14.3.0 LTE_V2X-Core 2979			CATT
	=> Not treated			
R2-1708449	Corrections to random selection for P2X related V2X sidelink communication Electronics Inc. CR Rel-14 36.321 14.3.0 LTE_V2X-Core 1147		LG	
	- Huawei would like to keep the abstraction in the MAC, where whether the pool is for P2X or V2X is not visible to the MAC. - CATT thinks that P2X is known at the RRC and the sensing type is also known in the RRC. - Ericsson thinks that instead of removing "based on sensing", we should add the additional conditions, partial sensing, and random with resource reservation. => The CR is revised in R2-1709786			
R2-1709786	Corrections to random selection for P2X related V2X sidelink communication Electronics Inc. CR 36.321 1147 1		LG	
	- Ericsson we shouldn't have it in a note. => Note is deleted => RAN2 assumes that the UE can chose to do one shot transmission (e.g. in case there is only one MAC PDU to transmit) even if both partial sensing and random selection are allowed. => Add a condition to differentiate the two cases in the MAC => Send LS to RAN1 with the RAN2 assumption and ask if they have any concerns. => The CR is revised in R2-1709796			
R2-1709796	Corrections to random selection for P2X related V2X sidelink communication Electronics Inc. CR 36.321 1147 2		LG	
	[CB 110]			
R2-1708450	Corrections to random selection for P2X related V2X sidelink communication Electronics Inc. CR Rel-14 36.331 14.3.0 LTE_V2X-Core 2997		LG	
	=> The CR is revised R2-1709787			

R2-1709787	Corrections to random selection for P2X related V2X sidelink communication	LG Electronics Inc.	CR	36.331	2997	1	
	- Nokia asks if we leave it up to UE implementation then this is not capturing RAN1 agreement. => The CR is revised in R2-1709797						
R2-1709797	Corrections to random selection for P2X related V2X sidelink communication	LG Electronics Inc.	CR	36.331	2997	2	
	[CB 110]						
R2-1709798	[Draft] LS to RAN1 on P2X	LG Electronics Inc.					
	[CB 130]						
R2-1708673	Correction to UE capabilities	Nokia, Nokia Shanghai Bell	CR	Rel-14	36.331		
	14.3.0 LTE_V2X-Core	3010	F				
R2-1708674	Discussion on V2X pool configuration during handover	Nokia, Nokia Shanghai Bell					
	discussion	Rel-14	LTE_V2X-Core				
	=> Withdrawn						
R2-1709135	Multiple instances of SIB21 for extending SIB21 capacity	LG Electronics Inc.	CR	Rel-14	36.331	14.3.0	LTE_V2X-Core
	3020	F					
	=> Not treated						
R2-1709365	Packet Reordering for Sidelink	Ericsson	CR	Rel-14	36.331	14.3.0	LTE_V2X-Core
	3042	F					
R2-1709563	Correction on reserved bits	Intel Mobile Communications	CR	Rel-14	36.331	14.3.0	LTE_V2X-Core
	3053	F					

8.14 WI: SRS switching between LTE component carriers

(LTE_SRS_switch; leading WG: RAN1; REL-14; started: Mar.16; closed: Dec. 16; WID: RP-160935)

This agenda item is for correction CRs to the closed WI

Documents in this agenda item will be handled in a break out session

8.15 WI: Measurement Gap Enhancement for LTE

(LTE_meas_gap_enh-Core; leading WG: RAN4; REL-14; started: Mar. 16; closed: Jun. 17; WID: RP-160912)

This agenda item is for correction CRs to the closed WI

R2-1709522	Clarification on NCSG UE capability	Intel Corporation, NTT DOCOMO	CR				
	36.306 14.3.0 1501	F	Rel-14	LTE_meas_gap_enh-Core			
	- Nokia ask why the UE does not support all the gaps. Intel think a UE that doesn't support async does not have to support pattern 2 and 3. Nokia think the network can only use 2 and 3 in the synchronised case.						
	- Ericsson suggest referring to the asynchronous parameter name.#						
	=> At least update the parameter name for asynchronous, and consider other wording updates.						
	=> Revised in R2-1709765 (Offline discussion #12)						
R2-1709765	Clarification on NCSG UE capability	Intel Corporation, NTT DOCOMO	CR				
	36.306 14.3.0 1501	F	Rel-14	LTE_meas_gap_enh-Core			
	= >Agreed, but then revised:						
	[MCC]: Wrong revision number						
	=> Agreed in R2-1709819.						
R2-1709523	Clarification on NCSG UE capability	Intel Corporation, NTT DOCOMO	CR				
	36.331 14.3.0 3051	F	Rel-14	LTE_meas_gap_enh-Core			

- => Align the code point names in the ASN.1 for the gap pattern IDs.
- => Revised on R2-1709766 (Offline discussion #12)

R2-1709766	Clarification on NCSG UE capability 36.306 14.3.0 1501 F	Intel Corporation, NTT DOCOMO Rel-14 LTE_meas_gap_enh-Core	CR						
	=> Agreed								
R2-1709531	Signaling of UE Capability on NCSG Rel-14 LTE_meas_gap_enh-Core	Qualcomm Korea	discussion	36.331					
	- Nokia would like to see the impact to ASN.1 before concluding.								
	- Intel think that a UE capability will be needed								
	=> Draft CRs to be provided in R2-1709767 36.331 CR 3058 and R2-1709768 CR (CR# to be obtained from Juha). Will take final decision on Friday when the ASN.1 impact can be seen. (Offline discussion #13)								
	- Update from offline: There was no consensus on the draft CRs.								
	- Intel think it should not be introduced in this release. Nokia have the same view. Huawei have the same view.								
	=> Not pursued								
R2-1709767	Signaling of UE Capability on NCSG LTE_meas_gap_enh-Core 3058	Qualcomm F	CR	Rel-14	36.331				
R2-1709768	Signaling of UE Capability on NCSG LTE_meas_gap_enh-Core 1180	Qualcomm F	CR	Rel-14	36.321				
R2-1709581	Clarification on per CC measurement gap F Rel-14 LTE_meas_gap_enh-Core	HTC Corporation	CR	36.331	14.3.0	3054			
	- Intel support the clarification.								
	- Nokia thinks some clarification is needed but this is quite limiting on the network. Nokia think if a CC is released then the existing gap configuration should be valid but if a CC is added then there could be a need to update the gap configuration.								
	=> Wording of the note to be progressed offline. (HTC, Offline discussion #14)								
	=> Revised in R2-1709769.								
R2-1709769	Clarification on per CC measurement gap F Rel-14 LTE_meas_gap_enh-Core	HTC Corporation	CR	36.331	14.3.0	3054			
	=> Agreed								

8.16 Void

8.17 WI: Performance enhancements for high speed scenario in LTE

(LTE_high_speed-Core; leading WG: RAN4; REL-14; started: Dec. 15. 16; closed: Dec. 16; WID: RP-160172)

This agenda item is for correction CRs to the closed WI

Documents in this agenda item will be handled in a break out session

8.18 WI: Voice and Video enhancement for LTE

(LTE_VoLTE_ViLTE_enh; leading WG: RAN2; REL-14; started: Sep. 16; closed: Mar. 17; WID: RP-161856)

This agenda item is for correction CRs to the closed WI.

Documents in this agenda item will be handled in a break out session

R2-1707606	Reply LS on RAN-Assisted Codec Adaptation (C3-173176; contact: Nokia) CT3 14 LTE_VoLTE_ViLTE_enh-Core To:SA4 Cc:RAN2, SA2	LS in	Rel-14
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- => Noted
- R2-1707660 Reply LS on RAN-Assisted Codec Adaptation (S4-170720; contact: Intel) SA4 LS in Rel-14 LTE_VoLTE_ViLTE_enh-Core To:CT3, RAN2 Cc:SA2
=> Noted
=> RAN2 will capture the recommendation from SA4 in 36.300 with RAN2 wording.
- R2-1709209 RAN-recommended bit rate restriction Nokia, Nokia Shanghai Bell discussion Rel-14 LTE_VoLTE_ViLTE_enh-Core
- Ericsson thinks it should depend on eNB implementation.
=> Noted
- R2-1709210 RAN-recommended bit rate restriction Nokia, Nokia Shanghai Bell CR Rel-14 36.300 14.3.0 LTE_VoLTE_ViLTE_enh-Core 1053 F
✍ **CBF:=>** Revised in R2-1709739 (offline 203) and Draft reply LS in R2-1709740 to SA4, CT3 (Nokia)
- R2-1709211 RAN-recommended bit rate restriction Nokia, Nokia Shanghai Bell CR Rel-14 36.321 14.3.0 LTE_VoLTE_ViLTE_enh-Core 1163 F
=> Not pursued
- R2-1707644 Reply LS on Reply LS to RAN3 on support of redirection for VoLTE (S2-174069; contact: Nokia) SA2 LS in Rel-14 LTE_VoLTE_ViLTE_enh-Core To:RAN3 Cc:RAN2
=> Noted
- R2-1708389 Corrections on eVoLTE Huawei, HiSilicon CR Rel-14 36.331 14.3.0 LTE_VoLTE_ViLTE_enh-Core 2995 F
=> Agreed
- R2-1708641 Correction of field descriptions for recommendedBitRate and recommendedBitRateQuery Ericsson CR Rel-14 36.331 14.3.0 LTE_VoLTE_ViLTE_enh 3008 F
=> Add impact analysis
=> CR is agreed in R2-1709741.
- R2-1709938 Remove the description of Inter RAT Redirection value for MMTEL Ericsson CR Rel-14 36.300 14.3.0 LTE_VoLTE_ViLTE_enh 1059 F
- This CR was endorsed by RAN3 and sent to RAN2 for agreement.
- Handled in post-meeting email approval
=> The CR is agreed in R2-1709938.

8.19 New UE category with single receiver based on Category 1 for LTE

(LTE_UE_cat_1Rx-Core; leading WG: RAN4; REL-14; started: Sep. 16; closed: Jun. 17: WID: RP-171149)

This agenda item is for correction CRs to the closed WI.

Documents in this agenda item will be handled in a break out session

- R2-1708516 Additional OTDOA Capabilities Qualcomm Incorporated CR 36.355 0183
=> The CR is revised in R2-179846
- R2-1709846 Additional OTDOA Capabilities Qualcomm Incorporated CR 36.355 0183
[CB]

8.20 Uplink Capacity Enhancements for LTE

LTE_UL_CAP_enh-Core; leading WG: RAN1; REL-14; started: Mar. 16; closed: Mar. 17: WID: RP-162488

This agenda item is for correction CRs to the closed WI.

Documents in this agenda item will be handled in a break out session

- R2-1708224 Correction on TTI bundling for TDD configurations 2 and 3 NEC CR Rel-14 36.331
 14.3.0 LTE_UL_CAP_enh-Core 2983 F
 => The CR is agreed with the NW box unclicked in R2-1709772r1
- R2-1708393 Correction on UE category combination in 36.306 Huawei, HiSilicon CR Rel-14
 36.306 14.3.0 LTE_UL_CAP_enh-Core 1494 F
 - Qualcomm is concerned that there may be a backward compatibility issue
 => Update cover sheet to indicate the backward compatibility issue
 => the CR is revised in R2-1709773
- R2-1709773 Correction on UE category combination in 36.306 Huawei, HiSilicon CR Rel-14
 36.306 14.3.0 LTE_UL_CAP_enh-Core 1494 F
 [CB 101]
- R2-1709537 Corrections to UL 256 QAM capability field descriptions Ericsson CR Rel-14
 36.331 14.3.0 LTE_UL_CAP_enh-Core 3052 F
 => Update the CR to include the ASN.1 section, remove duplicated sections
 => The CR is agreed in R2-1709774 with the changes above

8.21 WI: Enhancements on Full-Dimension (FD) MIMO for LTE

(LTE_eFD_MIMO-Core; leading WG: RAN1; REL-14; started: Mar. 2016; closed: Mar. 17: WID: RP-160623)

This agenda item is for correction CRs to the closed WI.

Documents in this agenda item will be handled in a break out session

8.22 Void

8.23 WI: Downlink Multiuser Superposition Transmission for LTE

(LTE_MUST-Core; leading WG: RAN1; REL-14; started: Mar. 16; closed: Dec. 16: WID: RP-161019)

This agenda item is for correction CRs to the closed WI

Documents in this agenda item will be handled in a break out session

8.24 Other LTE Rel-14 WIs

This agenda item may be used for documents relating to Rel-14 WIs with no allocated RAN2 time but which might have minor RAN2 impact.

Including any LTE corrections related to the following joint UMTS/LTE WI:

(eDECOR-UTRA_LTE-Core; leading WG: RAN3; REL-14; started: Dec. 16; closed: Mar. 17: WID: RP-162543)

8.25 LTE TEI14 enhancements

Small Technical Enhancements affecting LTE Rel-14 that do not belong to any Rel-14 WI.

Note: A TEI enhancement proposal should be treated for only one meeting cycle and involve only one WG. Otherwise, a WI should be proposed at RAN plenary!

This agenda item is for items already discussed under TEI14. New proposals should be submitted to TEI15 which is planned to be included on the agenda from RAN2#100.

Including output from email discussion [98#43][LTE/TEI14] Overheating problem (Huawei)

R2-1708219 Report of email discussion [98#43][LTE/TEI14] UE overheating problem Huawei discussion
Rel-14

Rec 1

- LG wonder of the temporary category and temporary supportBandCombination is enough to provide the information. Think the indication solution can solve the problem.
- Nokia can agree with recommendation but should not rule out an implicit indication that the UE is undergoing an overheating issue.

Rec 2

- Nokia do not support this recommendation and think it was not agreed in the email discussion. Nokia think the indication should be a recommendation on the network.
- LG have the same view as Nokia.
- Huawei agree that the signalling overhead is important but if we only feedback category information then eNB doesn't have all the info it needs to reconfigure the UE.
- Intel understand that the UE will follow the eNB reconfiguration. MediaTek also understand the signalling from UE is just a recommendation.
- Ericsson think the UE should provide a simple indication and a fine granularity is not needed. A reduced UE category should be enough. Sony support this comment and think it should be enough just to signal overheating.

Rec 4a

- DT think this use case is important to capture in the spec.

Rec 4g

- Qualcomm think the prohibit timer is difficult to configure as the cooling time is difficult to predict. Hence it should be left to UE implementation. DOCOMO think the timer should be sent by the network. DT think the prohibit timer is to avoid signalling and this should be set by the network. Also the UE should have some means to address overheating by implementation.

Rec 7

- LG understand that use of UE Assistance Information is used then it will be provided to the target eNB.

Agreements

- 1: Explicit indication of UE's overheating status is not supported. This indication is implicitly carried by UE's overheating report signalling.
- 2: Some reference to the overheating issue will be including in the CRs adding this feature.
- 3: UEAssistanceInformation is used to carry the request from the UE
- 4: UE's request is triggered by internal overheating caused by for example, the advanced CA, the higher order MIMO, the higher order modulation scheme being concurrently configured. This trigger will be described in the spec (FFS whether it is in stage 2 or stage 3 and detailed wording).
- 5: The prohibit timer in RRC is used to avoid UE's frequent requests.
- 6: RRCConnectionReconfiguration is used to indicate that the network can support the feature. If the network does not indicate support of the feature, the UE shall not send any request.
- 7: A 'reject' message from the network (in response to the request) is not supported.

R2-1708220 Low overhead signalling for UE overheating indication Huawei, HiSilicon discussion
Rel-14

=> Revised in R2-1709696

R2-1709696 Low overhead signalling for UE overheating indication Huawei, HiSilicon discussion
Rel-14

R2-1708978 UE overheating problem Qualcomm Korea discussion
Rel-14 TEI14

R2-1709536 UE overheating indication Ericsson discussion
Rel-14 TEI14

- Above 3 papers discussed together.
- Intel understand that the temporary capability would only be in the eNB and not be stored in MME. Huawei have same understanding as Intel and don't see a problem.
- DOCOMO ask if the UE has cooled down and would like to revert to higher capability. Huawei explain the UE will indicate to the network a new request.

- => Offline discussion to conclude what is included in the request (Huawei, Offline discussion #15)
- Update from offline in R2-1709907

- R2-1709907 Report of RAN2#99 offline discussion #15 on UE overheating problem Huawei
- Ericsson think it is not clear what the band combination refers to.
 - Intel think the reduce band combination could be based on the current CA configuration.
 - Samsung understand that the UE should be able to provide just a category.
 - Nokia understand the band combination would be a subset of the already provided BCs and it is not needed as the network already has the knowledge.

Potential agreement to be discussed further offline:

- 1 The UE provides a temporary UE category in the request
- 2 The UE provides a request for the preferred maximum number of CCs

Agreements

- 1 The UE provides a reduced UE category in the request

✉ [99#20][LTE/TEI14] Overheating (Huawei)

Discuss the additional information provided in the request and progress CRs for next meeting.

Intended outcome: Report and CRs submitted to next meeting.

Deadline: Thursday 2017-09-21

- R2-1708221 Introduction of the overheating indication Huawei, HiSilicon CR 36.300 14.3.0 1048
B Rel-14 TEI14
=> Revised in R2-1709693
- R2-1709693 Introduction of the overheating indication Huawei Device, Huawei, HiSilicon, ICom CR
Rel-14 36.300 14.3.0 TEI14 1048 1 B
- R2-1708222 Introduction of the UE capability for overheating indication Huawei, HiSilicon CR
36.306 14.3.0 1490 B Rel-14 TEI14
=> Revised in R2-1709694
- R2-1709694 Introduction of the UE capability for overheating indication Huawei Device, Huawei, HiSilicon,
ICom CR Rel-14 36.306 14.3.0 TEI14 1490 1 B
- R2-1708223 Introduction of the overheating indication Huawei, HiSilicon CR 36.331 14.3.0 2982
B Rel-14 TEI14
=> Revised in R2-1709697
- R2-1709697 Introduction of the overheating indication Huawei Device, Huawei, HiSilicon CR Rel-
14 36.331 14.3.0 TEI14 2982 1 B
- R2-1708752 Prohibit timer for the overheating solution LG Electronics Mobile Research discussion TEI14
- R2-1709212 Recap of intended UE assistance to diminish thermal issues Nokia, Nokia Shanghai Bell
discussion Rel-14 TEI14
- R2-1709544 UE assistance to diminish thermal issues Nokia, Nokia Shanghai Bell CR 36.300
14.3.0 1056 B Rel-14 TEI14

Including output from email discussion [98#44][LTE/TEI14] RLC-UM for LWA (Qualcomm)

- R2-1709650 Support of RLC UM for LWA bearer Qualcomm Incorporated CR 36.300 14.3.0 1031
2 C Rel-14 LTE_WLAN_aggr-Core
Moved from 8.5 to 8.25
=> Agreed

- R2-1709651 UE Capability for support of RLC UM for LWA bearer Qualcomm Incorporated CR
36.306 14.3.0 1502 C Rel-14 LTE_WLAN_aggr-Core
Moved from 8.5 to 8.25
=> Agreed
- R2-1709653 Support of RLC UM for LWA bearer Qualcomm Incorporated CR 36.323 14.3.0 0200
2 C Rel-14 LTE_WLAN_aggr-Core
Moved from 8.5 to 8.25
- LG think it is strange that for DL there is a procedure for LWA bearers but not for UL.
Qualcomm think the confusion was already in the spec. We need to make it clear that LWA
bearers are different from other DRBs.
=> Revised in R2-1709811 (Offline discussion #16)
- R2-1709811 Support of RLC UM for LWA bearer Qualcomm Incorporated CR Rel-14 36.323
14.3.0 LTE_WLAN_aggr-Core 0200 3 C
=> Agreed
- R2-1709654 Introduction of RLC UM support for LWA Qualcomm Incorporated CR 36.331 14.3.0 3055
C Rel-14 LTE_WLAN_aggr-Core
Moved from 8.5 to 8.25
- Nokia asks if it the ASN.1 change is correct.
=> New capability to be added in a separate extension group
=> Agreed in R2-1709812.
- Other*
- R2-1707806 Cleaning up CQI and CSI-RS-related configurations (related to Rel-14 ASN.1 review issue N.099)
Nokia, Nokia Shanghai Bell discussion Rel-
14 TEI14
- Samsung think it makes sense to do this
- Ericsson agree it is good to do.
- Intel think there is a change to the ASN.1 encoding. Nokia explain that was not the intent and
should be addressed
=> We will go ahead with this change.
- R2-1707811 Restructuring of CQI-ReportConfig Nokia, Nokia Shanghai Bell CR 36.331
14.3.0 2968 D Rel-14 TEI14
=> Cat F
=> Revised in R2-1709813 (Offline discussion #17)
- R2-1709813 Restructuring of CQI-ReportConfig Nokia, Nokia Shanghai Bell CR 36.331
14.3.0 2968 1 D Rel-14 TEI14
- ☒ **[99#21][LTE/TEI14] CQI-ReportConfig (Nokia)**
Intended outcome: CR submitted to next meeting
Deadline: Thursday 2017-09-21
- R2-1708241 Corrections on the use of plmn-IdentityList in field descriptions Qualcomm Incorporated CR
36.331 14.3.0 2984 F Rel-14 TEI14
- Nokia is concerned that this might cause more errors due to adding the without suffix and
suffix R14
=> Revised in R2-1709814 (Offline discussion #18)

R2-1709814	Corrections on the use of plmn-IdentityList in field descriptions 36.331 14.3.0 2984 F Rel-14 TEI14	Qualcomm Incorporated	CR
R2-1709952	Corrections on the use of plmn-IdentityList in field descriptions 36.331 14.3.0 2984 F Rel-14 TEI14 => Agreed	Qualcomm Incorporated	CR
R2-1709285	Problems with GNSS Time Model Assistance Data Rel-14 TEI14 => Noted	Qualcomm Incorporated	discussion
R2-1709288	Clarification to GNSS-TimeModelList F Rel-14 TEI14 => Agreed	Qualcomm Incorporated	CR 36.355 14.2.0 0184
R2-1709346	Clarification on LWIP aggregation F Rel-14 TEI14 => Agreed	HTC Corporation	CR 36.331 14.3.0 3040
R2-1709490	Corrections to references 14 TEI14 => Agreed	Ericsson	CR 36.321 14.3.0 1178 F Rel-

Proposed to be discussed under TEI15 from RAN2#100

R2-1708391	Introduction of Tx antenna selection per band in 36.331 14.3.0 2996 B Rel-14 TEI14	Huawei, HiSilicon, Softbank	CR
R2-1708392	Introduction of Tx antenna selection per band in 36.306 14.3.0 1493 B Rel-14 TEI14	Huawei, HiSilicon, Softbank	CR
R2-1708571	Introduction of Per supported band Tx Antenna Selection discussion	SoftBank, Huawei, HiSilicon, ZTE	Rel-14
R2-1709000	Solutions for UE camping in high speed railway scenario Rel-14	CMCC, MediaTek Inc.	discussion
R2-1709465	Overview on new LTE measurements TEI14	Huawei, HiSilicon	discussion
R2-1709467	Discussion on PRB usage distribution measurement TEI14	Huawei, HiSilicon	discussion
R2-1709468	Discussion on IP throughput distribution measurement TEI14	Huawei, HiSilicon	discussion
R2-1709470	Discussion on new measurements on number of active UEs discussion	Huawei, HiSilicon	TEI14
R2-1709472	Introduction of PRB usage distribution measurement 36.314 14.0.0 0039 B Rel-14 TEI14	Huawei, HiSilicon	CR
R2-1709475	Introduction of IP throughput distribution measurement 36.314 14.0.0 0040 B Rel-14 TEI14	Huawei, HiSilicon	CR
R2-1709476	Introduction of new measurements on number of active UEs 36.314 14.0.0 0041 B Rel-14 TEI14	Huawei, HiSilicon	CR

9 LTE Rel-15

9.1 SI: Further Enhancements to LTE Device to Device, UE to Network Relays for IoT and Wearables

(FS_feD2D_IoT_relay_wearable; leading WG: RAN2; REL-15; started: Mar. 16; target: Sept. 17; SID: RP-170295)

Time budget: OTU

Documents in this agenda item will be handled in a break out session

There is no time budget allocated to this SI at RAN2#99. This agenda item is for treating, and if necessary responding to, incoming LSs only.

- R2-1707634 LS on RAN4 agreements for FeD2D SI (R4-1706074; contact: Intel) RAN4 LS in Rel-14 FS_feD2D_IoT_relay_wearable To:RAN1, RAN2
=> Noted
- R2-1707642 LS (S2-172904/R2-1703945) on QoS support of UE-to-Network Relay over LTE sidelink RAN2 LSin
=> Noted
- R2-1708218 DRAFT Reply LS on QoS support over PC5 Huawei, HiSilicon discussion Rel-15
- Ericsson wonders what avoid impact means. Huawei just likes to point out that we would try to solve with minimal impacts to SA2.
=> Noted
- R2-1708515 [Draft] Response LS on QoS support of UE-to-Network relay over LTE sidelink ZTE Corporation LS out FS_feD2D_IoT_relay_wearable SA2
=> noted
- R2-1708675 [DRAFT] Reply LS on QoS support over PC5 Nokia, Nokia Shanghai Bell discussion Rel-15 FS_feD2D_IoT_relay_wearable
=> The LS is combined with R2-1708218 and revised in R2-1709778
- R2-1709778 [DRAFT] Reply LS on QoS support over PC5 Nokia, Nokia Shanghai Bell discussion Approval - - - - FS_feD2D_IoT_relay_wearable Rel-15
[CB 106]
- R2-1708514 Discussion on QoS aspects for feD2D ZTE Corporation discussion FS_feD2D_IoT_relay_wearable
=> Noted
- R2-1708513 Discussion on relay discovery of bandwidth limited remote UE ZTE Corporation discussion FS_feD2D_IoT_relay_wearable
RAN2 is recommended to send LS to RAN1 about AS is not aware which discovery model is used for the relay discovery and it is not necessary to design discovery model specific discovery enhancement for BL remote UE.
- Intel thinks that we should focus and respond to the main question and not open up the discussion to enhancements
- LG thinks that it can be possible but via interaction with upper layers.
=> Noted
- R2-1709237 Consideration on Relay UE discovery for bandwidth limited Remote UEs LG Electronics Inc discussion Rel-15 FS_feD2D_IoT_relay_wearable
To enhance model specific discovery procedure, upper layer's additional operation and an interaction with radio layer and upper layer is necessary.
=> Noted
- R2-1708676 [DRAFT] Reply LS on Relay UE discovery Nokia, Nokia Shanghai Bell discussion Rel-15 FS_feD2D_IoT_relay_wearable
=> We should add that the discover model is currently transparent to AS and discovery enhancements have not been studied. However, it is possible for the upper layers in the UE to indicate currently used discovery model when requesting AS layer to perform sidelink discovery transmission or sidelink discovery monitoring.
=> The LS is revised in R2-1709779

- R2-1709779 [DRAFT] Reply LS on Relay UE discovery Nokia, Nokia Shanghai Bell discussion
Approval - - -
=> Therefore, it can be feasible for the upper layers in the UE to indicate currently used discovery model when requesting AS layer to perform sidelink discovery transmission or sidelink discovery monitoring. If the information is provided by upper layers, then it can also be made possible for RRC Connected UE to indicate the utilized discovery model to the eNB, if needed.
=> The LS is approved in R2-1709782
- R2-1709302 Draft Reply LS to RAN1 on Relay UE discovery for bandwidth limited Remote UEs LG Electronics Inc LS out Rel-15 FS_feD2D_IoT_relay_wearable RAN1
=> Noted
- R2-1709679 Reply LS on PC5 Secure Communication LS (S2-171621), LS (S2-170398, R2-168930)
=> Noted

9.2 WI: Shortened TTI and processing time for LTE

(LTE_STTlandPT-core; leading WG: RAN1; REL-15; started: June 16; target: Dec. 17; WID: RP-171468)

Time budget: 1 TU

Documents in this agenda item will be handled in a break out session

Including output from email discussion [98#46][LTE/sTTI] – Running 36.300 CR - Ericsson

Including output from email discussion [98#47][LTE/sTTI] – Running 36.321 CR - Ericsson

Including output from email discussion [98#48][LTE/sTTI] – Running 36.331 CR - Ericsson

- R2-1707607 LS on UL HARQ processes and collision handling for short processing time with 1ms TTI (R1-1709243; contact: Sharp) RAN1 LS in Rel-15 LTE_sTTlandPT-Core To:RAN2
=> Noted
- R2-1707696 Consideration on stopping instructing non-adaptive retransmission generation (R1 LS Agreement 1)SHARP Corporation discussion
- R2-1707697 Consideration on stopping the autonomous non-adaptive retransmission (R1 LS Agreement 2) SHARP Corporation discussion
- Ericsson thinks this looks ok but just need some more time to check.
=> Noted
- R2-1707698 Consideration on synchronous UL HARQ process for a UE configured with n+3 time SHARP Corporation discussion
- LG wonders if they HARQ processes can be dynamically switched. Qualcomm explains that the HARQ processes are not shared.
=> This will be captured in the running CR
=> Noted

Agreements:

- When a non-adaptive retransmission of a HARQ process collides with a transmission of another HARQ process scheduled using Short Processing Time at the time of transmission, HARQ entity delivers ACK to the HARQ process.

R2-1708610 Running CR for introduction of shortened TTI and processing time for LTE Ericsson
draftCR Rel-15 36.300 14.3.0 LTE_sTTIandPT B

=> The running CR is endorsed

R2-1708611 Running CR for introduction of shortened TTI and processing time for LTE Ericsson
draftCR Rel-15 36.306 14.3.0 LTE_sTTIandPT B

=> Not treated

R2-1708612 Running CR for introduction of shortened TTI and processing time for LTE Ericsson
draftCR Rel-15 36.321 14.3.0 LTE_sTTIandPT B

=> The running CR is endorsed

R2-1708613 Running CR for introduction of shortened TTI and processing time for LTE Ericsson
draftCR Rel-15 36.331 14.3.0 LTE_sTTIandPT B

=> The running CR is endorsed

BSR/SR

R2-1708555 BSR Format in sTTI Huawei, HiSilicon discussion Rel-15 LTE_sTTIandPT-Core
Proposal 1: Implicitly mapping LCG and TTI length is preferred for BSR reporting for sTTI.
=> Noted

R2-1708609 Buffer Status Reporting with short TTI Ericsson discussion Rel-15
LTE_sTTIandPT
=> Noted

Agreements on BSR :

- No new BSR format is introduced for sTTI
- LCH to LCG grouping is left to eNB implementation
- Keep the existing BSR procedures, and formats, e.g., with buffer status reported per LCG and at most four LCGs.
- Keep the existing BSR cancellation procedure for sTTI.

R2-1708556 SR Configuration and Triggering for sTTI Huawei, HiSilicon discussion Rel-15
LTE_sTTIandPT-Core

Proposal 1: A mapping between SR configuration and TTI length need to be specified in LTE.

- Nokia thinks that we need to discuss mapping of SR configuration and logical channel
- Huawei thinks that it can be implicit.
- LG doesn't think that mapping between LCH and SR is not necessary
- Qualcomm thinks that the situation is different than NR.

=> Noted

R2-1708614 Scheduling Requests with short TTI Ericsson discussion Rel-15
LTE_sTTIandPT

Proposal 1 When a UE has an SR pending, the UE sends SR using the next available SR resources including SR resources available on both PUCCH and sPUCCH.

Proposal 2 It is left to UE implementation which of sPUCCH and PUCCH SR resources to send SR on when both are configured.

Proposal 3 Similar to SR on PUCCH, an SR transmitted on sPUCCH starts an ssr-ProhibitTimer to prohibit SRs on sPUCCH until it times out.

- Nokia thinks that it should be a single timer and not per SR configuration. LG agrees with Nokia.
- Samsung thinks that we should have separate timer, especially in coverage situations.

- LG is concerned that we need two separate SR procedures in parallel.
- Huawei, Qualcomm, InterDigital agree with proposal 3.
- Nokia thinks that we can have two timers configured and whether you have two timers running can be discussed.

Proposal 4 The existing SR_COUNTER can count both SR transmissions on PUCCH and sPUCCH. When reaching dsr-TransMax, the UE drops all sPUCCH and PUCCH resources and initiate Random Access (as in legacy).

- Qualcomm, Huawei, Samsung think that we should have two SR_COUNTERs. Nokia, Ericsson thinks that we should have a single one.

Proposal 5 Like in legacy LTE, inclusion of a BSR in a MAC PDU for transmission cancel all pending SRs, no specification change needed for this.

=> Noted

Discussion on what happens when the UE can transmit on both SR

Option 1: The UE uses sPUCCH

Option 2: The UE can transmit on both

Option 3: We leave it up to UE implementation

- LG asks why the UE can't transmit on both. Lenovo clarifies that the power has to be split so reliability is impacted.
- LG thinks that which one to chose should not be decided in RAN2.

Agreements:

- A restriction similar to LCP restriction can be used to determine SR configuration to logical channel mapping
- In the case of overlapping occasions of sPUCCH and PUCCH, it is left up to UE implementation which of sPUCCH or PUCCH SR resources to send SR on when SR can be sent on both PUCCH and sPUCCH. In case of non-overlapping SR occasions, the UE can transmit on the earliest SR occasion. The UE doesn't transmit on both sPUCCH and PUCCH simultaneously.
- **Working assumption:** an SR transmitted on sPUCCH starts an ssr-ProhibitTimer to prohibit SRs on sPUCCH until it times out
- **Working assumption:** Different SR_COUNTERs are used
- Like in legacy LTE, inclusion of a BSR in a MAC PDU for transmission cancel all pending SRs, no specification change needed for this.

R2-1709783 [DRAFT] LS on SPS and SR for sTTI Huawei, HiSilicon

- State our agreements on SR and SPS
- Indicate that RAN2 assumes that the UE cannot not transmit on both. RAN2 also does not see a benefit to transmit on both. Ask them to confirm
- indicate RAN2 desire to support SPS and agreements. Ask the feasibility of SPS activation/deactivation for sTTI

[CB105]

Not treated

R2-1708615 Scheduling Requests with short TTI Ericsson draftCR Rel-15 36.321 14.3.0
LTE_sTTIandPT B

R2-1708566 Draft LS on SR period for sTTI Huawei, HiSilicon LS out Rel-15 LTE_sTTIandPT-Core
RAN1

R2-1708761 SR for sTTI Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_sTTIandPT

R2-1709416 SR Cancellation for sTTI Huawei, HiSilicon discussion Rel-15 LTE_sTTIandPT-Core

R2-1709645 SR and BSR for short TTI Qualcomm Incorporated discussion

R2-1708553 Impacts of sTTI on L2 Timers Huawei, HiSilicon discussion Rel-15
LTE_sTTIandPT-Core

R2-1708605 Impact of sTTI on L2 timers Ericsson discussion Rel-15 LTE_sTTIandPT

SPS

- R2-1708607 SPS operation on sTTI Ericsson discussion Rel-15 LTE_sTTIandPT
- LG asks if multiple SPS can be activated at the same time. Ericsson thinks we would only have one active at a time and prioritize to sSPS.
 - LG wonders if LCP restriction is applied to SPS. Qualcomm thinks the same restrictions should apply.
 - Nokia asks if the activation has to be on sPDCCH and is it possible to avoid the impact to RAN1. Ericsson thinks that we should only send on PDCCH but the sDCI would have to be modified, fields have to be added. Lenovo asks if we are considering adding the same field as for normal PDCCH. Huawei thinks that RAN1 needs to decide how this is done, whether it is PDCCH or sPDCCH.
- => Noted

Agreements

- => RAN2 sees benefits to support SPS for short TTI
- => Same LCP restriction as dynamic grant will apply for SPS grant.
- => sTTI SPS intervals are configured by RRC. New sTTI-based interval values are introduced. The minimum value of 1 sTTI is supported. Other values are FFS.
- => In DL/UL SPS with asynchronous HARQ, the HARQ process ID is derived from the sTTI-number (index of sTTI within subframe). Details are FFS
- => Send LS to RAN1 to indicate RAN2 desire to support SPS and agreements. Ask the feasibility of SPS activation/deactivation for sTTI

Not treated

- R2-1709657 SPS short TTI Qualcomm Incorporated discussion
- R2-1708608 DRAFT LS on SPS operation on sTTI Ericsson discussion Rel-15
LTE_sTTIandPT
- R2-1709155 SPS with sTTI LG Electronics Inc. discussion LTE_sTTIandPT
- R2-1708568 Support of SPS for sTTI in TS 36.321 Huawei, HiSilicon, Ericsson draftCR Rel-15
36.321 14.3.0 LTE_sTTIandPT-Core B
- => withdrawn
- R2-1708569 Support of SPS for sTTI in TS 36.331 Huawei, HiSilicon, Ericsson draftCR Rel-15
36.331 14.3.0 LTE_sTTIandPT-Core B
- => withdrawn
- R2-1709414 Support of SPS for sTTI in TS 36.321 Huawei, HiSilicon, Ericsson CR Rel-15
36.321 14.3.0 LTE_sTTIandPT-Core 1177 B
- => Moved to email discussion
- R2-1709415 Support of SPS for sTTI in TS 36.331 Huawei, HiSilicon, Ericsson CR Rel-15
36.331 14.3.0 LTE_sTTIandPT-Core 3049 B
- => Moved to email discussion
- ☒ **[99#34][LTE/sTTI] – SPS for sTTI**
- review and provide comments on running CR for SPS
 - before next meeting

DRX

- R2-1709647 Remaining issues on C-DRX for short TTI Qualcomm Incorporated discussion
- Proposal 1: RAN2 to agree using a MAC CE command to limit sPDCCH monitoring during DRX ON time.*

Proposal 2: If L2 signaling is not adopted, RAN2 should agree to RRC signaling for different DRX ON duration timers and/or a set of sPDCCH locations within a TTI.

Proposal 3: RAN2 should send an LS to RAN1 on DRX retransmission timer agreements and its impact on HARQ process sharing.

=> Noted

R2-1708603 DRX impacts of sTTI Ericsson discussion Rel-15 LTE_sTTIandPT
=> Noted

Discussion

- Nokia thinks that MAC CE should be considered, the UE should be monitoring PDCCH to receive it anyways.
- Ericsson and QC would like to enhance DRX monitoring during onduration (e.g. turn off some sPDCCH monitoring)
- LG doesn't think we need to optimize as it limits scheduling opportunity. QC thinks that the eNB is in full control and it can configure the UE as it wishes. LG understands that sTTI is for latency and DRX contradicts. Qualcomm explains that this is for the case where you have DRX configured and we shouldn't force the UE to monitor all sPDCCH.

=> No DRX enhancements are supported for Rel-15

=> a single onDuration timer is configured

=> Respond to RAN1. No consensus in RAN2 to support L2/L3 DRX enhancement. Mention agreements HARQ RTT timer and retransmission timers

R2-1709784 [draft] Reply LS to RAN1 on DRX Ericsson
[CB 118]

R2-1708762 DRX for sTTI Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_sTTIandPT
=> Not treated

R2-1708567 DRX Timers for sTTI in TS 36.331 Huawei, HiSilicon CR Rel-15 36.331 14.3.0
LTE_sTTIandPT-Core 3004 B
=> Not treated

R2-1708565 Down-selection of DRX mechanism in sTTI Huawei, HiSilicon discussion Rel-15
LTE_sTTIandPT-Core
=> Not treated

R2-1708759 sPDCCH monitoring for sTTI LG Electronics Mobile Research discussion
LTE_sTTIandPT-Core
=> Not treated

R2-1708617 Logical Channel Prioritization procedure with short TTI Ericsson discussion Rel-15
LTE_sTTIandPT
=> The current specification for Bj operation doesn't need to be updated.
=> Noted

R2-1708751 LCP for sTTI LG Electronics Mobile Research discussion LTE_sTTIandPT-Core
Proposal 3. The UE shall not include data from logical channels that are not allowed to be included in a MAC PDU even when there is remaining space in a MAC PDU after including data from all logical channels that are allowed to be included in a MAC PDU
- Nokia understands that this is already in the specification
=> There is no TTI length restriction for MAC CE
=> Noted

R2-1709646 MAC CE Handling under PUSCH and sPUSCH Collision Qualcomm Incorporated discussion
- Ericsson thinks that if you cancel PUSCH with a MAC CE, the BSR would still be consider pending and should be reported on sPUSCH. LG thinks this can be handled with retransmission.

- Lenovo thinks that this can be left to UE implementation
- => Nothing needs to be specified and it is up to the UE implementation whether to send MAC CE/BSR on sPUSCH when the original MAC CE in PUSCH is dropped.
- => Noted

TTI switching

R2-1708554	TTI Switching between sTTI and legacy TTI 15 LTE_sTTIandPT-Core	Huawei, HiSilicon	discussion	Rel-
R2-1708604	HARQ process handling with different TTIs lengths LTE_sTTIandPT	Ericsson	discussion	Rel-15
R2-1709156	HARQ aspect of sTTI operation	LG Electronics Inc.	discussion	LTE_sTTIandPT
R2-1709157	Support of switching between different TTI length within one HARQ procedure	LG Electronics Inc.	discussion	LTE_sTTIandPT
R2-1708559	SPT Impact on RAR Reception timing LTE_sTTIandPT-Core	Huawei, HiSilicon	discussion	Rel-15
	- Ericsson indicates that this is outside the scope of WI			
	=> No support for shortened processing time for RAR			
	=> Noted			
R2-1708560	Draft LS on SPT impact on RAR reception timing LTE_sTTIandPT-Core RAN1	Huawei, HiSilicon	LS out	Rel-15
R2-1708561	SPT impact on TA command reception timing 15 LTE_sTTIandPT-Core	Huawei, HiSilicon	discussion	Rel-
R2-1708562	Draft LS on SPT impact on TA command receiving LTE_sTTIandPT-Core RAN1	Huawei, HiSilicon	LS out	Rel-15
R2-1708557	The impact on CQI transmission in DRX of SPT and sTTI Rel-15 LTE_sTTIandPT-Core	Huawei, HiSilicon	discussion	
	- Nokia doesn't think we need to do anything. Ericsson agrees. Huawei thinks this has impact on the latency.			
	=> Noted			
R2-1708558	Draft LS on CQI transmission in DRX of SPT and sTTI 15 LTE_sTTIandPT-Core RAN1	Huawei, HiSilicon	LS out	Rel-
R2-1708563	UE capability to handle transmission of both sTTI and legacy TTI discussion Rel-15 LTE_sTTIandPT-Core	Huawei, HiSilicon		
R2-1708564	Draft LS on UE capability to handle transmission of both sTTI and legacy TTI HiSilicon LS out Rel-15 LTE_sTTIandPT-Core RAN1	Huawei,		
R2-1708606	List of outstanding issues for short TTI LTE_sTTIandPT	Ericsson	discussion	Rel-15
R2-1708616	sPUCCH Utilization Strategy	Ericsson	discussion	Rel-15 LTE_sTTIandPT

9.3 Study on UL data compression in LTE

(FS_LTE_UDC; leading WG: RAN2; REL-15; started: Dec. 16; target: Sep. 17: SID: RP-170403)

Time budget: 1 TU

Documents in this agenda item will be handled in a break out session

R2-1708357	Clean Up of the TR 36.754	CATT CR	Rel-15	36.754	15.0.0	FS_LTE_UDC	0001
	F						

=> Agreed

Deflate:

R2-1708358 More Details and Simulation Results of Deflate with 1 Byte UDC Header CATT discussion
Rel-15 FS_LTE_UDC

- LG concern the failure case.
- Intel think checksum is needed and the retransmission can be discussed in WI phase.

=> Noted

R2-1708359 Update of Description and Evaluation Results for Deflate CATT CR Rel-15 36.754
15.0.0 FS_LTE_UDC 0002 F

- => Only capture Simulation results with RFC 1951 (with 1 byte UDC header) for both cases.
- => Indicate the results without cross check.



CBF: => Revised in R2-1709742 (offline number 222)

R2-1708363 Correction on Computation Complexity Table for Deflate CATT CR Rel-15 36.754
15.0.0 FS_LTE_UDC 0004 F

=> Not pursued

APDC:

R2-1708383 Compression Gain evaluation of APDC solution Ericsson discussion Rel-15

=> Noted

R2-1708572 Further analysis on APDC solution SoftBank Corp. discussion Rel-15

=> Noted

R2-1708296 Evaluation and crosscheck on APDC algorithm MediaTek Inc., Broadcom discussion
Rel-15 FS_LTE_UDC

=> Noted

R2-1709041 Evaluation on APDC Intel Corporation discussion FS_LTE_UDC

=> Noted

R2-1708360 Cross Check on APDC CATT discussion Rel-15 FS_LTE_UDC

=> Noted

R2-1709669 Response to R2-1708296 for comments on APDC Qualcomm Inc. discussion

=> Noted

- Intel would like to know the reason for the different results.

=> Capture the simulation results from R2-1708296, R2-1708383, R2-1708572, R2-1709041 and R2-1708360 in TR36.754.

[99#14][LTE/UDC] (CATT)

Intended outcome: Agreed CR of 36.754 on capturing the simulation results of APDC
Deadline: 2017-08-30

- Capture the simulation results from R2-1708296, R2-1708383, R2-1708572, R2-1709041 and R2-1708360 for the buffer size of 8K and 16K.
- Remove in TR 36.754 the statement "The same results are obtained for setups with 8Kbyte and 32Kbyte compression buffer size" in Section 7.2.4.2 and the statement "No compression efficiency variation due to buffer size was observed in UDC solution 4" in Section 7.3, and indicate instead that "APDC compression efficiency varies as a function of the compression buffer size".
- Clarify the buffer size issue of APDC.
- Update conclusion section based on the results.

=> The resulting CR is agreed in R2-1709921.

The following papers are not treated:

R2-1709065 APDC source code reference Qualcomm Korea CR Rel-15 36.754 15.0.0
FS_LTE_UDC 0005 F

R2-1708361 Clarification on Buffer Size for APDC CATT CR Rel-15 36.754 15.0.0
FS_LTE_UDC 0003 F

R2-1709024	Implementation of APDC compressor source code Qualcomm Korea	other	Rel-15
	36.754 FS_LTE_UDC		
R2-1709411	Corrections of APDC MediaTek Inc. CR	Rel-15	36.754 15.0.0 FS_LTE_UDC 0006 F
<i>Complexity comparison:</i>			
R2-1708362	Complexity Evaluation between APDC and DEFLATE Rel-15 FS_LTE_UDC	CATT, MediaTek	discussion
	=> Not treated		
R2-1709582	Complexity Evaluation between APDC and DEFLATE Rel-15 FS_LTE_UDC	CATT, MediaTek, Intel	discussion
	=> Not treated		
R2-1709555	A Quantitative Evaluation on APDC Processing Complexity based on open source code Qualcomm Korea	discussion	Rel-15 36.754 FS_LTE_UDC Revised to R2-1709842
	=> Not treated		
R2-1709842	A Quantitative Evaluation on APDC Processing Complexity based on open source code Qualcomm Korea	discussion	Rel-15 36.754 FS_LTE_UDC
	=> Not treated		
R2-1708979	Comparison Study on Deflate and APDC Qualcomm Korea	discussion	Rel-15
	36.754 FS_LTE_UDC		
	- CATT thin static Huffman encoding can reduce the complexity.		
	=> Noted		
R2-1709832	Way forward on LTE UDC AsusTek, Broadcom, CATT, CATR, CHTTL, CoolPad, HTC, Huawei, HiSilicon, Intel, ITRI, MediaTek, OPPO, Samsung, Spreadtrum, vivo	discussion	Rel-15
	15 36.754 FS_LTE_UDC		

9.4 Study on Enhanced Support for Aerial Vehicles

(FS_LTE_Aerial; leading WG: RAN2; REL-15; started: Mar. 17; target: Dec. 17; SID: RP-171050)

Time budget: 1.5 TU

Documents in this agenda item will be handled in a break out session

9.4.1 General

(work plan and TR skeleton)

R2-1707616	LS on RAN1 agreements on key performance indicator, evaluation assumptions, and channel modelling (R1-1709862; contact: Ericsson) RAN1 LS in	Rel-15 FS_LTE_Aerial To:RAN2
	=> Noted	
R2-1707617	LS on RAN1 agreements on channel modelling (R1-1709869; contact: Ericsson) RAN1 LS in	Rel-15 FS_LTE_Aerial To:RAN2
	=> Noted	
	=> Take RAN1 channel modelling agreements in R2-1707617 into consideration in future RAN2 evaluations	
R2-1709395	RAN1 working progress on Study on Enhanced support for Aerial Vehicles NTT DOCOMO INC., Ericsson	discussion FS_LTE_Aerial
	=> Noted	
R2-1708236	Outcome of email discussion [98#49] Qualcomm Incorporated (Email discussion rapporteur)	discussion Rel-15 FS_LTE_Aerial
	=> Noted	
R2-1709394	Draft TR 36.777 v011 NTT DOCOMO INC. draft TR	Rel-15 36.777 0.1.0 FS_LTE_Aerial

- => Table 5.2-1 Performance metrics for HO and RLF simulations should be changed according to the email discussion report (R2-1708236)
=> With this change TR is agreed in R2-1709743

9.4.2 Requirements and parameter identification

(Identify the heights, speeds, latency, reliability, data rate, positioning accuracy, etc , taking into account the regulation viewpoints)

R2-1708661 On the requirements of connectivity services for drones Ericsson discussion Rel-15
FS_LTE_Aerial

Agreement:

- 1: RAN2 understanding is that C&C: 50ms (one way from eNB to UAV).
- 2: Use the definition "user plane latency means "the duration from the input to PDCP in the transmitter" to "the output from PDCP in the receiver." The wording can be improved in the LS to RAN1.



CBF: => Draft LS to RAN1 in R2-1709747 to inform our understanding on latency (offline number 0824) (DOCOMO)

R2-1708540 Considerations on traffic for Drones Huawei, HiSilicon discussion Rel-15
FS_LTE_Aerial

- Intel, Xiaomi and Lenovo think it depends on eNB implementation and already supported today.
 - Qualcomm and Nokia think we should focus on the traffic type.
- => Noted

9.4.3 Potential enhancements for UAV interference problem

(Solutions to detect whether UL signal from an air-borne UE increases interference in multiple neighbour cells and whether an air-borne UE incurs interference from multiple cells)

R2-1708665 Interference Detection for Aerial Vehicles Nokia, Nokia Shanghai Bell discussion Rel-15
FS_LTE_Aerial

=> Noted

R2-1708541 Interference Detection for Drones Huawei, HiSilicon discussion Rel-15
FS_LTE_Aerial

=> Noted

R2-1708973 Consideration for interference detection and measurement enhancement for drone UE
Lenovo, Motorola Mobility discussion Rel-15 FS_LTE_Aerial

=> Noted

R2-1709038 UL interference from an aerial vehicle Intel Corporation discussion
FS_LTE_Aerial

=> Noted

R2-1708662 Potential enhancements for UAV interference problem Ericsson discussion Rel-15
FS_LTE_Aerial

=> Noted

R2-1708734 Detection of UAV interference InterDigital discussion Rel-15 FS_LTE_Aerial

R2-1709396 Measurements Reporting Enhancements for UAV UE NTT DOCOMO INC. discussion
FS_LTE_Aerial

Agreed observations:

- 1 The RSRP and RSSI characteristics of aerial vehicles in the air are different from terrestrial vehicles.
- 2 The downlink interference could be detected by RSRP/CSI-RSRP/RSRQ/RS-SINR/CSI reporting from UE to eNB.
- 3 RSRP, CSI-RSRP, RSRQ, power headroom, maximum output power and used PRBs can be used to estimate the uplink interference caused by a UAV for some scenarios.

✉ **[99#37][LTE/UAV] DL and UL Interference detection (NTT DOCOMO)**

- Discuss other observations from the contributions in 9.4.3 and capture the agreed observations
 - Based on the agreed observations, solutions can be discussed
- Intended outcome: Report to next meeting
Deadline: 2017-09-28

9.4.4 Potential enhancements for handover

(Identify if enhancements in terms of cell selection and handover efficiency as well as robustness in handover signalling can be achieved)

The following papers are not treated:

R2-1708663	Mobility simulations	Ericsson	discussion	Rel-15	FS_LTE_Aerial
R2-1708544	Analysis and Simulation of Handover Issues for Drones	Huawei, HiSilicon	discussion	Rel-15	FS_LTE_Aerial
R2-1708591	Mobility enhancements for Aerial vehicles - simulation results	Nokia, Nokia Shanghai Bell	discussion	Rel-15	FS_LTE_Aerial
R2-1708237	Field trial results on handover performance for aerial vehicles	Qualcomm Incorporated	discussion	Rel-15	FS_LTE_Aerial
R2-1708975	Consideration for potential mobility enhancement for aerial UE	Lenovo, Motorola Mobility	discussion	Rel-15	FS_LTE_Aerial
R2-1708667	Potential mobility enhancements for UAVs	Nokia, Nokia Shanghai Bell	discussion	Rel-15	FS_LTE_Aerial
R2-1708542	Potential enhancements for drones in idle state	Huawei, HiSilicon	discussion	Rel-15	FS_LTE_Aerial
R2-1708545	Measurement report mechanism for Drones	Huawei, HiSilicon	discussion	Rel-15	FS_LTE_Aerial
R2-1708666	LOS/NLOS switching in mobility simulations	Nokia, Nokia Shanghai Bell	discussion	Rel-15	FS_LTE_Aerial
R2-1709462	Handover Failure Handling of Aerial UE	LG Electronics Inc.	discussion	Rel-15	FS_LTE_Aerial
R2-1709463	Handover Support for Aerial UE	LG Electronics Inc.	discussion	Rel-15	FS_LTE_Aerial
R2-1709520	Considerations for cell selection and reselection with UAVs Revised to R2-1709699	Kyocera	discussion		
R2-1709699	Considerations for cell selection and reselection with UAVs	Kyocera	discussion		

9.4.5 Identify certification

(Identification of an air-borne UE that does not have proper certification for connecting to the cellular network while air-borne)

R2-1709397	On UAV UE identification	NTT DOCOMO INC.	discussion	FS_LTE_Aerial
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Agreement:

- 1 The license/certification related identification is necessary for UAV UE from RAN2 point of view and to consult SA2, SA3 and RAN3 on the details



CB on Friday: => Draft LS in R2-1709744 to consult SA2, SA3 and RAN3 the above agreement. (DOCOMO) (offline number 286)

R2-1708668 Discussion on non-certified air-borne UE detection Nokia, Nokia Shanghai Bell discussion
Rel-15 FS_LTE_Aerial

Agreements:

- 1 The solution developed for interference detection within this SI should allow for detection of potentially air-borne UEs causing excessive interference, including UEs non-certified for aerial usage and UEs not implementing Rel-15 UAV functions.
- 2 Capture in the TR that the developed solution should allow for:
Identifying the potentially air-borne UE, which is a source of excessive interference
Checking whether this UE is an air-borne UE
Verify whether this UE is authorized to act as an air-borne UE

R2-1708238 Identification and certification of Drones Qualcomm Incorporated discussion Rel-15
FS_LTE_Aerial
=> Noted

R2-1708543 Identification of Air-borne UE Huawei, HiSilicon discussion Rel-15
FS_LTE_Aerial
=> Not treated

R2-1708551 Draft LS on Identification of Air-borne UE Huawei, HiSilicon discussion Rel-15
FS_LTE_Aerial
=> Not treated

R2-1708660 Discussion on identification and certification of Aerial Vehicles Sony discussion Rel-15
FS_LTE_Aerial
=> Withdrawn

R2-1708664 Identify certification for drones Ericsson discussion Rel-15 FS_LTE_Aerial
=> Not treated

R2-1708669 Air-borne UE identification mechanism Nokia, Nokia Shanghai Bell discussion Rel-15
FS_LTE_Aerial
=> Not treated

R2-1708976 Consideration for identification issues for drone UE Lenovo, Motorola Mobility
discussion Rel-15 FS_LTE_Aerial
=> Not treated

R2-1709461 Aerial UE Identification LG Electronics Inc. discussion Rel-15 FS_LTE_Aerial
=> Not treated

R2-1709517 Discussion on identification and certification of Aerial Vehicles Sony discussion Rel-15
FS_LTE_Aerial
=> Noted

☒ [99#38][LTE/UAV] Running TR36.777 (DOCOMO)

Intended outcome: Running TR

- Capture the agreements from this meeting
- Deadline: 2017-09-28

9.4.6 Others

R2-1709460 Aerial Traffic Handling using Positioning Identification LG Electronics Inc. discussion
 Rel-15 FS_LTE_Aerial
 => Not treated

9.5 Further video enhancements for LTE

(LTE_ViLTE_enh2-Core; leading WG: RAN2; REL-15; started: Mar. 17; target: Dec. 17: WID: RP-171392)

Time budget: 0.5 TU

Documents in this agenda item will be handled in a break out session

9.5.1 General

(work plan)

9.5.2 Local caching for UE assistance video request

Including output from email discussion [98#45][LTE/ViLTE] Identify the benefits of UE assistance information and corresponding solutions (CMCC)

R2-1708991 Email discussion report[98#45][LTE/ViLTE] Identify the benefits of UE assistance information and corresponding solutions CMCC discussion Rel-15 LTE_ViLTE_enh2-Core
 => Noted

R2-1708992 Motivation and solutions for UE assisted local caching CMCC discussion Rel-15
 LTE_ViLTE_enh2-Core
 => Noted

R2-1708294 Benefits of UE assisted information and solutions Qualcomm Incorporated discussion Rel-15
 LTE_ViLTE_enh2-Core
 - Nokia think the benefit from the architecture which is ruled out from RAN3.
 => Noted

✍ **CBF:** => Offline discussion on how to progress the issue of local caching (CMCC). Report to the main session. Report in R2-1709745 (offline number 2000)

9.5.3 Enhancement to solve the problem of critical data discard

Including output from email discussion [98#55][LTE/ViLTE] Solutions for critical data identification (Intel)

R2-1709042 Email discussion report on [98#55][LTE/ViLTE] Solutions for critical data identification Intel Corporation discussion LTE_ViLTE_enh2-Core
 => Noted

Agreement

It is left up to UE implementation how the UE AS is aware of UL upper layer critical data within a given DRB of one user.

L2 differentiated handling:

R2-1707940 Discussion on L2 differentiated handling for upper layer critical data Huawei, HiSilicon discussion Rel-15 LTE_ViLTE_enh2-Core
 - LG think it is not necessary to introduce additional timer.
 - Intel think it should left to UE implementation.
 => Noted

R2-1709219 Discussion on different discard timer LG Electronics France discussion Rel-15
 LTE_ViLTE_enh2-Core

=> Not treated

R2-1707777 Discussion on open issues of eVideo OPPO discussion

=> Not treated

R2-1708642 L2 differentiated handling for critical data Ericsson discussion Rel-15
LTE_ViLTE_enh2-Core

=> Noted

R2-1708295 Discussion on L2 differentiated handling for critical data Qualcomm Incorporated discussion
Rel-15 LTE_ViLTE_enh2-Core

- Intel and Qualcomm support the solution in R2-1708295.

=> Noted

Awareness of critical data:

R2-1709043 Solution details to enhance critical data handling Intel Corporation discussion
LTE_ViLTE_enh2-Core

- Ericsson think this solution will confuse eNB.

- Nokia think there may be some benefit to know this information.

=> Noted

R2-1707948 Discussion on awareness of critical data in the UL buffer Huawei, HiSilicon discussion
Rel-15 LTE_ViLTE_enh2-Core

R2-1708643 Awareness of critical data in UE buffer Ericsson discussion Rel-15
LTE_ViLTE_enh2-Core

=> Noted



CBF: => Offline discussion on how to progress on awareness of critical data. Report the result to main session in R2-1709746 (offline number 299). (Intel)

The following papers are not treated:

R2-1707941 Introduction of additional PDCP discard timer Huawei, HiSilicon CR Rel-15
36.300 14.3.0 LTE_ViLTE_enh2-Core 1044 B

R2-1707944 Introduction of additional PDCP discard timer Huawei, HiSilicon CR Rel-15
36.323 14.3.0 LTE_ViLTE_enh2-Core 0201 B

R2-1707945 Introduction of additional PDCP discard timer Huawei, HiSilicon CR Rel-15
36.306 14.3.0 LTE_ViLTE_enh2-Core 1487 B

R2-1707947 Introduction of additional PDCP discard timer Huawei, HiSilicon CR Rel-15
36.331 14.3.0 LTE_ViLTE_enh2-Core 2973 B

R2-1707949 Introduction of awareness of critical data in the UL buffer Huawei, HiSilicon CR Rel-
15 36.300 14.3.0 LTE_ViLTE_enh2-Core 1045 B

R2-1707950 Introduction of awareness of critical data in the UL buffer Huawei, HiSilicon CR Rel-
15 36.321 14.3.0 LTE_ViLTE_enh2-Core 1135 B

R2-1707951 Introduction of awareness of critical data in the UL buffer Huawei, HiSilicon CR Rel-
15 36.306 14.3.0 LTE_ViLTE_enh2-Core 1488 B

R2-1707952 Introduction of awareness of critical data in the UL buffer Huawei, HiSilicon CR Rel-
15 36.331 14.3.0 LTE_ViLTE_enh2-Core 2974 B

9.5.4 Others

9.6 QoE Measurement Collection for streaming services in E-UTRAN

(LTE_QMC_Streaming; leading WG: RAN2; REL-15; started: Dec. 17; target: Jun. 17: WID: RP-170956)

Time budget: 0.5 TU

Documents in this agenda item will be handled in a break out session

Including output from email discussion [98#51][LTE/QMC] Solutions for QoE Measurements

9.6.1 General

(work plan)

9.6.2 QoE measurement collection solutions

R2-1708299	Email discussion summary on solutions for LTE QMC 15 LTE_QMC_Streaming, LTE_QMC_Streaming-Core	China Unicom	discussion	Rel-15
	- Vodafone support CP solution. => Noted			
R2-1707953	Discussion on CP solution for QMC LTE_QMC_Streaming-Core	Huawei, HiSilicon	discussion	Rel-15
	- Nokia think introducing a new SRB will bring huge work => CP based solution is used for QoE measurement collection if the solution can provide RAN control on the measurement collection. => Introducing a new SRB is not ruled out and can be further analysed.			
	✉ [99#39][LTE/QMC] RAN controlled CP based solution (Huawei)			
	Intended outcome: Report to next meeting			
	- Figure out the details of CP solution with a mechanism to control the measurement report by RAN			
	- The spec impact should be identified for the proposed mechanisms. Deadline: 2017-09-28			
R2-1708618	Solutions for QoE Measurements	Ericsson	discussion	Rel-15 LTE_QMC_Streaming
	=> Noted			
R2-1707954	Open issues on UP solution for QMC LTE_QMC_Streaming-Core	Huawei, HiSilicon	discussion	Rel-15
	=> UP solution is not pursued for QoE measurement collection.			
The following papers are not treated:				
R2-1709426	UP solution (solution3) for LTE QMC	Nokia, Nokia Shanghai Bell	discussion	
R2-1708619	Start and stop of QoE Measurements LTE_QMC_Streaming	Ericsson	discussion	Rel-15
R2-1709428	Out of RAN control issue in LTE QMC mechanism	Nokia, Nokia Shanghai Bell	discussion	
R2-1707955	Introduction of QoE Measurement Collection for LTE 15 36.300 14.3.0 LTE_QMC_Streaming-Core	Huawei, HiSilicon 1046 B	CR	Rel-15
R2-1707956	Introduction of QoE Measurement Collection for LTE 15 36.306 14.3.0 LTE_QMC_Streaming-Core	Huawei, HiSilicon 1489 B	CR	Rel-15
R2-1707957	Introduction of QoE Measurement Collection for LTE 15 36.331 14.3.0 LTE_QMC_Streaming-Core	Huawei, HiSilicon 2975 B	CR	Rel-15

9.6.3 Others

R2-1709464	draft LS on the progress of QMC for LTE LTE_QMC_Streaming-Core	Huawei, HiSilicon	discussion	Rel-15
	=> Not treated			

9.7 LTE connectivity to 5G-CN

(LTE_5GCN_connect-Core; leading WG: RAN2; REL-15; started: Mar. 17; target: Jun. 18; WID: RP-171432)

Time budget: 1.5 TU

At this meeting, due to the commonality with NR, this WI will be handled in the main session.

9.7.1 Organisational

Including incoming LSS, rapporteur inputs, running CRs

Principles on what to specify in which specs, terminology, etc

R2-1707604 LS on E-UTRA connected to 5GC (C1-172641; contact: Qualcomm) CT1 LS in
Rel-15 5GS_Ph1-CT

=> Noted

R2-1707650 Reply LS on Supported features by 5GC for E-UTRA connected to 5G CN (S2-175192; contact: Nokia) SA2 LS in Rel-15 5GS_Ph1

- Nokia explain that we need to answer the DRX question with a value.

=> Noted

R2-1707657 Response LS on LTE connectivity to 5G-CN (S2-175310; contact: Qualcomm) SA2 LS in
Rel-15 5GS_Ph1, NR_newRAT-Core

=> Noted

9.7.2 Stage 2 aspects

Impact on E-UTRA due to CN type selection, slicing, new QoS, potentially different ACB, inactive state, inter-RAT mobility (e.g. between E-UTRA/5GC and E-UTRA/EPC), etc. Note that inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive will be discussed under NR agenda item 10.4.1.6.4

LTE/5GC feature support

R2-1708837 Supporting 5GC features over E-UTRA Intel Corporation discussion

P1

- Ericsson think MDT has some CN impact and might not be able to be supported. SON is also a big set of features and not clear all can be supported.
- LG also think that MDT has CN impact and wonder if it can be supported. LG also think legacy AC can be supported.
- Huawei think positioning may have some impact. Also assume there could be some impact to DC.

P2

- LG think a UE connected to 5GS might be able to do some of these features in parallel without connecting to EPC.
- DT think SA2 said they would not specify a way to move to EPC for a UE that wants these services. But we should have some assumption that UE can prioritise EPC.
- Samsung thinks the proposal give too much freedom to the UE and it should be more controlled by the network. ZTE have a similar view and think it needs to be controlled by NAS. Intel would support an LS to SA2 to think about this further.
- Vodafone think that if UE connects to 5GC then that it is an these services are not available. Assume a UE with for example subscription to MBMS will not have an 5GS subscription and hence never connect to 5GS.
- CATT think we should focus on UE support just one RAT at a time.

P3

- Ericsson think that msg 3 or msg 5 needs to be discussion.

P4

- LG think that the R13 CIOT optimisation is not supported in the CN. Intel clarify the intention is that this refers to CP and UP optimisation.
 - Huawei support the proposal. Qualcomm also support the proposal.
 - Ericsson think this is FFS in SA2. From RAN2 side there would be no additional complexity.
- => Offline discussion to progress the table to clearly capture the scope of features that need to be worked on within this WI. Also conclude whether to send LS to SA2/CT1/etc on how the UE behaves if desired services (e.g. MBMS) are not available via the 5GC (Offline discussion #25)

Agreements

- 1 Clot CP and UP optimizations are not supported for E-UTRA/5GC and NR/5GC in Rel-15

- Update from offline R2-1709917:

R2-1709917 [Offline discussion #25: 5GC features over E-UTRA](#) [Intel Corporation](#)

- => RAN2 should focus on the following features: Flow based QoS framework (including related impacts on Dual Connectivity), Access Control, Inactive, Slicing, EPC/5GC selection indication.

R2-1709918 LS on CN node selection for LTE features when E-UTRA is connected to 5G CN Intel LS out

- => Remove "(e.g., eMBMS requiring network connection, D2D and V2X in coverage)"
=> Approved in R2-1709981

R2-1709553 Impact of 5GC on LTE features Ericsson discussion

R2-1708394 Discussion on how to handle 5GC features for ng-eNB based on LS S2-175192 Huawei, HiSilicon discussion

CN type selection

R2-1707749 CN selection for E-UTRAN connected to 5G CN Samsung discussion

P1

- Vodafone think this should be done by the NAS node selection function in the eNB. Think it can be done by DCN ID.
- Intel think it is not so simple as there are 2 different NAS entities and the selection of which one to use doesn't belong to either of these NAS entities.
- Lenovo think that the broadcast indicator will need to be provided to NAS.
- ZTE think the select will be performed by NAS.
- Huawei think the important thing to discuss is what information that needs to be provided to the UE.
- Qualcomm agree that this has to be handled by upper layers.

Agreements

- 1: From RAN2 perspective we assume that selection between EPC and 5G-CN in the UE is performed by upper layers (i.e. it is not an AS function).

R2-1707796 CN selection when accessing Ericsson discussion

P3

- Qualcomm prefer to use the cell barring flag. Reserved for operator use is intended for a different use case.
- Xiaomi think that the barred flag doesn't work for RAN sharing case when some PLMNs connect to 5GC and other do not.

- Huawei think barred flag think UE will be barred for the whole cell which doesn't work for sharing case. Could use the combination of barring and reservation flag.
- Ericsson think barred flag would be used if all PLMNs cannot access 5GC, and not all PLMNs cannot access 5GC then the reserved flag can be used and only UEs with certain access classes would not be barred.
- Qualcomm explain that we cannot have an empty PLMN list in the legacy signalling. We could have a new list for the PLMNs that do support 5GC..

Agreements

- 1 An LTE ng-eNB can belong to multiple PLMNs and for each PLMN, it can be connected to: (1) EPC only, (2) both EPC and 5GC or (3) 5GC only.
 - 2 In case that a PLMN in an LTE eNB is connected to 5GC only, the UEs only capable of EPC-NAS should be prevented from camping and should reselect to a different cell.
 - 3 For the case that all the PLMNs only have access to 5GC then UEs capable only of EPC-NAS can be barred using cellBarred flag in SIB1 which the 5GC-NAS capable UEs ignore. To provide the current cell barring flag functionality to 5GC-NAS capable UEs, a corresponding new flag is introduced for those UEs (e.g. "cellBarred-5GC").
- FFS for the case that only some PLMN only have access to 5GC
- 4 In LTE, the system information should be extended to include information about the available CN per PLMN.

- R2-1707786 Preventing Legacy LTE UEs from camping on eLTE Cells & PLMNs connected to New 5G Core Network only Qualcomm India Pvt Ltd discussion
- R2-1707816 Consequences of 5GC-only eNBs Nokia, Nokia Shanghai Bell discussion
- R2-1707975 CN Type Selection Spreadtrum Communications discussion
- R2-1708151 Consideration on CN type indication ZTE Corporation discussion
- R2-1708245 CN Type Selection in LTE Connectivity to 5G-CN CATT discussion
- R2-1708395 Handling on E-UTRA cell which only connects to 5G Core Huawei, HiSilicon discussion
- R2-1708401 Network selection for initial access in E-UTRA connected to 5GC Huawei, HiSilicon discussion

QoS/user plane

- R2-1708400 Flow based QoS framework for E-UTRA connected to 5GC Huawei, HiSilicon discussion

Agreements

- 1: The QoS framework principles agreed for NR should be applied for E-UTRA connected to 5GC, and same SDAP layer is introduced to support flow based QoS framework. RAN2 expects no impact to RLC/MAC as a result of adding the support for the new QoS framework.
- 2 LTE RRC needs to be enhanced to configure UE SDAP (same SDAP configuration content as for NR)
- 3: Changes on LTE DC due to new QoS frame work will be discussed after NR has concluded in this topic
- 4: The details on how to support flow based QoS for intra system handover and inter system handover (between LTE/EPC and LTE/5GC) can be discussed later once NR has agreements on it.

- R2-1708834 PDCCP for E-UTRA connected to 5GC Intel Corporation discussion
- Huawei think it is reasonable to use NR-PDCCP for all DRBs. OPPO also support. Qualcomm is also ok with adoption of NR-PDCCP, and can help with handover to NR. Qualcomm assume 5G security will be used so it makes sense to use NR-PDCCP.
 - Ericsson is not yet convinced to use NR-PDCCP. The main differences is the duplication function. LG don't see the concern with using NR-PDCCP.
 - Ericsson think it is not useful to tie together the 2 RATs in this way.
 - Huawei think that for options 7 it will make it easier to support if we use NR-PDCCP.

- Intel think the CN impact into the RAN and the changed QoS model is the reason we end up with this proposal.
- ZTE think we can do this now we have agreed to use NR-PDCP for EN-DC

Agreements

- 1: For UEs that are connecting via E-UTRA to 5GC, only NR PDCP is used for the DRBs. Also applicable for option 7 and option 4.

R2-1707792	QoS for LTE connected to 5GC	Ericsson	discussion
R2-1708399	Discussion on NR PDCP usage for ng-eNB	Huawei, HiSilicon	discussion

Access control

R2-1708246	Access Control for LTE Connectivity to 5G-CN	CATT	discussion
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R2-1709304	Access control for LTE connected to 5G-CN	LG Electronics Inc.	discussion
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- Discussed together with the previous paper.
- Huawei think SA2 and CT1 do not want to support legacy behaviour in 5GC and to avoid that we need to support the new AC mechanism. CATT have similar view as Huawei and the conclusions in our paper are derived from SA2 LS.
- Qualcomm also agree with Huawei. Intel have the same view and understand that the 5G NAS would like to behave the same in when connected via both RATs. ZTE also support this view. CMCC also support this.
- DOCOMO have big sympathy for LGs approach to avoid the impact to LTE RRC. NEC have the same view as LG.
- Ericsson also support the CATT proposals to enable support of slicing and avoid impact to NAS.
- Vodafone think we should support the 5G AC. Would like the 5G AC to remain simple.
- DT think the support of slicing is very important.
- LG think to use the new mechanism will require asking SA1 as it is based on current requirements from SA1. Also if the UE supports both mechanisms then the UE could choose the one that enables access.
- Huawei assume that for this case we should follow the 5G requirements from SA1.
- LG wonders how SSAC will work if we go for NR AC.

Agreement

1. Access barring mechanism for LTE connectivity connected to 5GC is based on unified access barring mechanism for NR.
2. LTE ng-eNB connected to both EPC and 5GC can broadcast the access control information for E-UTRAN connected to EPC and E-UTRAN connected to 5GC. UE uses the information based on the core network type indicated from upper layers.

R2-1707794	LTE access control when connected to 5GC	Ericsson	discussion
R2-1708397	Access Control for UE accessing 5GC via LTE	Huawei, HiSilicon	discussion
R2-1708453	Design principles for LTE connectivity to 5G-CN	LG Electronics Inc.	discussion
R2-1709393	Consideration on Access control for LTE connected to 5GC	China Telecom	discussion

Inactive

R2-1708810	INACTIVE feature when E-UTRA is connected to 5GC	Intel Corporation	discussion
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P1

- LG agree to have as much commonality as possible with NR inactive. But for security optimisations we prefer not to support in LTE. Intel think we should wait for the conclusions in NR on the security optimisations.

- Huawei think the objective is not to add new features just because they were adopted for NR. Also wonder what is happening with LTE connected to EPC.
 - Qualcomm think we take both NR inactive and light connection into account and reuse existing work as much as possible. Intel agree that a lot of what we did for light connection can be reused.
 - Ericsson think the light connection discussion already influenced the NR inactive discussion. We should try to align across all 3 cases.
- => Noted

R2-1708552	Discussion on Inactive Mode for E-UTRA connected to 5GC discussion	Huawei, HiSilicon	
R2-1707750	INACTIVE state for E-UTRAN connected to 5G CN	Samsung	discussion
R2-1707795	Inactive state in LTE	Ericsson	discussion
R2-1708244	Inactive State Modelling in LTE Connectivity to 5G-CN	CATT	discussion
R2-1709106	INACTIVE state in eLTE	LG Electronics Inc.	discussion
R2-1709112	Support for PLMN selection while in INACTIVE state in eLTE discussion	LG Electronics Inc.	

Slicing

R2-1708402	Network slicing for E-UTRA connected to 5GC P2	Huawei, HiSilicon	discussion
	- Sony think there is concern about carrying the assistance information unprotected.		

Agreements

- 1: Align the support of network slicing in E-UTRA connected to 5G CN with NR.
- 2: Provision of slicing assistance information for the purpose of initial NAS routing will follow the decisions taken for NR.
- 3: The impact on LTE from network slicing-related open issues is FFS, and whether LTE needs to support all the network slicing operations of NR should be discussed once NR has agreed on them.

R2-1707793	Slicing for LTE connected to 5GC	Ericsson	discussion
R2-1709306	Network slicing information delivery for E-UTRA connected to 5GC	LG Electronics Inc.	discussion

Inter-RAT mobility

R2-1707797	IDLE/INACTIVE mobility to GERAN/UTRAN/CDMA2000	Ericsson	discussion
R2-1707839	Inter-system and inter-RAT mobility for LTE connected to 5GC	Ericsson	discussion
R2-1708398	Discussion on mobility scenario for E-UTRA connected to 5GC	Huawei, HiSilicon	discussion
R2-1708436	Mobility issue in LTE connected to NextGen Core	vivo	discussion
R2-1708942	LTE Handover with CN Type Change for E-UTRA connected to 5GC	LG Electronics Inc.	discussion
R2-1709516	Handover involving EPC and 5GC	Sony	discussion

Other

R2-1707785	Considerations on LTE connectivity to 5G-CN	Qualcomm	discussion
R2-1707790	Security aspects of supporting LTE connected to 5GC	Ericsson	discussion
R2-1708403	Support of 5GS security in E-UTRA connected to 5GC	Huawei, HiSilicon	discussion

R2-1707791	Draft LS to SA3 on security aspects	Ericsson	LS out
R2-1707840	Message 3.5 in LTE connected to 5GC	Ericsson	discussion
R2-1708396	[DRAFT] Reply LS on response LS on LTE connectivity to 5G-CN	Huawei	LS out
R2-1708435	General Aspects on LTE connected to 5GCN	vivo	discussion

Late

R2-1708659	Handover involving EPC and 5GC	Sony	discussion
R2-1708980	LTE cell barring for E-UTRAN connected to 5G CN	Samsung	discussion

Withdrawn

R2-1707841	Impact of 5GC on LTE features	Ericsson	discussion
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9.8 Positioning Accuracy Enhancements for LTE

(LCS_LTE_acc_enh-Core; leading WG: RAN2; REL-15; started: Mar. 17; target: Jun. 18; WID: RP-171508)

Time budget: 1 TU

Documents in this agenda item will be handled in a break out session

9.8.1 Organisational

Including incoming LSs, rapporteur inputs, running CRs

R2-1709678	Reply LS on encrypting broadcasted positioning data (S3-172134; contact: Ericsson)	SA3
	LS in Rel-15 LCS_LTE_acc_enh-Core	To:RAN2 Cc:SA2

⇒ Noted

R2-1709558	Updated work plan for UE Positioning Accuracy Enhancements for LTE work item	Nokia, Nokia Shanghai Bell
	discussion	Rel-15 LCS_LTE_acc_enh-Core

⇒ Noted

9.8.2 GNSS positioning enhancements

RTK payload transmission, transparent or not? Supported RTK techniques, SSR, VRS, PPP, etc? The details on the support of UE based and UE assisted; The details about unicast and broadcast of RTK assistance data;

RTCM signalling

R2-1708518	Comparison of Options for RTK Support in 3GPP	Qualcomm Incorporated	discussion	Rel-15
	LCS_LTE_acc_enh-Core			

Based on the discussion and comparison of the two Options for supporting RTK in 3GPP above, it is proposed that RAN2 commence with the specification work for Option 2 ("LPP A-GNSS Approach"). The work can be done in two phases, for example: [...]

R2-1709546	Discussion on RTK assistance data payload	Huawei, HiSilicon, Deutsche Telekom
	discussion	

Proposal1: The corrections data shall be transmitted as a transparent RTCM payload.
Proposal2: Support of multiple instances of RTCM messages in SIB.

Above 2 documents discussed jointly

- Ericsson ask what exactly is meant by “transparent”
- DT: means that we do not re-encode all the messages in ASN.1, to carry the RTCM signalling as a payload
- Ericsson wonder how the other procedures such as UE capability, positioning information, would be handled. DT clarify they would not be part of the transparent container.
- Ericsson foresee a large task for the UE to understand which parts of the transparent container it needs.
- DT think it would be possible to have some kind of header but not import the full messages into our ASN.1, to provide some assistance for the UE to read the message. The header could be outside the transparent container. So some part of the RTCM signalling would still need to be represented in ASN.1.
- Ericsson wonder about how much involvement from the location server in the contents of the RTCM messages e.g. for different services, different satellite systems, etc.
- DT would not assume it is fully transparent to the server, they are thinking more of the radio perspective.
- Ericsson wonder if we would send multiple requests for separate services, or send one request and have to decode which part of the response applies.
- Nokia consider that the E-SMLC and eNB would not have to understand the data fields of the RTCM message but only serve as transport through broadcast means.
- Qualcomm think what is meant in the HW/DT paper by “transparent” is just the encoding, i.e. the content of the OCTET STRING would be encoded with an RTCM encoder instead of ASN.1 encoder. They think assistance data request, UE capability etc. are being ignored in the transparent approach.
- Nokia think the transparent approach is primarily for UE-based. Since we agreed to have UE-assisted also, does the E-SMLC need to understand some of the assistance data?
- Nokia wonder about the impact on testing efforts. For option 2 they assume RAN5 would have to define test cases for the contents.
- DT ask about the SSR situation if we go with option 2. If we don't want to include all the ongoing work of another SDO, how do we do the re-encoding?
- QC see rather that option 1 has difficulty supporting SSR, because you have to wait until the spec is available and the other messages e.g. assistance data request would have to be touched for compatibility. With option 2 it is under our control when and how we move forward with SSR/PPP.
- Nokia think with option 2 we would standardise the SSR methods fully under 3GPP. Under option 1, SSR is supported only as far as RTCM completes the SSR work, otherwise it depends on proprietary messages.

Option 1: transparent container (RTCM encoded GNSS assistance data) – 6

Option 2: LPP A-GNSS approach (ASN.1 encoded GNSS assistance data) – 5

- Qualcomm think we should defer the decision while we continue with the other work, and the encoding will come clear.
- Nokia are sceptical that we can proceed without making this decision. Option 2 may require us to discuss the scope of the methods to be supported. Maybe we could wait one more meeting but we need to make progress.
- DT agree this is an important decision. It could be raised to the plenary.
- Huawei and Nokia suggest email discussion.

[99#47][LTE/Positioning] RTK assistance data encoding (Huawei)

To finalise the pros/cons of the two options and try to reach a consensus for one, considering the longer term concerns as well as Rel-15. Start from the table in R2-1708518.

Deadline: for next meeting

- Nokia wonder if the transparent approach would have specific supported methods or be completely agnostic.
- Ericsson think there could be an initial phase of limited support, followed by changing over to a more agnostic approach in a non backward compatible way. So it can be good to support some backward compatibility for this kind of development.

- Nokia note the HW/DT proposal included multiple containers. We haven't discussed the message size and segmentation but it appears there would be multiple instances with different sized messages. So there could be some complexity.

R2-1709404 GNSS augmentation via cellular networks for accurate positioning Ericsson discussion
Rel-15

SSR/PPP support

R2-1709559 RTK GNSS positioning enhancement Nokia, Nokia Shanghai Bell discussion Rel-15
LCS_LTE_acc_enh-Core

- Nokia think the picking and choosing of P3 may not be needed for the container approach. Qualcomm agree for the broadcast portion but for the UE request and the unicast delivery it cannot be transparent.
- DT think these proposals still depend on the decision about encoding.
- Qualcomm and Ericsson are fine with the proposals.
- Huawei think we should support SSR message types. Qualcomm point out this cannot be supported for version 10403.3.
- Nokia agree. The only way SSR can be supported with this version is through proprietary messages.
- DT think the container approach gives the flexibility to support early deployment.
- Ericsson think we could agree P1-P3 as a baseline and still be open to SSR in addition.
- ESA are fine with P3 and note that Galileo and BeiDou are supported in the MSM messages.

Agreements:

1: Use the RTCM Standard 10403.3 OSR message types and data fields to support network RTK.

2: VRS should be considered as a viable network RTK technique implemented using SIB broadcast.

3: Support at least the following RTCM message types:

- Observation message types using MSM definitions (1071 – 1127).
- Station Coordinates messages (1006).
- Receiver and Antenna Descriptors (1033).
- GLONASS code-bias information (1230).
- MAC Network RTK messages (1014, 1017, 1030, 1039, 1031).
- FKP Network RTK messages (1034, 1035).

These agreements comprise a baseline and additional support can be discussed.

R2-1709406 On support of SSR and PPP Ericsson discussion Rel-15

R2-1708646 Discussion on State Space RTK Corrections u-blox AG discussion Rel-15

Phase measurements

R2-1708520 UE Measurements for RTK Qualcomm Incorporated discussion Rel-15
LCS_LTE_acc_enh-Core

- Wait on P1 for RAN1 and to give companies a chance to check the RAN1 definition

- 2: Extend the currently 8-bit GNSS-SignalID in LPP to 32-bits with the mapping defined in [12].**
- 3: Extend the ADR measurement report in LPP from currently 25-bits to 29-bits, with resolution of 2^{-10} meters (INTEGER(0..536870911)).**

- 4:** Add an *adrRMSError* field to the GNSS measurement report in LPP [5] defined as "RMS error of the continuous carrier phase" (INTEGER(0..127) with resolution 2^{-10} meters).
- 5:** Extend the *codePhase* measurement report in LPP [5] from currently 21-bits to 24-bits (INTEGER(0.. 16777215) with 2^{-24} milli-seconds resolution).
- Will be captured in stage 3**

R2-1709408 UE assisted RTK GNSS measurements Ericsson discussion Rel-15

- Ericsson think we need to discuss how to ensure the ADR measurement gives sufficient information for ambiguity resolution.
- Qualcomm agree with P2.

- 2 To add "adr" sign to allow the full range of carrier phase measurement direction.**
- 4 To send an LS to RAN1 and RAN4 on the carrier phase measurement agreements.**

[CB 500] LS to RAN4 Cc: RAN1 on the measurement agreements (Nokia, R2-1709755)

UE-based RTK

R2-1709548 Discussion on unicast RTK positioning Huawei, HiSilicon discussion

- Nokia wonder if we need the new procedure in P2. The E-SMLC already has the ability to get the approximate location of the device.
 - Ericsson agree with Nokia and wonder if "procedure" is what is meant. The position does not need to be very accurate.
 - Huawei agree the existing message can be used to get the UE's location. They want to check if the legacy mechanism can be reused. "New procedure" may not be needed.
 - Qualcomm: all the methods today require an approximate location, so this is an existing feature already. Intel agree.
 - LG wonder if the UE and network both support UE-assisted and UE-based, who decides?
 - Huawei indicate the decision is at the E-SMLC and P1 just provides the UE capabilities.
 - Qualcomm ask if RTK would be a new method under these proposals, or is it a GNSS positioning method?
 - Ericsson think P1 doesn't add to the existing UE-based/UE-assisted support.
 - Leave details for stage 3.
- ⇒ **Noted**

9.8.3 Support for IMU positioning

The details of IMU raw data; the sceario and benefits on how to use IMU raw data;

Use cases and measurements

R2-1708521 IMU positioning Qualcomm Incorporated discussion Rel-15 LCS_LTE_acc_enh-Core

- Ericsson emphasise it's important that these measurements be referenced to a well-defined coordinate system.
- Nokia ask how the UE trajectory would be quantised/reported. Qualcomm think a series of location estimates would be possible, but a base location and a series of deltas would be more efficient. The details can be discussed.

- Huawei wonder if we need more primary measurement results. E.g. number of steps may be the right measurement for a pedestrian use case.
- Nokia ask how the duration is calculated. What are the reference points?
- Qualcomm: for OTDOA e.g., it could be the first and last SFN of the measurements.
- Qualcomm think one use case is to inform the server that the UE is moving during a positioning session, and the duration of positioning is helpful in that case.
- Huawei think additional primary measurements may be needed in between positioning sessions e.g. in case the GNSS signal is lost.
- Intel agree sensors may be used to fill in the gap when a primary positioning method is lost. So we should be cognizant of this use case.
- Ericsson think the data representation will need to be discussed.
- Nokia think some of these use cases are good and are open to discuss as long as the signalling is not very intensive. But we have to look at the specifics.
- Related contributions are invited for the next meeting.

Proposal: Enhance LPP to enable a UE to provide information to an E-SMLC concerning movement of a UE during a location session. Minimally support for items 1-4 in section 4 is proposed for OTDOA. However, item 5 can be considered for OTDOA as well as application of items 1-4 (or 1-5) to other position methods.

1. Duration of positioning;
2. Average velocity of a UE during positioning;
3. Change in velocity of a UE during positioning;
4. Timestamp for each measurement provided by a UE;
5. UE trajectory (e.g. sequence of relative locations with timestamps).

R2-1707994 Discussion on IMU positioning ZTE Corporation discussion

- LG ask what is the benefit if the UE indicates that the IMU was used in the UE-based case. ZTE think it can affect the quality of the estimate.
- QC think there is a confusion between UE-based and standalone. The server automatically knows if UE-based has been used but it can be unclear when standalone is used since the server just asks for a location.
- NextNav think the point could be that you have an IMU-based Provide Location Information.
- ZTE want to be sure that all modes are considered.
- LG agree with NextNav. P2 and P3 may not be necessary in this light. ZTE think P2 is still needed.
- Nokia think P3 is aligned with the QC paper above. We can look at details before taking a final agreement.
- Intel have some reservations about P3. They think the IMU sensors should report raw measurements rather than computed values.
- Huawei think the problem for IMU is that it accumulates, so one-shot reporting may not make sense. The question is whether the filter is in the server or in the UE. Also RAN4 test support could be needed to make the measurements robust. It's difficult to determine the positioning error on the server side.
- Qualcomm have a similar view. We need to make sure we report useful measurements and it's not clear that the raw measurements are useful to the server. The sampling rate can be 200 Hz and will we send 200 messages per second?
- Intel clarify they envision some processing at the UE. So a UE should not be computing velocity and displacement, rather sending acceleration information.
- ZTE agree with Huawei and QC. The amount of reporting for raw data could be very large and require high frequency reporting.
- Ericsson emphasise the need for a coordinate system. It is a combined effort to process these measurements into a relative displacement.

Proposal 1: Due to the feature of IMU, IMU positioning should be considered as the view of hybrid positioning including IMU.

Proposal 2:

1. For the UE-assisted mode, IMU measurements or location information need to be reported to the network side;

2. For the UE-based mode, adds report Information indicating that IMU as method has been used to enhance the positioning calculation;
3. For the standalone mode, adds report Information indicating that IMU as method has been used to enhance the positioning calculation.

Proposal 3: For UE-assisted, IMU positioning should measure and report the velocity, orientation, and relative position of two measurement intervals of device.

Proposal 4: IMU should be included in LPP elementary messages, such as Request and Provision of Capability and Location Information and Assistance Data.

R2-1709378	Introduction to sensor based positioning enhancements Rel-15 LCS_LTE_acc_enh-Core	Sony Europe Limited	discussion
R2-1709402	IMU positioning support over LPP	Ericsson	discussion Rel-15

TP/CR/draft LS

R2-1709159	IMU sensor based positioning LCS_LTE_acc_enh-Core	Intel Corporation, Ericsson, Sony	discussion
R2-1709409	IMU positioning support over LPP LCS_LTE_acc_enh-Core	Ericsson 0186 B	CR Rel-15 36.355 14.2.0
R2-1709410	draft LS on describing acceleration as a universal GAD 15	Ericsson	discussion Rel-15

Not available

R2-1709160	Detailed signaling for IMU sensor based positioning LCS_LTE_acc_enh-Core	Intel Corporation	discussion
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9.8.4 UE-based OTDOA positioning

What additional assistance information is required? Note, as second priority

R2-1707995	Discussion on UE-based OTDOA positioning	ZTE Corporation	discussion
R2-1708523	Introduction of UE-Based OTDOA Positioning 15 LCS_LTE_acc_enh-Core	Qualcomm Incorporated	discussion Rel-15
R2-1708525	Introduction of UE-based OTDOA Positioning 36.355 14.2.0 LCS_LTE_acc_enh-Core	Qualcomm Incorporated	draftCR Rel-15 B
R2-1709276	Consideration on UE-based OTDOA positioning 15 LCS_LTE_acc_enh-Core	LG Electronics Inc	discussion Rel-15
R2-1709549	Discussion on OTDOA positioning	Huawei, HiSilicon	discussion

9.8.5 Broadcasting of assistance data

SIB design for the transmission of A-GNSS, RTK and, as second priority, UE-based OTDOA assistance information. Encryption of assistance data broadcasting (SA3 input is needed);

Encryption

R2-1709400	Encryption of positioning broadcast information	Ericsson	discussion Rel-15
R2-1709412	draft LS on encrypting broadcasted positioning data 15	Ericsson	discussion Rel-15

\SIB design and broadcast framework

R2-1708539	Broadcast of Positioning Assistance Data	Qualcomm Incorporated	discussion	Rel-15
	LCS_LTE_acc_enh-Core			
R2-1708994	The positioning assistance data broadcasting	CMCC	discussion	Rel-15
	LCS_LTE_acc_enh-Core			
R2-1709424	Positioning assistance data broadcasting	Ericsson	discussion	Rel-15
R2-1708647	RTK Corrections Distribution	u-blox AG	discussion	Rel-15
R2-1709547	Discussion on the broadcasting of assistance data	Huawei, HiSilicon	discussion	

Not available

R2-1709413	draft LS on provisioning of positioning assistance data via LPPa for broadcast	Ericsson		
	discussion	Rel-15		

9.9 Enhancing CA Utilization

(LTE_euCA-Core; leading WG: RAN2; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-170805)

Time budget: 0.5 TU

Documents in this agenda item will be handled in a break out session

9.9.1 General

Including incoming LSs, work plan, rapporteur inputs, running CRs

R2-1707817	Work plan for Enhancing CA Utilization	Rapporteur (Nokia)	discussion	Rel-15
	LTE_euCA-Core			
	=> Noted			
R2-1707818	Solution directions for the enhanced CA utilization	Rapporteur (Nokia)	discussion	Rel-15
	LTE_euCA-Core			
	=> Noted			

9.9.2 Delay reduction for SCell set-up

R2-1707819	Analysis of SCell setup delay	Nokia, Nokia Shanghai Bell	discussion	Rel-15
	LTE_euCA-Core			
	- Qualcomm think configuring a SCell to be directly in active state at RRC will introduce power consumption.			
	=> Noted			
R2-1707820	Simulation results of reducing SCell setup delay	Nokia, Nokia Shanghai Bell	discussion	Rel-15
	LTE_euCA-Core			
	- Intel wonder the RRM requirement for the inter-frequency measurement. Nokia think it should be considered.			
	- Qualcomm and Huawei concern the power consumption on P2. LG don't think so.			

Agreements:

- 1 UE can be indicated an inter-frequency carrier to measure during the idle state. The inter-frequency measurement operation and requirement is FFS. How fast to report the measurement is FFS. The security issue of report is FFS.
- 2 It is FFS on whether configuring a SCell to be directly in active state at RRC reconfiguration.

R2-1707788	Fast SCell Configuration and Activation Through network assisted RRC_Idle mode measurements	Qualcomm India Pvt Ltd	discussion	Rel-15
	- Huawei wonder how P6 works.			
	=> Noted			

R2-1708903	Reporting idle mode measurement for initial SCell set-up Rel-15 LTE_euCA-Core	LG Electronics Inc.	discussion	
	=> Noted			
R2-1707787	Fast SCell activation for enhanced CA utilization Rel-15	Qualcomm India Pvt Ltd	discussion	Rel-15
	- Huawei would like to know the difference with DRX. - Qualcomm clarify that the state can be used to send low periodicity SCell CQI and/or SRS without PDCCH monitoring. - Nokia wonder the CQI report is new or existing mechanism. - Intel point that there is no RAN TU for this item. => RAN1 impact should be further identified.			
R2-1708546	Measurement Enhancement for fast SCell set-up Rel-15 LTE_euCA-Core	Huawei, HiSilicon	discussion	Rel-15
	=> Noted			
R2-1708547	Down-selection of IDLE Mode Measurement Report alternatives for fast SCell set-up Huawei, HiSilicon	discussion		Rel-15 LTE_euCA-Core
	=> Not treated			
R2-1708550	Delay reduction for SCell Activation LTE_euCA-Core	Huawei, HiSilicon	discussion	Rel-15
	=> Not treated			
R2-1709459	Consideration for eCA Configuration LTE_euCA-Core	LG Electronics Inc.	discussion	Rel-15
	=> Not treated			
R2-1709532	Enhancing CA Utilization	Ericsson	discussion	Rel-14 LTE_euCA-Core
	=> Not treated			

9.9.3 Signalling overhead reduction for configuration activation

R2-1707821	Analysis for reducing signalling overhead for SCells discussion Rel-15 LTE_euCA-Core	Nokia, Nokia Shanghai Bell		
	- Intel wonder the common configuration is a new structure or not. - Ericsson would like to know the motivation of proposal 3.			

Agreement:

- 1 Consider how to reduce the SCell signalling overhead for cases where the configurations of multiple SCells are almost the same (i.e. several parameters have the exact same values).
- 2 Consider introducing a common SCell configuration that can apply for multiple SCells to help with the signalling. How to design the signalling is FFS.

The following papers are not treated.

R2-1707789	Signalling Optimization for SCell Configuration and Handover discussion Rel-15	Qualcomm India Pvt Ltd		
R2-1708548	Signalling overhead reduction for SCell Configuration Rel-15 LTE_euCA-Core	Huawei, HiSilicon	discussion	
R2-1708549	Signalling overhead reduction for SCell (de)Activation Rel-15 LTE_euCA-Core	Huawei, HiSilicon	discussion	
R2-1708753	Initial status of SCell for enhancing CA utilization LTE_euCA-Core	LG Electronics Mobile Research	discussion	

9.9.4 Others

9.10 Enhancements on LTE-based V2X Services

(LTE_eV2X-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-171069)

Time budget: 1 TU

Documents in this agenda item will be handled in a break out session

9.10.1 General

Including incoming LSs, work plan and rapporteur inputs.

R2-1707613 LS on RAN1 agreements on CA (R1-1709826; contact: Ericsson) RAN1 LS in Rel-15
LTE_eV2X-Core To:RAN2, RAN4
=> Noted.

R2-1707640 Reply LS on the support of Unicast and Groupcast transmission over PC5 for eV2X (S2-173610; contact: LGE) SA2 LS in Rel-15 FS_eV2XARC To:RANcc:SA, SA1, SA3, RAN2
ZTE: Do we have to wait for further SA2 inputs? LG: Supporting unicast may not be so difficult, but we should wait for SA2 conclusion. Huawei: WID clearly said we should wait for SA2 and RAN should make a decision first. Ericsson: Agree with Huawei
=> RAN2 will wait for SA2 and RAN before discussion on the support of unicast and group-cast
=> Noted

R2-1707642 Reply LS on QoS support over PC5 (S2-173877; contact: Nokia) SA2 LS in Rel-15
FS_REAR To:RAN2
Moved to 9.1

R2-1707643 Reply LS on mapping between service types and V2X frequencies (S2-174064; contact: Huawei) SA2 LS in Rel-14 V2XARC To:RAN2, CT1
Moved to 8.13

R2-1707663 LS on support of CACC and platooning applications by 3GPP systems (SAE International) SAE DSRC Technical Committee LS in To:SA2, RAN2 Cc:SA1, RAN1
LG: No need to respond now, Qualcomm: Wait for SA2 response? LG: It's related with the requirement, and anyway SA1 is preparing the response LS, so we should wait. Ericsson: The issues are more related with SA2, Samsung: The LS is just for information. Huawei: Should wait for SA2 response LS.
=> Noted

R2-1707968 Work plan for eV2X in RAN2 Huawei, HiSilicon Work Plan Rel-15
=> For sTTI, RAN2 will wait for RAN1 and/or RAN inputs before the discussion

9.10.2 Carrier aggregation (up to 8 PC5 carriers)

Focus should be on RAN2 aspects.

Identification of RAN2 aspects:

R2-1707970 Discussion on carrier aggregation in eV2X Huawei, HiSilicon discussion Rel-15
LTE_eV2X-Core

Qualcomm: Do we need to discuss which use-cases are supported? The second case may not be required and useful. Huawei: We can start all three cases. LG: RAN1 does not consider all use cases and the second case may not be required. With duplicated packets, it may bring capacity issue. CATT: Duplicated transmission is required for high-reliability requirement and

note it can be also controlled by NW so capacity issue can be controllable. Ericsson: Agree with Huawei and CATT. Also agree that NW can control when to activate/deactivate. And there will be also Uu packet duplicated transmission related WI (LTE URLLC) anyway. Huawei: RAN2 should discuss and make a decision on which layer will perform duplicated transmission. Samsung: Capacity enhancement should be first prioritized, but it will be also good to study how packet duplication is done, gains and pains. ZTE: RAN2 should have more detailed discussion on the need of duplication transmission ITL: Agree with Huawei and we need to study more details. OPPO: Agree with ZTE, we should study further in RAN2. Huawei: RAN1 already justified the need of duplicated transmission Qualcomm: Not agree with Huawei. LG: Agree with Qualcomm. Companies supporting duplicated transmission seems consider PDCP level duplication, but for Uu, we don't have such a packet duplication in LTE, so reluctant to introduce PDCP level duplication only for SL. We may wait until the end of this year (URLLC WI). Ericsson: Feel sympathy to LG's comment. CATT: Not agree with LG, at least we should be able to study the details, pros and cons. OPPO: We cannot stop study current existing WI to wait for future WI. LG: If we study, first the need should be agreed and then which layer to perform should be studied. Samsung: Agree with LG. Qualcomm: It may need to be deprioritized. LG: Until Dec., we can make a decision on the need. LG: CT1 is working on carrier selection

=> Use case 1 and 3 should be supported.

Proposal 1: For sidelink carrier aggregation, a proper carrier selection mechanism needs to be supported from a higher-layer perspective. Details are FFS.

LG: Carrier selection should be based on CBR. Qualcomm: Carrier selection needs to involve high layer interactions. Huawei, CATT, Ericsson: Agrees with Qualcomm.

=> RAN2 will study a proper Tx carrier selection from AS point of view (with the consideration of inter-layer interactions with upper layers)

Proposal 2: PDCP duplication should be supported instead of MAC duplication for sidelink CA enhancement, because of the following facts:

=> FFS on the need (e.g. pros and cons) and details of packet duplicated transmission based on the different mechanism.

Proposal 3: RAN2 should take limited number of Rx chains as the baseline for further sidelink CA enhancements.

LG: Intention is ok, but the UE has to listen to all carriers which mapped to service and the UE is capable OPPO: Limited number of Rx chains is not clear. Huawei: Proposal is related with e.g. carrier selection in Rx point of view or how to coordinate between Tx and Rx. LG: Assume no carrier selection for Rx. Ericsson: Agree with LG. For Rx, NW cannot be aware of UE capabilities. Huawei: From Tx point of view, limited number of Rx chains should be taken into account, that's the proposal. Qualcomm: agrees with Huawei

=> FFS on how to handle limited Rx chains

R2-1709366 Carrier Aggregation Enhancements for PC5 Ericsson discussion Rel-15
LTE_eV2X-Core

Proposal 1 Mode-3 and mode-4 cross-carrier scheduling is already supported in Rel.14. No specific enhancements are foreseen in Rel.15.

Huawei: Cross-carrier scheduling means Uu or SL? Ericsson: It's SL. Qualcomm: If SCI is newly designed in RAN1, we may also have some impacts in RAN2. Ericsson: It's from RAN2 point of view. OPPO: For mode4, actually it's cross-carrier configuration. Huawei: We may need to wait for more RAN1. LG: Agree with Ericsson. Ericsson: For mode3, it may be clear that we don't need any enhancements.

=> Mode-3 cross-carrier scheduling signaling and mode-4 cross-carrier resource pool signaling in Rel-14 is baseline. FFS on the need of further enhancement.

Proposal 2 Introduce a sidelink HARQ entity for each sidelink component carrier.

OPPO: Supports the proposal

=> A SL HARQ entity per SL carrier

Proposal 3 A sidelink HARQ entity is in charge to perform selection/reselection of transmitting resources according to the sensing results of the associated sidelink component carrier.

ZTE: Resource selection/reselection is more MAC entity's job (not for HARQ entity). OPPO:

Agrees with Ericsson, LG: Agrees with Ericsson

=> A sidelink HARQ entity is in charge to perform selection/reselection of transmitting resources according to the sensing results of the associated sidelink component carrier.

Scenarios and options of carrier selection:

R2-1708509 Discussion on PC5 carrier aggregation ZTE Corporation discussion LTE_eV2X-Core

Proposal 1: Both in coverage and out of coverage scenario should be considered for PC5 CA.

LG: CA is applied to Tx or Rx? ZTE: Both Tx and Rx

=> Agrees with proposal1 (i.e. both in coverage and out of coverage scenarios should be considered for PC5 CA)

Proposal 3: RAN2 is suggested to consider the dedicated PC5 carriers for PC5 CA as first priority for the phase 2 V2X.

Huawei: In Rel-14, we do not have any restriction that only B47 is used for V2X. In the protocol point of view, other non-B47 bands should be also supported. ZTE: B47 needs to be first prioritized. Ericsson: How to impact on RAN2 specification if we prioritize b47? Huawei: From the start, we don't need any restriction. Ericsson, Qualcomm, LG: Agrees with Huawei

Proposal 4: Whether mode 3 or mode 4 resource allocation is used on different CCs of PC5 CA depends on the network configuration. It is not necessary to mandate the unified resource allocation mode among aggregated PC5 CCs.

OPPO: Two modes to a given UE? ZTE: For shared carrier, mode3 is used. For dedicated carrier, mode4 can be used. OPPO: It is not supported in the Rel-14. Huawei: In Rel-14, if the UE is connected, only single mode is configured, but we can consider the proposal in Rel-15.

OPPO: The need of change is not clear and it will complicate scenarios and configurations.

Ericsson: If impacts are high, would like to avoid it. LG, Samsung: Agrees with Ericsson

Proposal 5: RAN2 is suggested to consider the following factors for CC selection of PC5 CA: 1) vehicle UE's PC5 simultaneous Rx/Tx capability; 2) mapping between V2X service type and CC; 3) QoS requirement; 4) carrier loading status; 5) CC measurement result.

Huawei: 2) is done in upper layer or MAC? ZTE: Indicates general options. Nokia: What 5) really means? Is it same as CBR? ZTE: We can refer channel quality and how to define channel quality is FFS. 5) may be more useful for uni-cast and group-cast. Qualcomm: 2) is already existing one. AS still can select subset of carrier which indicated by upper layer.

=> Email discussion to identify options for CC selection of PC5 (Huawei)

Proposal 7: PC5 CCs could be divided into PCC and SCCs. Among them, the PCC could be used to deliver the PC5 control signalling whereas SCC is only used to deliver V2X service data.

Proposal 8: PC5 CC activation/deactivation may be considered to achieve the power efficient sidelink reception.

Resource pool and resource selection in CA:

R2-1708451 Modelling sidelink parallel transmissions for V2X communication LG Electronics Inc. discussion Rel-15 LTE_eV2X-Core

R2-1709003 Carrier aggregation for mode 4 operation Samsung Electronics France SAdiscussion Rel-15 LTE_eV2X-Core

PDCC duplication:

R2-1709006 Discussion on packet duplication in eV2X Samsung Electronics France SAdiscussion Rel-15 LTE_eV2X-Core

SPS in CA:

R2-1708054	SPS in eV2X when CA is configured	CATT	discussion		
R2-1707699	Packet duplication in CA-based eV2x	OPPO	discussion	Rel-15	LTE_eV2X-Core
R2-1707701	Resource selection in CA-based eV2x	OPPO	discussion	Rel-15	LTE_eV2X-Core
R2-1708039	Discussion on Service and Carrier Mapping for PC5 CA in eV2X	OPPO	discussion		
R2-1708040	Discussion on Carrier Configuration and Selection for PC5 CA in eV2X	OPPO	discussion		
R2-1708052	Carrier configuration and carrier selection in eV2X CA	CATT	discussion		
R2-1708055	Considerations on PC5 Carrier Aggregation	CATT	discussion		
R2-1708062	Discussion on replication transmission over multiple carriers	CATT	discussion		
R2-1709048	Carrier Aggregation over PC5	Intel Corporation	discussion		LTE_eV2X-Core
R2-1709186	V2X carrier aggregation	Nokia, Nokia Shanghai Bell	discussion	Rel-15	LTE_eV2X-Core
R2-1709225	Carrier selection for carrier aggregation in sidelink mode 3	LG Electronics Inc.	discussion		
	Rel-15	LTE_eV2X-Core			
R2-1709301	Carrier selection for carrier aggregation	LG Electronics Inc	discussion	Rel-15	
	LTE_eV2X-Core				
R2-1709370	On Rel-15 Carrier Aggregation for PC5	Ericsson	discussion	Rel-15	LTE_eV2X-Core
	Core				
R2-1709371	Packet duplication for PC5	Ericsson	discussion	Rel-15	LTE_eV2X-Core
R2-1709624	Discussion on SPS support with enhanced Carrier Aggregation		discussion		Samsung R&D Institute UK
	discussion				
R2-1708682	Carrier Aggregation for V2X Phase 2	Qualcomm Incorporated	discussion		LTE_eV2X-Core
	Core				

9.10.3 Radio resource pool sharing between UEs using mode 3 and mode 4

Focus should be on RAN2 aspects.

Scenarios:

R2-1707700	Resource pool sharing	OPPO	discussion	Rel-15	LTE_eV2X-Core
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RAN2-level options:

R2-1707969	Discussion on resource pool sharing between mode3 and mode4 UEs		discussion	Rel-15	LTE_eV2X-Core	Huawei, HiSilicon
R2-1709373	Pool sharing between mode 3 and mode 4	Ericsson	discussion	Rel-15	LTE_eV2X-Core	
R2-1708053	Discussion on mode 3 and mode 4 shared resource pool	CATT	discussion			
R2-1708297	Discussion about exceptional pool for resource pool sharing between UEs using mode 3 and UEs using mode 4	Samsung R&D Institute UK	discussion	Rel-15	LTE_eV2X-Core	
R2-1708510	Consideration on resource pool sharing between UEs using mode 3 and mode 4	ZTE Corporation	discussion		LTE_eV2X-Core	
R2-1709008	Discussion on resource pool sharing between mode 3 and mode 4 UEs	Samsung Electronics France SA	discussion	Rel-15		
R2-1709049	Resource pool sharing between mode 3 and 4	Intel Corporation	discussion			
	LTE_eV2X-Core					
R2-1709133	Radio resource pool sharing between UEs using mode 3 and UEs using mode 4	LG Electronics Inc.	discussion	Rel-15	LTE_eV2X-Core	
R2-1709187	Resource pool sharing between mode 3 and mode 4	Nokia, Nokia Shanghai Bell	discussion	Rel-15	LTE_eV2X-Core	
	discussion					

R2-1709429	Latency reduction on V2X phase 2 for mode3 and mode 4 resource pool sharing	Samsung R&D Institute UK	discussion
R2-1709430	Supporting reliability during resource sharing	Samsung R&D Institute UK	discussion
R2-1708681	Resource pool sharing between Mode 3 and Mode 4	Qualcomm Incorporated	discussion
	Rel-15 LTE_eV2X-Core		

9.10.4 Others

Including RAN2 aspects, if any, on the WI objectives 1b (64 QAM), 1c (delay reduction at layer 1), 2 (transmit diversity), and 3 (short TTI).

R2-1707702	Resource selection for sTTI in eV2x	OPPO	discussion	Rel-15 LTE_eV2X-Core
R2-1708269	Considerations on latency related aspects in LTE eV2X	Huawei, HiSilicon	discussion	Rel-15 LTE_eV2X-Core
R2-1708511	Consideration on short TTI based PC5 operation	ZTE Corporation	discussion	LTE_eV2X-Core
R2-1708512	Discussion on support of 64QAM over sidelink	ZTE Corporation	discussion	LTE_eV2X-Core
R2-1709369	Latency reduction for eV2V	Ericsson	discussion	Rel-15 LTE_eV2X-Core
R2-1709427	Latency reduction on V2X phase 2 for UEs using Mode 4	Samsung R&D Institute UK	discussion	
R2-1708683	Reduction of time between packet arrival and transmisison	Qualcomm Incorporated	discussion	LTE_eV2X-Core

9.11 High capacity stationary wireless and 1024 QAM

(LTE_1024QAM_DL-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Mar. 18: WID: RP-171067)

Time budget: 0.5 TU

Documents in this agenda item will be handled in a break out session

9.11.1 General

Including incoming LSs, work plan, rapporteur inputs, running CRs

9.11.2 UE capability and potential new categories

9.11.3 Corresponding higher-layer procedures and signalling

9.12 Enhancements to LTE operation in unlicensed spectrum

(LTE_unlic-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-170848)

Time budget: 1 TU

Documents in this agenda item will be handled in a break out session

9.12.1 General

Including incoming LSs, work plan, rapporteur inputs, running CRs

R2-1708482	Work Plan for Enhancements to LTE operation in Unlicensed Spectrum	Nokia, Nokia Shanghai Bell	discussion	Rel-15 LTE_unlic-Core
	=> Noted			
R2-1709880	Proposal to progress Autonomous uplink access	Nokia	discussion	Rel-15 LTE_unlic-Core

=> Noted

9.12.2 Autonomous uplink access on Frame structure type 3

R2-1709355 On the Benefits of Autonomous Uplink Access for LAA Ericsson discussion Rel-15 LTE_unlic-Core

=> Noted

R2-1708892 Autonomous uplink access on LBT Huawei, HiSilicon discussion LTE_unlic-Core

=> Noted

R2-1709353 Autonomous Uplink Access for LAA Ericsson discussion Rel-15 LTE_unlic-Core

Agreements:

- 1 Support UL skipping for AUL i.e. the UE should use AUL resources only when it has data to transmit and UE doesn't have UL grant. FFS if a threshold is configured.
- 2 From a RAN2 point of view it is beneficial from spectral efficiency perspective to schedule multiple UEs on the same resources in some scenarios.
- 3 AUL can be configured at the same time in more than one uplink LAA serving cell.
- 4 FFS: Introduce an AUL activation/deactivation confirmation supporting confirmation of multiple SPS configurations on multiple serving cells.

R2-1709631 Autonomous Uplink Access for eLAA Qualcomm Incorporated discussion

Agreements:

- 1 The UE does not transmit on autonomous access resources when this subframe is used for DL transmission.
- 2 The UE does not transmit on autonomous access resources when an UL grant is received for the same TTI.
- 3 From RAN2 perspective, autonomous access should not be used for retransmission of dynamically scheduled transmissions

R2-1708893 HARQ with autonomous uplink access on LAA SCell Huawei, HiSilicon discussion LTE_unlic-Core

Agreements

- 1 From RAN2 perspective, both new AUL transmission and retransmission can be performed via resource for autonomous uplink access.
- 2 Retransmission can be switched from autonomous uplink access to grant-based uplink access.
- 3 HARQ feedback for autonomous uplink access is supported. FFS: the details of HARQ feedback depends on RAN1.
- 4 FFS: A maximum number of retransmissions for autonomous uplink access is defined.

R2-1709354 HARQ Design for Autonomous UL Access Ericsson discussion Rel-15 LTE_unlic-Core

Agreements:

- 1 From RAN2 perspective, the HARQ protocol for the LAA autonomous uplink access should support asynchronous HARQ retransmissions similar to legacy LAA HARQ.
- 2 It is FFS, the UE behavior upon reception (or not reception) of an HARQ feedback.

R2-1708894 Impact on MAC with autonomous uplink access Huawei, HiSilicon discussion
LTE_unlic-Core

Agreements:

- 1 MAC CEs are allowed to be sent via autonomous uplink transmission
- 2 If there is resource for both grant-based and autonomous transmission in a TTI for different cells, it is left to UE implementation whether MAC CEs are sent through grant-based or autonomous transmission

R2-1709047 Autonomous Uplink Access on Frame structure type 3 Intel Corporation discussion
LTE_unlic-Core

=> Not treated

R2-1708483 Autonomous uplink access Nokia, Nokia Shanghai Bell discussion Rel-15
LTE_unlic-Core

=> Not treated

R2-1709319 Autonomous uplink access in LAA LG Electronics UK discussion LTE_unlic-Core

=> Noted

9.12.3 Other operation on Frame structure type 3

R2-1708484 Multiple starting and ending positions in a subframe for UL and DL Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_unlic-Core

=> Additional starting and ending positions in a subframe for UL and DL does not seem to have any impacts to MAC. To RRC one needs to add any necessary new parameters once RAN1 has indicated those.

R2-1709356 RAN2 Impact on Multiple Starting and Ending Positions in a Subframe Ericsson discussion Rel-15 LTE_unlic-Core

=> Not treated

R2-1708891 UL partial subframe transmission Huawei, HiSilicon discussion LTE_unlic-Core

=> DRX timer counting is in the unit of subframe as in eLAA. No specification changes are needed.

✍ **CBF:** Draft LS to RAN1 in R2-1709754 to inform our agreements. (Offline number 543) (Nokia)

9.12.4 Others

9.13 Further NB-IoT enhancements

(NB_IOTenh2-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-171428)

Time budget: 2 TU

Documents in this agenda item will be handled in a break out session

Some sub-items in 9.13 and 9.14 may be treated jointly.

Incoming LS

R2-1707612 LS on NB-IoT small cell (R1-1709780; contact: Ericsson) RAN1 LS in Rel-15 NB_IOTenh2-Core To:RAN4 Cc:RAN2

⇒ **noted**

R2-1707615 LS on early data transmission in MTC and NB-IoT in Rel-15 (R1-1709835; contact: Ericsson)
RAN1 LS in Rel-15 LTE_eMTC4-Core, NB_IoTenh2-Core To:RAN2

⇒ **take into account if applicable**

⇒ **noted**

General

R2-1708310 Consideration on FeNB-IoT impact on RAN2 specifications Huawei, HiSilicon, Neul discussion
Rel-15 NB_IoTenh2-Core

Above tdoc moved from 9.13.9

- Chair think that CRs for December need to be quite stable. We may e.g. need to be backwards compatible towards those.
- Huawei think that in Dec we could have TEI14 CRs, but see problems for ASN.1 CRs.
- Chair asks rapporteurs to coordinate CR development to reduce the number of CRs. DraftCR and TPs can be provided by all companies but CRs should be coordinated by the rapporteur companies.

⇒ **noted**

R2-1709543 WF on power consumption reduction for NB-IoT VEOLIA discussion

⇒ **noted**

9.13.1 Early Data Transmission

Treated with 9.14.2. All tdocs moved there.

Use case scenario? Objective to avoid MSG5? Early data transmission for UL or also for DL, MSG3 flexible TB size, MSG1 indication of Data volume, Start state of the UE Idle or also Connected? CIOT CP / UP solutions? AS security? 0 2 3 RRC messages, state transition as earlier or staying in Idle mode, DL with paging? With RAR? In MSG4?

9.13.2 System Acquisition Enhancements

Treated with 9.14.3. All tdocs moved there

For stationary UEs?, for UEs that enter a new cell? Skip reading SI? Optimized transmission? Area concept? Stored SI?

9.13.3 Relaxed Monitoring for cell reselection

Treated with 8.11.1. All tdocs moved there

9.13.4 Semi-Persistent Scheduling

File transfer, media transmission, m2m regular reports

R2-1708235 UL semi-persistent scheduling Qualcomm Incorporated discussion Rel-15 NB_IoTenh2-Core

UNDERSTANDING:

- A) Proposal: SPS for M2M long-time regular transmissions allowing UE to be in Idle/PSM mode (at least between the transmissions), either for stationary UEs, or with R1 solutions for Timing advance. This kind of SPS can remove the need for MSG1 and MSG2 in the Access.
- LG think that if TA is needed there can still be gain, i.e. the UE performs MSG1/MSG2 to get the TA, and can then do Subsequent transmission based on SPS.

R2-1708639 Further discussion on SPS for NB-IoT Ericsson discussion Rel-15 NB_IoTenh2-Core

- B) Proposal: Support NB-IoT SPS for DL transmission of large files in Connected mode, e.g. for firmware updates. This kind of SPS can reduce PDCCH overhead, when a file is transmitted in multiple TBs.

- C) Proposal: Consider UL SPS support with *skipUplink* for NB-IoT, to be used as a “scheduling request” + BSR channel.

Variation) Common or Dedicated UL SPS

- LG wonders if SPS is dedicated or shared. Ericsson confirms this is dedicated. LG think we should consider also common resources.
- QC think that file transfer is rare.

R2-1708852 Consideration on SPS for NB-IoT LG Electronics Inc. discussion Rel-15 NB_IOTenh2-Core

- LG would be ok to not restrict to Connected mode.

D) Proposal: SPS for media type applications or similar (in connected mode), where the SPS resource is used during limited time. This kind of SPS can reduce PDCCH overhead and SR overhead (e.g. by RACH).

R2-1708302 Semi-Persistent Scheduling in NB-IoT Huawei, HiSilicon, Neul discussion Rel-15 NB_IOTenh2-Core

E) Proposal: SPS for SC-PTM in IDLE mode, to reduce PDCCH load for SC-MTCH, and SC-MCCH.

R2-1709539 NB-IoT Semi Persistent Scheduling Scope MediaTek Beijing Inc. discussion

- Same proposal as QC

⇒ **Noted**

R2-1708370 Consideration on SPS in FeNB-IoT ZTE Wistron Telecom AB discussion Rel-15 NB_IOTenh2-Core

- Main message is to be a bit careful, as SPS may also have negative consequences and the complexity may be significant.

⇒ **Noted**

DISCUSSION on the papers above:

- A) Proposal: SPS for M2M long-time regular transmissions allowing UE to be in Idle/PSM mode (at least between the transmissions), either for stationary UEs, or with R1 solutions for Timing advance. This kind of SPS can remove the need for MSG1 and MSG2 in the Access.
- B) Proposal: Support NB-IoT SPS for DL transmission of large files in Connected mode, e.g. for firmware updates. This kind of SPS can reduce PDCCH overhead, when a file is transmitted in multiple TBs
- C) Proposal: Consider UL SPS support with *skipUplink* for NB-IoT, to be used as a “scheduling request” + BSR channel.
- D) Proposal: SPS for media type applications or similar (in connected mode), where the SPS resource is used during limited time. This kind of SPS can reduce PDCCH overhead and SR overhead (e.g. by RACH).
- E) Proposal: SPS for SC-PTM in IDLE mode, to reduce PDCCH load for SC-MTCH, and SC-MCCH.

A, C, D Variation) Common or Dedicated UL SPS

- Chair think we should try to decide the scope / reduce the options at the next meeting.
- LG think we need to decide; whether to have SPS or not, UL/DL, Idle/Connected.
- Intel are not sure SPS can reduce the power consumption.
- Qualcomm think we need to look at the use case too.
- QC think this is not needed for December. Veolia disagrees and think this is part of the power saving features,

R2-1709725 Summary of offline discussion 313 on scope of the email discussion on SPS Huawei, HiSilicon, Neul

⇒ **We set the scope of the email discussion as proposed here.**

⇒ **noted**

☒ **[99#42][NB-IoT] Email discussion on SPS options (Huawei)**

Objective to become better familiar with pros/cons, etc, to be able to make decisions at next meeting. Discuss Use case, Benefits, Impacts, Implications.

9.13.5 RRC Connection Release Enhancements

Release by timer? Reduced overhead release signalling? Release without waiting time? Used with early data transmission or not? Enhanced spec of RAI?

R2-1708249 NB-IOT UE Autonomous Release MediaTek Inc. discussion Rel-15

- Proposal: Timer triggered RRC release (without NAS recovery), with the information originally carried by RRC release message delivered to UE via RRC setup, resume, reconfiguration message.
- ZTE think that also RRC reconfiguration can be used. ZTE think that the existing timer can be used. LG agrees. Huawei think we would need another timer. Ericsson think that the criteria for such timer would need to be re-evaluated.
- LG think that NAS recovery or not can be left for UE implementation.
- Ericsson are not sure that resume ID can be provided in the setup.
- Nokia wonders when the timer is started. Mediatek think that this started at last data transmissions.
- QC wonders what happens at timer expiry with L2 and possibly pending data. Mediatek think this would not happen, and buffers would be empty. Both sides keep the timer so eNB should know the time limit for DL transmissions. QC think that interaction with L2 timers need to be considered.

⇒ **Noted**

R2-1708279 Quick RRC connection release Ericsson discussion Rel-15 NB_IOTenh2-Core

- Proposal: Go to Idle based on UL HARQ-ACK feedback (instead of waiting 10s), requires a new indication in the DL (e.g. by PDCCH/DCI).

⇒ **Noted**

R2-1709161 Quick release of RRC connection for NB-IoT LG Electronics Inc. discussion Rel-15 36.321 NB_IOTenh2-Core

- Proposal is: In Rel-15, for NB-IoT, if the network doesn't set Poll bit in the RLC PDU containing the RRCConnectionRelease message, the UE performs the RRC Connection Release related actions immediately after the UE receives the RRCConnectionRelease message. (No wait for 10s). State mismatch can be resolved by the current RRC inact timer.
- ZTE think we could also use RLC-UM. LG think that using RLC-AM is a smaller change.
- QC wonders if the UE transmits HARQ feedback? LG think that HARQ feedback don't need to be sent.

⇒ **noted**

R2-1708303 Quick RRC Release Huawei, HiSilicon, Neul discussion Rel-15 NB_IOTenh2-Core

- Proposal: RAN2 to agree to remove the need for RLC ACK and rely on the HARQ ACK, by using a MAC CE to trigger the RRC connection release and to skip the 10s wait.
- LG wonders if the intention is to replace RRC release. Huawei confirms, but only when the network have no information to transmit,

⇒ **noted**

R2-1708371 Consideration on further enhancement of quick release of RRC connection in FeNB-IoT ZTE Wistron Telecom AB discussion Rel-15 NB_IOTenh2-Core

- ZTE think RLC UM can be used for RRC connection release

- Proposal: RLC UM can be used for RRC connection release.

⇒ **Noted**

R2-1708620 NB-IoT RRC connection release enhancements Qualcomm Incorporated discussion Rel-15 NB_IOTenh2-Core

- Proposal: UE go to Idle based on DCI indication, where the indication can be ACKed in the UL (either by scheduled ACK or PRACH)

⇒ **noted**

- ✉ **[99#43][NB-IoT] Email discussion on RRC Connection release (Mediatek)**
Objective to iron out the character of the proposals on the table, to be able to take well informed decisions at next meeting

R2-1709376 RRC connection release enhancements Nokia discussion Rel-15 NB_IOTenh2-Core

R2-1709166 Reliable use of DataInactivityTimer LG Electronics Inc. discussion Rel-15 36.321 NB_IOTenh2-Core

R2-1708304 Introduction of quick RRC Connection Release for NB-IoT in 36.321 Huawei, HiSilicon draftCR Rel-15 36.321 14.3.0 NB_IOTenh2-Core B

R2-1708305 Introduction of quick RRC Connection Release for NB-IoT in 36.331 Huawei, HiSilicon draftCR Rel-15 36.331 14.3.0 NB_IOTenh2-Core B

Above 4 tdocs not treated

9.13.6 UE differentiation

For configuration of SPS? For configuration of Idle transition time, C-DRX? Stationary indication? Stored in MME? Configuration parameters or typical traffic description / power consumption requirements etc?

R2-1708309 UE differentiation Huawei, HiSilicon, Neul discussion Rel-15 NB_IOTenh2-Core

- Huawei think that the objective is to be able to do smart scheduling.
- Chair wonders what is smart scheduling. Huawei think it could be SPS.
- The MME provides this information to the eNB, before MSG4. Ericsson think that the current information is just based on subscription but can be extended.
- LG think that SA2 and RAN3 should decide the scope. QC think this is not impacting RAN2.

⇒ **Noted**

R2-1708999 NB-IOT UE Differentiation MediaTek Inc. discussion

- The purpose to control when to go to Idle and C-DRX
- The UE provides the information to the eNB, and then the eNB and MME makes sure this is available at the proper time.
- Nokia agree that the RAN2 scope should be the UE information provided to the eNB.
- Ericsson would not like the UE to suggest values to the network.
- Huawei think the main point is that the MME gets and stores this information.
- Veolia think such mechanism should be about UE constraints (not only static information).

⇒ **Noted**

R2-1709480 Way Forward on UE Differentiation VEOLIA discussion

⇒ **Noted**

DISCUSSION

- Can discuss in RAN2, what information is beneficial for the eNB w.r.t. Uu operation.
- Can discuss in RAN2, how the information becomes available in the network, e.g. for non-static information.
- Ericsson think all information is static. Blackberry point out that there are already mechanisms. Veolia point out that the tdoc was mostly for static information. SW has

concerns on how the UE can provide values, SW think that it is difficult to control what the application provides.

✉ **[99#44][NB-IoT] Email discussion on UE differentiation (Huawei)**

Focus on what information is beneficial for the eNB w.r.t. Uu operation, can also discuss how the information becomes available in the network, e.g. for non-static information, if any.

R2-1708373 Consideration on UE differentiation in FeNB-IoT ZTE Wistron Telecom AB discussion
Rel-15 NB_IOTenh2-Core
R2-1708287 UE differentiation in NB-IoT Ericsson discussion Rel-15 NB_IOTenh2-Core
Above 2 tdocs not treated

9.13.7 Small Cell Support

CSG support? In Idle only? Anything else?

R2-1708286 Small cell support in NB-IoT Ericsson discussion Rel-15 NB_IOTenh2-Core
- ZTE think it could be premature to decide on CSG.
- Chair think there is strong majority to not have CSG, but if clear operator requirements emerges we could revisit this topic.
- MTK don't like to have CSG. LG are also OK to not support CSG. Nokia agrees and think we should send a LS at least to RAN3.
⇒ We do not support CSG for NB-IoT in Rel-15

R2-1709723 Draft LS to R3, R4 (cc R1) on CSG support in NB-IoT (Nokia)
⇒ Approved, final version in R2-1709705

R2-1708356 Consideration on supporting small cell in FeNB-IoT ZTE Wistron Telecom AB
discussion Rel-15 NB_IOTenh2-Core
R2-1709278 Cell reselection with CSG cell in NB-IoT LG Electronics Inc. discussion Rel-15
LTE_eMTC4-Core
R2-1708364 Consideration on supporting CSG functionality in FeNB-IoT ZTE Wistron Telecom AB
discussion Rel-15 NB_IOTenh2-Core
R2-1709277 Detection of CSG cells in connected mode LG Electronics Inc. discussion Rel-15
LTE_eMTC4-Core
R2-1709557 Modifications on 36.304 for supporting CSG in UE idle mode procedures in FeNB-IoT ZTE
Wistron Telecom AB discussion Rel-15 NB_IOTenh2-Core
Above 5 tdocs not treated

9.13.8 TDD

R2-1709417 Study of Impacts on Timers due to TDD support Ericsson discussion Rel-15
R2-1709418 Study of Paging, SI Acquisition and SIB Scheduling impacts due to TDD Ericsson
discussion Rel-15
R2-1709421 Study of TDD NPRACH and RA-RNTI Ericsson discussion Rel-15
R2-1708374 Consideration on TDD support in FeNB-IoT ZTE Wistron Telecom AB discussion
Rel-15 NB_IOTenh2-Core
Above 4 tdocs not treated

9.13.9 Other

E.g. Support for RLC-UM, Wake-Up Signal, Support for physical layer SR, Measurement Accuracy Enhancements, NPRACH reliability, NPRACH range, other

Support for RLC-UM

R2-1708283 RLC UM for NB-IoT Ericsson discussion Rel-15 NB_IOTenh2-Core

P2:

- Huawei support but think this is not a new SRB
- LG think this is a strange configuration and think this has impact on PDCP etc.
- Ericsson think there could be power saving.
- Chair think the main gain is for the Status Report for the very last message, if SR prohibit is used and eNB schedules SR with other transmissions in the DL. Huawei point out that if we have waiting times, we need separate transmissions in any case.
- QC think that NAS messages need high reliability.

⇒ **Support RLC UM for NB-IoT DRBs.**

⇒ **FFS if to Support RLC UM for NB-IoT SRBs**

R2-1708851 Supporting RLC UM for NB-IoT LG Electronics Inc. discussion Rel-15 NB_IOTenh2-Core

Measurement Accuracy Enhancements

R2-1708280 Measurement accuracy improvements Ericsson discussion Rel-15 NB_IOTenh2-Core

Wake Up Signal or similar

R2-1708284 NB-IoT power consumption reduction for paging and connected-mode DRX Ericsson discussion Rel-15 NB_IOTenh2-Core

R2-1708301 Power saving signal or channel in NB-IoT Huawei, HiSilicon, Neul discussion Rel-15 NB_IOTenh2-Core

R2-1708757 Consideration for wake-up signaling in NB-IoT LG Electronics Mobile Research discussion NB_IOTenh2-Core

Support for Phy Layer SR

R2-1708640 NB-IoT PHY Scheduling Request Ericsson discussion Rel-15 NB_IOTenh2-Core

NPRACH enhancements

R2-1709491 NPRACH reliability and range enhancement for NB-IoT Ericsson discussion Rel-15

Other

R2-1708375 Consideration on UE power consumption reduction in FeNB-IoT ZTE Wistron Telecom AB discussion Rel-15 NB_IOTenh2-Core

R2-1709456 Enhanced RRC Connection Re-establishment in NB-IoT LG Electronics Inc. discussion Rel-15 NB_IOTenh2-Core

R2-1709312 Access barring for CE level in NB-IOT LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

Above 10 docs not treated

9.14 Even further enhanced MTC for LTE

(LTE_eMTC4-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18; WID: RP-171427)

Time budget: 2 TU

Documents in this agenda item will be handled in a break out session

9.14.1 Organisational

Including incoming LSs, rapporteur inputs, running CRs

R2-1707614 LS on System acquisition time reduction for Rel-15 LTE MTC (R1-1709834; contact: Ericsson)
RAN1 LS in Rel-15 LTE_eMTC4-Core To:RAN2, RAN4
=> Noted

9.14.2 Early data transmission

Note that documents in agenda item 9.13.1 are merged with the documents in this agenda item.

*Use case scenarios? Early data transmission for UL or also for DL? Flexible TB size for Msg3? Indication of Data volume in Msg1?
Early data transmission for CIOT CP and/or UP solutions? AS security? Early data transmission in DL via paging, RAR or RRC
Connection Setup/Resume? State transition to connected after early data transmission?*

R2-1708447 UL small data transmission use cases and requirements VEOLIA discussion
The Tdoc above moved from 9.13.1

- Huawei wonders about the size and frequency of the report in the UL. The requirement for the packet size may be large for NB-IoT. Veolia would like to encourage companies to provide simulations showing benefits with early data transmission w r t UE power consumption depending on different use cases (size, frequency... as done in R2-1708628). This would also be beneficial to be done for other power consumption reduction improvements from Veolia's point of view.

R2-1708239 UL Early data transmission Qualcomm Incorporated discussion Rel-15 LTE_eMTC4-Core
R2-1708240 DL Early data transmission Qualcomm Incorporated discussion Rel-15 LTE_eMTC4-Core

- Intel would like to clarify the motivation thinking that it is to send early data in Msg3. Intel thinks that it would be good to clarify whether the UE comes from idle mode. QC assumes that the UE is coming from the idle mode. LG would like to focus on the UP solution, but other solutions are also fine. LG wonders if the WID scope includes sending data not in Msg3. The chair explains that this is not within the scope.
- Nokia wants to check it with RAN1 regarding the TBS limitations.
- MediaTek proposes to leave the state transmission discussion for now.
- Ericsson thinks Msg4 would be beneficial for DL early data transmission.
- QC explains the cases for DL transmission, e.g. Msg4 after Msg3 or as part of paging message. These cases are isolated. Intel has a concern regarding the impact on the paging load.
- LG has a concern to send DL data with the paging message. If the data is transmitted in Msg2 this will consume network resources. LG supports the Msg4 option. ZTE thinks that for DL data Msg4 is the baseline.
- MediaTek thinks DL data has less priority compared to the UL case. If Msg2 is used the NW needs to reserve a preamble for the UE. MediaTek supports to send the DL data in Msg4.
- Intel thinks sending DL data in Msg2 has big impact.
- Ericsson agrees with Intel and MediaTek. There may no point in sending the data early in DL if it is for e.g. firmware upgrade.

Agreements

We intend to support early UL data transmission in Msg3 for control plane and user plane CIoT EPS optimisation.

We intend to support early DL data transmission in Msg4 for control plane and user plane CIoT EPS optimisation.

R2-1709194 Early data transmission discussion for eFeMTC and FeNB-IoT Intel Corporation
discussion Rel-15 LTE_eMTC4-Core

R2-1708628 Early Data Transmission for eFeMTC UEs Ericsson discussion Rel-15
LTE_eMTC4-Core

- LG wonders whether the intention is to support early data transmission only for the UP solution.
- Intel wonders whether the information sent in Msg5 is required earlier of the data is sent in Msg3. Huawei thinks that such information can be provided in Msg3.
- Ericsson confirms that CP solution was not precluded. The concern was the message sizes and information required before Msg5 is received.
- Intel would like check with the CT groups to confirm that the information in Msg5 can be provided in Msg3. MediaTek thinks that it is only S-TMSI that is required.
- LG would like to find out the maximum size of Msg3. MediaTek thinks it is OK to discuss in the meantime by making assumptions. QC thinks instead of sending an LS to the RAN1 and ask for the maximum size we should first evaluate the maximum possible size from RAN2 standpoint, e.g. headers.
- Nokia thinks it would still be beneficial to ask RAN1 about the message size. Veolia would like RAN2 to evaluate first. ZTE thinks it is better if RAN1 provides first what is possible w r t message size.
- ZTE thinks there is no need to have RRC release, Msg5 etc. in some scenarios.
- MediaTek proposes to send an LS to RAN1 and mention the use case we have discussed as one example. Huawei supports.
- Intel suggests an email discussion will help to structure the discussion. MediaTek suggests discussing RRC signalling, e.g. whether there is any RRC signalling or just data, where control information is sent and how. LG has a concern if data is transmitted without connection is established.
- QC suggests discussing the indication of UE's intention of early data, contents of Msg3, Msg4, Msg5, how to identify a UE. Ericsson would like to add content of Msg2. LG wants to discuss how to control access for data transmission and how to avoid impact on legacy UE transmission. MediaTek thinks we can also discuss security.
- Intel would like the ask RAN1 about the limitations w r t grants in Msg2.
- Intel suggests to send an LS on maximum message size.
- We will not send an LS but discuss the indication in Msg1 and the potential impact as part of the email discussion.

Agreements

Early data transmission feature is considered when AS security was not established for only transmitting data using CP.

Early data transmission feature is considered when AS security was established for transmitting data using CP and/or UP.

☒ [99#45][NB-IoT/MTC] Email discussion on the detailed aspects of early data transmission (Qualcomm)

Intended outcome: To address the following but not limited to:
RRC signalling, e.g. whether there is any RRC signalling, at which point control information is sent and how. Security aspects, indication of UE's intention of early data, contents of Msg2, Msg3, Msg4, Msg5, how to identify a UE etc.

R2-1708300	Early data transmission for the CP solution NB_IOTenh2-Core	Huawei, HiSilicon, Neul discussion	Rel-15
<i>The Tdoc above moved from 9.13.1</i>			
R2-1709335	Enhanced UP solution for early data transmission in MTC Rel-15 LTE_eMTC4-Core	Huawei, HiSilicon discussion	
R2-1708630	Bearer Setup and Security Considerations for Early Data in MTC Rel-15 LTE_eMTC4-Core	Ericsson discussion	
R2-1708380	Consideration on early data transmission in eFeMTC discussion Rel-15 LTE_eMTC4-Core	ZTE Wistron Telecom AB	
R2-1708231	Expanded PRACH search space for EDT requests 15	Sierra Wireless, S.A. discussion	Rel-15
R2-1708722	Initial discussion on RAN2-led objectives for eFeMTC	Kyocera discussion	
R2-1708855	Fast uplink transmission for MTC Core	LG Electronics Inc. discussion	Rel-15 LTE_eMTC4-Core
R2-1709307	Early data transmission for User plane CIoT optimisation in feMTC discussion Rel-15 NR_newRAT-Core	LG Electronics Inc.	
R2-1709309	Early data transmission for Control plane CIoT optimisation in feMTC discussion Rel-15 NR_newRAT-Core	LG Electronics Inc.	
R2-1709333	General discussion on early data transmission for MTC Rel-15 LTE_eMTC4-Core	Huawei, HiSilicon discussion	
R2-1709334	Early data transmission on dedicated resource for Rel-15 MTC discussion Rel-15 LTE_eMTC4-Core	Huawei, HiSilicon	
R2-1709458	Early Data Transmission Failure Handling in MTC 15 LTE_eMTC4-Core	LG Electronics Inc. discussion	Rel-15

The Tdocs below moved from 9.13.1

R2-1707805	Consideration on early data transmission in FeNB-IoT discussion Rel-15 NB_IOTenh2-Core	ZTE Wistron Telecom AB	
R2-1708233	UL Early data transmission Core	Qualcomm Incorporated discussion	Rel-15 NB_IOTenh2-Core
R2-1708234	DL Early data transmission Core	Qualcomm Incorporated discussion	Rel-15 NB_IOTenh2-Core
R2-1708629	Early Data Transmission for feNB-IoT UEs Core	Ericsson discussion	Rel-15 NB_IOTenh2-Core
R2-1708631	Bearer Setup and Security Considerations for Early Data in NB-IoT Rel-15 NB_IOTenh2-Core	Ericsson discussion	
R2-1708854	Fast uplink transmission for NB-IoT NB_IOTenh2-Core	LG Electronics Inc. discussion	Rel-15
R2-1708998	NB-IOT Early Data Transmission	MediaTek Inc. discussion	
R2-1709308	Early data transmission for Control plane CIoT optimisation in NB-IOT discussion Rel-15 NR_newRAT-Core	LG Electronics Inc.	
R2-1709310	Early data transmission for User plane CIoT optimisation in NB-IOT discussion Rel-15 NR_newRAT-Core	LG Electronics Inc.	
R2-1709457	Early Data Transmission Failure Handling in NB-IoT Rel-15 NB_IOTenh2-Core	LG Electronics Inc. discussion	

9.14.3 System acquisition time enhancements

Note that documents in agenda item 9.13.2 are merged with the documents in this agenda item.

For stationary UEs? Skip reading MIB, SIB1-BR, SI messages? Optimized transmission? Area concept? Stored SI?

R2-1709336 Reduced system information acquisition time for MTC Huawei, HiSilicon discussion
Rel-15 LTE_eMTC4-Core

R2-1708248 Skipping MIB-NB Acquisition for NB-IOT UE MediaTek Inc. discussion Rel-15

The Tdoc above moved from 9.13.2

- ZTE is not sure about the RAN2 impact of Proposal 2. Intel supports repetitions on time domain only. MediaTek assumes this is a RAN1 discussion and there is no need to discuss here. Ericsson and Intel commented that proposal 2 is not clear.
- MediaTek wonders whether Proposal 3 is for both mobile and static UEs.
- MediaTek comments that this is already implicitly possible, but does it also apply to smart meters sleeping for long periods?
- QC and Intel would like to understand what Proposal 3 would mean considering that system information is usually different across cells.
- QC and Intel would like to capture something that specifies the UE behaviour regarding Proposal 5. Not necessarily along the lines that were captured in the LS sent to RAN4.
- QC agrees with MediaTek that this is to address a corner case where once in a while system information change happens.

=> Regarding accumulation across SIB1-BR/SI modification periods; we intend to capture what has been provided in the LS to RAN4 in the next meeting and send an LS to RAN4 for information.

R2-1708625 Reduced System Acquisition Time for eMTC UEs Ericsson discussion Rel-15
LTE_eMTC4-Core

- ZTE wonders this refers to an absolute time or a relative value. Gemalto wonders how this would work for a UE sleeping long periods that wakes up and finds out that there has been changes. SW explains that the UE would know how long such information is valid and behave accordingly.
- Intel wonders why this would be beneficial on top of the existing mechanisms. SW thinks with this the UE can avoid acquiring SIB1-BR if there is an indication in the MIB. SW thinks that this can coexist with the indication in paging message.
- SW explains that the intention is to save power consumption for devices configured with rather short DRX/eDRX cycles.
- Intel mentioned that this was discussed before within the context of NB-IoT. SW thinks this is not exactly the same mechanism discussed at that time, it is not incremental.
- Intel thinks the use case is still not clear. SW explains how this is supposed to work. ZTE has a concern that the UE may miss the notification.
- We will discuss proposal 2 in the next meeting with companies bringing contributions explaining the use cases and the benefits clearly.
- Regarding proposal 3, Intel wonders where the benefits are. Ericsson explains that the UE can avoid reading SIB14 if access barring is not enabled. MediaTek thinks the benefits are still not clear.
- Regarding Proposal 4; ZTE thinks that this may not help UEs not aware of the update. SW has a concern on system resources. Huawei wonders about the benefits in general.
- Intel points at the email discussion in RAN2 on similar topics, i.e. R2-156345, R2-152161, R2-153277.

✉ [99#46][MTC] Email discussion on identifying the use cases for skipping SIB1-BR (Sierra Wireless)

R2-1708627	DRAFT LS reply on system acquisition time reduction for Rel-15 MTC out Rel-15 LTE_eMTC4-Core RAN1, RAN4	Ericsson	LS
R2-1709283	Optimization of SI acquisition in MTC LG Electronics Inc.	discussion	Rel-15
R2-1708381	Consideration on system acquisition time reduction in eFeMTC discussion Rel-15 LTE_eMTC4-Core	ZTE Wistron Telecom AB	
R2-1708232	SIB validity indication in MIB Sierra Wireless, S.A.	discussion	Rel-15
R2-1709337	Skip system information reading for MTC Huawei, HiSilicon	discussion	Rel-15
R2-1708379	Consideration on system acquisition time reduction in FeNB-IoT discussion Rel-15 NB_IOTenh2-Core	ZTE Wistron Telecom AB	

The Tdoc above moved from 9.13.2

R2-1708626	Reduced System Acquisition Time for feNB-IoT UEs 15 NB_IOTenh2-Core	Ericsson	discussion	Rel-
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The Tdoc above moved from 9.13.2

R2-1709282	Optimization of SI acquisition in NB-IoT LG Electronics Inc.	discussion	Rel-15
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The Tdoc above moved from 9.13.2

9.14.4 Relaxed monitoring for cell reselection

Note that documents in this agenda item are merged with the documents in agenda item 9.13.3.

9.14.5 Access/load control of idle mode UEs

Is CE-level based access class barring beneficial? A particular CE level or a CE level and above is barred? Signalling aspects? UE behaviour when a certain CE level is barred. Indicators in MIB? LS reply?

R2-1709340	Improvement of load control in Rel-15 MTC 15 LTE_eMTC4-Core	Huawei, HiSilicon	discussion	Rel-
R2-1709044	CE level based access barring and load control for eFeMTC and FeNB-IoT Intel Corporation			

- LG supports CE level access barring. LG prefers to use SIB2 or SIB14. Huawei wonders if such mechanism is fair from devices standpoint since UEs in different CE level may be discriminated. Ericsson support CE level barring and would like to provide it in SIB14. QC wonders whether the intention is to extend both ACB and EAB.
- ZTE agrees with Ericsson and LG and thinks that SIB14 is better to provide such information.
- Fujitsu supports the Huawei view. QC mentions that CE based authorization already introduced unfairness in that sense.
- Huawei suggests consulting SA1 if we would like to introduce this mechanism. QC does not see any need to do that. LG supports QC.
- Kyocera supports Huawei's view.
- MediaTek thinks we can consider a lower resolution, e.g. CE mode based

=> We will continue the discussion in the next meeting. Companies will check the concerns brought up regarding fairness before the next meeting.

R2-1708637	Improved Idle Mode Load control for eFeMTC UEs	Ericsson	discussion	Rel-15
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R2-1708365	Consideration on access control in eFeMTC Rel-15 LTE_eMTC4-Core	ZTE Wistron Telecom AB	discussion	
R2-1709311	Access barring for CE level in feMTC LTE_5GCN_connect-Core	LG Electronics Inc.	discussion	Rel-15
R2-1708860	Improved Access and load control of idle mode UEs NR_newRAT-Core	Fujitsu	discussion	Rel-15
R2-1709312	Access barring for CE level in NB-IoT NB_IOTenh2-Core	LG Electronics Inc.	discussion	Rel-15

The Tdoc above moved from 9.13.9

9.14.6 Uplink HARQ-ACK feedback

Is UL HARQ-ACK feedback beneficial for early termination signalling? FDD/TDD and/or HDD?

R2-1709045	On the need for UL HARQ feedback Core	Intel Corporation	discussion	LTE_eMTC4-
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- QC supports UL HARQ ACK feedback. QC wonders this requires the UE to be full duplex. Intel explains that this is not needed, but this will require gaps.
- LG also supports UL HARQ ACK feedback. ZTE also supports.
- Intel thinks that if gaps are not introduced for HDD, there is not much benefit if the indication is sent after the repetitions are done.
- MediaTek consider this beneficial especially for UEs in really bad coverage.
- If agreed to be introduced in RAN1, RAN2 needs to this capability signalling and signalling for activation and deactivation.

Agreements

The support for UL HARQ ACK feedback for early termination signalling (ETS) is up to RAN1 to decide.

UL HARQ ACK feedback is beneficial with respect to UE power consumption from RAN2 standpoint.

R2-1708632	Uplink HARQ-ACK feedback for eFeMTC UEs LTE_eMTC4-Core	Ericsson	discussion	Rel-15
R2-1709140	RA enhancement using HARQ feedback 36.321 LTE_eMTC4-Core	LG Electronics Inc.	discussion	Rel-15
R2-1709141	DRX enhancement using HARQ feedback 36.321 LTE_eMTC4-Core	LG Electronics Inc.	discussion	Rel-15

9.14.7 Increased PDSCH spectral efficiency

Capability reporting? Signalling to enable/disable?

R2-1708634	Increased PDSCH spectral efficiency Core	Ericsson	discussion	Rel-15	LTE_eMTC4-
R2-1708635	Increased PDSCH spectral efficiency LTE_eMTC4-Core 3007 B	Ericsson	CR	Rel-15 36.331 14.3.0	
R2-1709341	Increased PDSCH spectral efficiency for Rel-15 MTC Rel-15 LTE_eMTC4-Core	Huawei, HiSilicon	discussion		

- Intel thinks capability signalling is supported for both BL and non BL UEs. Huawei thinks that there is no need to introduce capability signalling for non-BL UEs.

Agreements

Capability signalling is introduced to indicate support for 64QAM for BL/CE UEs assuming that RAN1 has already agreed this.

9.14.8 Increased PUSCH spectral efficiency

- | | | | |
|------------|---|-------------------|------------------------------|
| R2-1709342 | Increased PUSCH spectral efficiency for Rel-15 MTC
Rel-15 LTE_eMTC4-Core | Huawei, HiSilicon | discussion |
| R2-1708636 | Increased PUSCH spectral efficiency
Core | Ericsson | discussion Rel-15 LTE_eMTC4- |
- QC would like to clarify what Huawei proposals mean. Intel does not support the proposals on switching between eMTC and NB-IoT. SW supports increased PUSCH spectral efficiency. Ericsson also supports increased PUSCH spectral efficiency. ZTE does not support proposal 1 from Huawei. SW thinks it is not possible for the UE to handover to another RAT when in connected mode.
 - MediaTek thinks there is no point in discussing whether this should be introduced or not from RAN2 standpoint since it is up to RAN1 to decide.

9.14.9 Other

Including higher UE velocity, lower UE power class, wake-up signaling, CRS muting etc.

10 WI: New Radio (NR) Access Technology

(NR_newRAT-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-171485)

10.1 Organisational

Incoming LSs, work plan, status from other groups, etc.

Incoming LSs to RAN2

- | | | |
|------------|--|-----------------------|
| R2-1707603 | Liaison Statement from NGMN Alliance to 3GPP on Test Results of Technology Building Blocks phase of the Trial and Testing Initiative (contact: KT Corp, Telecom Italia | NGMN Alliance LS in |
| | => Noted | |
| R2-1707618 | LS on NR UL SPS / UL transmission without UL grant (R1-1711686; contact: NTT DOCOMO) | Rel-15 NR_newRAT-Core |
| | RAN1 LS in | |
| | => Noted | |
| R2-1707619 | LS on Single UL transmission (R1-1711878; contact: NTT DOCOMO) | RAN1 LS in |
| | Rel-15 FS_NR_newRAT | |
| | => Noted | |
| R2-1707620 | LS on Beam Aspects of NR RACH (R1-1711880; contact: Huawei) | RAN1 LS in |
| | Rel-15 NR_newRAT-Core | |
| | => Noted | |
| R2-1707621 | Reply LS response on reading time index indication for RRM measurements (R1-1711966; contact: Intel) | RAN1 LS in |
| | Rel-15 NR_newRAT-Core | |

=> Noted

R2-1707622 Reply LS response on NR basic handover (R1-1711987; contact: Samsung) RAN1 LS in
Rel-15 NR_newRAT-Core

=> Noted

R2-1707624 LS on Bandwidth Part Operation in NR (R1-1711998; contact: MediaTek) RAN1 LS in
Rel-15 NR_newRAT-Core

- LG ask if RAN2 need to consider support of multiple active BWP in phase 1.
- Vivo think the spec will need to possibility to support multiple activation of more than one BWP. MediaTek think we need a framework to support more than one.
- Ericsson think the agreement is clear than single BWP is the priority, but we don't know what RAN1 will do for multiple BWPs.
- ZTE think this will impact many things including RRM.

=> Noted

R2-1707626 LS on support of multi-TRP transmission in NR (R1-1712000; contact: Intel) RAN1 LS in
Rel-15 NR_newRAT-Core

- ZTE wonder if RAN1 really want to support all these different options.
- Intel think RAN1 is considering some cases but may not be considering all possible combinations.
- Huawei think that RAN1 is considering to support all those scenarios.
- LG think that TRPs should not be visible in the specification, but just see multiple PDCCHs. ZTE agrees with this comment.

=> Offline discussion to see is RAN2 can respond (e.g. explain our desire that TRP is not visible in the spec). Draft LS in R2-1709815 (ZTE, Offline discussion #19).

R2-1709815 [Draft] Reply LS on support of multi-TRP transmission in NR ZTE LS out

=> Will not be sent

=> We will wait for further input from RAN1 before discussing this in RAN2

R2-1707627 LS on NR initial access and mobility (R1-1712001; contact: NTT DOCOMO) RAN1 LS in
Rel-15 NR_newRAT-Core

- Vivo ask if the conclusions for idle or connected or both. DOCOMO think we will need to discuss this based on contributions.

=> Noted

R2-1707628 Reply LS on PDCCH design (R1-1712005; contact: Ericsson & CATT) RAN1 LS in
Rel-15 NR_newRAT-Core

=> Noted

R2-1707629 LS on NR Beam Management (R1-1712007; contact: Qualcomm) RAN1 LS in
Rel-15 NR_newRAT-Core

=> Noted

R2-1707630 LS on HARQ operation (R1-1712008; contact: Nokia) RAN1 LS in
Rel-15 NR_newRAT-Core

- Vivo ask how the transmission duration is communicated. Nokia think it is not concluded

=> Noted

R2-1707636 Reply LS on UE measurement capabilities across LTE and NR (R4-1706905; contact: Nokia)
RAN4 LS in Rel-15 NR_newRAT-Core

=> Noted

- R2-1707637 Reply LS on the feasibility of DC-related mobility enhancements in NR (R4-1706913; contact: Huawei) RAN4 LS in Rel-15 NR_newRAT-Core
- Ericsson wonder what is the message from RAN4.
 - Huawei think the questioned are answered objectively and for the 3rd question we would need to have some more discussion.
 - Ericsson think the answer was on feasibility but we also need to consider complexity.
 - LG think it is clear that the enhancement would only be feasible in some cases but not all.
- => Noted
- R2-1707638 Reply LS on support of supplementary uplink in NR (R4-1706967; contact: CMCC) RAN4 LS in Rel-15 NR_newRAT-Core
- => Noted
- R2-1707639 LS on spectrum utilization (R4-1706974; contact: Vodafone) RAN4 LS in Rel-15 NR_newRAT-Core
- Qualcomm wonder why they sent it , we can of course support it.
- => Noted
- R2-1709672 LS on DL & UL channel bandwidth for NR (R4-1706978; contact: Intel) RAN4 LS in Rel-15 FS_NR_newRAT To:RAN1, RAN2
- => Noted
- R2-1707645 Reply LS on RAN2 agreements on NR paging (S2-174801; contact: LGE) SA2 LS in Rel-15 NR_newRAT-Core
- => Noted
- R2-1707648 Reply LS on NR Idle Mode procedures (S2-175089; contact: Qualcomm) SA2 LS in Rel-15 5GS_Ph1, LTE_5GCN_connect-Core
- LG ask if allowed and non-allowed area is UE specific. Qualcomm confirm it is UE specific an provided in NAS. LG think RAN will need to properly configure the RAN area.
- => Noted
- R2-1707652 LS reply on NAS Reflective QoS (S2-175244; contact: Intel & MediaTek) SA2 LS in Rel-15 NR_newRAT-Core
- => Noted
- R2-1707653 Reply LS on RAT restriction in 5GS (S2-174261; contact: Qualcomm) SA2 LS in Rel-15 5GS_Ph1
- => Noted
- R2-1707654 LS on NR indication (S2-175270; contact: Qualcomm) SA2 LS in Rel-15 EDCE5
- Vivo wonder why the indication is needed. Vodafone explain that it is to provide the user with some indication. However, wonders what SA3 means with NR.
 - DT think the indication could be misleading for the user. Also SA2 have sent some request to GSMA about the need for indications to the user.
- => RAN2 understand that the indication is for the user and not to affect AS operation.
- => Noted.
- R2-1709674 Reply LS to RAN2 on Counter Check Procedure and SCG SRB integrity check failure (S3-172077; contact: Nokia) SA3 LS in Rel-15 NR_newRAT-Core To:RAN2
- => Noted
- R2-1709675 Reply LS on algorithm selection in E-UTRA-NR Dual Connectivity (S3-172078; contact: Ericsson) SA3 LS in Rel-15 EDCE5 To:RAN2, RAN3, CT1

- Qualcomm think we asked if we need to do the echo back but they did not answer.
 - Qualcomm think CT1 is discussing this this week. And also the NAS based solution has not been submitted into SA3.
- => Noted

R2-1709676 LS on NR security input parameters (S3-172079; contact: Qualcomm) SA3 LS in Rel-15 NR_newRAT To:RAN2 Cc:ETSI SAGE

- Qualcomm think SA3 seem to assume LTE algorithms will be used in NR-PDCP when it is used in eNB.
 - Ericsson think the LS statements about bearer space and LCID space is not true.
- => Offline discussion to conclude how to respond (Ericsson, Offline discussion #20)
=> Draft LS in R2-1709817

R2-1709817 [Draft] Reply LS on NR security input parameters Ericsson, LSout

- Qualcomm think if we send this LS then it fixed the DRB space to 5 bits as SA3 will start working on this assumption.
- => Working assumption: The DRB ID space is 5 bits
=> LS to be clarified to explain that DRB ID space is just a working assumption.
=> Revised in R2-1709931

R2-1709931 [Draft] Reply LS on NR security input parameters Ericsson, LSout

=> Approved in R2-1709969

R2-1709677 Response LS on security keys in EN-DC and actions upon DRB IP check failure (S3-172080; contact: Ericsson) SA3 LS in Rel-15 NR_newRAT-Core To:RAN2

=> Draft response in R2-1709818 to answer their question and provide conclusions from what we discuss this meeting. (Ericsson , Offline discussion #21)

R2-1709818 [Draft] Response LS on security keys in EN-DC and actions upon DRB IP check failure Ericsson LSout

=> Revised in R2-1709936

R2-1709936 [Draft] Response LS on security keys in EN-DC and actions upon DRB IP check failure Ericsson LSout

=> Approved in R2-1709982

R2-1709847 LS on RRC parameters for NR (R1-1714969; contact: Ericsson) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2

- New LS in
- => Noted

☒ **[99#22][NR] L1 parameters (Ericsson)**

Start to progress how to capture and structure the L1 parameters in RRC
Intended outcome: First TP on the ASN.1 including L1 parameters
Deadline: Thursday 2017-08-31

☒ **[99#23][NR] L2 Parameters (Huawei)**

Start to progress how to capture and structure the L2 parameters in RRC
Intended outcome: First TP on the ASN.1 including L2 parameters
Deadline: Thursday 2017-08-31

R2-1709861 LS on multiple SSBs within a wideband carrier (R1-1715071; contact: Ericsson) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2

- MediaTek ask if the different BWPs will be configured with a different cell ID. AT+T think if the PCIs are the same then the UE will know that it doesn't need to measure both.

- LG think that from RAN2 point of view they should be considered as different cells if they have different PCI.
 - Ericsson think it could be configured as 2 measurements objects and then there would be no problem from UE point of view. Also think the use case is needed to be able to answer. E.g. if one if intended to be narrow band UEs and one for other.
 - Huawei don't see any impact in RAN2. From UE they will appear as 2 frequencies on which to measure.
- => Ask RAN1 the use case for this so that we are better able to respond
=> Offline discussion to see if there is anything else that we need to ask RAN1.
=> May also include aspects concluded for today's discussion.
=> Reply LS in R2-1709873 (MediaTek, Offline discussion #46)

R2-1709873 Reply LS on multiple SSBs within a wideband carrier MediaTek LS out
=> Approved I R2-1709983

R2-1709863 LS on response to EPC QoS aspects for TSG RAN's lower latency features (R1-1715089; contact: Ericsson, Vodafone) RAN1 LS in Rel-15 EDCE5, New Radio (NR) Access Technology, LTE_HRLLC, LTE_sTTIandPT To:SA2, RAN2 Cc:SA1, CT1, RAN, SA, RAN3
=> Noted

R2-1709885 LS response on spectrum utilization (R1-1715184; contact: Huawei) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN4, RAN2, RAN3
=> Noted

Incoming LSs cc RAN2

R2-1707623 Response LS on Support for fake gNB detection mechanisms (R1-1711997; contact: Nokia) RAN1 LS in Rel-15 NR_newRAT-Core

R2-1707625 LS on power sharing for LTE-NR Dual Connectivity (R1-1711999; contact: Ericsson) RAN1 LS in Rel-15 NR_newRAT-Core

R2-1707631 Reply LS on CSI-RS Design for Beam Management (R1-1712009; contact: NTT DOCOMO) RAN1 LS in Rel-15 NR_newRAT-Core

R2-1707649 Reply LS on the need for EPS Bearer ID knowledge in NG-RAN for (inter-RAT) inter-system handover (S2-175157; contact: NTT DOCOMO) SA2 LS in Rel-15 5GS_Ph1

R2-1707651 Reply to LS on Dual Connectivity with 5GC (S2-175197; contact: Nokia) SA2 LS in Rel-15 5GS_Ph1

R2-1707656 LS on Status Icons related to 5G (S2-175303; contact: MediaTek) SA2 LS in Rel-15 5GS_Ph1, NR_newRAT-Core, LTE_5GCN_connect-Core

=> All above LSs are noted without presentation.

Other

R2-1707772 RAN WG's progress on NR WI in the June AH meeting 2017 NTT DOCOMO, INC. (Rapporteur) discussion
=> Noted

R2-1709568 Draft Reply LS to RAN4 on Spectrum Utilization Huawei, HiSilicon LS out
=> Approved in R2-1709816

Withdrawn

R2-1709673 Reply LS on Closed Subscriber Group in 5GS (RP-171479; contact: Qualcomm) RAN LS in
Rel-15 SMARTER, NR_newRAT To:SA1, RAN2 SA2, SA3, RAN3

10.2 Stage 2 and common UP/CP aspects

For this meeting, proposals to the stage 2 should be submitted with a TP to show the impact to the stage 2 specifications.

10.2.1 Stage 2 TSs and running CR

Latest TS 38.300, TS 37.340 and running CR to 36.300, other rapporteur inputs, anything related to specification methodology. Please submit any new text proposals to the appropriate agenda item.

R2-1707748 Draft TS 38.300 v060 Rapporteur (Nokia) draft TS38.300 0.6.0

=> Endorsed

=> The draft TS (v0.7.0) is endorsed in R2-1709937.

R2-1708080 TS 37.340 v0.2.1 Rapporteur (ZTE Corporation) draft TS37.340 0.2.1

=> Endorsed. v0.3.0 can be provided in R2-1709831

=> The draft TS (v0.4.0) is endorsed in R2-1709939.

Stage 2 corrections

R2-1707690 Text proposal for aligning description of the RRC states Samsung, Nokia, Nokia Shanghai
Bell, Intel Corporation discussion

=> Agreed

R2-1707980 NG-RAN Terminology Rapporteur (Nokia) discussion

- ZTE think we do not need to use the terms on our stage 2 specs. They have agreed them for their stage 3
- Nokia was planning to have a single sentence if needed.
- Ericsson suggest that we could just use network in the RRC spec. ZTE think we considered using RAN when this was discussed in plenary and would have impact in 36.331 as well.

=> In our stage 2 specs we intend to continue to use eNB and gNB (except in TPs from RAN3 where they have felt it necessary to be specific).

=> Stage 2 spec rapporteurs are asked to review our terminology and come with a proposal, if required, to the next meeting.

R2-1708690 Proposed corrections to 38.300 mainly on RRC_INACTIVE state Huawei, HiSilicon
discussion

- Nokia think the problems are only due to LTE.

=> Offline discussion to try to conclude way forward for updating this terminology.

=> Revised in R2-1709833 (Offline discussion #26)

R2-1709833 Proposed corrections to 38.300 mainly on RRC_INACTIVE state Huawei, HiSilicon
discussion

=> In 9.2.2.3 remove the change to CN Tracking Area

=> Agreed with the change above

10.2.2 User Plane

No documents should be submitted to 10.2.2. Please submit to 10.2.2.x.

10.2.2.1 Bearer type harmonisation

Any remaining stage 2 aspects relating to bearer type harmonisation, including confirmation (or otherwise) of working assumption that MCG bearer can be configured with LTE or NR PDCP type, and including FFS points identified in the last meeting.

Maximum 1 tdoc per company

R2-1709165 PDCP for MCG DRB and SRB Samsung Electronics GmbH discussion

P2

- Ericsson think the reason to NR-PDCP for the DRBs was to avoid switching, which is not a case for the SRBs. And for LTE-PDCP there is nothing new needed to support the split and duplicate SRB. ZTE support Ericsson's view and see more work if we use NR-PDCP. MediaTek also share the view of Ericsson and ZTE.
- Huawei see some benefit to use NR-PDCP. As it would only need to be specified in a single spec and avoid impact to LTE spec.
- OPPO wonder what would be used for the other options.
- Intel agree with Huawei to go for NR-PDCP for split bearer. To avoid impact to LTE PDCP to support uplink duplication.
- Nokia also see benefit to use NR-PDCP. LG also support. CATT also support and think the functionality is already in the NR-PDCP. DCOOMO also support NR-PDCP and would like to align DRB and SRB. Lenovo also support proposal 2. Qualcomm also.
- Ericsson think that we have complexity of performing handover to switch from LTE to NR PDCP. And would be the benefit of the handover. Only gain is to not introduce the functionality for LTE.
- IDC think the handover to reconfigure is not something that will happen often and hence support proposal 2.
- Sony also support proposal 2.
- CMCC would prefer to use LTE PDCP as it could have impact on existing eNB. Huawei think eNB will anyway have to support NT PDCP for split bearer.
- Vivo ask if LTE MAC will support the duplication.

P4

- Huawei think the network should be able to use NR-PDCP at initial connection setup. Network could blindly detect the PDCP version being used.
- LG think the simplest approach is to agree proposal 4 and avoid discussion how to detect the UEs capability early.
- Ericsson think early setup should be discussed.
- Vodafone would prefer a single option at connection establishment.
- ZTE can support P4 as a compromise.
- Intel think that P4 is agreeable as there are several mechanisms available by eNB implementation that would allow reconfiguration.
- Nokia wonder if an indication of the CN in msg 3 could be used, at least for option 7.

Agreements for EN-DC

- 1: Working assumption of the last meeting is confirmed as an agreement: For MCG bearer, either LTE or NR PDCP can be used, configurable by the network.
- 1a EN-DC capable UE without EN-DC operation configured can be configured with NR PDCP version for SRBs and DRBs.
- 2: NR-PDCP is used for 'MCG split or duplicate SRB'.
- 3: Non split SRB1 and 2 can be transmitted over either LTE-PDCP or NR-PDCP, which is configurable by network (at least after initial connection establishment).
- FFS whether SRB1 and SRB2 need to be configured with the same PDCP type (to be concluded in stage 3).
- 4: LTE-PDCP is used for SRB1 at the initial connection establishment from idle state. (I.e. no additional optimization to support NR-PDCP for SRB1 for idle to connected state transition)
- 5: The PDCP version change (release of old PDCP and establish of new PDCP) of SRBs can be supported via:
 - i/ handover procedure (reconfiguration with mobility); and
 - ii/ reconfiguration without mobilityControlInfo (when network implementation is sure there is no UL data in buffer). No user plane actions beyond release and establish of PDCP are to be specified for this case.
- 6 EN-DC operation should support a single reconfiguration procedure for bearer type change between MCG to/from split bearer and MCG to/from SCG bearer, when MCG bearer is configured with NR PDCP (before and after the bearer type change).
- 7 EN-DC operation where MCG bearer is configured with LTE PDCP, then direct bearer type change of such MCG bearer to split bearer or SCG bearer is performed is FFS.

R2-1708272 PDCP anchor for SRB in EN-DC MediaTek Inc. discussion
R2-1707774 Bearer type harmonisation covering SRB NTT DOCOMO, INC. discussion
R2-1709431 NR PDCP for MCG SRBs and MCG bearer in EN-DC Huawei, HiSilicon discussion
R2-1707706 Discussion on PDCP version configuration OPPO discussion
R2-1707885 Remaining issues of bearer type harmonisation CATT discussion
R2-1707981 On use of LTE PDCP and NR PDCP Nokia, Nokia Shanghai Bell discussion
R2-1708018 SRB PDCP aspects Ericsson discussion
R2-1708130 Consideration on the MeNB enhancement for Supporting Bearer Type Harmonisation ZTE Corporation discussion
R2-1708225 NR PDCP for MCG bearer in EN-DC NEC discussion
R2-1708288 PDCP version of MCG bearer for DRB in EN-DC Sharp Corporation, Qualcomm Incorporated, KDDI, KT Corporation, NTT DOCOMO INC. discussion
R2-1708412 Harmonized bearer type vivo discussion
R2-1708794 PDCP protocol for MCG SRB and DRB in EN-DC Intel Corporation discussion
R2-1708981 Discussion on bearer type harmonisation CMCC discussion
R2-1709513 NR-PDCP for MCG-SRB1 Sony discussion
R2-1708944 Open issues for harmonized bearer type Qualcomm Incorporated discussion
Moved from 10.2.2.2 to 10.2.2.1

Late

R2-1708656 NR-PDCP for MCG-SRB1 Sony discussion

10.2.2.2 Bearer type change and L2 handling at mobility

Including bearer type change and L2 handing at mobility events.

Including output from email discussion [NR-AH2#16][NR] Bearer type change (Huawei)

Maximum 1 tdoc per company

R2-1709623 Summary of NR-AH2#16 Bearer type change (Huawei) Huawei, HiSilicon discussion
=> Revised into R2-1709698
R2-1709698 Summary of NR-AH2#16 Bearer type change (Huawei) Huawei, HiSilicon discussion
P2
- Lenovo think key change needs re-establishment of PDCP/RLC. It is done at handover for other reasons not just due to the key change.
- Nokia think even for key change case the RLC may not need to be re-established.
- Sony also share the view of Lenovo. OPPO support the Nokia view.
- Samsung think things are possible but why should we optimise the security key change which is a rare case. Qualcomm support the Samsung view. Ericsson also support this view and think optimisations can be considered later. LG also agree.
- DOCOMO think this is not a rare case and think it would be nice to consider.
- Huawei think it will be very difficult to conclude a single solution. Support Samsung view.
- Ericsson think we already have some cases optimised compared to LTE and it will be very difficult to conclude in time.
P4
- Ericsson wonder if S-KeNB can be used for a node that is terminated at the master node. Huawei this this is not the usual case.

Agreements for EN-DC

- 1: PDCP/RLC is re-established if security key is changed for the bearer.
(Maybe revisited is a solution for avoiding MAC reset is selected and the solution is suitable for avoiding PDCP/RLC reset)
- 2: MAC is not reset for the bearer type change between MCG bearer and SCG bearer.

FFS: Whether PDCP is re-established for the bearer type change between MCG bearer and SCG bearer if NR PDCP is used for MCG bearer.

- 3: The original RLC entity should be released and new RLC entity should be established for the bearer type change between MCG bearer and SCG bearer. The detailed handling on LTE RLC and NR RLC should be further discussed in UP session.

R2-1708438 Allowed Bearer type changes and L2 handling Samsung Electronics Co., Ltd discussion

Agreements for EN-DC

- 1: If Bearer type change happens through handover procedure then for MCG bearer, split bearer and SCG bearer, MCG/SCG PDCP/RLC should be re-established and MCG/SCG MAC should be reset.
- 2: If Bearer type change happens through SN change procedure then SCG PDCP /RLC should be re-established, SCG MAC should be reset.
- 3a: EN-DC operation should support the one step (direct) bearer type change between MCG to/from MCG split bearer without using the handover procedure.
- 3b: EN-DC operation should support the one step (direct) bearer type change between SCG to/from SCG split bearer without using the handover procedure or SN change procedure.

R2-1708954 Discussion on bearer type change and L2 handling at mobility Huawei, HiSilicon discussion

Agreements for all architecture options

- 1: The direct change between SCG bearer and unified split bearer should be supported.

=> Offline discussion to progress on remaining aspects, including whether to support a mechanism to avoid the MAC reset and if supported then how, and how to handle PDCP version change for DRBs, and consider impact to (LTE and NR) RRC procedures (Huawei, Offline discussion #22)

R2-1709881 Summary of offline discussion# 22Huawei discussion Rel-15 NR_newRAT-Core

=> We do not optimize for the key confusion and count rollover issues for EN-DC in Rel-15. For example, the solutions, handover, DRB release/addition, scheduling of restriction or LCID change can be used and it is up to network implementation.

☒ **[99#18][NR] Bearer Type Change (Huawei)**

Progress the following issues:

Issue 2: allowed bearer type change, including how to handle PDCP version change for DRB, only handover?

Issue 3: based on the answer of issue 1 and 2, to update the detailed L2 handling of bearer type change

Intended outcome: Report to next meeting on L2 behaviour for each bearer type change.

Deadline: Thursday 2017-09-07

R2-1707942 Discussion on bearer type change OPPO discussion

R2-1707996 L2 procedure for Per Bearer and Mobility Changes Lenovo, Motorola Mobility discussion

R2-1708094 Bearer type change Ericsson discussion

R2-1708499 Discussion on the bearer type change of duplicate bearer vivo discussion

R2-1709505 Avoiding L2 reset -analysis of solutions Sony discussion

R2-1708133 Consideration on the remaining issues of bearer harmonization ZTE Corporation discussion

Moved from 10.2.2.1 to 10.2.2.2

Late

R2-1708648 Avoiding L2 reset -analysis of solutions Sony discussion

10.2.2.3 Packet duplication

Any remaining stage 2 aspects of packet duplication including FFS points identified in the last meeting - detailed topics should be discussed in stage 3 user plane.

Maximum 1 tdoc per company

R2-1708691 Remaining stage 2 issues for CA duplication and for DC duplication discussion Huawei, HiSilicon

Agreements

- 1 We will not support MAC CE activation/deactivation of duplication within LTE MAC.
 - 2 We will not support the CA duplication in LTE
 - 3 CA duplication is supported for all non-split UM DRBs if the bearer uses NR-PDCP, for all architecture options (apart from cases excluded by 1 and 2)
- FFS: for AM DRBs and SRBs
- 4 DC duplication is supported for all split DRB and SRBs if the bearer uses NR-PDCP, for all architecture options
 - 5 We will not introduce new bearer type changes into RRC, but user plane session can discuss and decide terminology for DC duplication, CA duplication, split bearer operation, etc (Some clarification is needed for how to handle CA duplication within the current bearer type change discussion)

R2-1708950 Further considerations for Packet duplication Qualcomm Incorporated discussion
=> Noted

R2-1708862 Stage 2 TP for RLC AM duplication Fujitsu discussion

- Ericsson think this would require frequent reconfiguration between AM and UM when duplication is activated or deactivated.
- LG support the proposal to avoid may issues which are being discussed in PDCP and there is no real motivation to use duplication with AM.
- Intel also support the proposal but would be ok if it was only for the CA case.
- Nokia think duplication is needed for AM including for measurement reports on SRB.
- MediaTek think the proposal makes sense for DRBs.
- OPPO think that AM should be supported for SRBs.
- ZTE support the intel view that it is not needed for CA. Qualcomm also support this view.
- Huawei think duplication is needed in AM and we have already agreed to support SRB DC duplication.

- Support for AM for CA duplication

Yes:11

No: 8

=> RAN

- Support for AM for DRBs with (CA and DC) duplication

Yes:12

No: 11

Agreement:

Priority in user plane session for addressing the stage 3 details:

- 1: UM for DRBs with CA and DC duplication; SRBs (AM) with DC duplication;
- 2: SRBs (AM) with CA duplication
- 3: AM for DRBs with DC duplication
- 4: AM for DRBs with CA duplication

R2-1708333	Packet duplication in CA	Ericsson	discussion
R2-1707705	Control on UL packet duplication for split bearer	OPPO	discussion
R2-1708097	Stage-2 aspects of data duplication	MediaTek Inc.	discussion
R2-1708489	Duplication de/activation due to Scell or BWP de/activation vivo		discussion
R2-1708735	Details of Duplication and Routing for SRBInterDigital		discussion
R2-1708821	Support of CA packet duplication for RLC AM	Intel Corporation	discussion
R2-1709036	Uplink DRB Duplication	Samsung	discussion
R2-1709077	SCG Failure Case for Duplication SRB	ITRI	discussion
R2-1709095	Need for Duplicate RB	LG Electronics Inc.	discussion
R2-1709425	More consideration on uplink duplication in dual connectivity		Nokia, Nokia Shanghai Bell discussion
R2-1709628	Configuration of PDCP duplicationITL		discussion

10.2.2.4 Other

Any remaining stage 2 user plane aspects - detailed topics should be discussed in stage 3 user plane.

ECN

R2-1709469	Efficient support of ECN in NR	Ericsson, Nokia, Nokia Shanghai Bell, Vodafone	discussion
R2-1708289	Consideration on validity of enhanced ECN for NR	Sharp Corporation, Qualcomm Incorporated, Fujitsu, MediaTek Inc., Intel Corporation	discussion
	- Previous 2 documents discussed together - Samsung have the same conclusion as Sharp and others. - Huawei also support the view of Samsung and others. LG also support this view. - CMCC think ECN has never been used in LTE which is why an alternative approach was added in R14. So conclude it is not needed in NR. - ZTE are also not convinced that this need to be done. - Fujitsu wonder if the current LTE mechanism needs to be supported in NR. ZTE think we can't preclude the LTE approach as it is mainly eNB implementation. Qualcomm think this is part of the LTE baseline.		
	=> We will not support the enhanced ECN mechanism in Rel-15		
	=> Whether to describe the basic ECN (i.e. same as the LTE mechanism) in 38.300 NR stage 2 is FFS		

R2-1708149	Consideration on the ECN in NR	ZTE Corporation	discussion
R2-1708822	ECN and RAN-assisted codec adaptation	Intel Corporation	discussion

Other

R2-1708446	Impact on Control and User Plane procedure due to Intra and Inter CU HO	Samsung Electronics Co., Ltd	discussion
	- Huawei think for some cases that for example PDCP must be re-established. Samsung clarify that the proposal is just for PDCP. - Ericsson there are 2 kinds of handover and some indication is needed to separate the case which is obvious. But this should not introduce new cases. - Ericsson think this is partly covered in the TP on reconfiguration where lower RLC/MAC and PDCP can be separately re-established.		
	=> Noted		
R2-1708833	Other Control plane aspects of Unified bearers	Intel Corporation	discussion
P1			

- Ericsson wonder how you prevent the UE from transmitting. Intel think it is an issue of how to capture it in the spec.
- Intel think that for a split bearer we should not suspend the split bearer but not use the SCG leg. But how we describe it needs to be considered.

=> Previous agreements related to SCG failure are updated as follows:

If radio link failure is detected for SCG, UE suspends SCG transmissions for all radio bearers, and reports SCG failure information to MN.

Upon SgNB failures, UE shall:

- Suspend SCG transmission for all DRBs;
- Suspend direct SCG SRB and SCG transmission for MCG split SRB;
- Reset SCG-MAC;
- send the SCGFailureInformation message to the MeNB with corresponding cause values .

Working assumption (SCG integrity protection failure case is to be confirmed after SA3 response)
: At SCG failure (all cases) only the SCG part of split bearers should be suspended. (Already agreed for the SCG bearer and the SCG SRB)

R2-1708958 Consideration on DRX for EN-DC Huawei, HiSilicon discussion

- LG agree that separate DRX configuration is natural consequence of different numerologies.
- LG think that proposal 2 doesn't need to be captured. Qualcomm think proposal 2 is not needed.
- Huawei think that some coordination is needed.

Agreements

1: In EN-DC, separate DRX configurations are provided for LTE MCG and NR SCG.

2: The MeNB/SgNB provides the MCG/SCG DRX configuration to the SgNB/MeNB. Whether or not the SCG/MCG aligns DRX configuration with the MCG/SCG is left up to SgNB/MeNB implementation.

R2-1709626 Issues on VoLTE support in NE-DC China Telecommunications discussion

- Intel ask if the proposal is just for NE-DC. CT think the problem only exists for NE DC.
 - LG think split bearer is for throughput and voice is not for voice service.
 - Vivo think SPS can be supported on the PSCell.
 - LG think RoHC has problems in split bearers which is why it was prohibited in LTE. For SPS we already agreed it, without any differentiation of the split bearer.
 - Vivo think PDCP already needs to support out of order deliver together with RoHC.
- => Noted.

R2-1707884 Sync state in connected mode CATT discussion

Moved from 10.2.1 to 10.2.2.4

- Huawei is not sure whether the LTE agreements can be reused given L1 differences. E.g. there could multiple PDCCHs from one cell, random access aspects, etc.
 - LG think the LTE stage 2 was too detailed.
 - Ericsson think there are details here that have not been discussed in RAN1 or RAN2
- => Future discussion will take place in UP sessions (even discussion of text for stage 2)
=> Noted

R2-1708861 Stage 2 TP for LCP Fujitsu discussion

Moved from 10.2.1 to 10.2.2.4

- MediaTek think the TP might not be complete.
 - LG thinks the text is too detailed for stage 2
 - Nokia think the text is a good starting point
- => Revised in R2-1709829 (Offline discussion #23)

R2-1709829 Stage 2 TP for LCP Fujitsu discussion

=> Change radio bearers to logical channels

=> Agreed with the change above.

R2-1708182	Activation and Deactivation time of Secondary Cells	Ericsson	discussion	
R2-1708183	[DRAFT] LS on Activation and Deactivation time of Secondary Cells out	Ericsson		LS
R2-1708439	Bearer handling in NR-E-UTRA Dual Connectivity	Samsung Electronics Co., Ltd	discussion	
R2-1708497	Discussion on the support of UP protocol for the harmonized bearer type	vivo	discussion	
R2-1709028	Lossless PDCP version change between LTE and NR	Samsung	discussion	
R2-1709515	Discussion and proposal to UE Overheat issue	Sony	discussion	

Late

R2-1708658	Discussion and proposal to UE Overheat issue	Sony	discussion	
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10.2.3 MN/SN measurement coordination

Including consideration of the response from RAN4 to the questions we asked from RAN2#98.

Maximum 1 tdoc per company

R2-1708796	Measurement coordination for EN-DC	Intel Corporation	discussion	
- CATT asks how the UE will consider the 2 meas objects as one or 2 layers. Intel assume it will be defined in RAN4 whether they get considered as one or 2 layers. - Ericsson agree with Intel's proposal. It is a network responsibility to resolve this. - LG think the UE might measure a single frequency layer twice and we need coordination to avoid this double measurement. - Qualcomm also support Intel. The discussion in RAN4 is whether the UE has a single measurements processes and that is RAN4 issue. - ZTE agree with Intel that the measurement configurations are independent. Wonders if RAN4 can understand all the parameters. - Nokia think RAN4 is still working one cases where they might be considered as 2 layers. - Huawei think from RAN2 perspective we can just assume that the MN sends the SN the parameters of the measurement object. SN can decide whether to use the same or different configuration. - DOCOMO think unless we receive info from RAN4 we cannot progress on coordination. - Samsung think we could agree that there is no need for any UE specific coordination. Huawei agree this is a simple approach. But could not be used if the measurement capability of the UE depends on UE capabilities. => We will discuss again whether any coordination is required when we have more information from RAN4.				

Working assumption: UE receives independent measurement configuration from MN and SN. UE does not do any manipulation of parameters in order to make the measurements configurations consistent (i.e. network is responsible to ensure they are consistent if it wants to ensure these are considered as a single measurement layer)

R2-1708138	Consideration on measurement coordination in LTE/NR tight interworking	ZTE Corporation	discussion	
- Huawei explain that the white list and black list might impact the number of cells to be measured and hence have some impact to performance. P4 - ZTE clarify the maximum number refers to signalling requirement. P6 - Intel think we need to understand the motivation for changing from LTE approach where RAN4 just specify a number. ZTE explain that RAN4 just specify a minimum but network can configure more than this. Huawei have a different understanding and assume that the UE's				

never support more than the minimum, the network would not risk to use more than the minimum.

Agreements:

- 1 RAN2 assume that for measurement objects on the same frequency configured by both MN and SN, at least the following parameters) can be configured differently without affecting whether the 2 measurement objects will count as 1 or 2 measurement layers.
 - ☐ offsetFreq
 - ☐ Cells to apply alternative TTT (if agreed for NR)
 - ☐ T312 (if agreed for NR)
 - cellIndividualOffset (if agreed for NR)
 - Black list
 - FFS White cells

Other parameters are FFS.
- 2 For MR-DC, RAN2 will specify separate signalling requirements for the maximum numbers of MeasObjectID, ReportConfigID and MeasID in MN and SN.
- 3 In MR-DC, both MN and SN can configure independent s-Measures towards UE, with s-Measure configured by MN referring to PCell, and the s-Measure configured by SN referring to PSCell.

- => Send LS to RAN4 to inform them of our decision and ask them to confirm our assumptions.
 => Draft LS in R2-1709834 (Offline discussion #27)

R2-1709834 Draft reply LS on UE measurement capabilities across LTE and NR ZTE LSout
 => add would to " any parameters that would need to be configured "
 => Change white cells to white list.
 => Approved in R2-1709851

R2-1709432 Measurement coordination for LTE-NR DCHuawei, HiSilicon discussion
 R2-1707759 Measurement Gap Configuration in MR-DC OPPO discussion
 R2-1707971 Considerations for the MN and the SN to configure measurement objects consistently on the same carrier Spreadtrum Communications discussion
 R2-1708413 Measurement in case of SCG failure vivo discussion
 R2-1708900 NR measurement object configuration in SN LG Electronics Inc. discussion
 R2-1709094 Measurement coordination between LTE and NR CMCC discussion
 R2-1709638 Coordination of NR Measurements between MN and SN Qualcomm Incorporated discussion

10.2.4 MN/SN procedures

Any remaining aspects of MN/SN procedures, stage 2 signalling flows, information passed between nodes, etc including (stage 2) FFS points identified in the last meeting. Detailed topics should be progressed in stage 3 AI 10.4.1.8 on 'Inter-Node RRC messages'.

R2-1707887 Measurement result exchange between nodes CATT, CATR discussion
 P1
 - IDC think the MN initiated change was just for load balancing and hence don't see a need for the proposal. CATT think even if it is needed for load balancing then the results are important. Samsung think we did not agree to provide any target cell in this case and hence the measurements are needed for SN to decide the cell.
 - LG see no reason not to send the results.
 - Nokia think this is like the SN addition case.
 P3
 - Samsung think we normally encode according to the target. Huawei agree and think the results should always be encoded according to the target (i.e. in NR RRC)

- Nokia think there can also be some beam related measurements and these should use NR format. SO it is actually a mixed format using LTE and NR parts.
- ZTE support the Samsung view. Ericsson think that to send it in NR format then the MN will need to convert it.

Agreements

- 1: Measurement results relating to the target SN can be provided by MN to target SN at MN initiated SN change procedure.
- 2: Measurement results of target SN can be forwarded from source SN to target SN via MN at SN initiated SN change procedure.
- 3: Measurement results according to measurement configuration from MN are encoded according to NR RRC when they are provided by MN to SN in SN Addition Request message (EN-DC).
- 4: During SN initiates SN change procedure, measurement results according to measurement configuration from SN are encoded according to NR RRC when they are provided by MN to SN in SN Addition Request message.

R2-1708128 Consideration on the DRB and SRB parameters Transferred between MeNB and SgNB ZTE Corporation discussion

P1

- OPPO support the proposal
- Ericsson think that the MN should make the decision whether the bearer is split. Hence do not support the proposal. Huawei have the same view as Ericsson as the MN has the full picture and knows all QoS information. ZTE thinks the MN doesn't have the full picture about the SN. ZTE also think there is no case like this in LTE.
- Samsung have the same view as Ericsson and think we can follow LTE approach.
- IDC have the same view as ZTE. CATT have the same view as Ericsson.

Agreements

- 1: For EN-DC, each DRB, the MN node is responsible to decide whether the DRB is split or not.
- 2: At MCG split SRB configuration, LTE MeNB indicates SRB1S or SRB2S to NR SgNB.

R2-1709435 UE-AMBR enforcement in EN-DC Huawei, HiSilicon discussion

- Nokia prefer to support option 2.
 - DOCOMO ask what are the specification impacts. Huawei explain that in LTE DC the discussion was also started in RAN2
 - CATT think in the end RAN3 made the decision for LTE DC
- => Issue left for RAN3 to discuss

R2-1708136 Consideration on the counter check procedure in LTE/NR tight interworking ZTE Corporation discussion

P1

- Ericsson think counter check is not so frequent so it is ok to always possible to use the MN procedure. Huawei have the same view as Ericsson and anyway the MN is required to take some action such as contacting the CN as specified by SA3.
- Vivo think informing the CN is not a reason not to allow the SN to perform the counter check.
- LG think the procedure is not very urgent and can be performed by the MN.
- Spreadtrum support the ZTE proposal.
- Nokia think it should be triggered by the SN because now there the possibility to use SRB3.
- Samsung explain that in LTE DC it is triggered by the SN but the procedure is performed by the MN. And anyway the procedure from MN needs to be available for the case that SRB3 is not available.
- Samsung think that for EN-DC the existing counter check would not even need to be extended.

Agreements for EN-DC and NG-EN-DC and NE-DC

- 1: The counter check procedure should be triggered by MN and SN independently (as in LTE DC)
- 2 Counter check procedure is performed by MN (i.e. we will not add support for Counter Check performed by the SN).

R2-1708020 Clarification on EN-DC procedures Ericsson discussion
P1

- Huawei support both proposals but suggest we limit to R15
- Nokia think this also implies that we don't add events to support these transitions.

Agreements

- 1: For EN-DC, it is not necessary to support inter-RAT SN change procedure with single RRC reconfiguration (i.e. no transition from EN-DC to LTE DC) in Rel-15
- 2: For EN-DC, it is not necessary to support inter-RAT MN change procedure while keeping the SN (i.e. no transition from EN-DC to NR-NR DC) in Rel-15
- 3: We will not add measurement events that are targeted to these scenarios.

=> Offline discussion to identify the key stage 2 aspects that still need to be address in this AI.
May be the progressed by email to the next meeting. (ZTE, Offline discussion #28)

Update from offline in R2-1709953

R2-1709953 Status of Offline discussion #28: identify key remaining aspects for MN/SN procedures ZTE
=> Topics will be discussed in the email discussion

R2-1708022 Race conditions in case of SgNB release procedures Ericsson discussion

R2-1708095 Discussion on the SCG change procedure Ericsson discussion

R2-1708131 Consideration on the forward compatibility of NR-NR DC structure ZTE Corporation discussion

R2-1708137 Consideration on the intra-MN handover without SCG change involved ZTE Corporation discussion

R2-1708201 MN-SN Information Exchange for LTE-Assisted NR Initial Access AT&T discussion

R2-1708243 TP on SN modification without MN involvement HTC Corporation discussion

R2-1708367 Discussion on measurement configuration enhancement in INACTIVE state OPPO discussion

R2-1708445 Discussion on Inter MN handover without SN change Samsung Electronics Co., Ltd discussion

R2-1708598 Split SRB: HO command duplication Ericsson discussion

R2-1709023 NSA procedure FFS: SCG change definition in ENDC / Information for DRB configuration Samsung Electronics Romania discussion

R2-1709025 SN modification call flow: SCG DRB release case Samsung Electronics Romania discussion

R2-1709037 [Draft] LS on the support of SN modification call flow Samsung Electronics Romania discussion

R2-1709132 Provision of measurement results to MN LG Electronics Inc. discussion

R2-1709243 Format of measurement results to be shared from MN to SN Nokia, Nokia Shanghai Bell discussion

R2-1709275 Secondary node change procedure for 0ms interruption time in LTE-NR tight interworking TCL discussion

R2-1709330 Remaining issue for reconfiguration coordination HTC Corporation discussion

R2-1709403 Inter Master Node handover with Secondary Node change NTT DOCOMO INC. discussion

R2-1709433 Procedure of Secondary Node change Huawei, HiSilicon discussion

R2-1709434 Definition and usage of SCG change for LTE NR DC Huawei, HiSilicon discussion

R2-1709436 MN/SN information exchange Huawei, HiSilicon discussion

R2-1709639 Open Issues for MN/SN Procedures Qualcomm Incorporated discussion

Late

R2-1709690: [Draft] LS on the support of SCG change indication for new SCG change case Samsung
LSout

10.2.5 NSA operation - other aspects

Any remaining stage 2 aspects of SCG SRB, split SRB, SN/MN failure handling, security for NSA, etc including (stage 2) FFS points identified in the last meeting. Note security for SA is treated under AI 10.2.15. Detailed topics should be progressed in stage 3 AI 10.4.1.3.4 on Connection control procedures - NSA aspects.

Security

R2-1708096 Security aspects of bearer harmonisation Ericsson discussion

- Qualcomm supports the proposal, it meets the SA3 requirement.
- Ericsson explain the intent is that we KeNB and S-KeNB and we just indicate to the UE which key to use.
- Lenovo think the PDCP anchor is nor transparent to the UE. Hence assumes a separate key for split bearer. Ericsson think transparency was not the main motivation but to avoid bearer type changes.
- Huawei wonder if this results in different behaviour when changing from MCG bearer when changing to split bearer with KeNB and split bearer with S-KeNB.
- CATT thinks UE does need to know whether it is KeNB or S-KeNB but just which one to use.
- Ericsson think even if the UE knows the termination point there is no UE behaviour associated with this. Intel agrees.
- Nokia agree with Ericsson that we don't need to care about the different bearer types, we just have one bearer with one or 2 RLC entities. Ericsson think we could just the key configuration and the lower layer configuration of 1 or 2 lower layer configurations.
- Nokia see that stage 2 will still contain this SCG, split, etc terminology but for RRC it may not be seen. Intel have a similar view.

Agreements

- 1 For EN-DC, the network can configure each DRB to use 1 key out of a set of 2 keys (KeNB and S-KeNB derived as specified today)

Note: This agreement does not change the use of the SCG bearer, MCG bearer, SCG split bearer and MCG split bearer terminology in stage2 specs.

R2-1709502 Remaining aspects of NR Security SAMSUNG Electronics Co., Ltd. discussion

- LG think the agreement in SA3 is just an interim agreement. Samsung explain their interim agreements are because it is just study item.
- Sony ask if IP can be enabled or disabled at handover. Huawei understand that the information will come from CN and hence it should not change at handover, at least for Xn based handover.
- Nokia think the RAN would not be mandated. Samsung think that both eNB and UE must support it.

Agreements for NG-EN-DC and NE-DC and NR SA

- 1 UP integrity protection can be configured on a per radio bearer (i.e. per DRB) basis.

R2-1708134 Consideration on remaining security issues ZTE Corporation discussion

R2-1708414 Further consideration on integrity check failure vivo discussion

R2-1708443 Discussion on Security keys Samsung Electronics Co., Ltd discussion

R2-1709437 S-KeNB related issues for LTE-NR interworking Huawei, HiSilicon discussion

R2-1709438 Counter check in LTE-NR DC Huawei, HiSilicon discussion

R2-1709695 [DRAFT] Reply LS on NR security input parameters Ericsson LS out Rel-15
NR_newRAT-Core To:SA3 Cc:ETSI SAGE

SCG failure

R2-1709234 Remaining Issues for UE Procedures on SCG Failure discussion BEIJING SAMSUNG TELECOM R&D

- Samsung explain the main intent is to have no autonomous procedures. If the results were being carried by MCG SRB then MN can decide whether it would like to do anything with them.
- CATT wonder if there is a real purpose for using the information.
- Ericsson think it is not necessary to mandate a UE behaviour, it could suspend or not the measurements.
- Nokia explain the LTE-DC principle is that the UE continues measurements and the only difference here is that the configuration may have come from the SN.

Agreements

- 1: After SCG failure, the UE continues to perform measurements based on the SN measurement configuration. (UE does not autonomously change the routing of the SN measurements). Consequence is that, if the SN measurement configuration configured the UE to route measurements via MN, then these will continue to be reported after the SCG failure.
 - 2: Upon detection of SCG failure, UE performs following steps (as in LTE-DC):
 - 1) UE keeps the current SCG configuration used prior to detection of SCG failure
 - 2) Perform UE actions corresponding to SCG failure (i.e. suspension of SCG transmissions and SCG failure report transmission to MN)
 - 3: Measurement results provided in SCGFailureInformation message can be forward to the SN by inter node message (encoded in NR RRC format as previously agreed).
- FFS Whether the measurement results provided in SCGFailureInformation are encoded according to LTE RRC or NR RRC.

- => Offline discussion to conclude on whether NR or LTE is used to encode the measurement results and to start to progress on the detailed content of the measurement results. (Vivo, Offline discussion #30)
- Update from offline R2-1709912

R2-1709912 Report for offline discussion 30 on measurement results format Vivo

Agreements

- 1: Measurement results according to SN configuration provided in SCGFailureInformation are encoded according to NR RRC format
 - 2: If SCGFailureInformation contains SN configured measurement results, MN will forward those measurements to SN
 - 3: The following measurements are included in SN part of SCGFailureInformation
 - ARFCN value and NR serving cells and NR neighbour cells measurement results with a quality indicator (RSRP, RSRQ or equivalent).
- FFS Beam level measurements

R2-1709246 Further considerations on UE measurements during S-RLF discussion Nokia, Nokia Shanghai Bell

R2-1707889 Open issues of SCG failure CATT discussion

R2-1708016 UE behaviour in case of SCG RLF when SCG is the configured path discussion Ericsson

R2-1708982 Discussion on measurement of SCG RLF CMCC discussion

R2-1709439 Measurement handling in case of SCG failure Huawei, HiSilicon discussion

- R2-1709245 Further considerations on SCG Failure Indication handling Nokia, Nokia Shanghai Bell discussion
- R2-1709658 Discussion on S-RLF NTT DOCOMO, INC. discussion
- R2-1709659 LS on NR measurement upon S-RLF NTT DOCOMO, INC. LS out

Dual Connectivity with suspend/resume

- R2-1708808 Inactive and dual connectivity Intel Corporation discussion Rel-15 NR_newRAT-Core
moved from 10.4.1.6.5 to 10.2.5
P1

- OPPO thinks in most cases the UE will not resume in the same cell and hence the configuration will be release. Ericsson agree with the proposal to keep the configuration when resuming in same cell
- CATT think that the DC configuration should be released as the state is targeted for the UE moving. Nokia also think it is a limited use case. LG have the same understanding and think that the network could try to use a blind addition of SN.
- Samsung understand the motivation but think the benefit is somewhat limited.
- IDC think the case where the configuration is kept should be supported.
- Ericsson think the suspend/resume and inactive are also important for stationary UE to reduce CN signalling. Hence this is the main use case.
- Qualcomm support the proposal.
- Ericsson think the situation is the same for EN-DC with suspend/resume and for NR-DC with inactive. Intel explain this is intended to be a compromise to minimise complexity while maximise the benefit.
- Intel explain that without this there is a lot of signalling including on the CN side whenever the UE suspends. This can be prevented if the UE has not moved.
- Samsung think the same DC configuration can be provided back to the UE at resume. The bearers in the CN could be left unchanged when the UE suspends and only changed if needed at resume.
- Qualcomm think we can avoid bearer type change at suspension.
- Qualcomm explain that for LTE-DC with suspend the SCells are released at the time of resumption. Ericsson explain it was done this way in R13 as a quick solution of just copying re-establishment.

=> For MR-DC and NR-DC we will not support that the UE can resume the DC configuration after the UE returns from suspended/inactive in Rel-15.

- R2-1708024 RRC suspend/resume in MR-DC Ericsson discussion
- R2-1708135 Inactive mode handling in NSA ZTE Corporation discussion
- R2-1708271 Fast DC configuration in EN-DC MediaTek Inc. discussion
- R2-1709640 MR-DC in Inactive Mode Qualcomm Incorporated discussion
- R2-1707760 SN Handling when Transition from CONNECTED to INACTIVE OPPO discussion
moved from 10.4.1.3.5 to 10.2.5

Single Tx EN-DC

- R2-1707822 Supporting 1Tx UE in NR Nokia, Nokia Shanghai Bell discussion
- Lenovo ask if the UE needs to know or can just rely on scheduling.
 - Nokia agree apart from autonomous transmissions such as SR and RACH.
 - Intel think RAN1 understand that for LTE side the UE needs to know the pattern but for NR side the UE doesn't need to know, it is just done by scheduling. Ericsson think RAN1 has not concluded whether the pattern needs to be known by the UE.
 - Ericsson think that even for LTE the network can configure a pattern to coordinate the 2 sides. If no pattern is configured then the priority rules might kick in.
 - Lenovo think if both MN and SN know the pattern then it can be managed by the network.

- T-Mobile think this is important as a capability in all bands.
 - Intel think the capability per band combination should be sufficient and we should not consider for which band combinations it is possible to indicate. Apple agree with Intel.
- => Draft LS to RAN4 to ask if a UE capability "need for 1 Tx operation" is required (e.g. if the need for 1 Tx operation applies to all operating with a given band combination or only some UEs), and if so with what granularity it should be provided (e.g. per band combination). (Nokia, Offline discussion #31). Draft LS in R2-1709843

R2-1709843 [Draft] Reply LS Supporting 1Tx UE in NR Nokia LS out
=> Will not be sent

R2-1709609 Single UL transmsion in NSA and SA NR Huawei, HiSilicon discussion Rel-15
NR_newRAT-Core
Moved from 10.2.15 to 10.2.5

R2-1709625 UE capability indication for single UL transmission of LTE-NR DC Apple discussion
=> Revised in R2-1709700

R2-1709700 UE capability indication for single UL transmission of LTE-NR DC Apple discussion

R2-1707823 Draft LS on supporting 1Tx UE with NR Nokia, Nokia Shanghai Bell discussion

Other

R2-1708019 Embedded RRC transport in MR-DC Ericsson discussion

- Intel think a generic container message would be more application. Huawei have the same view as Intel and it is more future proof to use a generic message. IDC have the same view. Samsung have the same view as Intel and others.
- Intel see no benefit to reuse the LTE Measurement report.

Agreements

- 1 For the case of MR-DC, a new Generic Container message carries a transparent container IE to hold an SN MeasurementReport message. Sent on SRB1

R2-1709244 Comparison of RRC reconfiguration latency for SCG SRB with MCG routed SRB Nokia, Nokia Shanghai Bell discussion
=> Noted

R2-1708574 5G Availability Indicator Vodafone Telekomünikasyon A.S. discussion Rel-15
Moved from 10.4.1.5.1 to 10.2.5

- Qualcomm has concerns about NR indicator to avoid the UE having to measure the NR cells. Would like the LTE cell to provide the NR neighbour cell information in SIBs.
- Vodafone would like to provide the indicators as today in UMTS.
- KDDI support Qualcomm view.
- Vodafone think it means NR is present and not necessarily that EN-DC is present.
- NEC think this is to enable a UE in LTE RRC idle to provide an indication as it can potentially use NR service.
- DT thinks that in UMTS the indicators where cell wide but for EN-DC the NR might not be available across the whole LTE cell.

=> Draft LS to SA2 to say that it is feasible to include the indicator in LTE system information and that we assume this indication would be provided to upper layers and there would be no AS actions associated with it (e.g measurements, capability check, etc). Can indicate to SA2 that the indicator from the LTE cell is no guarantee that EN-DC will be configured for the UE when is active. Also ask question (for information) about how they see the indicator to be used. Draft LS in R2-1709844 (Vodafone, Offline discussion #32)

R2-1709844 LS on NR indication Vodafone LS out

- CMCC , Huawei , DT and ZTE had concerns about removing the questions:
- 1. It was questioned whether the indicator provides evidence to the user that a particular operator has deployed EN-DC or it is not only directly related to this EN-DC deployment.
- 2. If the indicator is related to EN-DC: NR and LTE coverage within EN-DC might be different in some of the deployment scenarios due to different frequencies used.
- 3. If the indicator is related to EN-DC: The devices might support different bands and band combinations. So, even if the device receives the indicator over LTE in Idle state, it would not be possible to configure EN-DC operation for a particular UE as it might not support band combinations deployed by a particular operator.

=> Remove the questions

=> Approved in R2-1709978

R2-1708228	AS support for 5G indication	NEC	discussion	Rel-15	NR_newRAT-Core
	Moved from 10.2.15 to 10.2.5				
R2-1707692	Remaining issues on SCG SRB establishment	FiberHome	discussion		
R2-1708013	SCG SRB setup and configuration	Ericsson	discussion		
R2-1707886	Measurement results of serving cells	CATT	discussion		
R2-1707888	Consideration on duplication on SRB for CA case	CATT	discussion		
R2-1708014	RRC race conditions in EN-DC	Ericsson	discussion		
R2-1708015	Handling of duplicates and out of order SRB PDUs in EN-DC	Ericsson	discussion		
R2-1708023	Remaining issues related to measurements during S-RLF	Ericsson	discussion		
R2-1708132	Consideration on the necessity of unified PDCP version of SRB	ZTE Corporation	discussion		
R2-1708150	Consideration on UM segment operation mechanism	ZTE Corporation	discussion		
R2-1708437	Discussion on Split bearer handling during SN change	Samsung Electronics Co., Ltd	discussion		
R2-1709053	SN continuation on MN failure in EN-DC operation	Samsung Electronics Romania	discussion		
R2-1709114	Power management by cross-RAT signaling in NSA configuration	Qualcomm Incorporated	discussion		
R2-1709163	Control of UL Split or Duplicate MCG SRB	Samsung Electronics GmbH	discussion		
R2-1709407	Support of full configuration per CG	HTC Corporation	discussion		
R2-1709440	UE capability enquiry via SCG SRB	Huawei, HiSilicon	discussion		
R2-1709644	Considerations on SRB split bearer and direct bearer	Qualcomm Incorporated	discussion		

Withdrawn

R2-1708025	Addition, modification and release of DRBs in EN-DC	Ericsson	discussion
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10.2.6 UE capabilities

No documents should be submitted to 10.2.6. Please submit to 10.2.6.x.

10.2.6.1 NR UE capabilities

Structure of information, capability size reduction and how to address the 'RAN2 aims' agreed in last meeting (i.e. to avoid duplication of BCs to indicate combinations of DL and UL bands, and to separate baseband capabilities from BCs)

Including output from email discussion [NR-AH2#09][NR/] UE capabilities (Intel)

R2-1708785	Email report on [NR-AH2#09] UE capabilities	Intel Corporation	discussion
	- Qualcomm support the general direction of the proposals. See the potential but not sure we can yet estimate the gain without capability details. - OPPO also support the proposal. Intel explain there is not much different between 1 and 3, 3 is just a variation of 1 that optimises the size further at the expense of UE flexibility.		

- Huawei confirm solution 1 and 3 are in the same direction.
- Ericsson is fine to go in this direction but understand that solution 1 would be significantly bigger than solution 3. Also would like to understand why the MIMO layers is still within the BCs.

Agreements

- 1 RAN2 will define a solution based where the baseband capabilities are extracted from the BC structure and convey the baseband capabilities in a separate table. We intend to avoid providing fallback combinations and duplication of combinations.

=> LS to RAN4 (Intel, Offline discussion #33)

R2-1709925 LS on Baseband capability signaling Intel LS out

=> Approved in R2-1709954

R2-1708031 UE Capability Signalling Structure for NR Ericsson discussion

R2-1709441 Capability design for SA NR Huawei, HiSilicon discussion

Avoiding UL/DL duplication

R2-1708784 Decoupling DL band and UL bands Intel Corporation discussion

- Huawei ask if any UL BC could combine with any DL BC. Intel think it will be defined in RAN4 which BCs can work together.
 - LG agree with the intention to do this.
 - Ericsson thinks that the DL/UL BCs with indexes to the DL and UL BCs will cause a lot of overhead. Suggest that a single DL BC could list multiple UL BCs. Ericsson think that can avoid the need to include the band numbers for the UL bands in the BCs.
- => Offline discussion to try to conclude. (Intel, Offline discussion #34)
- Update from offline: Not sufficient discussion to conclude.

☒ [99#24][NR] Decoupling DL band and UL bands (Intel)

To progress the decoupling of DL and UL bands in capabilities.

Intended outcome: Report to next meeting

Deadline: Thursday 2017-09-21

Index based approach

R2-1709399 UE capability retrieval framework in NR NTT DOCOMO INC. discussion

R2-1707837 Reducing the size of UE capabilities Qualcomm Incorporated discussion

R2-1709453 NR UE Capability Size Reduction LG Electronics Inc. discussion

10.2.6.2 UE categories

Including categories for EN-DC and for NR.

Maximum 1 tdoc per company

R2-1707838 EN-DC UE category Qualcomm Incorporated discussion

- Qualcomm clarify there would be a category indicated per band combination. The critical thing is for it to be clear what the RAT can do for each BC.
- MediaTek think there is sharing inside the UE but think it should be fixed per BC. Think the information provided per BC might not be called the category.
- AT+T agrees with the proposals. Think the independent signalling is important also on the network side as the networks may not be able to coordination the sharing.

- Ericsson think proposal 2 would have big impact on signalling size and goes against the attempt to remove baseband capabilities from BC
Intel think it is important for UE implementation but may not be best to include the category per BC. Think peak data rate per RAT needs to be indicated per BC.
 - Qualcomm clarify that they assume that similar parameters would be associated with category as today. It is important that the network knows how much resource the eNB can use.
 - Nokia ask if fallback combinations would be same or different.
 - Ericsson wonder if the mutual understanding of network and UE can be determined from other parameters without the category. Qualcomm think it might be feasible but RAN1 might need to specify how the rate can be derived from the parameters.
- => Noted

R2-1707773 UE category design for MR-DC and NR NTT DOCOMO, INC. discussion

- MediaTek ask how the network will decide to split the capability. DOCOMO explain one option would be to consider the BC and could also take into account traffic load situation.
- MediaTek ask if it would allow any split. DOCOMO explain that the network might also consider the UE standalone category.
- DOCOMO clarify that the EN-DC category could be lower than the sum of the individual LTE and NR categories. AT+T think that the individual capabilities would need to be signalled as well.
- Intel think the network selection of the split will impact the soft buffer but the soft buffer size will be different for LTE and NR so it is not easy to flexibly split these.
- Samsung think the main purpose of category is to indicate peak data rate. Think many peak data rates will need to be provided and so we can just signal a peak data rate value. LG agree with Samsung's view and the peak rate and soft buffer can be shared between MN and SN. T-Mobile agree with Samsung and LG
- Nokia think it would be good to avoid the need to add new categories every time we add support for new BCs. Ericsson agree and wonder if we need category for this purpose as all.
- CMCC think LTE and NR category is enough and don't need a category for NSA. Assume one cat per RAT.
- Huawei think categories are good to control the number of different UE types in the market, not just marketing.
- Intel think there needs to be some way to indicate that NSA peak rate is different from individual RAT peak rates, and should be per band combination.
- Ericsson think one purpose of the category was to indicate a rate that is lower than that theoretically possible for the BW supported. Qualcomm agree this is a difficult part if we rely on derivation.

=> Offline discussion to progress the issue. The following text can be used as a starting point in that offline: (Ericsson, Offline discussion #36):
From the band combination signalling, it shall be possible to derive the peak data rate for LTE side and the peak data rate for NR side per band combination. These peak data rates can be supported simultaneously.
For case of a NR SA UE that supports single carrier operation only, some further mechanism (e.g. like category) is required to enable support of data rates lower than the maximum possible for the supported BW.

R2-1709913 Result of offline discussion #36 on need for UE Categories Ericsson

Agreements for functional behaviour associated with UE capabilities

Proposal 1 In NR, the number of supported MIMO layers is signalled as explicit UE capability and not part of a UE category.

Proposal 2 In NR, the modulation schemes are signalled as explicit UE capability and not part of a UE category.

Proposal 3 RAN2 assumes that the UE's band combinations together with the baseband capabilities (modulation scheme, MIMO layers, ...) comprise all information necessary to calculate the maximum data rate achievable on each serving cell, in each cell group and per UE. Providing the data rate (category) explicitly is therefore unnecessary.

Proposal 4 A per-UE category is required for UEs supporting a peak data rate that is lower than the data rate achievable according to the above-mentioned parameters. However, if P3 is agreed, UEs supporting dual connectivity (MR-DC, NR-NR DC) shall not advertise such a lower data rate (per UE category) to avoid the need for inter-node negotiation of the data rate split.
=> Proposal above to be progressed at lunch 14:15.

R2-1709964 Result of offline discussion #36 on need for UE Categories Ericsson

Agreements

- In NR, the number of supported MIMO layers is signalled as explicit UE capability and not part of a UE category.
- In NR, the modulation schemes are signalled as explicit UE capability and not part of a UE category.
- RAN2 assumes that the UE's band combinations together with the baseband capabilities (modulation scheme, MIMO layers, ...) comprise all information necessary to calculate the maximum data rate achievable on each serving cell, in each cell group and per UE.
- If RAN1 and RAN4 agree with that assumption, RAN2 intends to apply the following:
- "A non-DC UE supporting a peak data rate that is lower than the data rate achievable according to the above-mentioned parameters indicates this by a per-UE category (data rate).
- However, a UE supporting dual connectivity (MR-DC, NR-NR DC) shall not advertise a category (data rate) that is lower than the highest data rate achievable according to any of the DC band combinations (to avoid the need for inter-node negotiation of the data rate split)."

R2-1709965 DRAFT LS on UE categories and capabilities Ericsson LS out
=> Remove " bits per "TTI") "

- ☒ **[99#01][NR] UE capability LS (Ericsson)**
Intended outcome: Approved LS to RAN4 in R2-179979
Deadline: Monday 2017-08-28
=> The LS is approved in R2-1709979.

R2-1708035 UE Categories for NR and EN-DC Ericsson discussion
R2-1707824 UE categories for EN-DC and NR Nokia, Nokia Shanghai Bell discussion
R2-1708012 On UE Category MediaTek Inc. discussion
R2-1708202 Capability mechanisms for EN-DC AT&T discussion
R2-1708786 UE category for EN-DC Intel Corporation discussion
R2-1709011 UE categories for EN-DC Samsung Electronics France SA discussion
R2-1709442 UE category for EN-DC Huawei, HiSilicon discussion

10.2.6.3 UE capability coordination

Including discussion of identified open issues for index based capability coordination, with aim to make a conclusion in this meeting.

Maximum 1 tdoc per company

R2-1709247 Index based capability coordination for MR-DC Nokia, Nokia Shanghai Bell discussion
Moved from 10.2.6.2 to 10.2.6.3
R2-1708032 UE capability coordination for LTE/NR interworking Ericsson discussion

- Discussed jointly with previous paper.
- Qualcomm support the index based approach. LG also support the index based approach.
- ZTE agree with some observations from Ericsson but still prefer the index based approach.

- Ericsson clarify that the cost functional proposal does not need to be considered based on the discussions yesterday.
 - Ericsson want to create a single structure based on the LTE NR BCs and extract from that the baseband capabilities. CATT also support the index based approach and think that it will still be possible to extract the baseband capabilities in this option. Qualcomm agree that for each of the indexed CA combination there can be a linking to a baseband capability so it should be possible to address the Ericsson concern.
 - Ericsson think that at least the band combination table that lists the band numbers should be visible to both to avoid duplication of this content. But we could apply indexing for the baseband capabilities. Huawei agree with the Ericsson view.
- => Offline discussion to progress the issue. The following text can be used as a starting point in that offline: (Nokia, Offline discussion #37):
- Introduce MR-DC band combinations that is visible to both MN and SN. This at least contains the band and BW information.
 - Inter node signalling for capability coordination can be use an index into the band combination structure to indicate to the other node the MR-DC band combination(s) that can be used by the other node.
 - Baseband capabilities can be coordinated using an index approach where the baseband capabilities of the other node are not visible. (This assumes some abstraction of the baseband capabilities from the band combinations, as agreed previously, is separate for the 2 RATs)

R2-1709896 Report for offline discussion 37 Nokia (rapporteur) discussion Rel-15 NR_newRAT-Core

Agreements

- 1: Agree to have common MR-DC band combination parameter structure listing supported LTE and NR band combinations for MR-DC.
- 2 RAN2 aims that the solution allows the sharing or not of baseband capabilities

- => RAN2 continues to progress on details of how the NR baseband processing capabilities may be extracted from the NR band combinations (and how NR peak data rate can be calculated from band combination and baseband capability).
- => RAN2 continue to discuss details of MR-DC capability coordination based on Option 1 and 2.
- Detail points to be added to the email discussion scope.

R2-1709966 UE capability coordination Nokia

=> Agreed as scope of 3 email discussion (rapporteurs Intel, DOCOMO, Nokia)

R2-1708787	Index based capability coordination	Intel Corporation	discussion
R2-1707835	LTE/NR UE capability dependency and coordination	Qualcomm Incorporated	discussion
R2-1707972	Considerations for UE capability coordination for EN DC	Spreadtrum Communications	discussion
R2-1708129	Consideration on the Index based Capability Coordination procedure	ZTE Corporation	discussion
R2-1708203	UE capability indication of bearer split for LTE-NR Dual Connectivity	AT&T	discussion
R2-1709443	Capability design for LTE-NR DC	Huawei, HiSilicon	discussion
R2-1709451	Capa coordination in EN-DC	LG Electronics Inc.	discussion
R2-1709482	EN DC UE capability coordination, index based	Samsung Telecommunications	discussion

Late

R2-1707890 Index based capability coordination CATT discussion

10.2.6.4 Temporary capability restriction

Maximum 1 tdoc per company

R2-1708575 Re-submission of Requirement to Capability Retrieval framework Vodafone, Deutsche Telekom, Nokia, Alcatel-Lucent Shanghai Bell discussion

P1

- LG thinks that the gNB doesn't need to send any response to the UE to confirm or reject. Vodafone think it is useful for the network to acknowledge and this could be a reconfiguration, and a reject could be a new message.
- Qualcomm think an explicit ack / nack is useful to avoid confusing with a reconfiguration sent for some other purpose.
- Intel think we already agreed network control as the eNB can indicate which capabilities can change. Also think there are different cases to be considered whether reconfiguration would be suitable to acknowledge the request.
- DOCOMO think the concern is that the network control is not captured in stage 2. And the details how it is done is stage 3.
- MediaTek agree that ACK NACK is useful and a NACK will likely cause UE to fallback to a UE implementation resolution of the problem.
- NEC think even after responding with an ACK, the timing of reconfiguration should be implementation but would be as soon as possible. Samsung think there are also cases where a reconfiguration is not needed. And we also need to think about the resumption of the original capabilities.

P2

- DT think it is important for the network to be aware of the cause.
- Intel think the cause should just be captured in stage 2 as it is not a testable requirement.
- Nokia think the UE knows the reason that it wants to do something and in stage 2 we need to conclude which use cases we allow. Intel agrees that the UE knows the reason but it is difficult to specify.
- ZTE agree we should have a single mechanism but think we can discuss more the content.
- Qualcomm wonders how the network can make decision based on the cause value. The UE will tend to use the cause that is more likely to be successfully responded.
- DOCOMO thinks if the mechanism is enabled then the network is responsible to respect the requests.

Agreements:

- 1: For Temporary change of UE capability, the gNB confirms or reject the temporary capability restriction request sent by the UE.
- 2 One single mechanism is defined to address all the use cases for temporary capability restriction.
- 3: The network can enable/disable the temporary capability restriction request mechanism. FFS whether this temporary restriction mechanism is applicable for EN-DC

R2-1707836 Temporary NR UE capability restriction Qualcomm Incorporated discussion

R2-1709452 Assistance Information for Temporary Capability Restriction LG Electronics Inc. discussion

R2-1709444 UE temporary access capability restriction Huawei, HiSilicon discussion

R2-1707891 UE capability temporary restrictions CATT discussion

R2-1708011 Thermal Mitigation Provision for NR UEs MediaTek Inc. discussion

R2-1708033 UE Capability Restrictions Ericsson discussion

R2-1708153 Consideration on the Temporary Capability Restriction ZTE Corporation discussion

R2-1708415 UE radio access capabilities change vivo discussion

R2-1708788 Temporary capability restriction Intel Corporation discussion

10.2.6.5 Other

Any other aspect related to UE capabilities

R2-1707872 Measurement capability change in EN-DC Qualcomm Incorporated discussion

R2-1708034 UE Capability Compression Ericsson discussion

R2-1709445 Network handling on UE static access capability Huawei, HiSilicon discussion

10.2.7 Mobility mechanisms - basic handover

Any remaining stage 2 aspects of 'basic' handover in SA and SCG change in NSA, including FFS points identified in the last meeting related to the beam/RACH resources used to access the target cell.

Including output from email discussion [NR-AH2#10][NR] TP on baseline handover procedure (Huawei)

Including output from email discussion [NR-AH2#11][NR] Baseline handover procedure (Ericsson)

R2-1708873 Text proposal to TS 38.300 on baseline handover procedure for inter gNB handover in NR
Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

=> Updated to capture the outcome of the other email discussion

=> Revised in R2-1709850 (Offline discussion #39)

R2-1709850 Text proposal to TS 38.300 on baseline handover procedure for inter gNB handover in NR
Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

=> Agreed

R2-1707860 Summary of the email discussion # [NR-AH2#11][NR] Baseline HO procedure Ericsson
discussion Rel-15 NR_newRAT-Core

=> Revised to R2-1709845

R2-1709845 Summary of the email discussion # [NR-AH2#11][NR] Baseline HO procedure Ericsson
discussion Rel-15 NR_newRAT-Core

Agreements relating to information carried between source and target node:

- 1: NR RRC specifications define a transparent RRC container (like the HandoverPreparationInformation message in LTE) to be transmitted from the source gNB to the target gNB as part of the Xn Handover Request message.
- 2.1 As in LTE, the HandoverPreparationInformation to be transmitted from the source gNB to the target gNB includes the UE capabilities for different RATs
- 2.2 As in LTE, the HandoverPreparationInformation to be transmitted from the source gNB to the target gNB can include the AS configuration, the RRM configuration and the AS context (including information necessary to handle handover failures). The details of the content of each IE are FFS.
- 3.1: The AS configuration includes the measurement configuration and radio resource configurations, UE identifier in the source, at least Antenna Info and DL Carrier Frequency.
FFS Whether the AS configuration includes the QoS flow to DRB mapping that was not configured to the UE via RRC signalling.
- FFS Need to provide the system information from source equivalent to LTE's MIB, SIB-1 and SIB-2 (some checking of use of this in LTE to be done)
- 4.1: The RRM configuration can include at least the inactive time.
- 4.2: As in LTE, to support CA case, the RRM configuration can include the list of best cells on each frequency for which measurement information is available.
- 5 Available beam measurement information can be part of the RRM configuration of the HandoverPreparationInformation message if beam measurement information (i.e. beam indexes and optionally measurement results) have been configured by the source gNodeB to be reported by a UE. That information is not a mandatory part of the HandoverPreparationInformation message
FFS For which cell(s) beam measurement information can be included e.g. only candidate target cell.
- 6 The RRM configuration can include both beam measurement information (for layer 3 mobility) associated to SS Block(s) and CSI-RS(s) for the reported cell (or cells depending on outcome of FFS above) if both types of measurements are available.

Agreements relating to content of handover command in RRC:

1 The NR RRC specifications define a transparent RRC container (like the Handover Command message in LTE) to be transmitted from the target gNB to the source gNB as part of the Xn Handover Request Acknowledgement message.

2 As in LTE, the handover command should be entirely generated by the target gNB.

FFS: Where there could be exceptions for that (e.g for MBB enhancement similar to that in LTE, if supported).

3 The mobilityControlInfo can contain at least the target physical cell identifier (or equivalent defined by RAN1), the carrier frequency, the T304 like timer and the new UE identifier (C-RNTI type of identifier).

4 RAN2 understanding is that the common RACH configuration for beams in the target cell can only be associated to the SS Block(s).

5 RAN2 understanding is that the network can have dedicated RACH configurations associated to the SS Block(s) and/or have dedicated RACH configurations associated to CSI-RS(s) within a cell.

FFS: The target gNB can optionally include the common RACH configuration in the mobilityControlInfo. If not included the UE continues to use the common RACH configuration of the source cell.

6 The target gNB is able to include one of the following RACH configurations in the mobilityControlInfo to enable the UE to access the target cell: i/ Common RACH configuration, ii/ Common RACH configuration + Dedicated RACH configuration associated with SS-Block or iii/ Common RACH configuration + Dedicated RACH configuration associated with CSI-RS. (List of options to be revised if common RACH is concluded to be optional based on above FFS.)
(Simultaneously including in the mobilityControlInfo a dedicated RACH configuration associated with SS-Block and a dedicated RACH configuration associated with CSI-RS is not supported.)

FFS Whether there will be a fallback procedure using common RACH when dedicated RACH fails.

=> Confirm with RAN1 that Antenna Info and/or DL Carrier Frequency are required to be included in the AS Configuration as in LTE.

=> Request RAN1 and RAN4 whether it is necessary to inform the UE in a handover the carrier bandwidth associated to the target cell and the additional spectrum emission.

=> Draft LS in R2-1709849 (Nokia, Offline discussion #38)

R2-1709849 [Draft] LS on Antenna Info and DL Carrier Frequency Nokia LS out

=> Approved in R2-1709955

R2-1708048 RACH during Handover MediaTek Inc. discussion

R2-1709129 Basic handover procedure considering beam LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

R2-1708587 On RACH resources during handover Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

- Discusses jointly with previous 2 papers.
- Huawei think the UE behaviour needs to be predictable and hence how the UE selects a good beam should be done with a threshold provided by the network. Further the procedure for beam selection should be specified.
- Ericsson agree there should be some predictability and some network control but can discuss a trade off.
- Intel think that current T310 provides some level of network control. The channel can change drastically since the MR provided to the network so it is more reasonable to leave it to UE implementation. Qualcomm agree with Intel and think a threshold is not a good approach.
- Vivo think the UE should have freedom to select the RACH resource for handover but we can make some rules.
- CATT also think a suitable beam criteria is the preferred approach.

- Nokia explain the beams would just be ordered with respect to their measured signal quality, for example. Load conditions could also be taken into account. but agree the UE might have the most up to date information.
- Samsung think RAN1 is discussing beam selection for RACH (for general case not just handover case).
- ZTE would be ok to leave it up to UE. Due to beam forming it is not clear that the dedicated resources may not be the best.
- OPPO think predictability can be achieved by prioritising the dedicated RACH resources first.
- Lenovo think the most important thing is that the UE should not attempt on a poor beam.

=> Offline discussion to try to conclude. Can use the following text as a starting point (Intel, Offline discussion #50).

1 High level principle:

Dedicated RACH resources, if provided, are prioritised over common RACH resources. The UE is not forbidden from attempting to access using common RACH resources before declaring HO failure based on T304 expiry.

- Update from offline:

☒ **[99#28][NR] Beam selection for HO access (Intel)**

Progress on beam selection for HO access including developing a TP for stage 2 and stage 3.

Intended outcome: Report and TPs for next meeting

Deadline: Thursday 2017-09-21

R2-1707857	Further details of handover execution in NR	Ericsson	discussion	Rel-15
	NR_newRAT-Core			
R2-1708226	On demand SI information at handover	NEC	discussion	Rel-15 NR_newRAT-Core
R2-1708366	Further discussion on open issues for RACH resource handling and usage during handover	OPPO	discussion	
R2-1708416	Basic handover procedure	discussion	Rel-15 NR_newRAT-Core	
R2-1708470	SIB acquisition in connected mode and handover	Nokia, Nokia Shanghai Bell	discussion	
	Rel-15 NR_newRAT-Core			
R2-1708577	Remaining open issues of the email discussion # [NR-AH2#11][NR] Baseline HO procedure	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708783	Random access procedure in NR	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708874	Multiple beam operation in handover	Huawei, HiSilicon	discussion	Rel-15
	NR_newRAT-Core			
R2-1708875	Beam selection during handover	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708876	Further discussion on information for basic handover	Huawei, HiSilicon	discussion	
	Rel-15 NR_newRAT-Core			
R2-1708977	NR handover in multi-beam operation	Lenovo, Motorola Mobility	discussion	Rel-15 NR_newRAT-Core
R2-1709091	Beam aware RACH procedure and beam refinement during handover	Incorporated	discussion	Rel-15 Qualcomm

10.2.8 Mobility mechanisms - other

Note decisions at RAN2#97bis to progress the basic HO mechanism and only when stable to discuss conditional handover and potential optimisations to target close to 0ms or 0ms interruption.

R2-1707751	Mobility enhancements for NR	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1707752	Mobility enhancements for NR NSA	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1707753	Discussion on feasibility of DC-based mobility enhancement		Samsung	discussion
	Rel-15 NR_newRAT-Core			

R2-1707762	Discussion on Conditional Handover Optimization	OPPO	discussion	
R2-1707858	Enhancing Handover Failure	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1707859	Conditional Handover	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1707869	Ping Pong Issues for Conditional Handover	TCL	discussion	NR_newRAT-Core
R2-1708002	Mobility Enhancement for '0ms Interruption' HO	MediaTek Inc.	discussion	NR_newRAT-Core
R2-1708003	One or Multiple NR-Cells per MAC Entity	MediaTek Inc.	discussion	NR_newRAT-Core
R2-1708004	QoS Flow to DRB Remapping during Handover	MediaTek Inc.	discussion	NR_newRAT-Core
R2-1708028	0 ms interruption support in NR	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708029	RACHless HO in NR when UE is in CA or DC	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708119	Targeting a Lossless handover with 0ms interruption	ZTE Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708120	Discussion on single connected handover	ZTE Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708204	Intra-frequency DC to enable mobility with close to zero ms interruption	AT&T	discussion	
R2-1708208	Automatic Neighbour Relation in NR	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708576	On Reliability, overhead and controllability aspects of Conditional Handover	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708586	Conditional handover – basic aspects and feasibility in Rel-15	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT-Core
R2-1708588	Dual connected intra-frequency handover for 0ms interruption and mobility robustness	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT-Core
R2-1708680	PCI confusion issue	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT-Core
R2-1708736	Conditional Reconfiguration for NR	InterDigital	discussion	Rel-15 NR_newRAT-Core
R2-1708839	Operational aspects of conditional handover mechanism	Samsung Electronics Romania	discussion	
R2-1708840	Introduction of UE autonomous handover	Samsung Electronics Romania	discussion	
R2-1708841	Problem of DC enhancement for 0 ms interruption time	Samsung Electronics Romania	discussion	
R2-1708877	DC based NR scheme for 0ms interruption handover	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708878	Security key change without L2 reset	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708879	3 Types of HO in NR	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708880	DC for intra-frequency mobility in NR	Huawei, HiSilicon, AT&T	discussion	Rel-15 NR_newRAT-Core
R2-1708881	Requirement of RACH procedure for mobility	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708882	Mobility enhancements for PCell change	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708883	Allocation of appropriate RACH resources for handover	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708884	Potential Advantages of multi-connectivity with multiple MAC entities within an NR cell	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708885	Inter MN handover without SN change	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708886	Further discussion on Conditional HO	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core

R2-1708988	discussion of Oms interruption handover for single Tx/Rx UE 15 NR_newRAT-Core	CMCC	discussion	Rel-
R2-1709067	Conditional handover in NR NR_newRAT-Core	Lenovo, Motorola Mobility	discussion	Rel-15
R2-1709128	ANR for NR	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1709130	Conditional handover procedure	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1709238	Discussion on conditional handover	KT Corp.	discussion	
R2-1709455	Enhanced RRC Connection Re-establishment in NR Rel-15 NR_newRAT-Core	LG Electronics Inc.	discussion	
R2-1709481	Discussion on Conditional Handover in NRASTRI, TCL Communication Ltd.		discussion	
R2-1709484	Support of multiple MAC entities per cell	Samsung Telecommunications	discussion	Rel-15
R2-1709602	The Necessity of T312 in NR	Samsung Electronics	discussion	
R2-1709603	Conditional Handover: Event Design Aspects	Samsung Electronics	discussion	
R2-1709604	Beam Refinement Considering RRM Measurement based on Idle Mode RSS	Samsung Electronics	discussion	

10.2.9 Mobility - RLM,RLF

Any remaining stage 2 aspects of radio link monitoring procedure and criteria for declaring radio link failure. RLC triggered RLF including the 2 identified FFS points from the last meeting will be progressed within the user plane session Als 10.3.2.4 and 10.3.2.5..

Maximum 1 tdoc per company

R2-1708813	Beam failure and radio link failure handlings 15 NR_newRAT-Core P1	Intel Corporation	discussion	Rel-
	- Intel explain the new aspect with P1 is the 'periodic'. MediaTek think RAN is still discussing aperiodic indication.			
	- Samsung also support that this is periodic and think we were informed by an LS from RAN1. Vivo understand the aperiodic indication from RAN1 relates to beam recovery.			
	- LG wonder if there is a case of both periodic and aperiodic indications.			
	P2			

Agreements

- 1 RAN2 understanding of RAN1 agreements that at least PHY informs RRC of periodic out-of-sync / in-sync indications.
- 2 Baseline behaviour when there are no indications from lower layers related to beam failure/recovery:
 - i/ RRC detects DL radio link problem if consecutive N1 number of periodic out-of-sync indications are received.
 - ii/ RRC stops the timer if consecutive N2 number of periodic in-sync indications are received while the timer runs.

- => Offline discussion to progress and to identify questions that can be asked to RAN1 to help us conclude (Samsung, Offline discussion #40)
- Update from offline in

R2-1709911	DRAFT LS to RAN1 on aperiodic indications based on beam recovery procedure LSout	Samsung		
	=> Remove 'triggering condition' questions			
	=> Q3 change UE to L1			
	=> Q5.2 change be changed to something like "do the answers to the above depend on the RSs used"			

✉ [99#17][NR] LS in RLM/RLF (Samsung)

Intended outcome: Approved LS

Deadline: Thursday 2017-09-07

R2-1708692	RLF for NR (including TP for TS 38.300) NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1707775	RLM and RLF in relation to beam failure recovery NR_newRAT-Core	NTT DOCOMO, INC.	discussion	Rel-15
R2-1707854	Remaining stage-2 aspects of RLM and RLF in NR NR_newRAT-Core	Ericsson	discussion	Rel-15
R2-1707892	Beam recovery and RLF CATT, CATR	discussion	Rel-15	NR_newRAT-Core
R2-1707998	RLM/RLF Considering Beam Failure Recovery discussion NR_newRAT-Core	MediaTek Inc., Qualcomm Incorporated		
R2-1708118	Consideration on the RLF and beam failure in NR NR_newRAT-Core	ZTE Corporation	discussion	Rel-15
R2-1708205	Beam Failure Events and Criteria for Declaring Radio Link Failure	AT&T	discussion	
R2-1708417	RLM/RLF in NR vivo	discussion	Rel-15	NR_newRAT-Core
R2-1708737	RLM/RLF for NR InterDigital	discussion	Rel-15	NR_newRAT-Core
R2-1709020	NR RLM and RLF procedure	Samsung Electronics Romania	discussion	
R2-1709185	Relation of beam failure and RLF NR_newRAT-Core	Nokia, Nokia Shanghai Bell	discussion	Rel-15
R2-1709454	Considerations for Beam Failure Recovery Indication Rel-15 NR_newRAT-Core	LG Electronics Inc.	discussion	

Withdrawn

R2-1708693	RLF with CA and DC => Withdrawn	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
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10.2.10 Mobility without RRC involvement

AI is a placeholder for when RAN1 has made progress on beam management. Any RAN2 contributions should focus on the RAN2 implications as a consequence of RAN1 agreements - do not submit duplicates of RAN1 documents here.

R2-1707999	Beam Management and Beam Recovery in MAC Core	MediaTek Inc.	discussion	NR_newRAT-Core
R2-1708000	Considerations on Beam Management Framework Core	MediaTek Inc.	discussion	NR_newRAT-Core
R2-1708123	Consideration on CSI-RS for beam management NR_newRAT-Core	ZTE Corporation	discussion	Rel-15
R2-1708206	Beam management and indication	AT&T	discussion	
R2-1708677	Beam Recovery in NR Core	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT-Core
R2-1708678	Beam management Core	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT-Core
R2-1708694	RAN2 aspects of UL beam management NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1708695	RAN2 aspects of DL beam management NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1708696	Consideration on DRX with beam management NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1708697	Handling of resources for beam failure recovery NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1708698	CSI-RS configuration for beam management NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15

R2-1708814	RAN2 implications for beam managements 15 NR_newRAT-Core	Intel Corporation	discussion	Rel-
R2-1709004	Relationship and indication between NR Beam Recovery and RLF discussion	Samsung Electronics		
R2-1709070	Resource configuration for beam failure recovery Rel-15 NR_newRAT-Core	Lenovo, Motorola Mobility	discussion	
R2-1709073	Random access for beam failure recovery 15 NR_newRAT-Core	Lenovo, Motorola Mobility	discussion	Rel-
R2-1709085	Beam recovery request	Qualcomm Incorporated	discussion	Rel-15 NR_newRAT-Core
R2-1709088	Measurement reporting and beam refinement during RACH discussion Rel-15 NR_newRAT-Core	Qualcomm Incorporated		
R2-1709090	Beam refinement after beam recovery or scheduling request discussion Rel-15 NR_newRAT-Core	Qualcomm Incorporated		
R2-1709223	Beam management and C-DRX operation NR_newRAT-Core	Qualcomm Incorporated	discussion	Rel-15
R2-1709291	Beam link monitoring in NR	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1709300	Beam management in NR	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1709320	Discussion on beam recovery request in NR discussion NR_newRAT-Core	ASUSTEK COMPUTER (SHANGHAI)		
R2-1709587	NR beam recovery procedure	Samsung Electronics	discussion	
R2-1709588	NR beamformed C-DRX operation	Samsung Electronics	discussion	
R2-1709589	NR downlink beam management signals	Samsung Electronics	discussion	

10.2.11 Mobility - Inter-RAT

Connected mode mobility between NR and E-UTRA

Including inter-RAT NR measurements to be added to E-UTRA for purpose of NSA operation as well as for the purpose of inter-RAT handover from E-UTRA to NR, including addressing the identified FFS points from the last meeting.

Inter-RAT E-UTRA measurements to be added to NR for the purpose of inter-RAT handover from NR to E-UTRA can be discussed on 10.4.1.3.6

LTE measurements for EN-DC

R2-1708747	LTE Measurement Events for EN-DC Core	InterDigital	discussion	Rel-15 NR_newRAT-Core
	- Ericsson support adding event B2 - Intel also support the proposal and ask if NR serving cells would be provided to the MN. - Vivo support the proposal			

Agreements:

1: LTE inter-RAT measurement trigger event B2 for NR is supported

R2-1708021	Remaining issues for inter-RAT measurements from LTE to NR for both NSA and SA Ericsson	discussion	Rel-15 NR_newRAT-Core
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P1

- Huawei think this is not just for the purpose of MN initiated SN release but could also be used for MN triggered SN change interfreq case. Nokia think that the event is not needed as load balancing case can be supported by B1. Samsung share Nokia view. Qualcomm also share Nokia view. LG assume that all SCell quality is included in measurement reporting and so the MN already has this information.
- Huawei think if SN doesn't provide measurement to MN then the MN must be able to get these measurements for load balancing case. IDC agree that the measurements are needed in the MN but a new event is not needed.

- ZTE also agree with Nokia. Intel also agree with Nokia.
- Vivo think the event is needed.

Agreements for LTE inter-RAT measurements of NR

- 1 Beam measurement results can be configured by LTE eNB for EN-DC and inter-RAT handover from LTE to NR.

FFS Whether the LTE measurement report includes beam measurement results e encoded in LTE RRC format or NR RRC format.

- 2 NR measurement results are based on NR SSB for L3 mobility purpose

=> Consult RAN4 whether the existing measurement gap patterns are applicable for NR measurements are whether new patterns need to be introduced. Ask if there is any impact due to the NR SSB periodicity.
Consult RAN1/4 whether measurement gap configurations per frequency or per RAT need to be supported in LTE for inter-RAT measurement from LTE to NR.

R2-1709530 Draft LS to RAN4 on need of extending LTE measurement gap due to inter-RAT NR measurements Ericsson LS out Rel-15 NR_newRAT-Core RAN4

=> Revised in R2-1709855 (Offline discussion #41)

R2-1709855 Draft LS to RAN4 on need of extending LTE measurement gap due to inter-RAT NR measurements Ericsson LS out Rel-15 NR_newRAT-Core To:RAN4

=> Revised to R2-1709928

R2-1709928 Draft LS to RAN4 on need of extending LTE measurement gap due to inter-RAT NR measurements Ericsson LS out Rel-15 NR_newRAT-Core To:RAN4

=> Will not be sent.

R2-1708793 Serving cell reporting in EN-DC Intel Corporation discussion Rel-15 NR_newRAT-Core

- Samsung think this allows the MN to consider the NR cell signal strength for SN release purposes. Ericsson support the proposal
- CATT think the agreement should follow the previous agreement, This is different from LTE-DC.
- LG also think the proposal makes sense.
- OPPO support the proposal.
- Intel think the reporting would just be for the inter-RAT NR measurements.
- Huawei think that the SN serving cell measurements are useful for the MN.

Agreements

FFS Whether NR SN serving cell measurements are provided in LTE measurement reports.

R2-1708121 Discussion on requirement of measurement in E-UTRAN ZTE Corporation discussion Rel-15 NR_newRAT-Core

R2-1707693 Discussion on LTE-NR DC measurement event FiberHome discussion

R2-1708408 Remaining on measurement event for EN-DC vivo discussion Rel-15 NR_newRAT-Core

R2-1708863 Inter-RAT measurement for EN-DC Fujitsu discussion Rel-15 NR_newRAT-Core

R2-1708899 NR cell measurement in LTE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

R2-1708907 Required reporting events for EN-DC LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

R2-1709232 Inter-RAT NR Measurement Framework BEIJING SAMSUNG TELECOM R&D discussion

R2-1709251 Mobility events for EN-DC procedures Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT

R2-1709446	Measurement Events for LTE NR-DC NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
<i>Other</i>				
R2-1707853	UE context handling during inter RAT handover NR_newRAT-Core	Ericsson	discussion	Rel-15
R2-1708699	Events and measurements for handover from E-UTRA to NR discussion Rel-15 NR_newRAT-Core	Huawei, HiSilicon		
R2-1708887	Inter-RAT handover between LTE and NR NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1708888	Message content in inter-RAT handover NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1708925	Inter-RAT Inter-CN mobility between NR and LTE 15 NR_newRAT	LG Electronics Inc.	discussion	Rel-
R2-1708941	Inter-RAT Intra-5G CN mobility between NR and LTE Rel-15 NR_newRAT	LG Electronics Inc.	discussion	
R2-1709231	Inter-RAT Mobility for MR-DC	BEIJING SAMSUNG TELECOM R&D	discussion	
R2-1709236	Supporting Lossless Inter-RAT Handover	BEIJING SAMSUNG TELECOM R&D	discussion	
R2-1709280	NR inter-RAT mobility to CSG cell	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1709637	Mobility between E-UTRAN and NR	Qualcomm Incorporated	discussion	

10.2.12 Slicing

How much slicing is visible to UE AS, partitioning of random access resources, separation of access control parameters, any impact to idle mobility, etc

Including output from email discussion [97bis#14][NR] Slicing (Xiaomi)

- R2-1709158 Report of email discussion: [97bis#14][NR] Slicing Beijing Xiaomi Mobile Software report Rel-15
P2a
- Xiaomi think that SA2 have told us that the maximum number of slices per UE is 8

Agreements:

- 1 RAN2 understand that a network slice has a RAN part and a CN part. There is no concept of a RAN slice separate from the network slice
- 2 RAN2 targets that RAN solutions for network slicing should be able to support a large number of slices (e.g. hundreds of slices).
- 2a: Number of slices supported by UE in parallel is 8.
- 3 From UE perspective, the UE can be configured to support the requirements of the supported slices (e.g by appropriate configuration of different DRBs of different PDU sessions).
- 4 For intra-freq cell reselection the UE try to always camp on the best cell.
- 5 We will not support additional functionality for RACH resource isolation/differentiated treatment for slicing for Rel-15

Working assumption: For needs of slicing, appropriate configuration of the dedicated priorities provided from the gNB can be used to control the frequency on which the UE camps. (i.e. reuse of same mechanism as in LTE). (To be checked whether the gNB has knowledge of all the slices to which the UE is registered)

FFS: Whether any additional mechanisms are to be introduced for control of the frequency on which the UE camps

Idle mode behaviour

R2-1709423	Demerits of using Slice information for Cell selection discussion	NR_newRAT-Core	Lenovo Mobile Com. Technology		
R2-1707799	Slice availability	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708927	Slice Availability for Cell (Re-)Selection	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1707893	Cell selection and re-seletion based on slice Core	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1707978	Cell Reselection Based on Slice Information	Spreadtrum Communications	discussion	Rel-15	
	=> Revised in R2-1709331.				
R2-1709331	Cell Reselection Based on Slice Information	Spreadtrum Communications	discussion	Rel-15	
R2-1708083	Idle mobility aspects to support network slicing	Samsung	discussion	Rel-15	NR_newRAT-Core
R2-1708109	Idle mode behaviour for NW slice	ZTE Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1708409	Cell selection/reselection with network slicing	vivo	discussion	Rel-15	NR_newRAT-Core
R2-1708929	UE Awareness of Network Slice	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core

Signalling of slice info

R2-1709203	Slice assistance Information over RRC	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT-Core
R2-1707798	Signalling aspects of network slicing	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708110	Signalling of slice info for NW slice	ZTE Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1708926	Further Discussion on Slice Selection Information over RRC	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709205	Draft LS on RAN support for NW slicing	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT-Core
R2-1709303	AMF selection based on assistance information	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1709509	NSSAI in MSG5	Sony	discussion	Rel-15	NR_newRAT-Core

Other

R2-1707758	Impacts of network slicing in RAN area	Gemalto N.V.	discussion		
R2-1707800	Access control and resource isolation for slicing	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1707801	Separate RACH or not for supporting different services/slices	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708038	Discussion on Several Issues for Network Slicing	OPPO	discussion		
R2-1708084	Connected mobility aspects to support network slicing	Samsung	discussion	Rel-15	
R2-1708928	What is RAN part of a network slice ?	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709167	Slice Awareness in Initial Access	Samsung Electronics GmbH	discussion		
R2-1709168	Slice Information in RRC	Samsung Electronics GmbH	discussion		
R2-1709202	Initial radio resource isolation for slicing	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT-Core

R2-1709204 Stage 2 adjustment on slice assistance Information over RRC discussion Rel-15 NR_newRAT-Core Nokia, Nokia Shanghai Bell
 R2-1709643 Support of Network Slicing in NG-RAN Qualcomm Incorporated discussion

Withdrawn

R2-1708652 NSSAI in MSG5 Sony discussion Rel-15 NR_newRAT-Core
 => Withdrawn

10.2.13 QoS

Any remaining stage 2 aspects, including QoS operation with DC including identified FFS points from last meeting.

Detailed topics should be discussed in stage 3 user plane

Note agreement at RAN2#97bis that QoS flow remapping at handover will be discussed when flow remapping not at handover has been progressed within user plane session.

QoS with DC operation

R2-1708410 QoS support in NR DC vivo discussion

P1

- Nokia think the SN should have a say in whether to give back flows to the MN.
- LG also have the view that SN should have a role
- Intel think the proposal is tha MN takes the final decision.
- Nokia thinks in DC the MN has to accept or drop the bearer if SN want to move it back.
- Vivo understands that SN may request a move back to MN but the MN makes the decision.
- Huawei agree with Nokia that MN must accept or drop the flow. Intel also agree with Nokia.
- OPPO also think that MN can reject the request.

P2

- CATT think QoS flow offloading implies a lot of specification impact and prefer not to support. DRB offloading is sufficient.
- Huawei thinks we have to support QoS flow level offloading to support a 1a like architecture as there are no bearers in the CN. Nokia also agree with Huawei. ZTE also agreed. OPPO also support.
- MediaTek support the view of CATT, it is a nice to have but not essential. Qualcomm also agree.
- Ericsson also support the QoS offloading and think the spec impact is not so bad.
- Intel think if we support lossless there will be spec impact but is we accept lossy then the impact should not be so much. Nokia think if it cannot be lossless then the benefits of 5G QoS disappear, and also think it is not so easy to specify.

Agreements:

- 1: SN can request to move a QoS flow(s) from SN to MN. MN can accept or drop the moved flow (but cannot reject the move)
- 2: QoS flow level offloading between the MN and SN is supported in NR.

R2-1708931 DRB level offloading in NR DC Huawei, HiSilicon discussion
 R2-1707894 Discussion on QoS DC offloading CATT discussion
 R2-1707985 QoS flow relocation from MN to SN Nokia, Nokia Shanghai Bell discussion
 R2-1707986 Offloading granularity in NR-NR DC Nokia, Nokia Shanghai Bell discussion
 R2-1708124 QoS remaining aspects for NR/NR DC ZTE Corporation discussion
 R2-1708227 QoS flow offloading NEC discussion
 R2-1708930 Further Discussion on QoS support in NR DC Huawei, HiSilicon discussion
 R2-1709087 Remaining QoS issues in DC LG Electronics discussion

Other

- R2-1707983 QoS Framework Update Rapporteur (Nokia) discussion
 - Samsung think it assumes that there is a default QoS profile .
 => Revised in R2-1709830 (Offline discussion #24)
- R2-1709830 QoS Framework Update Rapporteur (Nokia) discussion
 => Agreed
- R2-1708319 Draft Reply LS to SA2 on 5QIs for URLLC Ericsson LS out
- R2-1707984 New QoS flow on the Default Bearer Nokia, Mediatek, Nokia Shanghai Bell discussion

Late

- R2-1709671 Reflective QoS inactivity timer Samsung discussion Rel-15 NR_newRAT-Core

10.2.14 Positioning

Initial discussion of how to address positioning requirements now included in the WID, including consideration of what questions may need to be asked to other groups.

- R2-1708601 NR support on RAT-independent and E-UTRAN-dependent positioning methods Ericsson discussion
 -

Agreements

- 1 The full scope of LPP shall be supported by NR System Architecture and NR devices.
- 2 LPP messages are transported in NAS messages which in NR RRC (similar to LTE RRC).
- 3 Support for UTDOA method in NR may be revisited in further releases after further progress in SA2 work.

- R2-1709478 Discussion of Positioning Support for NG-RAN in Release 15 Qualcomm Incorporated discussion

Agreements

- 1: Positioning network elements (UE, NG-RAN, AMF, LMF) in the positioning related architecture in TS 23.501 [2] should be used as the basis for positioning support for NG-RAN in Release 15.
- 2: TS 38.305 will define stage 2 positioning for NG-RAN for both NR and E-UTRA access.

- R2-1709477 Skeleton for TS 38.305 Qualcomm Incorporated discussion
 => Endorsed

- R2-1707895 Consideration on NR positioning in Rel-15 CATT discussion
- R2-1708209 Positioning in NR Huawei, HiSilicon discussion
- R2-1708210 Discussion on NR positioning technologies Huawei, HiSilicon discussion
- R2-1708600 Network based NR CID and cell portion positioning Ericsson discussion
- R2-1708602 Support of measurement gaps and idle periods for inter RAT measurements Ericsson discussion
- R2-1709449 NR E-911 Location Services Needs T-Mobile USA Inc. other
- R2-1709560 Basic positioning support in Release 15 for NR Nokia, Nokia Shanghai Bell discussion

10.2.15 Other

Other stage 2 aspects such as PWS, Security for SA, etc.

Note security for NSA is treated under AI 10.2.5.

UE identities

R2-1707675 Radio network identities for NR Samsung discussion Rel-15 NR_newRAT-Core

Agreements

- 1 NR will support C-RNTI (unique within a cell) and A-RNTI (unique with an area larger than or equal to a cell). A-RNTI is longer than C-RNTI.
A-RNTI is used to identify the node that holds the UE context and the UE context.
FFS: Name A-RNTI.

R2-1708159 Text Proposal for Stage 2 on UE identities in NG-RAN Ericsson discussion Rel-15 NR_newRAT-Core

- => It should be clear that the section on identities is specific to NR radio access.
- => Revised in R2-1709868 (Offline discussion #42)

R2-1709868 Text Proposal for Stage 2 on UE identities in NG-RAN Ericsson discussion Rel-15 NR_newRAT-Core

- => Xx-RNTI to be used in place of ResumeID in other parts of stage 2 spec.
- => TP is agreed

Security

R2-1707802 Support of fake gNB detection mechanisms Ericsson discussion Rel-15 NR_newRAT-Core

- => Noted

R2-1708211 Discussion on fake gNB detection to reply SA3 LS Huawei, HiSilicon discussion Rel-15

R2-1707803 Draft Reply LS on support of fake gNB detection mechanisms Ericsson LS out Rel-15 NR_newRAT-Core SA3 RAN1, RAN4

- => Revised in R2-1709869 (Offline discussion #43)

R2-1709869 Draft Reply LS on support of fake gNB detection mechanisms Ericsson LS out Rel-15 NR_newRAT-Core SA3 RAN1, RAN4

- => Revised in R2-1709968

R2-1709968 Draft Reply LS on support of fake gNB detection mechanisms Ericsson LS out Rel-15 NR_newRAT-Core SA3 RAN1, RAN4

- => Remove " • Hash of the MIB/SIB is feasible to collect and report."
- => Approved in R2-1709980

R2-1708212 DRAFT Reply LS on Support for fake gNB detection mechanisms Huawei, HiSilicon discussion Rel-15

R2-1709614 Integrity protection and Counter Check Procedure for NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1707804 Key refresh in NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1708411 DRB IP configuration and PDCP PDU Format vivo discussion Rel-15 NR_newRAT-Core

R2-1709501 Security procedure from RRC_INACTIVE state in NR SAMSUNG Electronics Co., Ltd. discussion

R2-1709611 Re-establishment upon integrity check failure Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1709612 Draft LS to SA3 on reestablishment upon integrity check failure Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

PWS

R2-1708462 PWS support for NR LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

Agreements 1 For NR, different NR system information blocks are defined for ETWS primary notification, ETWS secondary notification and CMAS notification. 2 Paging is used to inform UEs about ETWS indication and CMAS indication. UE monitors ETWS/CMAS indication in its own paging occasion for RRC_IDLE and RRC_INACTIVE. UE monitors ETWS/CMAS indication in any paging occasion for RRC Connected. 3 Paging indicating ETWS/CMAS notification triggers acquisition of system information (without delaying until the next modification period)
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R2-1708157 Public Warning System in NR Ericsson, NTT DOCOMO INC., SoftBank discussion
Rel-15 NR_newRAT-Core

Other

R2-1707856 TP on Radio Link Failure for 38.300 Ericsson discussion Rel-15 NR_newRAT-Core
=> Revised in R2-1709870 (Offline discussion #44)

R2-1709870 TP on Radio Link Failure for 38.300 Ericsson discussion Rel-15 NR_newRAT-Core
=> Agreed

R2-1707870 IETF ECN mechanism for 3GPP radio access technologies Samsung discussion
Rel-15 NR_newRAT-Core

R2-1708158 Support for IMS Emergency calls in NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1708454 AS context in RRC_IDLE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

R2-1708485 Multiband and variable RX/TX support in NR Nokia, Nokia Shanghai Bell discussion
Rel-15 NR_newRAT-Core

R2-1708507 Discussion on bandwidth part operation vivo discussion

R2-1708838 The feasibility of intra-frequency dual connectivity in NR-NR DC Samsung Electronics Romania discussion

R2-1708895 On supporting the supplementary uplink frequency Samsung discussion NR_newRAT-Core

R2-1708905 Speed dependent scaling of measurement related parameters LG Electronics Inc.
discussion Rel-15 NR_newRAT-Core

R2-1709054 RLF Procedure for NR-NR Dual connectivity Samsung Electronics Romania discussion

R2-1709305 Supporting IMS Emergency services in NR LG Electronics Inc. discussion Rel-15
LTE_5GCN_connect-Core

R2-1709506 LTE-NR Coexistence Sony discussion Rel-15 NR_newRAT-Core

R2-1709514 User plane integrity check and RAN sharing Sony discussion Rel-15 NR_newRAT-Core

R2-1709575 Further discussion on Carrier Aggregation baseline in NR Samsung Electronics discussion

R2-1709576 RAN2 aspect on fast carrier switch Samsung Electronics discussion

R2-1709577 Needs of Fast Carrier Switch in NR Samsung Electronics discussion

R2-1709578 Indication signalling for uplink waveform Samsung Electronics discussion

R2-1709579 Reference waveform for uplink transmission Samsung Electronics discussion

R2-1709590 Identities of the NR-SS and CSI-RS for Beam and RRM Measurement Samsung Electronics discussion

R2-1709591 NR inter TRxP or inter DU mobility Samsung Electronics discussion

R2-1709610	Support LTE Rel-14 eVoLTE for SA NR NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1709613	Discussion on the support of SCG SRB for Intra-NR Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion	

Late

R2-1709405	On RRC state mismatch issue in NR NR_newRAT-Core	NTT DOCOMO INC.	discussion	Rel-15
R2-1709691	Text Proposal for TS 38.300 on NR Radio Link Failure	Samsung	discussion	
R2-1709688	Text Proposal for stage 2 on L2 indication signalling of uplink waveform discussion	Samsung		

Withdrawn

R2-1708649	LTE-NR Coexistence => Withdrawn	Sony	discussion	Rel-15 NR_newRAT-Core
R2-1708657	User plane integrity check and RAN sharing => Withdrawn	Sony	discussion	Rel-15 NR_newRAT-Core

10.3 Stage 3 user plane

Documents in this agenda item will be handled in the NR user plane break out session

10.3.1 MAC

10.3.1.1 TS

Latest TS 38.321, rapporteur inputs, etc

R2-1709142	Correction to the random access preamble group range in NR discussion	Rel-15 38.321 NR_newRAT-Core	LG Electronics Inc.	
	=> Not treated			

10.3.1.2 MAC architecture

Contributions on MAC modelling of PDCCH monitoring/TTI length

Note: specific issues related to CA (e.g. RAR, SR, DRX, etc.) and duplication should be submitted under the dedicated AI. Modelling of numerology/TTI length should be submitted under LCP

R2-1708187	PDCCH, CORESET and event-driven MAC NR_newRAT-Core	Ericsson	discussion	Rel-15
	- Samsung thinks that event-driven works for some cases but not for all. - Huawei shares the concerns with Samsung. Further, RAN1 has agreed to PDCCH monitoring occasions. Ericsson thinks that the main problem is when the coreset overlap in time. Samsung wonders if it is related to BWP. Ericsson thinks it may. InterDigital thinks that anyways we should specify the MAC in a forward compatible way.			
	=> Noted			
R2-1708723	Timing Aspects in MAC	InterDigital	discussion	Rel-15 NR_newRAT-Core
	- Oppo thinks CORESET should be transparent to the MAC. IDC agrees but are just saying that the duration would be different depending on the coreset - Ericsson thinks this can work but we need to think of the overlapping case. - LG asks whether in NR we will have one unified timing unit or can we have the flexibility to use PDCCH occasion and some absolute timers. IDC thinks that using PDCCH occasions			

can make sense. Samsung thinks that we should align with RAN1. Vivo indicates that in LTE we didn't distinguish between ePDCCH and PDCCH.

- Ericsson thinks there are two options (can be considered case by case): PDCCH "occasions" and Absolute time

=> Details of timing unit are FFS.

=> Noted

Not treated

R2-1708085	Further details on indication for scheduling Samsung	discussion	Rel-15
R2-1708086	Draft LS to RAN1 on the time unit definition	Samsung discussion	Rel-15
R2-1708088	RAN2 considerations for bandwidth part in NR	Samsung discussion	Rel-15
R2-1708139	The PDCCH monitoring and TTI modeling ZTE Corporation	discussion	Rel-15
	NR_newRAT-Core		
R2-1709254	MAC modelling of PDCCH monitoring and TTI length	Huawei, HiSilicon	discussion
	Rel-15 NR_newRAT-Core		
R2-1709255	TP to 38.321 on MAC modelling of PDCCH monitoring and TTI length	Huawei, HiSilicon	
	discussion Rel-15 NR_newRAT-Core		

10.3.1.3 MAC PDU format

Selection of MAC subheader format and length of L fields (from R2-1707492)

Contributions on further enhancements of MAC subheaders should contain stage 3 TP and justification/motivation. NOTE: MAC concatenation optimizations are not to be supported.

R2-1707735 The format of MAC subheader and optimization OPPO discussion

- ZTE thinks that we agreed to not optimize

=> Noted

R2-1708180	MAC sub-header format: Length field	Ericsson	discussion	Rel-15 NR_newRAT-Core
	Proposal 1	For MAC SDUs two length values are used for the Length field: 8 and 16 bits.		
	Proposal 2	For variable-length MAC CEs, the Length field is limited to 8 bits.		
	=> Noted			
	Discussion on Length field			
	- Samsung thinks the important discussion is on 7 or 8 bits and 8 bits should be supported.			
	Ericsson and Huawei agree to 8 bits			
	- LG thinks that before agreeing we should discuss the E2 field and an explicit field should be used.			

Agreements

- 8 and 16 bits length field is supported with the single F bit in the second bit. For fixed size MAC CE there is a two R fields

Not treated

R2-1708763	Remaining issues on MAC PDU format	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT
R2-1709148	MAC subheader format in NR	LG Electronics Inc.	discussion	NR_newRAT-Core
R2-1708184	MAC PDU discard due to unknown MAC CEs	Ericsson	discussion	Rel-15 NR_newRAT-Core
	=> moved from 10.3.1.2			
R2-1707683	Random Access in NR: RAR MAC PDU Design	Samsung R&D Institute India	discussion	Rel-15 NR_newRAT-Core

=> moved from 10.3.1.4.3

R2-1707927 MAC PDU for RAR CATT discussion Rel-15 NR_newRAT-Core
=> moved from 10.3.1.4.3

R2-1707929 The Lengths of L Fields in MAC Sub-header CATT discussion Rel-15 NR_newRAT-Core
R2-1708181 MAC sub-header format: Text proposal Ericsson discussion Rel-15 NR_newRAT-Core
R2-1708262 Discussion on RAR MAC PDU format Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1708263 Discussions on the L-field in MAC subheader Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1708291 L-field length in MAC PDU format Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core
R2-1709583 L field size for NR Samsung discussion Rel-15 NR_newRAT-Core
R2-1709584 Padding for NR Samsung discussion Rel-15 NR_newRAT-Core

10.3.1.4 Random access

10.3.1.4.1 Differentiation of RA parameters

Contributions on parameters that require differentiation and triggers. A converged solution on which parameters/triggers with a stage 3 TP is encouraged. NOTE: Need of different RACH configuration in support of different services/slices will be discussed in main/CP session

Prioritization between RA procedures

R2-1707684 Random Access in NR: Service Differentiation Aspects Samsung R&D Institute India
discussion Rel-15 NR_newRAT-Core
There is no need to support multiple RACH configurations (RACH resources and/or parameters) for service differentiation.
=> Noted

R2-1708720 Converged proposal on prioritized random access for NR Qualcomm Incorporated, AsusTek, CATT, Ericsson, Huawei, Intel, Interdigital, OPPO discussion Rel-15 NR_newRAT-Core
Proposal 1. NR should support prioritized random access across UEs based on service requirements or triggering events.

- ZTE asks what is service requirements and how many services are we expecting. ZTE understands that to differentiate you have to differentiate preambles. Qualcomm doesn't think we need to partition the preambles or differentiate them.
- Lenovo asks how the UE knows QoS for UEs in idle mode and what triggers the RACH.
- IDC explains that this to provide operator means to differentiate power ramping and backoff without preamble partitioning
- Vivo supports differentiation by different events rather than service priority.
- Huawei explains that this is similar in a way to NB-IoT and other LTE cases, two different tables were defined. We should support it and then details can be discussed further.
- Xiaomi thinks this is related to slicing.
- LG explains that intention is to different events. For example, a UE in idle can be prioritized over UEs in RRC connected
- CATT explains this is not very complicated, it can be as simple as some UEs ignoring the BI. Nokia thinks BI is linked to congestion.
- ZTE thinks the eNB needs a way to know what type of data is making access. QC explains that the eNB doesn't need to know, it is a UE behaviour.
- Samsung thinks BI doesn't happen very often so not clear why we are trying to optimize. LG indicates that BI always happen.
- Mediatek is concerned that how the UE decided when the UE can differentiate can be complicated
- HTC asks if the gNB always need to send a backoff indicator. QC

=> Noted

Options:

1. No differentiation of parameters (8)
2. Differentiation of parameters (backoff indicator and power ramping) (16)

Agreements

=> Differentiation of backoff parameter and/or power ramping will be supported. FFS in what conditions/events the differentiation will be supported. A TP should be submitted by next meeting

Not treated

R2-1707781	Prioritized Backoff of Random Access	OPPO	discussion		
R2-1707926	Considerations on priority access	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1708142	Consideration on the RA parameters	ZTE Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1708191	Differentiation on RACH parameters	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708494	Stop SI request due to RRC connection setup	RACH	vivo	discussion	
R2-1708764	Need for RA parameter differentiation or prioritization	discussion	Rel-15	NR_newRAT	Nokia, Nokia Shanghai Bell
R2-1708966	Differentiation for SR-triggered Random Access	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709082	Discussion on the differentiation of backoff indicator	ITRI	discussion	NR_newRAT-Core	
R2-1709153	Key factor for backoff parameter differentiation	LG Electronics Inc.	discussion		
R2-1709256	Solution of RACH backoff differentiation	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709318	Discussion on random access for beam recovery request	ASUSTEK COMPUTER (SHANGHAI)	discussion		NR_newRAT-Core

10.3.1.4.2 Random access in presence of multi-beam operation

Handling of RAR in the presence of multiple beam transmission, and other beam aspects related to random access procedure, e.g. power ramping, msg 4 reception, etc. Focus should be on RAN2 specific aspects. Contributions dependent on RAN1 progress will not be treated.

- R2-1707680 Beamformed Random Access: Power Ramping Aspects Samsung R&D Institute India
- discussion Rel-15 NR_newRAT-Core
- Proposal 1: Two counters PREAMBLE_TRANSMISSION_COUNTER and PREAMBLE_POWER_RAMPING_COUNTER are defined in MAC specification.*
- Proposal 2: MAC entity initializes PREAMBLE_TRANSMISSION_COUNTER and PREAMBLE_POWER_RAMPING_COUNTER to 1 when the Random procedure is initiated.*
- Proposal 3: MAC entity increments PREAMBLE_TRANSMISSION_COUNTER by 1 if RAR reception is not successful or contention resolution is not successful.*
- Proposal 4: MAC entity increments PREAMBLE_POWER_RAMPING_COUNTER by 1 if UE does not change beam during PRACH retransmission.*
- Proposal 5: Adopt the changes in appendix 1 in MAC specification*
- Vivo agrees with all proposals and is aligned with RAN1
 - Panasonic agrees with all the proposals.
 - Huawei asks if this is related to multiple preamble transmission. Samsung thinks we can assume that at least it is applicable to single.
 - Ericsson thinks we can live with one counter and just not increment in when we transmit preambles in different beams.
 - IDC agrees with the proposals, it helps the gNB control number of attempts
 - HTC and Huawei supports two counters

- Nokia is good with two counters but we can think of the modelling and MAC awareness. Vivo and Samsung think that the anyways the MAC needs to know.
- => Noted

Agreements:

For single preamble transmission case:

- Two counters PREAMBLE_TRANSMISSION_COUNTER and PREAMBLE_POWER_RAMPING_COUNTER are defined in MAC specification.
- MAC entity initializes PREAMBLE_TRANSMISSION_COUNTER and PREAMBLE_POWER_RAMPING_COUNTER to 1 when the Random procedure is initiated.
- MAC entity increments PREAMBLE_TRANSMISSION_COUNTER by 1 if RAR reception is not successful or contention resolution is not successful.
- MAC entity increments PREAMBLE_POWER_RAMPING_COUNTER by 1 if UE does not change "beam" for PRACH retransmission.

R2-1708049 RAR design supporting multiple preamble transmission MediaTek Inc. discussion

Proposal 1: If multiple RACH occasions are configured for contention-free RA, RAR window starts a fixed duration just after the end of the first RACH occasion.

- Ericsson and Vivo think that we should start it right away to avoid latency.
- LG asks if it is feasible for MAC to support multiple preamble transmission. LG explains that from MAC point of view there is a single transmission and RAR window is with respect to the last transmission.
- Huawei doesn't think it should start right away.
- HTC thinks that from MAC perspective is like a single transmission.
- Vivo thinks this is different from MTC

Proposal 2: A single RAR window is applied for each consecutive preamble transmission on multiple RACH occasions.

Proposal 3: RAR carries explicit indication to distinguish PRACH resource and configuration. The explicit indication includes RA-RNTI and possibly some assistant fields in RAR.

Proposal 4: UE configured with multiple PRACH occasions is expected to receive one RAR in the RAR window. Once a RAR is received, UE terminates RAR reception.

Proposal 5: RA-RNTI formula includes carrier identity.

Proposal 6: RAR indicates the DL TX beam indices associated with the PRACH on which preamble transmission is detected.

Is the MAC aware of the multiple beam transmission?

- CATT thinks that if we have a single RAR this would only work for contention free. Samsung explain that the multiple RACH transmission occasions are only supported for contention free.
- CATT thinks that we should ask RAN1

When the RAR window starts

1. After the transmission of first preamble (e.g. the beginning of the procedure)
 2. After every preamble transmission (e.g. sliding RAR window)
 3. At the end of last preamble transmissions are completed
- Vivo asks how does the UE know it is the last preamble transmission. When you get there you consider a RACH failure.
 - LG thinks that the first approach implies that the RAR window size would have to be bigger and that has impacts on RA-RNTI

Does the UE need to monitor multiple RA-RNTI

- Lenovo thinks we need to. Huawei thinks multiple RA-RNTI will increase decoding complexity.
- Ericsson thinks that if the UE transmits multiple different preambles then RA-RNTI is different. The question is what the UE does when it receives the first RAR. LG agrees as there may also be collision.
- Sharp asks if it is possible to decode multiple RAR with different RA-RNTI in the same subframe. Vivo says yes.

- Intel thinks that even for single msg 1 transmission the UE may need to receive multiple RAR

What happens when the UE receives the first RAR?

- Once a RAR is received, UE terminates RAR reception

Agreements:

For multiple msg1 transmissions for contention free RACH

- A single RAR window is applied for multiple msg1 transmission.
- The RAR window is started after transmission of the first preamble after a “offset”.
- The UE monitors multiple RA-RNTIs. The RA-RNTI is associated to the RACH transmission occasion in which the preamble was transmitted.
- Once a RAR is received, the RAR reception is considered successful, as in LTE. The UE stops multiple preamble transmission.
- Details of RA-RNTI calculations are FFS

R2-1709788 LS to RAN1 on RAN2 RACH agreement Ericsson

- Include question on size of TA and UL grant for the RAR and preambles, HARQ process ID for msg 3
 - Nokia asks if the temporary C-RNTI should be decided in RAN2.
- => Change Q4: What is RAN1's preferred size of the Temporary C-RNTI
- ZTE asks why we are asking about HARQ ID. Vivo thinks that a fixed process ID is sufficient
 - Huawei thinks that maybe RAN1 would like to include it.
- => Delete “If not, RAN2 will decide on a HARQ process ID for msg3 transmission”
- => Add “field” at the end of Q2
- => Ask if RAN1 has agreed to add any additional fields?
- => The LS is approved in R2-1709800

Not treated

R2-1709062 Random Access procedure for multi-beam operation LG Electronics Inc. discussion
NR_newRAT-Core
=> Not treated

R2-1708725 PRACH Resource Configurations for Beamforming InterDigital discussion Rel-15
NR_newRAT-Co

R2-1707679 Beamformed Random Access – Multiple Msg1 TXs Samsung R&D Institute India
discussion Rel-15

R2-1707681 Beamformed Random Access: RA Resources for SI Request Samsung R&D Institute India
discussion Rel-15 NR_newRAT-Core

R2-1707782 Multiple preamble transmission of RA OPPO discussion

R2-1708043 Power Ramping Control Modelling for beamformed RACH MediaTek Inc. discussion

R2-1708143 Consideration on the RACH procedure ZTE Corporation discussion Rel-15
NR_newRAT-Core

R2-1708192 On Multiple PRACH Resource Types in NR Ericsson discussion Rel-15
NR_newRAT-Core

R2-1708503 Clarification on the PRACH resource selection of multiple beams vivo discussion

R2-1708585 Beamforming impact on Random Access (and initial access) Ericsson discussion
Rel-15 NR_newRAT-Core

R2-1708724 Power ramping for Msg1 Preamble Retransmissions InterDigital discussion Rel-15
NR_newRAT-Core

R2-1708830 NR Random Access Multi-beam aspects Intel Corporation discussion Rel-15
NR_newRAT-Core

R2-1708971 Beam aspects related to random access procedure Huawei, HiSilicon discussion
Rel-15 NR_newRAT-Core

R2-1709081	The RAR for multi-preamble operation	ITRI	discussion	NR_newRAT-Core
R2-1709257	RAR reception for multiple Msg1 transmissions	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709398	MAC impacts on RA procedure in multi-beam operation	NTT DOCOMO, INC.	discussion	Rel-15 NR_newRAT-Core
R2-1709422	Discussion on random access with multi-beam operations	HTC	discussion	Rel-15 NR_newRAT-Core

10.3.1.4.3 Random access procedures

Contributions on further details of random access procedures, power ramping for msg1 transmission (with no beam forming), content of RAR and 4 contention resolution.

Stage 3 details of On-demand SI request.

R2-1708970	Content of RAR	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
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Proposal 7: For UL asynchronous HARQ, RAR can indicate the HARQ process identity associated with the MSG3 retransmission.

- Nokia thinks this can be discussed in RAN1 when they discuss uplink grant.

=> Noted

Discussion on parameters:

- LG thinks T-CRNTI is not always needed. Huawei and Vivo also don't think this is need. QC prefers to keep RAR fixed size as it helps processing. Ericsson agrees. Lenovo also thinks it may not be needed but we should keep same principle as LTE and keep it there for processing. Panasonic and Samsung prefer fixed size RAR
- Vivo doesn't think we should have fixed RAR

Agreements:

- The following fields are always included in the RAR random access procedures: RAPID, UL grant, TA, Temporary C-RNTI for all cases other than msg. 1 SI request.
- BI can be included in msg. 2 as in LTE. UE behaviour with respect to backoff is the same as in LTE

R2-1708621	Random Access Procedure for On-Demand SI request	Motorola Mobility España SA	discussion	Rel-15 NR_newRAT-Core
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RRC triggers MAC to initiate Random Access procedure for the purpose of SI-request. For the case of msg1-based request procedure RRC indicates to MAC the PRACH preamble/resource.

- Huawei thinks that the resource is already provided to the UE with the other SI. Ericsson thinks that the information is terminated in the RRC.

Proposal3: RAN2 shall discuss the UE behaviour for the case that UE requests multiple different SI(s) corresponding to different PRACH Preamble(s).

- Ericsson ask if this is a possible scenario and configuring multiple preambles is expensive. E
 - Lenovo thinks that we should specify the UE behavior.
 - Samsung thinks that this should be handled by RRC, the RRC can do msg. 1 request per SI,
- => Noted

Agreements

1. RRC triggers MAC to initiate Random Access procedure for the purpose of SI-request. For the case of msg1-based request procedure RRC indicates to MAC the PRACH preamble/resource.
2. For msg. 1-based SI request MAC indicates to RRC the reception of acknowledgement for SI request
3. The UE is not expected to perform multiple mgs.1-based SI request RA procedures simultaneously. A single msg.1-based SI request will be performed at a time.

- | | |
|----|--|
| 4. | For msg1-based request procedure, the RACH msg2 contains only the MAC PDU subheader for a RAR containing the Random Access Preamble ID field acknowledging the received PRACH SI preamble. |
|----|--|

R2-1708193 MAC RAR PDU Design Ericsson discussion Rel-15 NR_newRAT-Core
Proposal 4 MAC PDU of RAR shall follow the MAC PDU format for DL and UL in NR.

- QC, Samsung, supports interleaving especially since we now have fixed. Nokia prefers the same as LTE
 - Nokia asks about E bits
 - Qualcomm suggests to add the BI in the front. Oppo asks how the UE will differentiate the two type of sub-headers.
 - Qualcomm thinks that the SI requests are grouped together. CATT agrees.
 - Ericsson thinks we need to reflect on the fact that we need to differentiate between response of SI-request and how a UE not doing SI request knows.
- => Noted

Agreements:

1. NR should support RAR multiplexing
2. MAC PDU of RAR shall follow the MAC PDU format for NR (interleaved MAC sub-headers). MAC sub-header details are FFS.
3. The BI is located in the front of the MAC PDU, as the first entry
4. FFS if SI request responses are grouped together

Not treated

R2-1708190	Parameters for Random Access Initiation	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1707685	Random Access Procedure for RRC INACTIVE State	discussion	Rel-15 NR_newRAT-Core	Samsung R&D Institute India
R2-1709259	Discussion on non-contention based random access	Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion
R2-1709323	Contention resolution for random access	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1707928	The impact of On Demand SI on RA procedure	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1707682	Random Access in NR: RAR Contents	Rel-15 NR_newRAT-Core	Samsung R&D Institute India	discussion
R2-1709005	Triggering/initiating Random Access Procedure in NR	Rel-15 NR_newRAT-Core	Samsung	discussion
R2-1708418	Counter Design for Random Access Procedure	vivo	discussion	Rel-15 NR_newRAT-Core
R2-1708493	Content of RAR in NR	vivo	discussion	
R2-1708730	RACH Configuration in Handover	InterDigital	discussion	Rel-15 NR_newRAT-Core
R2-1708765	MAC PDU format for RAR	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT-Core
R2-1708829	Remaining aspects for random access procedure in NR	Rel-15 NR_newRAT-Core	Intel Corporation	discussion
R2-1708967	Discussion on Power Ramping for NR Random Access	Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion
R2-1709120	Enhancement for mitigating contention in random access	Rel-15 NR_newRAT-Core	Qualcomm Incorporated	discussion
R2-1709143	Consideration on Random Access Response in NR	Rel-15 38.321 NR_newRAT-Core	LG Electronics Inc.	discussion
R2-1709258	Selection of random access preamble in NR	Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion

10.3.1.4.4 Other aspects related to RA

Not treated

R2-1707686	Random Access in NR – Flexible UE Bandwidth Aspects discussion	Samsung R&D Institute India	Rel-15 NR_newRAT-Core
R2-1708050	Support Initial Access on Supplementary Uplink	MediaTek Inc.	discussion
R2-1708968	Calculation of RA-RNTI	Huawei, HiSilicon	discussion Rel-15 NR_newRAT-Core
R2-1708969	RAR in the RACH procedure of NR NR_newRAT-Core	Huawei, HiSilicon	discussion Rel-15
R2-1709260	Aspects on access procedure with multiple numerologies Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion
R2-1709261	Beam refinement during random access NR_newRAT-Core	Huawei, HiSilicon	discussion Rel-15

10.3.1.5 SR

Details of SR procedures, including triggers, timers, cancelations and retransmissions.

Whether grouping of LCH to SR is needed and whether a LCH can be mapped to more than one SR configuration.

R2-1707736	Details of SR procedure	OPPO	discussion
	=> Noted		
R2-1708146	Consideration on the SR in NR Core	ZTE Corporation	discussion Rel-15 NR_newRAT-Core
	=>Noted		
R2-1709420	Discussion on LCG and SR configuration	HTC	discussion Rel-15 NR_newRAT-Core
	<i>Proposal 1: A logical channel can be mapped to at most one SR configuration.</i>		
	<i>Proposal 2: More than one logical channel can be mapped to the same SR configuration.</i>		
	<i>Proposal 3: When a logical channel triggers a SR, the UE should use the radio resources that are allocated in the corresponding SR configuration to transmit the SR.</i>		
	<i>Proposal 4: If more than one logical channel triggers a SR and the radio resources to transmit the SRs are allocated in the same TTI, the UE should transmit a SR for the logical channel with the highest priority.</i>		
	<i>Proposal 5: RAN2 should discuss which SR configuration should be used to transmit a SR when the SR is triggered by retx-BSRtimer.</i>		
	=> Noted		

Discussions:

Can the same logical channel be mapped to more than one SR configuration?

- Vivo thinks that one to one mapping is sufficient. Ericsson agrees.
- Nokia thinks we should follow LTE agreement where it is not restricted.
- Huawei thinks that if we allow the UE to be associated with multiple configurations there is no need to restrict.
- LG and Samsung also prefer one to one mapping.
- Nokia thinks that we should also handle single TTI duration and single numerology like in LTE. CATT thinks that we should at least be as good CA in LTE. Huawei supports
- Fujitsu thinks that we should allow multiple SR configuration.
- Ericsson thinks that one to one mapping is simpler. Nokia explains in LTE if the UE is configured with more than one SR the UE can transmit on any (the earliest occasion is chosen).
- IDC thinks that the network is smart enough to make sure the configurations are properly done.

Show of hands:

1. A logical channel can only be mapped to a single SR configuration (12)
2. A logical channel can be mapped to more than SR configuration (12)

Triggers

SR-prohibit timers

One prohibit timers per SR configuration or one common one

- Nokia thinks that if we have a common procedure than we have one timer running. Vivo thinks that the URLLC SR should not be stopped because of an ongoing eMBB procedure.
- Futjistu thinks one is enough as the UE just needs one UL grant. Oppo explains.
- Nokia thinks that we can have different timers configured but a single one used.

drs-TransMax

SR Counter

Maintained per SR configuration or not

- Mediatek doesn't see why it is per SR configuration.

UE behaviour when SR Counter reaches max number

As in LTE, all pending SRs (no matter SR configuration) should be cancelled when a PDU is assembled including BSR, or the uplink grant can accommodate all the data available for transmission.

Agreements:

1. One or multiple logical channel(s) are mapped to SR configuration (e.g. not LCG)
2. RAN2 understanding is that numerology of the SR transmission need not be the same as the numerology of the LCH which triggered the SR
3. For the single-cell case, one single LCH is mapped to none or one SR configuration per BWP. This agreement is pending confirmation from RAN1 that a single BWP can support multiple SR configurations and understanding of how BWP is switched.
FFS how to handle SR configuration, mapping and transmission for CA case
4. sr-ProhibitTimer is independently configured per SR configuration. Whether a single timer or multiple timers are running at the same time are FFS.
5. drs-TransMax is independently configured per SR configuration. FFS whether SR_COUNTER is maintained for each SR configuration independently

Discussion after CBs

- *For the single-cell case, one single LCH is mapped to none or one SR configuration*
 - *This agreement is pending confirmation from RAN1 that a single BWP can support multiple SR configurations and finalization of how BWP is switched*
- CATT think this should be single BWP
- Nokia thinks that we should be talking about dual carrier. For single carrier the UE should not have multiple numerology as the UE will likely have only one active BWP on that carrier.
- Convida thinks that to allow the fast switching you would need to have multiple SR configuration.
- *FFS the details of the design for the CA case (e.g. one-to-one mapping between LCHs and SR configurations where SR configurations belong to one of the cells; one-to-many mapping between LCHs and SR configurations where each of the selected SR configurations per LCH belongs to a different cell; one-to-many mapping between LCHs and SR configurations where each of the selected SR configurations per LCH belongs to a different cell and where the mapping is configured to appear to the UE as one-to-one mapping, etc.)*

- Send an LS to RAN1 to obtain clarification from RAN1 on whether a single BWP can support multiple SR configurations (all of them using the single same numerology of the BWP in question, but indicating 'requests' for potentially different numerologies), and if this is not possible, whether a single carrier can support multiple SR configurations

R2-1709793 [Draft] LS to RAN1 on SR configuration per BWP Samsung

=> add "at a time" at the end of Q1

=> add "for a UE" at the end of Q2

=> Delete Q3

=> Change to: "As a reminder, in order to enable a closer match of transmission parameters (including numerology and expected latency) for the first PUSCH transmission to logical channel (LCH) requirements, RAN2 have agreed to support an early indication to the gNB of the type of traffic on the logical channel(s) triggering the SR, through the use of multiple, single-bit SR configuration(s). RAN2 has the understanding that the numerology of the SR transmission need not be the same as the numerology that the LCH which triggered the SR can be mapped to."

=> The LS is approved in R2-1709801 with the change above

Not treated

R2-1708266 SR procedure in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1708197 SR failure handling Ericsson discussion Rel-15 NR_newRAT-Core

R2-1708006 Handling absence of SR resource in NR Samsung R&D Institute UK discussion

R2-1708267 UE behaviour for the LCH with none SR configuration Huawei, HiSilicon discussion
Rel-15 NR_newRAT-Core

R2-1708789 Handling of multiple SR configurations Intel Corporation discussion Rel-15
NR_newRAT-Core

R2-1707737 Mapping logical channel to SR configuration OPPO discussion

R2-1707915 Discussion on SR CATT discussion Rel-15 NR_newRAT-Core

R2-1708007 Behaviour in case of multiple SR triggers and collision resolution Samsung R&D Institute UK
discussion

=> Withdrawn

R2-1708008 SR timers Samsung R&D Institute UK discussion

=> Withdrawn

R2-1708009 On LCH-to-SR configurations mapping Samsung R&D Institute UK discussion

R2-1708044 SR design supporting multiple configurations MediaTek Inc. discussion

R2-1708146 Consideration on the SR in NR ZTE Corporation discussion Rel-15 NR_newRAT-Core

R2-1708196 Open questions for Scheduling Request Ericsson discussion Rel-15 NR_newRAT-Core

R2-1708198 Text proposal for SR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1708265 Details on multiple SR configurations Huawei, HiSilicon discussion Rel-15
NR_newRAT-Core

R2-1708490 SR and BSR channel due to deactivation of LCH vivo discussion

R2-1708495 Enhanced SR in NR vivo discussion

R2-1708496 Discussion on the mapping between SR configuration and LCH vivo discussion

R2-1708726 SR Resource Configuration in NR InterDigital discussion Rel-15 NR_newRAT-Core

R2-1708766 Details of multiple SR configurations Nokia, Nokia Shanghai Bell discussion Rel-15
NR_newRAT

R2-1708865 SR procedure with multiple SR configurations Fujitsu discussion Rel-15 NR_newRAT-Core

R2-1709083	Consideration on the SR in NR	ITRI	discussion	NR_newRAT-Core	
R2-1709121	SR configurations for URLLC service	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core
R2-1709151	Support of selective SR	LG Electronics Inc.	discussion	NR_newRAT-Core	
R2-1709173	Text proposal for Scheduling Request in NR (Option 1)	Huawei, HiSilicon	discussion		Rel-15 NR_newRAT-Core
R2-1709176	Text proposal for Scheduling Request in NR (Option 2)	Huawei, HiSilicon	discussion		Rel-15
R2-1709328	Consideration on multiple SR configurations	ASUSTEK COMPUTER (SHANGHAI)	discussion		NR_newRAT-Core
R2-1709419	Discussion on details of SR procedures	HTC	discussion	Rel-15	NR_newRAT-Core
R2-1709450	SR timers	Samsung R&D Institute UK	discussion		
R2-1709466	Behaviour in case of multiple SR triggers and collision resolution	Samsung R&D Institute UK	discussion		

10.3.1.6 BSR

Details of BSR formats (long/short/truncated).

R2-1707721	Flexible length BSR format	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
	=> Noted				
R2-1708349	BSR format aspects	Ericsson	discussion	Rel-15	NR_newRAT-Core
	=> Noted				

Discussion on flexible BSR format

- Ericsson, Qualcomm, Lenovo, Vivo, ZTE, Oppo and Nokia think that the legacy LTE BSR are a good start
- Qualcomm thinks that the flexible TTI can increase the processing
- Intel thinks that it can help the scheduling
- LG, CATT would like a flexible BSR format.
- Samsung ask what is legacy. Nokia explains that at least long and short have to be support
- Nokia is flexible
- Qualcomm asks if it is ok that the number of LCGs to report is decided to before constructing the PDU. Intel agrees with QC. LG thinks that this will force the UE to transmit BSR even if there is no data at all. Samsung thinks that the cancelation of BSR can still take place.

Options for long BSR

1. fixed (5)
2. flexible (12)

Size of BS

- Nokia thinks that the BS size will be different for short and long. The most important is to keep the short size short and 8 bytes. Samsung doesn't think having two different size is not good. Mediatek agrees that the size of short should be 8. And fixed is good.
- Intel asks why we can't use the same BS size and just use one bit in sub-header to indicate.
- Huawei thinks that we should discuss at least long and maybe 8bits
- Qualcomm hasn't seen much motivation to increase the buffer size
- Huawei doesn't see any benefit to transmit the short BSR. Vivo thinks grant is limited, like msg. 3 for example. Nokia thinks for voice this is would be a big overhead. NTT Docomo shares the view
- LG asks whether we will use the same table for the BS for the two formats. Nokia thinks that the simplest is to use the same table and just drop some bits. Samsung thinks that this implies we can't report more than 1000 bytes.

- LG thinks we should discuss truncated separately and maybe we have the possibility to transmit more. CATT supports that truncated maybe can be more bytes.

Agreements

1. 3 types of BSRs including Regular BSR, Periodic BSR and Padding BSR
2. Short BSR format of one byte is supported. Truncated BSR format of 1 byte is at least supported. Details are FFS
3. FFS on BS size and table
4. Flexible Long BSR format will be supported. The number of LCGs to report is decided before the PDU is constructed. BS information is the BS status after LCP. BS of 0 for some LCG can be reported.
5. BSR cancelation are FFS

R2-1707987	BSR Format	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT
	=> Noted				
R2-1707724	Design principle of BS table	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
	- Nokia thinks we should follow the LTE way calculation which doesn't depend on RTT. The worst case is sufficient.				
	- Huawei thinks that we should have maybe two tables, like in LTE for different categories.				
	=> Noted				
R2-1709789	[Draft] LS to RAN1 on max TB size	Nokia	LS		
	- Ask RAN1 about max TB size and other parameters (e.g. th number of carriers, RTT, and the granularity)				
	=> The LS is approved in R2-1709802				
Not treated					
R2-1709175	Data available for transmission in SDAP	Beijing Xiaomi Mobile Software	discussion	Rel-15	
R2-1707919	Discussion on BSR transmission and cancellation	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1708440	Adapting LTE baseline for BSR triggering to multiple SR configurations framework of NR	Samsung R&D Institute UK	discussion		
R2-1707664	BSR enhancements with multiple numerologies	SHARP Corporation	discussion		
R2-1707722	BSR procedure	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1707723	TP for BSR procedure	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1707725	BSR enhancement for SDAP	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1707734	Draft LS on design of BSR table	Huawei, HiSilicon	LS out	Rel-15	NR_newRAT-Core
	RAN1				
R2-1707778	Discussion on BSR format	OPPO	discussion		
R2-1707920	BSR MAC CE format	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1707988	Draft LS to RAN1 on Transport Block Sizes	Nokia	discussion	Rel-15	NR_newRAT
R2-1708270	BSR design to support pre-processing	MediaTek Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1708348	Further aspects for BSR transmissions and cancellation	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708442	Text Proposal for TS 38.321 covering BSR operation in NR				Samsung R&D Institute UK
	discussion				
R2-1708491	BSR format in NR vivo		discussion		
R2-1708790	BSR enhancements	Intel Corporation	discussion	Rel-15	NR_newRAT-Core

R2-1709122	On BSR formats	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core
R2-1709123	On BSR cancellation conditions	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core
R2-1709149	BSR format with increased LCG	LG Electronics Inc.	discussion		NR_newRAT-Core
R2-1709226	BSR for Multiple Numerology Operation	BEIJING SAMSUNG TELECOM R&D	discussion		
R2-1709239	Truncated BSR Operation	BEIJING SAMSUNG TELECOM R&D	discussion		
R2-1709240	NR BSR formats	KT Corp.	discussion		
R2-1709524	Adapting LTE baseline for BSR triggering to multiple SR configurations framework of NR	Samsung R&D Institute UK	discussion		
	=> Withdrawn				
R2-1709585	Discussion on BSR format	Samsung	discussion	Rel-15	NR_newRAT-Core
R2-1709607	Potential Issues for BSR Latency Reduction	Samsung Electronics	discussion		
R2-1708864	MAC TP for BSR	Fujitsu	discussion	Rel-15	NR_newRAT-Core
	=> Moved from 10.3				

10.3.1.7 LCP

Contributions on modelling of abstraction of numerology/TTI based on profiles/index. Parameters needed to be included in the profile/index.

LCP in the presence of multiple grants (whether some grant prioritization guidelines need to be specified)

How the UE processes multiple UL grants and what parameters need to be visible to the MAC

Contributions should include TPs for their proposals

Including output from email discussion [NR-AH2#15][NR UP] LCP - MediaTek

R2-1709538	Email Discussion [NR-AH2#15][NR UP] on LCP	MediaTek Beijing Inc.	discussion
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=> Noted

Discussion on TTI

- CATT thinks that we should get away from using the TTI terminology and see what makes sense in terms of parameters that make sense for channel restriction.
- IDC thinks the main problem is that RAN1 has defined a very flexible scheduling design and it is difficult to take the TTI too literally.
- Nokia thinks it refers to PUSCH duration given by the grant. Lenovo thinks that we need to distinguish of the time.
- QC thinks that it is the duration. Samsung points out that we need to discuss what needs to be taken into account for LCP and what can be visible to the MAC. Samsung thinks TTI means nothing anymore.
- Huawei thinks we should use a transmission duration.
- Mediatek ask what happens if the network schedules a short duration because there is less data. Lenovo thinks that when we take into account numerology we can infer. IDC thinks the problem here is that we are making a correlation between grant duration and QoS.
- Samsung thinks that it has to indicate something related to latency and not grant duration.
- CATT thinks that if latency is a key criteria we should take K2 into account.
- LG thinks that it is the interval of PDCCH occasion.

After comeback

=> Information from DCI is required to determine time line?

- Mediatek explains that for transmission profile with explicit DCI companies agree it works but some done like it. For implicit it is feasible/possible to determine the information from the DCI
- Mediatek thinks there are two options implicit and explicit information in DCI.
- QC, Nokia, Intel think that we should limit RAN1 impacts
- IDC thinks that if we list and discuss all parameters it will take a long time in RAN2.

Parameters

1. Sub-Carrier Spacing
2. "time" information
3. K2
- Qualcomm thinks that transmission mode should be indicated grant free or dynamic. Mediatek thinks that it makes sense to restrict transmission of some logical channel for this type of transmission.
- Nokia thinks that it should be transparent and we agreed to treat them the same way. Huawei supports.

Agreements

1. LCH restriction is based on available parameters coming from PHY and/or RRC.
2. The physical layer parameters required by the LCP for the purpose of LCP restrictions are provided to the MAC from the PHY layer. How this is captured is FFS
3. Parameters for LCP restrictions - Sub-Carrier Spacing, Cell, "Time". What "time" means is FFS (e.g. PUSCH transmission duration and K2). FFS if other parameters are required (e.g. transmission mode).
4. If there are multiple Grants for a UE at a certain point in time the order in which the UE processes the grants is up to UE implementation
5. The LCP restriction does not apply to MAC CE at least for non-duplication case

R2-1708047 NR LCP Modelling MediaTek Inc. discussion

- Lenovo doesn't agree with the motivation and it is not future proof. Mediatek actually thinks that the index will make it future proof as the only thing that needs to change is the table and you can add things later.
 - Intel and Huawei think that we should discuss which parameters to consider.
 - CATT thinks that we should support this abstraction.
 - LG doesn't see the motivation.
 - Ericsson thinks that this will define the framework and the proposal from Mediatek is good and it is future proof.
 - Qualcomm agrees with the abstraction and we don't need to include all physical layer parameters.
 - IDC agrees with TP and it is more future proof.
 - Nokia doesn't think it is needed
 - Ericsson asks if with don't have TP how is the mapping going to be done. Lenovo thinks that there is no mapping needed at all.
 - Xiaomi prefers Mediatek's approach as the UE may be configured with multiple configurations.
 - Convida thinks that it is much simpler to just have an index to the MAC.
 - IDC thinks that we agreed in the past that some form abstraction to the MAC was necessary.
 - Mediatek doesn't want to mention every parameter in the LCP directly.
- => Noted

R2-1708186 Prioritization between LCH and MAC CE Ericsson discussion Rel-15 NR_newRAT-Core

- The network can configure the priority of a logical channel such that it has higher priority than the MAC CE for BSR, except for padding BSR.
- Qualcomm is concerned to give higher priority than BSR. The priority can be higher than PHR
 - Lenovo agrees that there are some scenarios it could be beneficial to priority data over some MAC CEs in some situation
 - Nokia thinks that the LTE baseline is sufficient. For URLLC the grant should be large enough. NTT docome agrees.
 - Huawei thinks static priority is good enough
 - LG also prefers to have a mechanism
- => Noted

Not treated

R2-1709474	Logical channel prioritization and transmission profiles 15 NR_newRAT-Core	Ericsson	discussion	Rel-
R2-1708728	LCH Selection in LCP based on Transmission Profiles 15 NR_newRAT-Core	InterDigital	discussion	Rel-
R2-1709126	Discussion on Identifying Numerology and TTI length for LCP discussion	Samsung Electronics		
R2-1708727	LCH Selection in LCP based on TTI Duration NR_newRAT-Core	InterDigital	discussion	Rel-15
R2-1708923	Issues related to segmentation in LCP Core	Huawei, HiSilicon	discussion	NR_newRAT-
R2-1709473	Avoiding unnecessary padding for small grants NR_newRAT-Core	Ericsson	discussion	Rel-15
R2-1707738	Modelling of the profile for LCP	OPPO	discussion	
R2-1707739	Parameters in the profile for LCP	OPPO	discussion	
R2-1707740	LCP for multiple grants	OPPO	discussion	
R2-1707916	Consideration on the transmission profile	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1707917	Minimum Size of MAC PDU including Data	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1708101	LCP for grant-free transmissions	MediaTek Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1708144	Consideratoin on the tranmsission profile NR_newRAT-Core	ZTE Corporation	discussion	Rel-15
R2-1708145	Consideration on the LCP operation NR_newRAT-Core	ZTE Corporation	discussion	Rel-15
R2-1708622	LCP procedure for NR Core	Motorola Mobility España SA	discussion	Rel-15 NR_newRAT-
R2-1708623	Prioritization/Mapping of MAC CE during LCP Rel-15 NR_newRAT-Core	Motorola Mobility España SA	discussion	
R2-1708721	Dynamic priority for delay sensitive services 15 NR_newRAT-Core	Qualcomm Incorporated	discussion	Rel-
R2-1708729	LCP for LCHs with Multiple RRC Configured Mappings 15 NR_newRAT-Core	InterDigital	discussion	Rel-
R2-1708754	LCP restriction for MAC CE Core	LG Electronics Mobile Research	discussion	NR_newRAT-
R2-1708823	LCP restrictions and modelling Core	Intel Corporation	discussion	Rel-15 NR_newRAT-
R2-1708824	UL grant processing order	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708896	Parameters considered for LCP	Huawei, HiSilicon	discussion	NR_newRAT-Core
R2-1708910	LCP priority and procedure in NR	Huawei, HiSilicon	discussion	NR_newRAT-Core
R2-1708913	Issues on multiple grants	Huawei, HiSilicon	discussion	NR_newRAT-Core
R2-1708915	Detailed modelling on LCP in NR	Huawei, HiSilicon	discussion	NR_newRAT-Core
R2-1708920	Text Proposal for LCP in NR NR_newRAT-Core => Withdrawn	Huawei Telecommunication India	discussion	
R2-1708922	Text Proposal for LCP in NR	Huawei, HiSilicon	discussion	NR_newRAT-Core
R2-1708924	Token Bucket accumulation for LCP Core	Huawei, HiSilicon	discussion	NR_newRAT-
R2-1709034	Analysis of Skipping Segmentation Core	Samsung	discussion	Rel-15 NR_newRAT-
R2-1709124	Order of transport blocks	Qualcomm Incorporated	discussion	Rel-15 NR_newRAT-Core
R2-1709127	Modelling of Abstraction-based Approach with Profile/Index for LCP discussion			Samsung Electronics
R2-1709145	Multiple uplink grants handling for LCP 38.321 NR_newRAT-Core	LG Electronics Inc.	discussion	Rel-15

R2-1709147	Step 1 in LCP	LG Electronics Inc.	discussion	NR_newRAT-Core
R2-1709227	Determining Value of X for LCP	BEIJING SAMSUNG TELECOM R&D	discussion	
R2-1709233	MAC CE Processing for Multiple Grant Reception	BEIJING SAMSUNG TELECOM R&D	discussion	
R2-1709286	LCP: handling multiple numerologies in NR using the 3-step procedure of LTE without modifications	Samsung R&D Institute UK	discussion	
R2-1709287	LCP procedure support of URLLC traffic based on multiple UL grants	III	discussion	
R2-1709565	Configuration for multiple numerologies	SHARP Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1709600	The Impact of Processing Order of UL Grants on LCP	Samsung Electronics	discussion	
R2-1708264	Consideration on simultaneous multi-TB transmission	Huawei, HiSilicon	discussion	
	Rel-15 NR_newRAT-Core			
	=> Moved from 10.3.1.3			

10.3.1.8 SPS/Grant-free

Focus of discussions should be on details of UL SPS, with LTE functionality

RAN2 specific aspects of "grant-free" that may need to be discussed separately from SPS if sufficient progress in RAN1 has been achieved

- R2-1707931 Further consideration on SPS CATT discussion Rel-15 NR_newRAT-Core
- Proposal 1: Support multiple SPS transmission on PCell and PSCell.*
- Huawei asks if this means that SPS means grant-free type 2 transmission
- Proposal 2: Support SPS configuration and transmission on SCell.*
- Nokia doesn't see a motivation to have SPS on SCell, on PCell it is enough. Samsung thinks that it can be useful because we may have different numerology configured on different cells.
 - Nokia explains that it was not supported in LTE because PUCCH was on PCells.
 - LG thinks that the UE can use just the SCell SPS.
 - Huawei would like to understand what services are supported for SPS.
 - QC thinks we should consider it in a later release
 - Intel thinks that for the numerology restriction the network can just configure that cell as PCell
 - Ericsson doesn't see a complexity associated to SPS and SCell
 - Fujitsu thinks that for duplication we should have SPS on both cells. LG thinks that this SPS can be supported for other services other than voice
 - Huawei thinks that there may some complication with the activation/deactivation mechanism. Ericsson thinks that it should work as defined with normal cases and we can just have the normal L1 activation. CATT thinks we should minimize impact. IDC thinks that one complication is how to acknowledge the activation/deactivation. OPPO thinks that we have a mechanism already in LTE V2X, so it's not too complicated.
- => Noted

Agreements

1. UL/DL SPS configuration can be configured and activated simultaneously on both PCell and PSCell
2. SPS can be configured for a SCell. FFS if it is restricted to a single configuration or can be allowed on multiple SCells.

- R2-1708352 General HARQ aspects of SPS UL Ericsson discussion Rel-15 NR_newRAT-Core
- Proposal 1 As in LTE SPS UL, retransmission for SPS UL transmission based on an UL grant is supported.. The UL-grant format in LTE is used as the baseline.*
- Nokia thinks it is up to RAN1. UL-grant should be dependent on NR grant anyways.
 - Vivo asks why we aren't discussing DL. Ericsson thinks the complexity is mainly in the UL but we can discuss the DL when we have papers.
 - Huawei thinks we should wait for RAN1
 - Samsung ask if there is a possibility that retransmission cannot be based on grant.
- Proposal 2 As in LTE SPS UL, multiple HARQ processes for SPS UL are supported in NR.*

Proposal 3 In SPS UL, a time T after an UL transmission on a HARQ process is configured to wait for a retransmission UL grant for the same HARQ process.

- Vivo asks if there is a link with the drx retransmission timers
- Samsung also considers using some drx timers. Ericsson sees some form of commonality but we need to think especially if the values would be different.
- Lenovo asks why we need a timer since we have the grant to override the HARQ process. Ericsson explains that in the next SPS occasion there will be no explicit indication.
- LG thinks we need to study this further as there is a problem to address.
- QC prefers to have the same timers as HARQ RTT and retransmission timers.

Proposal 4 If no retransmission UL grant is received within the time T, then UE considers the transmission successful and the HARQ process can be overwritten by new data.

Proposal 5 In SPS UL, HARQ PID is derived from UL SPS occasions, frequency resources and DMRS resources. In addition, the repetition is supported.

- Nokia asks why we are basing it frequency resources and DMRS resources and not on time. Ericsson explains that it is because we don't know what "time" is, we should at least link UL SPS occasion.
- LG asks if it is possible to tie a HARQ ID with a slot in the configuration. Ericsson thinks that there would be a problem if the occasions are too close
- IDC says that there is another way to solve this by carrying PID on UCI.
- Samsung thinks that we need to be aligned as much as possible to the grant free.
- Oppo thinks that the repetition will introduce new problems that we need to address.

=> Noted

Problems to think about:

- HARQ identification for UL SPS with repetition and without repetition
- Do we always transmit new data on SPS occasions or not?

Agreements:

1. As in LTE SPS UL, retransmission for SPS UL transmission are based only on UL dynamic grant

R2-1708351 SPS enhancements in NREricsson discussion Rel-15 NR_newRAT-Core
=> Not treated

R2-1708141 Further consideration on the SPS/Grant free ZTE Corporation discussion Rel-15 NR_newRAT-Core
Proposal 4: The periodicity of grant-free resources is UE specific and is configured individually for a UE.
Proposal 5: The start point of grant-free resources is UE specific, and UE can be activated to use grant-free resources individually.
- Samsung asks if this is RRC or L1 activation. ZTE says RRC config
=> Noted

Can we configure the resources via broadcast signalling

Agreement

=> For UEs in RRC_Connected mode, resources for "Type 1" resources are configured by dedicated RRC signalling

Problems:

1. When the UE starts using the resources – upon configuration, or a start time in RRC
- Nokia considers that the UE can start right away and ambiguity period can be handled by Gnb
2. What is required for this functionality
3. Naming of the UL transmission schemes
- Ericsson thinks that we should re-think how we called it, and maybe "configured" grant is a more suitable word.

- Huawei thinks that we should also re-think the naming of SPS, for example to grant-free. Ericsson thinks that from a MAC point of view the existing terminology "configured" grant would fit all schemes. LG points out that there is a grant so it cannot be grant free.
- ZTE thinks that we have used SPS for many years in the MAC so we shouldn't drop it.
- Samsung points out that we also have DL SPS and we will keep the name so we can keep the UL as well. Huawei explains that RAN1 is not working on DL SPS
- Mediatek says that semi-persistent already refers to an RRC configured grant.
- IDC maybe thinks that RAN1 doesn't think that there are so much impact so they haven't spend much time.

Not treated

R2-1708856	Consideration on SPS resource control for NR 15 NR_newRAT-Core	LG Electronics Inc.	discussion	Rel-
R2-1709264	Discussion on type 1 grant-free for connected mode UE Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion	
R2-1709154	Collision control in use of grant free transmission NR_newRAT-Core	LG Electronics Inc.	discussion	
R2-1709125	On reliable transmission of URLLC data NR_newRAT-Core	Qualcomm Incorporated	discussion	Rel-15
R2-1708767	Unified SPS and Grant-free operation 15 NR_newRAT	Nokia, Nokia Shanghai Bell	discussion	Rel-
R2-1709262	Further discussion on the modelling of grant-free 15 NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-
R2-1709228	Grant-free transmissions	TCL Communication Ltd.	discussion	
R2-1708353	Enhanced HARQ feedback mode in SPS Core	Ericsson	discussion	Rel-15 NR_newRAT-
R2-1707742	Support SPS on Scell	OPPO	discussion	
R2-1707930	Grant-free transmission	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1708010	Considerations of SPS support on SCell and number of SPS configurations per cell group Samsung R&D Institute UK	discussion		
R2-1708350	Grant Free and Semi-Persistent Scheduling in NR NR_newRAT-Core	Ericsson	discussion	Rel-15
R2-1708486	UL grant-free resource configuration	vivo	discussion	
R2-1708487	HARQ process for UL grant-free transmission	vivo	discussion	
R2-1708488	Collision between grant-based and grant-free resources on the same UL carrier discussion			vivo
R2-1708732	SPS and grant free operation	InterDigital	discussion	Rel-15 NR_newRAT-Core
R2-1708956	Considerations on SPS and TTI-bundling in EN-DC. Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion	
R2-1709150	SPS on SCell	LG Electronics Inc.	discussion	NR_newRAT-Core
R2-1709235	Retransmission Aspects for Uplink SPS	BEIJING SAMSUNG TELECOM R&D	discussion	
R2-1709263	Discussion on SPS and grant-free on Scell NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1709608	Potential Issues for UL Transmission with Shared UL Grant among Multiple UEs Electronics	discussion		Samsung

10.3.1.9 HARQ

R2-1708194	HARQ operation	Ericsson	discussion	Rel-15 NR_newRAT-Core
	- Samsung sees similarity to their TP except that they are still using NR Unit			
	- IDC asks the pre-emption has any impact to the soft combining in the MAC. Ericsson thinks it should be handled in the PHY			
	- Nokia asks why multiple HARQ process(es). Ericsson is because of MIMO			

=> noted

R2-1709007 Baseline TP for DL HARQ procedures in the MAC specification Samsung discussion
Rel-15 NR_newRAT-Core

R2-1709009 Baseline TP for UL HARQ procedures in the MAC specification Samsung discussion
Rel-15 NR_newRAT-Core

- Npki thinks we should check the details of UL

=> The proposals will be merged with the next revision that captures all agreements

=> Noted

R2-1708195 HARQ configurations in NR Ericsson discussion Rel-15 NR_newRAT-Core

- Nokia is not clear which values will be provided in DCI and which RRC

=> Noted

R2-1709270 Discussion on HARQ configuration in NR Huawei, HiSilicon discussion Rel-15
NR_newRAT-Core

R2-1709144 Asynchronous HARQ impact on the Msg3 LG Electronics Inc. discussion Rel-15
38.321 NR_newRAT-Core

=> Noted

R2-1709229 HARQ Procedure for URLLC-eMBB Multiplexing BEIJING SAMSUNG TELECOM R&D

=> Noted

10.3.1.10 DRX

Contributions on need for multiple DRX configuration/parameters should have a justification/motivation and stage 3 TP. Converged solutions are encouraged.

Details of DRX timers and how to handle them

R2-1708140 Consideration on the DRX ZTE Corporation discussion Rel-15 NR_newRAT-Core

Proposal 1: The long and short DRX cycle, onDurationTimer and drx-InactivityTimer are configured with numerology independent time unit, e.g. slot number of reference numerology.

- Samsung for long and short prefer to use subframe

- onDuration and drx-Inactivity is more related to monitoring PDCCH or number of monitoring occasion is a better

=> Noted

OnDuration and drx-Inactivity

- Nokia, Huawei, lenovo and CATT thinks ms is sufficient. Intel thinks that the units should be in time slot of reference numerology .

- QC thinks ms is too coarse

- Lenovo asks what happens when the UE is configured with multiple numerology. Which monitoring occasions does it follow. LG thinks we would need some reference.

- IDC thinks that this is related to DL monitoring and should be in PDCCH monitoring occasion.

- Ericsson thinks ms is sufficient and we would end up with problems in case of overlapping coreset.

- Convida ask what happens if the numerology changes. Intel doesn't see a problem because it is a reference numerology. There is power consumption impact if the UE stays active for the whole onDuration. IDC thinks that if it is common it cannot be tailored per service

- APT asks when the inactivity timer, when the DCI is received. Lenovo says that as long as the UE and gNB are aligned. APT asks, what about when multiple DCI are received.

Proposal 2: DL and UL retransmission timer are configured as PDCCH monitoring occasion numbers.

- Ericsson thinks it would be fine if there was not overlapping occasions so we may need to wait.

- Convida asks if this future proof and if we have more numerology.

The RTT timer is configurable

- Ericsson and LG wants to remove the timers.
- Vivo thinks it needs to be there and configurable. QC further things that HARQ RTT enables UEs to do some power saving. Samsung and intel agree
- Nokia and CATT explain that the HARQ RTT timer is dynamic and signalled via DCI. Ericsson thinks the value zero should be allowed.
- Ericsson thinks that the K values signalled in DCI are not exactly the same as HARQ RTTI. R2-1707630 is RAN1 LS with agreements.

Agreements:

1. The unit of Onduration and drx-inactivity is numerology independent and based on ms. The minimum value can be less than 1ms. The values are FFS.
2. The long and short DRX cycles should be in ms.
3. FFS if HARQ RTT can or should be derived from dynamically signalled K parameters over DCI or if HARQ RTT is configured by RRC
4. HARQ RTT and DL/UL retransmission timers are dependent on numerology of corresponding scheduled transmission (FFS whether it is PDCCH/PUSCH/PDSCH). The actual unit is FFS (e.g. PDCCH monitoring occasions, number of slots/PDCCH slots, ms (last resort), etc.)
5. As in LTE, include functionality related to the MAC CEs DRX Command and Long DRX Command

R2-1708188 HARQ RTT timers and other open issues in DRX Ericsson discussion Rel-15
NR_newRAT-Core

R2-1709321 DRX Command MAC Control Element ASUSTEK COMPUTER (SHANGHAI) discussion
NR_newRAT-Core

Proposal 1: As LTE, DRX Command MAC CE is supported in NR.

Proposal 2: UE will enter DRX and use the Short DRX Cycle upon reception of DRX Command MAC CE.

Proposal 3: If DRX Command MAC CE is received, DRX timers used to keep UE active are stopped. (e.g. Inactivity timer, onDuration timer, DL/UL Retx Timer)

- LG thinks that we need to stop UL but DL doesn't need to be stopped because it is not on
 - Huawei thinks that the timer is HARQ specific so it can be on
- => Noted

R2-1708731 Impact of Bandwidth Part Activation/Deactivation on DRX InterDigital discussion Rel-15
NR_newRAT-Core

Proposal: The network can configure the UE to activate/deactivate bandwidth part using DRX timers (e.g. inactivity timer).

- LG asks if the BW part is visible from MAC point of view. IDC know what the UE is configured with. Samsung thinks as well, because it is related to coreset and coreset is linked to the PDCCH, so it is similar to PDCCH monitoring.
 - Vivo thinks that the BW can be like a SCell. IDC thinks that carrier and BW are different things.
 - Samsung supports switching the BW and can be related to an inactivity timer.
 - Nokia would like to understand what the benefits are from power points of view. One disadvantage is that the scheduler is restricted to schedule in minimum bandwidth and not sure how long it takes to switch. IDC explains that main motivation in RAN1 was power saving and was studied there.
 - Ericsson is not sure about how this BW works and is concerned in terms of time
 - Intel asks what was agreed in RAN1. IDC says that RAN1 is discussing different mechanism and a timer is a potential mechanism and it would be nice that it is linked with DRX
- => Noted

R2-1709652 Wake-up signaling for C-DRX mode Qualcomm Incorporated, Apple, OPPO discussion
Rel-15 NR_newRAT-Core'

Proposal 1: NR supports both wake-up and go-to-sleep signalling in C-DRX mode by the method of advanced grant indication, which is special DCI that tells UE whether a grant should be expected in the upcoming DRX on duration.

- Mediatek thinks we have quite a few mechanisms already for power saving and we shouldn't focus on discussing this for NR. Samsung agrees and anyways this has RAN1 aspects
=> Noted

Not treated

R2-1709116	Wakeup signaling for multi-beam systems	Qualcomm Incorporated	discussion	Rel-15
	NR_newRAT-Core			
R2-1708189	DRX with short on-duration and Wake-up signaling	Ericsson	discussion	Rel-15
	NR_newRAT-Core			
R2-1708897	Time unit and value range of C-DRX parameters	Samsung	discussion	NR_newRAT-Core
R2-1708755	DRX related timers in NR	LG Electronics Mobile Research	discussion	NR_newRAT-Core
R2-1707726	HARQ RTT timer	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1707727	Configuration for DRX parameters	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1707783	DRX timer unit	OPPO	discussion	
R2-1707918	Discussion on DRX Timers	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1708087	Power saving for wideband carrier in NR	Samsung	discussion	Rel-15
R2-1708492	Working assumption for Inactivity timer in UL SPS	vivo	discussion	
R2-1708756	Consideration for wake-up signaling	LG Electronics Mobile Research	discussion	
	NR_newRAT-Core			
R2-1708768	DRX for NR	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT
R2-1708791	C-DRX enhancement in NR	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708909	DRX Command MAC CE for NR C-DRX	Samsung	discussion	NR_newRAT-Core
R2-1709012	DRX timer for SPS	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1709069	Enhancements on DRX configuration/parameters for NR	Potevio	discussion	
R2-1709115	Wakeup signaling for C-DRX mode	Qualcomm Incorporated, OPPO	discussion	Rel-15 NR_newRAT-Core
	NR_newRAT-Core			
	=> Withdrawn			
R2-1709117	UE power saving during active state	Qualcomm Incorporated	discussion	Rel-15
	NR_newRAT-Core			
R2-1709326	Numerology for PDCCH Monitoring during DRX Active Time (SHANGHAI)	ASUSTEK COMPUTER	discussion	NR_newRAT-Core
R2-1709471	DRX Text proposal to TS 38.321	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1709649	Wake-up signaling for C-DRX mode	Qualcomm Wireless GmbH	discussion	Rel-15
	=> Withdrawn			

10.3.1.11 Impact of PDCP duplication on MAC

MAC CE for activation/deactivation of PDCU duplication

Aspects related to fallback to split bearer and handling of RLC/PDCP entities during activation/deactivation should be submitted in AI 10.3.3.5

R2-1707921	Duplication activation/deactivation MAC CE	CATT	discussion	Rel-15 NR_newRAT-Core
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Proposal 1: A duplicated DRB is RRC-configured with a primary leg which is always active irrespective of any received activation/deactivation MAC CEs.

- Huawei and OPPO thinks that the link selection can be included in the MAC CE dynamically

- LG supports the CATT approach.
- Nokia thinks we already agreed last meeting
- Ericsson thinks dynamic switching should be supported
- Vivo thinks this is applicable to CA and we still need to discuss the FFS from last meeting on DC.
- Nokia thinks at least for CA we can agree to this. We agreed to not trigger RLF and if we dynamically change then we have to notify RRC as well.
- Ericsson thinks that for CA case it would be good to select the RLC entity that is not stuck. QC doesn't see an issue, RLC will have all carriers available to transmit.
- Samsung doesn't think that we need to specify any leg for CA. The leg on Pcell will be the leg that you keep.
- CATT thinks that we should just have one design and keep it simple

DC case

- Oppo thinks that if the UE is configured with split bearer and not threshold then the UE is stuck transmitting in the configured leg that may be stuck. NTT Docomo thinks that the network can take care by configuring the right prioritized path.
- ZTE is concerned that SRB doesn't support split bearer.

Proposal 4: The mapping between DRBs and the bitmap is configured by the RRC signaling of duplication configuration explicitly.

- Oppo thinks we may need to think about it and ensure that there is no ambiguity for DC.
- NTT docomo thinks that it is more future proof to add explicit signalling, when we have more scenarios.

Proposal 5: 1 byte bitmap could be used as duplication activation/deactivation MAC CE.

- LG asks how to map DRB ID with 8 bit. Oppo says it can be in order of configured duplicable DRBs. CATT doesn't see the need for more than 8.
-

Proposal 6: RAN2 adopts the duplication activation/deactivation MAC subheader and MAC CE as depicted in Figure 5 and Figure 6.

Agreements

1. For DC, when DRB duplication is deactivated via MAC CE, the UE falls back to the split bearer operation. Once de-activated we rely on split bearer operation and configuration.
2. 1 byte bitmap could be used as duplication activation/deactivation MAC CE
3. The mapping between DRB and the MAC bitmap is based on order of DRB ID(s) of the duplicate configured DRB(s)

=> Noted

R2-1707714	Link selection upon duplication deactivation 15 NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-
	=> Noted			
R2-1708769	MAC details on Duplication activation deactivation Rel-15 NR_newRAT	Nokia, Nokia Shanghai Bell	discussion	
R2-1707713	BSR procedure for data duplication NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1707712	Design of MAC CE for duplicate activation/deactivation Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion	
R2-1707715	Enhancements for DL Packet Duplication NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1707741	Details of the duplication control MAC CE	OPPO	discussion	
R2-1708100	MAC impact of duplication discard	MediaTek Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1708102	MAC CE design for duplication	MediaTek Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1708331	MAC CE duplication activation bitmap details NR_newRAT-Core	Ericsson	discussion	Rel-15

R2-1708502	PDCP duplication impacts on LCP vivo	discussion		
R2-1709029	MAC CE for Activation/Deactivation of PDCP Duplication	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1709096	Packet duplication with implicit SCell deactivation	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1709102	Cell deactivation impacts on PDCP duplication	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709118	Impact of PDCP duplication on BSR in the CA case	Qualcomm Incorporated	discussion	Rel-15 NR_newRAT-Core
R2-1709327	PDCP duplication and SCell (de-)activation	ASUSTEK COMPUTER (SHANGHAI)	discussion	NR_newRAT-Core
R2-1709629	MAC CE design for activation/deactivation of PDCP duplication	ITL	discussion	

10.3.1.12 PHR

PHR triggers, reporting, handling, for single and dual connectivity (i.e. without beamforming)

PHR in the presence of beamforming may be down prioritized and treated if RAN1 has made progress and if some input from RAN2 is needed.

Not treated

R2-1708199	Power headroom report in NR	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708200	PHR Text proposal	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1709267	Power management with multiple numerologies	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708645	PHR for NR CA	Motorola Mobility España SA	discussion	Rel-15 NR_newRAT-Core
R2-1708733	Power headroom reporting for NR	InterDigital	discussion	Rel-15 NR_newRAT-Core
R2-1708957	Consideration on PHR in EN-DC	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709013	PHR triggering events for NR	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1709014	Baseline PHR format for NR	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1709016	Draft LS on PHR details for NR	Samsung	LS out	Rel-15 NR_newRAT-Core
	RAN1, RAN4			
R2-1709063	PHR for multi-beam operation	LG Electronics Inc.	discussion	NR_newRAT-Core
R2-1709064	PHR for wider bandwidth operatio	LG Electronics Inc.	discussion	NR_newRAT-Core
R2-1709119	PHR for UL Split Bearer	Qualcomm Incorporated	discussion	Rel-15 NR_newRAT-Core
R2-1709265	PHR reporting in different TTI lengths	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709266	Consideration on PHR with multi-beam operation	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709268	Consideration on PHR triggering and cancellation in NR	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709269	Content of the PHR	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709571	Guaranteed power for Power Headroom in EN-DC	Samsung Electronics	discussion	
R2-1709572	NR PHR for EN-DC	Samsung Electronics	discussion	
R2-1709573	PHR triggering event for beam change	Samsung Electronics	discussion	
R2-1709574	Extended PHR considering beam and TRxP change	Samsung Electronics	discussion	

10.3.1.13 Other

Other aspects not included in the detailed agenda items.

Not treated

R2-1708185	Timing advance in NR	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708965	Scell activation and deactivation in EN-DC	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709018	Text proposal for a new clause for the handling of measurement gap				Samsung
	discussion	Rel-15	NR_newRAT-Core		
R2-1709026	Handling of unknown, unforeseen and erroneous protocol data			Samsung	discussion
	Rel-15	NR_newRAT-Core			
R2-1709146	Error handling in MAC	LG Electronics Inc.	discussion		NR_newRAT-Core
R2-1709152	Initial state of Scell	LG Electronics Inc.	discussion		NR_newRAT-Core
R2-1708045	Fallback mechanism for Bandwidth part operation	MediaTek Inc.	discussion		
R2-1708911	On the TTI and Subframe in NR	Samsung	discussion		NR_newRAT-Core
R2-1708912	[Draft] LS on the TTI definition	Samsung	discussion		NR_newRAT-Core
R2-1708955	TP on Overall L2 consideration for EN-DC	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708959	Waveform modification in NR	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709017	Time Unit for MAC operations	Samsung	discussion	Rel-15	NR_newRAT-Core
R2-1709171	RAN2 consideration on user plane latency enhancement	Samsung Electronics GmbH	discussion		
R2-1709271	CA activation and deactivation in NR	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709272	Draft LS on CA activation delay of Scell	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709273	Consideration TA maintenance with multi-beam operation	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709274	RAN2 aspect of multi-TRP transmission	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1709329	Discussion on Timing Advance in NR	ASUSTEK COMPUTER (SHANGHAI)	discussion		NR_newRAT-Core

10.3.2 RLC

10.3.2.1 TS

Latest TS 38.323, rapporteur inputs, etc

R2-1708268	Text proposal for RLC AM polling mechanism	MediaTek (Hefei) Inc.	discussion	Rel-15	NR_newRAT-Core
	=> Noted				
R2-1708347	RLC Specification State Variable Naming	Ericsson	discussion	Rel-15	NR_newRAT-Core
	- Mediatek explains that one of the principles was length of name				
	- Oppo thinks we can keep the existing spec				
	=> Noted				
R2-1708844	Clarification on maximum data field size of a RLC PDU	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
	- Oppo agrees but we shouldn't have an actual number				
	- NTT docomo thinks we should apply the same concept for TM				
	=> The maximum data field size of a RLC PDU is the maximum size of PDCP PDU				

=> Noted

R2-1708866 RLC TP for prioritization Fujitsu discussion Rel-15 NR_newRAT-Core

10.3.2.2 RLC header format

Final details of RLC STATUS REPORT format (e.g. E1-E2 definition). Stage 3 TP should be provided

SN length for RLC UM

R2-1707744 RLC data PDU format OPPO discussion

Proposal 1 Use 6 bit and 14 bit SN for NR RLC UM.

- Intel thinks 6 bits is sufficient
- Huawei supports 6 and 14
- LG thinks more than 6 should be supported and 12.
- Mediatek thinks that 12 bits is needed for eMBB and we should have 6 bits
- Huawei thinks that if we have 12 we would have 2 R bits.
- ZTE thinks we should align with RLC AM. Huawei doesn't see how that helps it a different format anyways.

=> Noted

R2-1708343 RLC UM header format Ericsson discussion Rel-15 NR_newRAT-Core

R2-1708772 RLC status report format Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT

R2-1708292 Remaining RLC PDU formats Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

=> Noted

R2-1708847 RLC STATUS PDU format for NR LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

=> Noted

R2-1707729 Further consideration on RLC status PDU format Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

=> Noted

Discussion

Confirm that byte alignment requirement in RLC status report applies to specific blocks within the RLC status report PDU separately.

- CATT doesn't see the need and we can have compact format like in LTE. Samsung agrees and it would force using some reserved bits.
- LG prefers to byte align.
- Mediatek points out that we don't have this in LTE and there is no strong need as we don't send them very often
- ZTE asks what the overhead could be. Nokia explains that the overhead wouldn't increase to much and it would help for UE processing.
- Ericsson thinks the overhead is quite insignificant.

Discussion on E1/E2 interpretation

- Oppo agrees with LGE that E1/E2/E3 can be combined
- Huawei agrees with E1 but has a different proposal E2
- Nokia asks if E1 is even needed given the byte alignment. Samsung explains that it is not really needed.
- Huawei thinks we don't necessarily always have SOend and SOstart together all the time. Mediatek sees this as an optimization as it works fine. Huawei is concerned with overhead and size of status PDU. Oppo thinks that in LTE we do the same and just set SOend and start to zero. Intel doesn't think this happens often and wonders if Huawei has analysed this.

NACK range

NACK range field size is 8 bits or 10 bits based on the configured SN of 12 bits or 18 bits, respectively

- Nokia asks why we don't use more bits for the 18bits SN case. Samsung agrees with Nokia. LG thinks that it is not needed as at high data rates
- Oppo thinks we should use 12 bits

Where to put the NACK range

-

Proposal 4: A set of fields describing a set of consecutive RLC SDU and RLC SDU segments should be placed following the principle below:

- The first bit of NACK_SN should be the first bit of an octet in RLC status PDU format.
- The first bit of SStart/SOend should be the first bit of an octet in RLC status PDU format.
- The first bit of NACK range should be the first bit of an octet in RLC status PDU format.
- The E1, E2 and E3 field is placed right after NACK_SN field.
- The NACK range field are placed right after SOend field When NACK range and SStart/SOend are both present for a NACK.

Agreements

1. SN RLC UM size of 6 bits and 12 bits
2. Confirm that byte alignment requirement in RLC status report applies to specific blocks within the RLC status report PDU separately
3. The interpretation of E1/E2/E3 is not changed.
4. The NACK range is placed after SStart/SOend
5. NACK range field size is 8 bits

Not treated

R2-1707730	RLC SN length for UM	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1707743	Remain issues of RLC STATUS PDU	OPPO	discussion		
R2-1707932	NR RLC status PDU format	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1708292	Remaining RLC PDU formats	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core
R2-1708770	SN lengths for RLC UM	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT
R2-1708771	Fixed and extension part in RLC PDUs	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT
R2-1708825	RLC UM SN size	Intel Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1708845	Remaining RLC field size for NR	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1708846	RLC data PDU format for NR	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1709035	NACK SN Range and Detail in RLC Status Report	Samsung	discussion	Rel-15	NR_newRAT-Core
R2-1707933	NR RLC UM SN Length	CATT	discussion	Rel-15	NR_newRAT-Core
=> moved from 10.3.2.3					

10.3.2.3 RLC UM operation

How to perform re-assembly (move receive window only or use timer). Stage 3 TP should be provided with each option.

R2-1708773	RLC UM window based vs. timer based operation	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT
=> Noted					
R2-1708261	Analysis of RLC UM operation for NR	MediaTek Inc.	discussion	Rel-15	NR_newRAT-Core
=> Noted					

R2-1707731 RLC UM operation in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
=> Noted

Discussions

- ZTE asks what the problem is with storing a packet in the buffer for too long. Mediateks says because of SN ambiguity. Nokia explains that the SN will be incremented by 1 so it wouldn't happen.
- CATT thinks that the only benefit is to prevent a wrap around, but still we will be storing useless PDU for a long time and we shouldn't waste buffer. Intel doesn't think buffer is an issue, with HARQ this shouldn't happen only 1% of time.
- Samsung prefers to use only window.
- Huawei LG think it is simplest to just have a timer. Ericsson prefers to have a single timer and there is no benefit for more than one.
- Qualcomm and NTT Docomo would like to keep option 2
- Nokia thinks that 3 and 4 would have impact to the scheduler so we should focus on 1 and 2. Huawei, the same issue exists for PDCP and is handled.
- LG would like to avoid maintaining variables.

Agreements:

1. Window mechanism with a single timer is adopted. Baseline is gap based timer
2. T-reassembly timer terminology will be used

☒ [99#35][NR UP] Reassembly for RLC UM - Qualcomm

- Agreeable text proposal
- Before next meeting

Not treated

R2-1707745	RLC UM operation	OPPO	discussion		
R2-1707934	NR RLC UM receive operation	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1708338	Further details on RLC UM operation	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708339	RLC STATUS report format	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708826	RLC UM segment discard operation in NR	Intel Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1708848	Multiple reassembly timers for RLC UM	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1708952	RLC UM operation	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core
R2-1709586	Text proposal for RLC UM transmit/receive operation	Samsung	discussion	Rel-15	NR_newRAT-Core
R2-1709597	Window vs timer for RLC UM	Samsung	discussion	Rel-15	NR_newRAT-Core

10.3.2.4 Impact of PDCP duplication to RLC

Whether RLF is triggered/reported when reaching the maximum number of retransmission for a PDCP duplicate leg and whether a re-establishment is triggered when a RLF on duplicate leg is reported.

R2-1708147 Consideration on the RLC Discard of Duplicated PDCP PDUs ZTE Corporation
discussion Rel-15 NR_newRAT-Core

- Mediatek asks if this means that the PDCP just duplicates and no optimizations are needed
- QC understands that in main session they discussed that duplication for CA is down-prioritized for RLC AM

=> Noted

- R2-1708259 Impacts of PDCP Duplication to RLF Triggering When Reaching Maximum Number of RLC Retransmission SHARP Corporation discussion
RLF is not triggered when reaching the maximum number of retransmission for the duplicate RLC entity associated to SCell or Cell Group that PCell is not included
 => Noted
- R2-1708849 Reaching maximum number of RLC retransmission with PDCP duplication LG Electronics Inc. discussion Rel-15 NR_newRAT-Core
Even if the PDCP duplication is configured, when reaching the maximum number of RLC retransmission in an RLC entity, the UE triggers normal RLF or SCG-RLF depending on whether the RLC entity is the MCG-RLC entity or the SCG-RLF entity
 => Noted
- Discussion
 Whether RLF is triggered when maximum RLC tx reach on a logical channel restricted to a SCell on MCG
- Oppo doesn't think we should trigger RLF
 - CATT thinks that the RLF should be triggered when the logical channel has a restriction on PCell
 - Ericsson thinks that we don't need to do any changes, the max RLC retransmissions can be configured up to 32 and the network can avoid triggering of RLF by setting the high number
 - Nokia prefers to align with behaviour of CA and not trigger RLF
 - Huawei thinks that the issue is whether the UE needs to perform re-establishment. We can report it like SCG-RLF and not trigger re-establishment
 - Vivo thinks this is a rare case.

Agreements:

- RLC reports maxNumberOfRLC retransmissions are reached to RRC.
- For a logical channel restricted to one or multiple SCell(s) (i.e. logical channel configured for duplication) UE reports the failure to the gNB (e.g. SCell-RLF) but no RRC re-establishment happens

Not treated

- R2-1707716 RLF trigger for duplication transmission Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
- R2-1707746 RLF on the duplication legOPPO discussion
- R2-1707771 Impact of duplication on RLC OPPO discussion
- R2-1707922 Impact of PDCP duplication on RLC CATT discussion Rel-15 NR_newRAT-Core
 => Withdrawn
- R2-1707923 RLC failure and RLF in CA CATT discussion Rel-15 NR_newRAT-Core
- R2-1707989 Duplication impacts to RLC Nokia, Mediatek, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core
- R2-1708099 RLC impact of duplication discard MediaTek Inc. discussion Rel-15 NR_newRAT-Core
- R2-1708259 Impacts of PDCP Duplication to RLF Triggering When Reaching Maximum Number of RLC Retransmission SHARP Corporation discussion
- R2-1708340 TP RLC operation for PDCP duplication Ericsson discussion Rel-15 NR_newRAT-Core
 => Withdrawn
- R2-1708346 Maximum Number of RLC Retransmissions in PDCP Duplication Ericsson discussion Rel-15 NR_newRAT-Core
- R2-1708867 RLC TP for duplication Fujitsu discussion Rel-15 NR_newRAT-Core
- R2-1709027 Interaction between RLC Entities for PDCP Duplication Samsung discussion Rel-15 NR_newRAT-Core
- R2-1709230 RLC failure handling in CA packet duplication KT Corp. discussion

R2-1709498 RLC optimization for packet duplication Huawei, HiSilicon discussion Rel-15
NR_newRAT-Core

10.3.2.5 Other

Including discussion on whether maximum ARQ retransmission is only criteria for RLC failure

R2-1708775 Pre-processing in RLC Nokia, Nokia Shanghai Bell, Ericsson discussion Rel-15
NR_newRAT

Proposal 1: RLC PDUs are formed only when a transmission opportunity has been notified by lower layer, i.e. TX_next (if incremented) is only updated when the PDU is delivered to lower layer.

- LG thinks that pre-processing has no more meaning. Nokia thinks that the UE can do the pre-processing up to UE implementation. Huawei agrees with Nokia and Ericsson.
 - Intel thinks that this is limiting implementation options. Lenovo agrees and it was clear that we can do RLC PDU creation in advance. Samsung.
 - Mediatek thinks that there is nothing broken
 - Nokia explain that one concern is with the SN used by the UE.
 - Samsung after attending the world class specification writing explains that the UE shall do what the specs says, so the spec should allow the room for pre-processing
- => RAN2 can clarify UE requirement on PDCP discard and SN utilization
=> Noted

R2-1707732 RLC status reporting issue Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

Proposal 1: Set two timers (one timer is longer considering the segment issue and one is shorter consider only HARQ RTT), if the SN(RX_Next_Highest_Rcvd – 1) is a segmented SDU, start the timer with larger value; otherwise start the timer with smaller value.

- LG explains that observation 1 is not right and everything is great. The UE reports up to x-1.
 - ZTE asks how often this happens
 - Vivo considers that this can be solved by eNB implementation.
 - Samsung thinks that there are different solutions
- => Noted

R2-1707733 Configuration of RLC timers Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

=> Noted

R2-1708345 UP timers in RLC Ericsson discussion Rel-15 NR_newRAT-Core

=> Noted

Discussion on additional values of timers

- Huawei thinks that new smaller values may be needed for some timers, e.g. t-reordering.

Agreements

1. Reuse the time unit of milliseconds and the current timing durations for the RLC timers *t-PollRetransmit*, *t-Reordering*/*t-Reassembly* and *t-StatusProhibit* in NR
2. At least the values in LTE are supported. FFS what other values may be needed

Not treated

R2-1707935 NR RLC AM operation and status reporting CATT discussion Rel-15 NR_newRAT-Core

R2-1708774 SO-based segmentation implication to RLC status reporting Nokia, Nokia Shanghai Bell
discussion Rel-15 NR_newRAT

R2-1708179	ECN functionality in RLC and PDCP Core	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708341	RLC Polling TP	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708342	RLC Polling	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708344	RLC PDU creation	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1707728	Approaches to specify RLC PDU pre-construction	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
=> moved from 10.3.2.1					
R2-1708776	Clarification to the re-transmission operation	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT-Core
R2-1708850	RLC SDU discard procedure in NR	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1708949	Further details of RLC Polling Procedure	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core
R2-1709598	t-reordering in RLC AM	Samsung	discussion	Rel-15	NR_newRAT-Core
R2-1709661	Remaining issues for polling in NR RLC	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core

10.3.3 PDCP

10.3.3.1 TS

Latest TS 38.323, rapporteur inputs, etc

R2-1708868	PDCP TP for BSR	Fujitsu	discussion	Rel-15	NR_newRAT-Core
=> Not treated					
R2-1709097	NR PDCP specification	LG Electronics Inc.	draft TS	Rel-15 38.323 0.2.1	NR_newRAT-Core
=> The draft TS is endorsed					

10.3.3.2 PDCP PDU formats

Remaining issues related to PDCP Data and Control PDU format

R2-1708326	MAC-I for DRBs	Ericsson	discussion	Rel-15	NR_newRAT-Core
Proposal 1 MAC-I field is not present for a DRB for which integrity protection is not configured.					
- Vivo thinks that the MAC-I doesn't have to always be provided and have a proposal on how to indicate on the PDCP header that the MAC-I is not present.					
- LG thinks that this is a radio bearer configuration. Vivo is concerned about the case of re-configuration. Nokia explains that the integrity protection would be configured when we add a bearer .					
=> MAC-I field is not present for a DRB for which integrity protection is not configured					
=> Noted					

R2-1708411	DRB IP configuration and PDCP PDU Format vivo				
=> Noted					

R2-1708960	Maximum length of PDCP data and control PDU	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
The maximum supported size of a PDCP SDU is 9000 bytes. The maximum supported size of a PDCP Control PDU is 9000 bytes					
- Samsung 9600 bytes					
- Ericsson asks why we can't just use 8188					

- QC asks about the SDAP header. LG thinks 9000bytes include it. Mediatek asks if encryption and integrity protection is done on SDAP. LG thinks it should be.
- => RAN 2 should send an LS letter to SA3, indicating that RAN2 is supporting 9kB jumbo frame and ask SA3 if there is a problem for their security algorithm to support the jumbo frame.
- => Unless SA3 raises some concerns, the maximum supported size of a PDCP SDU is 9000 bytes.

R2-1709792 [Draft] LS to SA3 on RAN2 agreements on jumbo frames Huawei

- => Change from 9kB - 9000 bytes
- => The LS is approved in R2-1709804

R2-1709056 PDCP control PDU length LG Electronics France discussion NR_newRAT-Core

- => In NR, PDCP status report length should be limited, same as maximum length of PDCP SDU length
- => Noted

R2-1708985 PDCP status report enhancement CMCC discussion Rel-15 NR_newRAT-Core

- => No support
- => Noted

R2-1709033 PDCP SN Size for UM Samsung discussion Rel-15 NR_newRAT-Core

- => Noted

10.3.3.3 PDCP receive operation

Contribution on how to handle out-of-order delivery. Stage 3 TP should be provided with proposals.

R2-1707711 TP on out-of-sequence delivery from PDCP OPPO, Nokia, Nokia Shanghai Bell, Sequans, Ericsson discussion Rel-15 NR_newRAT-Core

- LG asks why we added a note. Sequans explains it is about COUNT wrap around. LG doesn't think COUNT wrap around occurs. Sequans has seen it already in the draft specs.
- Ericsson thinks that that note is there to say that whatever falls out of the window after window moved up, the packets should be considered as received.
- Nokia and Oppo explains the behaviour of in-sequence delivery is not changed.
- Samsung it is important that we do not change the in-sequence delivery. We changed the state variable name.
- LG thinks that the only way to make sure that legacy behaviour is not impacted is to introduce a new variable
- Determine if there is impact to legacy procedure, whether we should introduce a new variable, and how to capture
- => Noted

R2-1709872 Support for out-of-order delivery in PDCP

- => we go for option 2
- ✉ **[99#36][NR UP] out-of-order delivery in PDCP – LG**
- agreeable TP to be presented in next meeting
- before next meeting

Not treated

R2-1709098 Support for out-of-order delivery in PDCP LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

R2-1708964 Update of RX_DELIV with disabled reordering Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1708293 Out-of-order delivery in PDCP receive operation Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

- R2-1708686 SDU delivery at PDCP re-establishment for UM bearers Nokia, Nokia Shanghai Bell
discussion Rel-15 NR_newRAT-Core
=> Upon PDCP re-establishment, for UM DRBs the receiving PDCP entity shall deliver to upper layers any stored SDUs previously received (like also done at PDCP-entity release).
- R2-1709218 Discussion on PDCP re-establishment for UM DRBs LG Electronics France discussion
NR_newRAT-Core
=> The changes in the TP are agreed
- R2-1709101 Discussion to avoid duplicate reordering in EN-DC Samsung Electronics Co., Ltd discussion
- R2-1709599 Outdated and duplicated PDU handling Samsung discussion Rel-15 NR_newRAT-Core
- R2-1707707 Left issues on out-of-order delivery by PDCP OPPO discussion Rel-15 NR_newRAT-Core
- R2-1708332 PDCP Out-of-order delivery and T-reordering Ericsson discussion Rel-15
NR_newRAT-Core
=> Withdrawn
- R2-1708441 Discussion to avoid duplicate reordering in EN-DC Samsung Electronics Co., Ltd discussion
=> Withdrawn
- R2-1708504 Issues on the PDCP packet reception vivo discussion
- QC thinks that the first proposal is useful for EN-DC
- Oppo thinks we should also consider:
Out-of-order delivery is configured only when the radio bearer is established. LG ask why.
OPPO has done the same change as LTE.
- Ericsson thinks that there are ROHC that can work with out-of-order delivery.
=> Noted

Agreements

1. ROHC context continue is applied for AM DRB
2. The header compression should not be configured when out-of-order delivery is allowed for PDCP SDU.
3. Out-of-order delivery is configured only when the radio bearer is established (added to the field description of RRC)

- R2-1708688 Discard of previously received PDCP PDU Nokia, Nokia Shanghai Bell discussion Rel-15
NR_newRAT-Core
UE does not discard a received Data PDU when it has previously received a PDU with same COUNT that was discarded.
- Samsung and LG don't think there is an a need for a change.
- Oppo thinks that it is safer to state this.
=> Noted
- R2-1709061 Discussion on the duplicate detection in PDCP LG Electronics France discussion
NR_newRAT-Core
=> Noted
- R2-1708749 Alternative PDCP Receive Operation TP with updated RX_DELIV Sequans Communications, OPPO, Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core
- Sequans thinks maybe we can think of changing the name.
=> RX_DELIV definition should be updated such as "new RX_DELIV = old RX_DELIV+1"
=> Noted

R2-1708827 PDCP receive operation in NR Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Noted

Not treated

R2-1709101 Discussion to avoid duplicate reordering in EN-DC Samsung Electronics Co., Ltd discussion

R2-1709599 Outdated and duplicated PDU handling Samsung discussion Rel-15 NR_newRAT-Core

10.3.3.4 UL data split

Impact of UL data split to specification. Stage 3 TP should be provided

R2-1708148 Consideration on Path Switching in NR ZTE Corporation discussion Rel-15
NR_newRAT-Core
=> Noted

R2-1709660 UE autonomous UL direction change NTT DOCOMO, INC. discussion Rel-15
NR_newRAT-Core

=> Noted

On autonomous and dynamic UL change

- LG doesn't support anything
- Huawei supports using dynamic MAC CE to change similar to the duplication case.
- Vivo thinks that with autonomous UL change we can increase performance.
- NTT Docomo explains that in the case of beam forming and blockage we cannot use MAC CE
- Samsung and CATT thinks it's nice to have but we have limited time to work on this.
- Oppo also supports the dynamic change with MAC CE
- IDC supports NTT Docomo especially when there is high probability of blocking on a link
- Mediatek has some sympathy but the first priority is to have a method of switching using RRC configuration.

R2-1708946 PDCP UL switching Qualcomm Incorporated, Broadcom, MediaTek Inc. discussion
Rel-15 NR_newRAT-Core

- Nokia thinks that the Rel-13 behaviour is sufficient. We can use a value set to infinity and the UE will always chose the signalled path.
 - Lenovo ask what happens when you switch and what do you do with the data. Qualcomm considers the transmission on the other leg. Lenovo asks what about buffer status reporting. LG explains that in Rel-13 we just change the path and we keep the RLC going.
- => A UE with split bearer can be configured to transmit on a single path via RRC signalling.
=> Noted

R2-1707936 PDCP routing for split bearer CATT discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1708334 PDCP pre-processing and data delivery to lower layers Ericsson discussion Rel-15
NR_newRAT-Core
=> Noted

R2-1708777 NR UL data split operation Sequans Communications discussion Rel-15
NR_newRAT-Core
=> Noted

R2-1709099 PDCP PDU submission to lower layers LG Electronics Inc. discussion Rel-15
NR_newRAT-Core
=> Noted

R2-1708953 pre-processing for UL split Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

=> Noted

Discussion on allowing the PDCP to provide data to lower layers before request from lower layer

- Qualcomm thinks that we should remove the threshold from the data submitting part and keep it only from BSR
- Lenovo thinks that we have already decided
- Lenovo thinks that there are ways to restrict bad behaviour, one is buffer limit and one is adding a note.
- Oppo ask how we would calculate data volume
- Nokia explains that we can still pre-process without moving the data, just pre-process headers. Intel thinks that this is up to UE implementation.
- Ericsson doesn't think the note can prevent bad behaviour as it is informative. LG has seen it before.
- Nokia is concerned with split bearer case.
- Huawei and Oppo agree with Nokia
- Mediatek thinks that the amount of data pre-processed should be relatively small and we don't need to change data volume calculation
- Ericsson thinks that we should at least limit the amount of data.
- Nokia has a similar concern to the RLC with the SN. This is related to a PDCP SN that you allocated and gave it to the RLC for submission but it was not transmitted.

=> The UE is allowed to pre-process data for split bearer before a request from lower layers is received and is allowed to submit to lower layers before a request is received. A restriction on bad UE behaviour or a requirement on proper behaviour will be added. FFS how to capture it (e.g. capture how avoid bad UE behaviours related to which PDCP SN are sent to the RLC and not transmitted at the end and whether and how to capture a pre-processing limit)

Not treated

R2-1708498	Discussion on the PDCP data volume	vivo	discussion		
R2-1708644	Threshold for NR UL split bearer	Motorola Mobility España SA	discussion	Rel-15	
	NR_newRAT-Core				
R2-1708687	PDCP trigger for uplink splitting	Nokia, Nokia Shanghai Bell	discussion	Rel-15	
	NR_newRAT-Core				
R2-1708689	Submission of PDCP PDUs to lower layers for UL split bearer		Nokia, Nokia Shanghai Bell,		
	Ericsson discussion	Rel-15	NR_newRAT-Core		
R2-1708778	Limited LL buffering for NR UL data split	Sequans Communications	discussion	Rel-15	
	NR_newRAT-Core				
R2-1708798	UL data split in NR	Intel Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1708962	PDCP PDU pre-construction for UL split	Huawei, HiSilicon	discussion	Rel-15	
	NR_newRAT-Core				
R2-1709448	TP for PDCP UL transmit operation	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1709656	Threshold for UL split	LG Electronics UK	discussion		NR_newRAT-Core

10.3.3.5 PDCP duplication

Whether fallback to split bearer is supported/allowed. How to handle PDCP/RLC/MAC entities during activation/deactivation of duplicate bearers.

Not treated

R2-1707717	UE behaviors upon deactivation of DC duplication	Huawei, HiSilicon	discussion	Rel-15	
	NR_newRAT-Core				
R2-1708951	PDCP duplication	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core

R2-1707718	RLC behaviors upon duplicate deactivation Rel-15 NR_newRAT-Core	Huawei, ASUSTek, HiSilicon	discussion	
R2-1707924	PDCCP Status Report for Duplication	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1707982	Initial State of PDCCP Duplication 15 NR_newRAT	Nokia, Mediatek, Nokia Shanghai Bell	discussion	Rel-15
R2-1707990	Duplication impacts to PDCCP NR_newRAT	Nokia, Nokia Shanghai Bell	discussion	Rel-15
R2-1708017	Aligned duplication support for DRBs and SRBs NR_newRAT-Core	Ericsson	discussion	Rel-15
R2-1708335	Dynamic reconfiguration of UL link direction NR_newRAT-Core	Ericsson	discussion	Rel-15
R2-1707708	PDCCP operation for UL packet duplication	OPPO	discussion	Rel-15 NR_newRAT-Core
R2-1707719	PDCCP operation for packet duplication 15 NR_newRAT-Core	Huawei, ASUSTek, HiSilicon	discussion	Rel-15
R2-1707720	PDCCP data volume calculation for packet duplication Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion	
R2-1707925	Duplication Bearer Type	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1708017	Aligned duplication support for DRBs and SRBs NR_newRAT-Core	Ericsson	discussion	Rel-15
R2-1708098	Data duplication in NR	MediaTek Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1708329	PDCCP and RLC behavior for PDCCP data duplication 15 NR_newRAT-Core	Ericsson	discussion	Rel-15
R2-1708336	PDCCP data volume reporting in duplication	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708337	PDCCP duplication control related to SCell control NR_newRAT-Core	Ericsson	discussion	Rel-15
R2-1708444	Discussion on PDCCP data volume calculation	Samsung Electronics Co., Ltd	discussion	
R2-1708508	Layer-2 behaviors of PDCCP duplication activation deactivation	vivo	discussion	
R2-1708573	Packet duplication during the handover	PANASONIC R&D Center Germany	discussion	
R2-1708624	PDCCP packet duplication	Motorola Mobility España SA	discussion	Rel-15 NR_newRAT-Core
R2-1709032	PDCCP Duplication Operations	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1709061	Discussion on the duplicate detection in PDCCP NR_newRAT-Core	LG Electronics France	discussion	
R2-1709100	Packet duplication in PDCCP	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1709241	Text Proposal on PDCCP Data volume indication to MAC discussion	Samsung Electronics Co., Ltd		

10.3.3.6 Other

Not treated

R2-1707709	PDCCP version reconfiguration	OPPO	discussion	Rel-15 NR_newRAT-Core
R2-1708327	PDCCP SN reconfiguration at handover	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708328	PDCCP feedback and flow control	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708330	UP timers in PDCCP	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708505	UL path change conditions for split bearer	vivo	discussion	
R2-1708947	Moving Reordering Window at NR PDCCP discussion	Qualcomm Incorporated, Fujitsu, Huawei, HiSilicon		Rel-15 NR_newRAT-Core

R2-1708948	Further details on moving reordering window 15 NR_newRAT-Core	Qualcomm Incorporated	discussion	Rel-
R2-1708961	Solutions for SN gap issue due to PDCP discard 15 NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-
R2-1708963	Support for UL-only RoHC in NR	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709030	PDCP SDU Size for NR	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1709031	ROHC Reset at PDCP re-establishment	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1709057	PDCP configuration for SRB	LG Electronics France	discussion	NR_newRAT-Core
R2-1709177	PDCP discard	Beijing Xiaomi Mobile Software	discussion	Rel-15
R2-1709352	Separate configurations for UL and DL PDCP SN lengths	HTC Corporation	discussion	
R2-1709375	Header compression in reflective QoS	HTC Corporation	discussion	

10.3.4 QoS layer

10.3.4.1 TS

Latest TS 37.324, rapporteur inputs, etc

Incoming LS

R2-1709848 Response LS on default DRB establishment for PDU session

- Sharp asks is the QFI for reflective QoS flow completely different for non-reflective
- => Noted

R2-1709569 Draft TS 37.324 v011 Rapporteur (Huawei) draft TS Rel-15 37.324 0.1.1 NR_newRAT-Core

- Samsung is concerned that in 4.2.2 it sounds like we have multiple SDAP entity per PDU session. Huawei explains that there are a SDAP entity per CG.
- Do we have one SDAP entity or two in case of DC
- LG thinks it is different SDAP entities.
- Nokia thinks that the SDAP should not care about CG.
- Huawei explains that for split bearer there is a single SDAP, but for 3A there is two, as agreed in main session
- Samsung thinks that two SDAP entities in the network side doesn't mean two on the UE side.
- Nokia thinks from the UE perspective it is important that there is only one otherwise it is difficult to handle the QFI and default bearers. The important is that the info is aligned.
- LG wonders how the QFI to DRB mapping is handle since DRBs are different in each cell group, so it should be separate SDAP entities.
- Vivo also thinks that there should be only one SDAP in UE
- => FFS if a single SDAP entity is present in the UE for DC case. An editor's note will be added in the next revision
- => The draft TS is endorsed

R2-1709072 Corrections on SDAP architecture and functionality NR_newRAT-Core LG Electronics discussion

- Huawei thinks first change not needed as it is captured that SDAP is per PDU session *One QoS flow for the PDU session is mapped onto only one data radio bearer.*
- Mediatek thinks that the procedure text already takes care of in the spec
- Nokia thinks that we shouldn't have such restriction in the network. The RAN can be smarter and chose.
- QC indicates that we already agreed during the SI. Huawei thinks that the consequence of allowing more is that we would have to add reordering functionality in the SDAP layer.
- Samsung agrees with Nokia as some of these configuration can be up to network implementation.

- Convida thinks that it can be complicated on how to set the bit when you have two DRBs for the same flow.
- CMCC agrees with the proposal and we should keep the system simple.
- Oppo agrees with Huawei

=> For UL, one QoS flow for the PDU session is mapped onto only one data radio bearer at a time

=> The procedure in 4.4 should only focus on the function and not mention headers

=> Noted

R2-1707991 SDAP TS Updates Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT
=> Changes 2 and 10 will be taken care of in the next revision of TS
=> Noted

R2-1708506 Text Proposal for SDAP data volume calculation vivo discussion

R2-1709074 Discussion on default DRB establishment in DC LG Electronics discussion NR_newRAT-Core

10.3.4.2 Header Format

Details of header format only. Presence/need of fields and handling of re-mapping should be discussed in Other AI

R2-1707673 QoS layer header format Samsung discussion Rel-15 NR_newRAT-Core
=> Noted

Options for header

- fully static SDAP header;
- semi-static SDAP header (with a mandatory part and optional part);
- fully dynamic SDAP header (the whole header can be absent).

- TCL supports the semi-static SDAP
- Intel thinks that if we a single byte then it would be static

Size

- LG indicates that SA2 hasn't studied. TCL thinks we should wait for SA2.
- CATT thinks we should use the indicated size from SA2.
- Xiaomi thinks that we should first decide that it is lower than one byte.
- Ericsson thinks we should chose a value, like 6 and tell SA2.
- Samsung would like to ensure that we are future compatible.
- Convida thinks we should first discuss whether we need two RQIs or one is sufficient.

Agreements

1. RAN2 aims at designing a 1 byte SDAP header. Whether the QFI is 6 bit or 7 bits is FFS.
2. If configured, SDAP header size for a DRB is static (assuming 1 byte header). The QFI will always be present.
3. No SN will be introduced in SDAP

Not treated

R2-1708934	Use of Shorter QoS Flow ID	Core	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-
R2-1709377	SDAP configuration aspects		Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1707747	SDAP header format	OPPO	discussion		
R2-1707937	SDAP header format	CATT	discussion	Rel-15 NR_newRAT-Core	
R2-1707992	Reflective QoS indication to UE		Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT

R2-1708125	Discussion on the SDAP PDU format NR_newRAT-Core	ZTE Corporation	discussion	Rel-15
R2-1708324	SDAP Header Format	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708932	SDAP Header Format	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708933	QoS Flow ID in SDAP	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708945	SDAP PDU format	Qualcomm Incorporated	discussion	Rel-15 NR_newRAT-Core
R2-1708986	SDAP header format optimization	CMCC	discussion	Rel-15 NR_newRAT-Core
R2-1709059	Location of QoS Flow ID in UL and DL packet NR_newRAT-Core	LG Electronics France	discussion	
R2-1709066	SDAP header format	LG Electronics	discussion	NR_newRAT-Core
R2-1709084	Discussion on SDAP header format	ITRI	discussion	NR_newRAT-Core
R2-1709525	SDAP Header Format	Convida Wireless LLC	discussion	Rel-15 NR_newRAT

10.3.4.3 Other

Discussion depends on the answers from SA2

QoS flow remapping within the same cell. Aspects related to handover can be progressed after same cell remapping is more stable.

- | | | | | |
|------------|--|-------------------|------------|-----------------------|
| R2-1708318 | Default DRB establishment
<i>Proposal 1</i> gNB provides always QFI to DRB mapping explicitly to UE either with dedicated RRC signaling or with AS reflective QoS mechanism.
<i>Proposal 2</i> Default DRB is not defined for PDU session.
- Samsung thinks the default is used for the case in which there is no QoS flow to DRB.
- If standardized QFI are used there is no N2 signalling so we cannot agree with the proposal.
- Asustek thinks that there is the case of pre-configuration so its possible the UE doesn't have QoS flow to DRB.
- Ericsson thinks that we can just provide the N2 signaling for those cases as well.
=> Noted | Ericsson | discussion | Rel-15 NR_newRAT-Core |
| R2-1708832 | DRB properties with 5G QoS
Core
<i>Proposal #1: It shall be possible to configure certain DRBs to use only explicit RAN mapping (no RAN reflective mapping).</i>
- LG thinks the mechanism to configure transparent SDAP header mode is sufficient.

<i>Proposal #2: It is proposed that the AS mapping for a QoS Flow is released when the NAS mapping for a QoS Flow is deleted (using NAS procedures).</i>
- Nokia asks how the gNB is made is aware of this.
- QC asks if this is in the UE side. Intel explains that basically the UE deletes just the mapping. QC asks what happens when there is data again in the UL. Intel there is no NAS to AS mapping anymore.
- Huawei thinks that the two should not be linked
- Samsung asks if there is a problem. Intel explains that there is a NAS reflective mechanisms that a rule is released when the timer expires.
=> Noted | Intel Corporation | discussion | Rel-15 NR_newRAT-Core |
| R2-1708937 | Reflective Mapping in AS
<i>Proposal 2: The RAN controlled and UE controlled deactivation could be used to deactivate the reflective mapping.</i>
- Nokia the AS doesn't need to have any mechanism for UE controlled deactivation
- Ericsson doesn't think we need any either. Huawei sees signalling overhead optimization.
- Mediatek thinks there are different ways and no additional mechanism are needed. LG thinks RAN should always control it.
=> UE controlled AS reflective mapping deactivation is not supported | Huawei, HiSilicon | discussion | Rel-15 NR_newRAT-Core |

Proposal 3: The Source gNB should transfer the current QoS flow to DRB mapping applied in the UE to the target gNB during handover procedure.

- Oppo thinks the target gNB should be responsible to make the decision and context doesn't need to be transferred.
 - LG thinks target gNB should know the mapping to avoid doing re-mapping
- => The Source gNB should transfer the current QoS flow to DRB mapping applied in the UE to the target gNB during handover procedure
- => Noted

R2-1708260 SDAP header design for reflective QoS indication and QoS flow remapping MediaTek Inc. discussion Rel-15 NR_newRAT-Core

Proposal 1: The indication to update AS Reflective QoS mapping rule and NAS Reflective QoS mapping rule are provided by separate fields in DL SDAP header from the gNB.

- Samsung thinks that one bit is sufficient
 - CATT thinks that if we have 6bits QFI then we can use two bits, but otherwise we can live with one.
 - TCL doesn't think it is needed, if we have an extra bit we would rather keep it reserved.
 - Nokia thinks that the only drawback is that we cannot support asymmetric mapping, but it is not the end of the world.
 - Convida sees the second bit as an optimization and 1 bit would be sufficient.
 - Mediatek thinks it has to be an update for both as the UE is not aware of which rule was updated
 - Huawei and CATT thinks that it should be only for NAS and AS can be updated by RRC signalling
 - Qualcomm thinks that if the NAS rules have not changed the NAS timer shouldn't be updated. Mediatek thinks we can just let the NAS decided
- => Noted

Agreements:

1. *Working assumption:* One bit, RQI, to indicate update of mapping rule(s)
2. RAN should be able to move/remap a QoS flow from one DRB to another DRB

- => Send LS to SA2
- RAN2 agreements on SDAP header
 - Indicate to SA2 that RAN2 has a preference to keep for a QFI of 7bits or 6bits, up to SA2 to make the final decision
 - RAN2 thinks that one bit can be sufficient to indicate update of mapping rule, and explain consequence.
 - RAN2 can as if SA2 has a preference for the QFI

R2-1709799 [draft] LS to SA2 on QoS layer Mediatek

- => remove the word "either"
- => The LS is approved in R2-1709803

R2-1707674 Re-configuration scenarios for the NR QoS framework Samsung discussion Rel-15 NR_newRAT-Core

=> Noted

R2-1707993 QoS Flow Relocation Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT

- Mediatek thinks that we should just be concerned with out-of-order
- TCL small number of lost packets are not a big issue
- Nokia thinks that it can be likely that the first packet may be stuck in the default DRB quite often
- Ericsson thinks we don't need to address it but if we do we should consider a very simple solution
- Xiaomi prefers to address this issue
- Samsung and Oppo think it may not be a big issue.

- ZTE thinks that it is not an essential issue
- => Noted

Not treated

R2-1707779	Discussion on QFI awareness	OPPO	discussion		
R2-1707780	QoS flow remapping	OPPO	discussion		
R2-1707867	QFI Presence for AS Level Reflective QoS	TCL	discussion	NR_newRAT-Core	
R2-1707868	Solutions for Flexible QFI Presence for AS Level Reflective QoS	TCL	discussion	NR_newRAT-Core	
R2-1707938	How to update the mapping rule of reflective QoS	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1707939	QoS re-mapping of QoS flow and DRB	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1707979	Consideration on Default QoS	Spreadtrum Communications	discussion	Rel-15	
	=> Withdrawn				
R2-1708126	Discussion on QoS flow-DRB remapping	ZTE Corporation	discussion	Rel-15	
R2-1708127	Discussion on reflective QoS	ZTE Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1708290	SDAP header configuration	Sharp Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1708320	QoS Flow Relocation in NR-DC between MN and SN	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708321	QoS Flow Remapping in Handover and Within the Same Cell	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708322	Reflective QoS and Flow-ID	Ericsson	discussion	Rel-15	NR_newRAT-Core
	=> Withdrawn				
R2-1708323	SDAP entity establishment	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708325	SDAP configurations with NAS-Reflective QoS	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708500	Discussion on the configuration of SDAP	vivo	discussion		
R2-1708501	Draft LS on NAS AS interaction for SDAP entity	vivo	discussion		
R2-1708935	QoS flow level offloading in NR-DC	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708936	Further Discussion on NAS Reflective QoS	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708938	QoS Flow to DRB Re-Mapping	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708939	Lossless Handover of QoS Flow	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708940	Notification Control	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708984	QoS flow ID presence in the AS Reflective QoS	CMCC	discussion	Rel-15	NR_newRAT-Core
R2-1708987	Further consideration on AS reflective QoS	CMCC	discussion	Rel-15	NR_newRAT-Core
R2-1709055	Presence of UL SDAP header on default DRB	ASUSTeK	discussion	Rel-15	NR_newRAT-Core
R2-1709060	QoS flow to DRB remapping	LG Electronics France	discussion	NR_newRAT-Core	
R2-1709068	Configurability for the presence of SDAP header	LG Electronics	discussion	NR_newRAT-Core	
R2-1709071	Configuration scenarios on whether or not a SDAP header is present	LG Electronics	discussion	NR_newRAT-Core	
R2-1709075	Further discussion on Reflective QoS	LG Electronics	discussion	NR_newRAT-Core	

R2-1709086	QoS handling in Handover	LG Electronics	discussion	NR_newRAT-Core
R2-1709089	SDAP configuration	LG Electronics	discussion	NR_newRAT-Core
R2-1709162	Reflective QoS consideration when QFI size less than 1 byte	Beijing Xiaomi Mobile Software	discussion	Rel-15
R2-1709174	Consideration on the introduction of SDAP discard function	Beijing Xiaomi Mobile Software	discussion	Rel-15
R2-1709179	QoS Flow Remapping	Beijing Xiaomi Mobile Software	discussion	Rel-15

10.4 Stage 3 control plane

10.4.1 RRC

10.4.1.1 TS

Latest TS 38.331, other rapporteur inputs, etc. Please submit any new text proposals to the appropriate agenda item. Note specification methodology has been given a separate AI for RRC.

R2-1708468	TS 38.331	Ericsson	draft TR	Rel-15	38.331 0.0.5	NR_newRAT-Core
=> Endorsed as v0.1.0						

R2-1709488	Introducing support for NR (draft running CR to 36.331)	Samsung Telecommunications				
	draftCR Rel-15 36.331 14.3.0	NR_newRAT-Core	D			
=> Think more for the next meeting whether we will extract the SA parts before submission for approval in December.						
=> Endorsed as running CR.						

10.4.1.2 Specification methodology

R2-1708213	Need codes and conditional codes in NR ASN.1	Huawei, HiSilicon	discussion	Rel-15		
R2-1707828	Critical extensions in NR RRC	Nokia, Nokia Shanghai Bell	discussion	Rel-15		NR_newRAT-Core
R2-1708469	RRC methodology	Ericsson	discussion	Rel-15		NR_newRAT-Core
R2-1709485	Specification improvements for NR RRC	Samsung Telecommunications	discussion	Rel-15		
R2-1707826	Capturing Need Code guidelines and RRC procedures	Nokia, Nokia Shanghai Bell	discussion	Rel-15		NR_newRAT-Core
R2-1707827	Capturing basic NR PDUs	Nokia, Nokia Shanghai Bell	discussion	Rel-15		NR_newRAT-Core
R2-1708835	Default Need code	Intel Corporation	discussion	Rel-15		NR_newRAT-Core
R2-1709886	RRC Specification methodology TP	Ericsson, Nokia, Nokia Shanghai Bell, NTT DOCOMO	discussion	Rel-15		NR_newRAT-Core
=> Agreed						

Withdrawn

R2-1707825	Automatic syntax checking for RRC CRs	Nokia, Nokia Shanghai Bell	discussion	Rel-15		NR_newRAT-Core
=> Withdrawn						

10.4.1.3 Connection control procedures

No documents should be submitted to 10.4.1.3. Please submit to 10.4.1.3.x.

10.4.1.3.1 Connection control procedures email

Output from and contributions related to email discussion [98#30][NR] RRC Connection Control (Intel)

R2-1708799 Email discussion report on [98#30][NR] RRC Connection Control Intel Corporation
discussion Rel-15 NR_newRAT-Core

Agreements

1. For IDLE to CONNECTED RRC transition, a 3-step RRC procedure is used.
2. For IDLE to CONNECTED RRC transition, RRC Connection Request kind of message is sent over SRB0 carried by RACH MSG3.
3. For a failure to establish an RRC connection (e.g. due to congestion conditions) RRC Connection Reject kind of message is sent over SRB0 carried by RACH MSG4.
4. For a successful establishment of an RRC connection during the IDLE to CONNECTED RRC transition, RRC Connection Setup kind of message is sent over SRB0 carried by RACH MSG4.
5. For a successful establishment of an RRC connection during the IDLE to CONNECTED RRC transition, RRC Connection Setup Complete kind of message is sent over SRB1 carried by MSG5.
6. RRC Connection Request kind of message includes UE identity and establishment cause.
- 6.1 Some form of relation is foreseen between the access categories and establishment causes; details are FFS.
- FFS if MSG3 also could include other information e.g. NAS message, 5G CN node selection, UE capability of supporting high frequency, the access category indicating a type of services or other information sent over MSG5.
7. RRC Connection Reject kind of message includes the wait time.
- FFS redirect information
- FFS Value range of wait time.
- FFS Whether to include frequency/RAT deprioritisation information.
8. RRC Connection Setup kind of message includes dedicated radio resource configuration for SRB1.
9. RRC Connection Setup Complete kind of message includes 5CN node selection information and dedicated NAS PDU (except if they were sent in MSG3 in the case that the FFS from Proposal 6.2.1 were to be agreed).
10. For CONNECTED to IDLE RRC transition, the RRC Connection Release kind of message is used and is sent over SRB1
- FFS whether the same RRC message is used for the RRC transition from CONNECTED to IDLE and from CONNECTED to INACTIVE.
11. RRC Connection Release kind of message can include release cause information, redirect carrier frequency and idle mode mobility control information.
12. For INACTIVE to CONNECTED RRC transition, RRC Connection Resume Request kind of message is sent over SRB0 carried by RACH MSG3.
- FFS whether to have a common message/procedure for INACTIVE to CONNECTED RRC transition, RAN location area update (RLAU), re-establishment and for IDLE to CONNECTED transition.
13. For INACTIVE to CONNECTED RRC transition, when RAN successfully retrieves and verifies the UE context, RRC Connection Resume kind of message is sent over SRB1 carried by RACH MSG4 with at least integrity protection to resume the RRC connection and, if required, dedicated radio resource configuration.
- FFS NR security framework for INACTIVE UEs.
15. For INACTIVE to CONNECTED RRC transition, when RAN successfully retrieves and verifies the UE context, MSG5 is RRC Connection Resume Complete kind of message over SRB1.
- FFS whether this MSG5 can be omitted in some case
16. For INACTIVE to CONNECTED RRC transition, when RAN cannot successfully retrieve and verify the UE context, RRC Connection Setup kind of message (same as used in agreement 8) is sent over SRB0 (which would enable a fallback to establish a new RRC connection similar to Rel-13 LTE).
- 17.1. For case described 16, the UE releases the AS security context, as well as, AS context related configurations kept while in INACTIVE.

- 17.2. For case described 16, the UE AS informs the UE NAS of a fallback to establish a new RRC connection due to a failure while resuming resulting in a NAS Service Request message to establish a new connection.
21. RRC Connection Resume Request kind of message includes UE identity (or UE context identity), establishment (or resume) cause information and UE's security information (e.g. authentication token).
FFS if MSG3 also could also include other information
22. RRC Connection Resume kind of message can optionally include the dedicated radio resource configuration
FFS: Whether RRC Connection Resume Complete includes NAS PDU, 5CN node selection information (e.g. selected PLMN identity or NSSAI)
- 26 For CONNECTED to INACTIVE RRC transition, a RRC Connection Release kind of message is used and is sent over SRB1 (as described in proposal 10).
- 27 For CONNECTED to INACTIVE RRC transition, the RRC Connection Release kind of message includes (a) the same information as listed in proposal 11 (i.e. cause information, redirect carrier frequency and mobility control information), and can include (b) UE identity (or UE context identity), and optionally (c) suspension/inactivation indication (FFS if implicitly or explicitly), (d) RAN configured DRX cycle, (e) RAN periodic notification timer, and (f) RAN notification area.
29. In the following cases the UE releases the UE context, UE AS informs UE NAS
- 29.1. Case (b) upon failure of resume procedure (including the RAN update case);
FFS Whether this applies in all cases of failure of resume procedure
- 29.2. Case (d) upon reselecting to other RAT;
- 29.3. Case (e) upon reception of CN initiating paging;

☒ **[99#29][NR] Connection Control (Intel)**

To progress proposals 18, 19, 20 (Reject on SRB1 or SRB0 and the target state) from R2-1708799.

Intended outcome: Report to next meeting

Deadline: Thursday 2017-09-21

R2-1707848	Text Proposal to RRC Connection Control	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1707784	RRC connection control from INACTIVE	Samsung Electronics	discussion		
R2-1707850	Security issues on reject message on SRB0	Ericsson	discussion	Rel-15	NR_newRAT-Core
	<i>Moved from 10.4.1.3.5 to 10.4.1.3.1</i>				
R2-1707849	Addressing key FFS in email discussion [98#30][NR] RRC Connection Control	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708803	Security handling for resumption, re-establishment and handover	Intel Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1707763	Details of Network Initiated Release from INACTIVE to IDLE	OPPO	discussion		
R2-1707876	Open issues on security aspects for NR RRC connection control	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core
R2-1708714	RRC state transition between CONNECTED and INACTIVE	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708716	RRC state transition from INACTIVE to IDLE	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708717	Security of INACTIVE to CONNECTED state transition	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708738	Connection Control Procedures for RRC_INACTIVE	InterDigital	discussion	Rel-15	NR_newRAT-Core
R2-1709495	Discussion on the Discussion Point 18 of [98#30][NR] Email Report	SAMSUNG Electronics Co., Ltd.	discussion		
R2-1709507	UE capability in NR RRC connection request	Sony	discussion	Rel-15	NR_newRAT-Core

R2-1709521 Draft LS to SA3 on inactive to connected state transition discussion Huawei Technologies France
Rel-15 NR_newRAT-Core

Withdrawn

R2-1708650 UE capability in NR RRC connection request Sony discussion Rel-15 NR_newRAT-Core
=> Withdrawn

10.4.1.3.2 Connection control message harmonisation

Harmonisation/merging of messages to be used for different procedures, UE identity and other message content to be used in different cases, etc.

Maximum 1 tdoc per company

R2-1709220 Harmonization of the RRC procedures Nokia discussion Rel-15 NR_newRAT-Core
R2-1707667 Further discussion on merging NR RRC messages Samsung discussion Rel-15 NR_newRAT-Core
R2-1707842 Harmonizing of the RRCConnection, Reestablishment and Resume procedures Ericsson discussion Rel-15 NR_newRAT-Core
R2-1707896 RRC connection re-establishment and resume procedures in NR CATT discussion Rel-15 NR_newRAT-Core
R2-1708700 Consideration on the procedure design for transition from INACTIVE to CONNECTED state and for RRC connection re-establishment Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1708739 Harmonization of Connection Control Procedures and Messages InterDigital discussion Rel-15 NR_newRAT-Core
R2-1708800 Common resumption and reestablishment procedure Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1708989 Harmonised Connection Control Messages CMCC discussion Rel-15 NR_newRAT-Core
R2-1709113 Simplification of RRC messages for NR LG Electronics Inc. discussion Rel-15 NR_newRAT-Core
R2-1709401 Harmonization of the RRC connection management procedures NTT DOCOMO INC. discussion Rel-15 NR_newRAT-Core
R2-1709541 RRC service request MediaTek Beijing Inc. discussion
R2-1709636 Open issues for connection control Qualcomm Incorporated discussion

10.4.1.3.3 Connection reconfiguration

Structure and content of RRCConnectionReconfiguration message.

Including output from email discussion [NR-AH2#12][NR] RRCConnectionReconfiguration structure (Ericsson)

R2-1708036 [NR-AH2#12][NR] RRCConnectionReconfiguration structure - Email discussion summary Ericsson discussion Rel-15 NR_newRAT-Core

Agreements:

- 1 NR RRC signalling should clearly distinguish UE-, cell-group- and serving-cell- specific parameters: Parameters for each serving-cell cell are collected in an IE and one or more such IEs are present in the IE containing the Cell-Group specific configuration (as depicted in Figure 5 of R2-1708036).
- 2 Use SRB-ToAddModList, DRB-ToAddModList and DRB-ToReleaseList to maintain the PDCP-configuration and SDAP-configuration per radio bearer and include the radio bearer related configuration into a RadioBearerConfig (see Figure 6 of R2-1708036).
- 3 Use LCH-ToAddModList and LCH-ToReleaseList inside the NR cell-group configuration IE to associate logical channels and their RLC entities with radio bearers (PDCP entities) (see Figure 6 of R2-1708036).

FFS1 to a) re-use the current LTE structure where the LCH- and RLC- configurations for the LTE MCG are inside the DRB-ToAddModList; associate the NR-SCG cell-group configuration with that list (Figure 7); or b) adopt the newly agreed NR structure where the LCH- and RLC configuration is part of the cell group configuration (Figure 6) also for the LTE ASN.1. (Intention is to consider the examples of ASN.1 structure provided by Ericsson to help make a decision)

FFS2 whether ... a) the PDCP-Config and SDAP-Config for each DRB are in a separate container; or b) the PDCP-Config and SDAP-Config of all MCG DRBs are in one container and the PDCP-Config and SDAP-Config of all SCG DRBs are in another container; or c) the PDCP-Config and SDAP-Config of all DRBs are in a common container

4 For EN-DC, the "NR RRC PDU" containing the NR "SCG RLC/MAC/Phy config" should be the NR RRCConnectionReconfiguration message.

5 For EN-DC, the SgNB may include the PDCP-config in the "NR RRC PDU from the SN" only when it changes the PDCP configuration of one of its SCG(-Split) DRBs using the direct SCG-SRB.

FFS3: For NR-NR DC, whether the SCG configuration should ... a) be conveyed as full RRC message (see Figure 8)? If so, do you think that it should be the NR RRCConnectionReconfiguration (i.e., embedding an NR RRCConnectionReconfiguration message into another NR RRCConnectionReconfiguration message); or b) be embedded directly, i.e., a container and/or a message is not necessary for this case (like Figure 9)

6 For NE-DC, the NR pdcp-Config DC should follow the principle agreed for EN-DC, i.e., pdcp-Config is separated from the lower layer configuration. The pdcp-Config field in the LTE SCG-Configuration is omitted.

FFS4 For NE-DC whether ... a) The LTE SCG configuration should be conveyed as LTE RRCConnectionReconfiguration message inside a container in the NR RRCConnectionReconfiguration, or b) The LTE SCG configuration should be conveyed as an IE inside the NR RRCConnectionReconfiguration

=> Offline discussion to progress FFS1 and FFS2 points. Can also consider the LTE and NR procedures that would correspond to this structure (Ericsson, Offline discussion #45)

R2-1709934 Offline 45: Summary of reconfiguration structure Ericsson

Agreements

- For LTE lower layers (RLC, LCH), reuse LTE DRB-AddModd structure
- For bearers using NR PDCP, aim to capture UE behaviour in NR specification
- Bearer structure is following for bearers using NR PDCP:
- We will introduce a new RadioBearerConfig IE in NR spec which is covering all bearers using NR PDCP
- MeNB is still deciding DRB ID but this is signalled to the SeNB and used as "anchor point" to link lower layers and higher layers

FFS details of security parameters

- Bearer handling is captured in NR specification.

Working assumption: there are 2 transparent containers including radio bearer configuration lists (including PDCP-ConfigNR, DRB ID, EPS ID per bearer).

=> We will attempt to create a stage 3 CR based on above to be able to assess the agreements.

☒ **[99#30][NR] RRC Connection Reconfiguration (Ericsson)**

- To discuss the following open issues and also draft stage 3 ASN.1 and procedures, including the LTE part:

Security configuration and parameters

If all bullets apply to SRBs

Bearer change between LTE and NR PDCP

Next steps

Update text proposal and share with others

Check L2 actions

Focus should be on the high level structure and only if time allows the discussion could discuss other unrelated parts of the configuration.

Intended outcome: Report and TP to next meeting

Deadline: Thursday 2017-09-21

R2-1708037	Text Proposal for NR RRCConnectionReconfiguration 15 NR_newRAT-Core => Revised in R2-1709871 (Ericsson, Offline discussion #45)	Ericsson	discussion	Rel-
R2-1709871	Text Proposal for NR RRCConnectionReconfiguration 15 NR_newRAT-Core => To be used as starting point in the email discussion from R2-179934	Ericsson	discussion	Rel-
R2-1707873	Enhance RRC configuration procedure in NR 15 NR_newRAT-Core	Qualcomm Incorporated	discussion	Rel-
R2-1707897	RRC connection reconfiguration procedure in NSA CATT Core	discussion	Rel-15	NR_newRAT-
R2-1708792	UE handling of combined configuration messages 15 NR_newRAT-Core	Intel Corporation	discussion	Rel-
R2-1708795	L2 handling using explicit RRC signalling NR_newRAT-Core	Intel Corporation	discussion	Rel-15
R2-1708797	RRC signalling for SDAP configuration NR_newRAT-Core	Intel Corporation	discussion	Rel-15
R2-1708831	RRC Connection Reconfiguration for MR-DC and NR-NR DC discussion NR_newRAT-Core	Intel Corporation		
R2-1708836	Security algorithm configuration for Radio Bearers 15 NR_newRAT-Core	Intel Corporation	discussion	Rel-
R2-1709550	Open issues of NR RRCConnectionReconfiguration 15 NR_newRAT-Core	Ericsson	discussion	Rel-
R2-1709615	NR RRC Reconfiguration message for SA and NSA Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion	
R2-1709616	LTE RRC design for EN-DC Core	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-

Withdrawn

R2-1707882	Handling of overhead messages in NR NR_newRAT-Core => Withdrawn	Qualcomm Incorporated	discussion	Rel-15
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10.4.1.3.4 Connection control procedures - NSA aspects

Start to progress stage 3 details related to SCG SRB, split SRB, SCG failure handling, etc.

R2-1709618	Default configuration of SRB1S and SRB2S in NR side for EN-DC discussion Rel-15 NR_newRAT-Core	Huawei, HiSilicon		
R2-1707898	The split SRB impact on LTE ASN.1 CATT	discussion	Rel-15	NR_newRAT-Core
R2-1708460	Handling of SRBs in connection re-establishment 15 NR_newRAT-Core	LG Electronics Inc.	discussion	Rel-
R2-1709105	Handling of SCG configuration in RRC_INACTIVE 15 NR_newRAT-Core	LG Electronics Inc.	discussion	Rel-
R2-1709570	Information to include within RRC Activation and Inactivation discussion	Samsung Electronics		
R2-1709617	NR failure handling for both SA and NSA NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1709619	Transmission of NR RRC message over MCG SRB Rel-15 NR_newRAT-Core	Huawei, HiSilicon	discussion	

Late

R2-1707829 Capturing NR PDUs in EN-DC NR_newRAT-Core Nokia, Nokia Shanghai Bell discussion Rel-15

10.4.1.3.5 Connection control procedures - other

Other aspects of connection control procedures, state transitions, etc

R2-1708081 RAN2 impact of non-contiguous CA Samsung discussion Rel-15

R2-1708082 Draft reply LS to RAN1 on non-contiguous CA Samsung discussion Rel-15

R2-1707668 Inactivity-based transition to a power efficient state NR_newRAT-Core Samsung discussion Rel-15

R2-1707851 Security issues on Msg3 (RRCConnectionResumeRequest) Rel-15 NR_newRAT-Core Ericsson discussion

R2-1707899 Open issues on state transition from INACTIVE to CONNECTED 15 NR_newRAT-Core CATT discussion Rel-

R2-1708027 Multiplexing NAS messages with MSG3 Core Ericsson discussion Rel-15 NR_newRAT-

R2-1708089 Numerology configuration in NR Samsung discussion Rel-15

R2-1708368 Discussion on additional enhancement for INACTIVE to IDLE state transition procedure OPPO discussion

R2-1708404 Consideration on RRC connection establishment procedure discussion Rel-15 NR_newRAT-Core Huawei, HiSilicon

R2-1708405 [DRAFT] LS to RAN1 on MSG3 size Huawei LS out Rel-15 NR_newRAT-Core RAN1

R2-1708406 RRC Establishment Cause Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1708407 RRC support of multiple numerologies NR_newRAT-Core Huawei, HiSilicon discussion Rel-15

R2-1708419 UE AS context retrieve failure vivo discussion Rel-15 NR_newRAT-Core

R2-1708701 UE behaviour upon leaving RRC_CONNECTED state Rel-15 NR_newRAT-Core Huawei, HiSilicon discussion

R2-1708715 Timer based state transition from CONNECTED to INACTIVE discussion Rel-15 NR_newRAT-Core Huawei, HiSilicon

R2-1708740 Timer-Based Inactivation for NR InterDigital discussion Rel-15 NR_newRAT-Core

R2-1708801 MSG4 handling during congestion when trying to transition from INACTIVE to CONNECTED Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1708802 [DRAFT] LS on security handling of MSG4 during INACTIVE to CONNECTED transition Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1708804 [DRAFT] LS on security handling for resumption, re-establishment and handover Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1709111 Remaining FFS about RAN area update procedure Rel-15 NR_newRAT-Core LG Electronics Inc. discussion

R2-1709169 Consideration on the triggers of transiting UE from INACTIVE to IDLE Software discussion Rel-15 Beijing Xiaomi Mobile

R2-1709221 RRC Connection establishment procedures Nokia discussion Rel-15 NR_newRAT-Core

R2-1709222 RRC connection release and inactivation procedures NR_newRAT-Core Nokia discussion Rel-15

R2-1709580 UE Assistance Information for energy efficiency enhancement discussion Samsung Electronics

10.4.1.4 RRM measurements

No documents should be submitted to 10.4.1.4. Please submit to 10.4.1.4.x.

10.4.1.4.1 Cell quality derivation

If any remaining aspects to discuss

Maximum 1 tdoc per company

R2-1708113 Remaining issues on cell quality derivation ZTE Corporation discussion Rel-15
NR_newRAT-Core

P1

- Intel support the proposal. MediaTek also support. Qualcomm
- Huawei asks about whether cell specific values for CSI-RS. ZTE think this could be discussed mode.
- CATT think there is enough flexibility without a per cell value of N. Huawei wonder if this assumes that there is are the same number of CSI-IS per cell. Ericsson think the N can be a single value but the number of CSI-RS resources provided per cell could be different.

-

P4

- Samsung wonder if RSRQ and SINR. Intel think that this is still discussed in RAN1.1

Agreements

1: Independent N and independent threshold should be configured per carrier frequency in the MeasObject for NR-SS based and CSI-RS based L3 mobility. (This agreement does not have any implication on the number of CSI-RS resources that can be configured per cell)

=> We will discuss in RAN2 how to do averaging of RSRQ and SINR when the measurement definitions are clear in RAN1/4.

=> Send LS to RAN1/4 to explain that we have agreed and captured the measurement model and that the cell quality derivation will be captured in RRC. Draft LS in R2-1709874, ZTE, Offline discussion #47

R2-1709874 [Draft] LS on Measurement model ZTE LSout

=> Approved in R2-1709971

R2-1709508 Deriving Cell Quality Using Linear Average or Sum of Beam Measurements Sony discussion
Rel-15 NR_newRAT-Core

R2-1709290 On including or excluding beams from cell quality derivation Ericsson discussion
Rel-15 NR_newRAT-Core

- MediaTek wonder what is the real use case that a beam should be blacklisted. Ericsson explain that this is for the case that there are some beams that the UE might detect that the network knows will not be useful to the UE.
- Intel think if the UE moves then the beam that the UE has been told not to consider might actually be the best beam for the UE.
- ZTE also don't think the black list should not be per beam. Qualcomm have the same view. Samsung also have the same view. Vivo also. Nokia have a similar.

=> Noted

R2-1707768 Remaining Issues about Cell Quality Derivation OPPO discussion

R2-1708583 Remaining issues on cell quality derivation Ericsson discussion Rel-15 NR_newRAT-Core

R2-1708702 Remaining issues on cell quality derivation Huawei, HiSilicon discussion Rel-15
NR_newRAT-Core

R2-1708781 Discussion on RRM filtering Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1708782 draft LS on filters for RRM measurements in NR Intel Corporation discussion Rel-15
NR_newRAT-Core

R2-1708997 Configuration of N for Cell Quality Derivation CMCC discussion Rel-15 NR_newRAT-Core

Withdrawn

R2-1708651 Deriving Cell Quality Using Linear Average or Sum of Beam Measurements Sony discussion
Rel-15 NR_newRAT-Core
=> Withdrawn

10.4.1.4.2 Measurement report content

Continue to progress the details of the measurement report content.

Maximum 1 tdoc per company

R2-1708250 Measurement Report Content in NR MediaTek Inc. discussion

P1

- LG understand that only cell with expired timer would be in the list.
- Huawei would like to report cells for which the TTT has expired and the cells for which the leaving condition has not been met

P2

- Nokia agree that the report should include at least the measurements with the same quantity as used for triggering but would not like to prevent others from being reported.

P3

- Ericsson suggest there should be a bound for total number of beams across all cells.
- Samsung think if only beam ID is reported the threshold is needed to give some quality information to the network and think the same threshold can be used as for cell quality derivation. Intel support the Samsung view. Qualcomm also agree. Ericsson wonder if N is 1 but X is 5 then would you still use the same threshold.

P6

- Ericsson think this assumes that there is no trigger event that is based on both NR-SS and CSI-RS. Panasonic think we already agreed not to mix NR-SS and CSI-RS in triggering.
- ZTE would like to include both in case it is triggered based on CSI-RS. Would also prefer both in the other direction.
- OPPO agree with the proposal. Intel think it is simply to only report based on the NR-SS or CSI-RS that was triggered. Ericsson explain that the network can already configured triggered of different events based on NR-SS and CSI-RS.
- Samsung support the proposal. Think it will eventually add complexity to UE behaviour.
- MediaTek think that the CSI-RS report is more accurate and hence there is not much value to also provide the SS Block measurements.
- Huawei think it would be useful to provide available SS Block measurements as well for a CSI-RS triggered event and don't see much complexity. Nokia clarify the intent to report what is available in the UE, not make the UE do more measurements.

Agreements

- 1: Cells in the cellsTriggeredList are reported (i.e. TTT has expired and leaving condition has not been met, same as LTE)
- 2: Measurement quantity to be reported for cell quality can be same as trigger quantity or both RSRP/RSRQ. Measurement quantity to be reported for beam measurements can be same as (cell) trigger quantity or both RSRP/RSRQ.
- 3: For measurement events based on NR-SS, in each cell the best SS block is reported and up to x-1 next highest measured SS blocks above the absolute threshold. Threshold is the same as that used for cell quality derivation.
- 4: For measurement events based on CSI-RS, in each cell the best CSI-RS is reported and up to y-1 next highest measured CSI-RS above the absolute threshold. Threshold is the same as that used for cell quality derivation.
- 5: Cell quality derived from NR-SS for the same cell is not included in a measurement report triggered based on CSI-RS.
- 6: Cell quality derived from CSI-RS for the same cell is not included in a measurement report triggered based on NR-SS.

R2-1708703 Measurement reporting for NR SS and CSI-RS Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

Agreement

- 1 The current beam report agreements (network configures the UE to report beam identifier only, beam measurement result and identifier, or no beam reporting) applies to both event-triggered reports and periodical reports.

R2-1708584	Selection of cells and beams to be included in the measurement report discussion	Ericsson	Rel-15 NR_newRAT-Core
R2-1707694	Cell quality in the measurement report	PANASONIC R&D Center Germany	discussion
R2-1707901	Considerations on measurement reporting related to serving cells	CATT	discussion Rel-15 NR_newRAT-Core
R2-1707973	Measurement report trigger condition	Spreadtrum Communications	discussion Rel-15
R2-1708590	On NR Measurement reporting	Nokia, Nokia Shanghai Bell	discussion Rel-15 NR_newRAT-Core
R2-1708779	Remaining issues on measurement report content	Intel Corporation	discussion Rel-15 NR_newRAT-Core
R2-1708902	Remaining open issues on measurement report content	LG Electronics Inc.	discussion Rel-15 NR_newRAT-Core
R2-1709076	Remaining Issues of Measurement Report Content	ITRI	discussion NR_newRAT-Core
R2-1709092	Open issues of measurement report contents	Qualcomm Incorporated	discussion Rel-15 NR_newRAT-Core
R2-1709103	On some remaining issues about NR measurement reporting	CATT	other
R2-1709592	NR Measurement Report Contents	Samsung Electronics	discussion

Agreements

- 1: For cells to be included for event triggered MR, number of cells reported is up to, maxCellMeas (as in LTE)

10.4.1.4.3 Measurement configuration

Continue to progress the details of the measurement report configuration.

Maximum 1 tdoc per company

R2-1709292	Measurement configuration	Ericsson	discussion	Rel-15 NR_newRAT-Core
P1				
- AT+T thinks it needs to be clarified that there are carriers without SSB and in this case the offset could be to a different carrier. Ericsson think there could be a pointer to another measurement object for this case. - MediaTek think there could be more than one SSB offset per measurement object. - Ericsson assume that if there is more than one SSB per MO then the UE would have to measure on them both. - Intel thinks it would be easier to configure the measurement object to be the centre frequency to be measured on. AT+T think this would be good to decide on and think the MO would be one carrier and there could be one or more BWPs and SSBs - AT+T agrees that for SSB measurement then the UE would only need to know the centre of the SSB. - Nokia wonder what would be the added value of knowing the centre freq of the carrier instead of just the centre of the SSB. Ericsson see the option to configure fewer MOs. - Qualcomm wonder if the SSB is always aligned with the channel raster. ATT think that RAN4 is discussing but it is likely not to be aligned with the channel raster.				

Agreements

- 1 There is one NR-ARFCN per MO

- 2 For measurements of carriers where SSB is not present (measurements performed on CSI-RS):
 - i MO includes CSI-RS resources for L3 mobility measurements; and
 - ii MO includes some indication that no SSB is provided on this carrier.

FFS Where the UE acquires timing reference for making measurements in this carrier. E.g. can UE assume timing reference from one of its serving carriers (for CA case), or does the MO include a pointer to another carrier with SSB for obtaining timing reference.
 - 3 For measurements of carriers where SSB is present:

If SSB is not located in the centre of the carrier, then offset to the ARFCN provides the location in frequency of the SSB within that carrier.

FFS Whether the MO has only one SSB or whether the MO can include the location of more than one SSB.
- Agreements above relate to a single BWP in which case the NR ARFCN would be the centre of the BWP. Case of multiple BWPs is FFS

- Agreements:
- 1 Keep current principles where measurement results are collected per measurement ID and the VarMeasReportList lists information per measurement ID about measurements for which triggering conditions have been met.
 - 2 Include whitelisted list in NR measurement object and parameter usewhitelisted list in reporting configuration (or at measurement ID level) as in LTE.
 - 3 Include both frequency specific offset as well as cell specific offsets in MO. Offsets are for use in the event evaluation.
- FFS Whether it is possible to also include cell specific offsets within the reporting configuration.
- 4 Autonomous changes to the measurement configuration are included in the spec only if necessary to avoid situations where the measurement configuration would be invalid following handover or re-establishment.

- => Offline activity to try to conclude on the additional information (periodicity, time offset, window) for both SSB and CSI-RS based on received parameters from RAN1. (Ericsson, Offline discussion #48)
- Update from offline discussion: No progress but email discussion is proposed.

- ✉ **[99#31][NR] Additional information for SSB and CSI-RS config (Ericsson)**
 to conclude on the additional information (periodicity, time offset, window) for both SSB and CSI-RS based on received parameters from RAN1
 Intended outcome: Report to next meeting
 Deadline: Thursday 2017-09-21

R2-1709510	S-measure for Connected Mode Measurements	Sony	discussion	Rel-15	NR_newRAT-Core
R2-1707902	Configurations for cell quality derivation and beam reporting		CATT	discussion	Rel-15 NR_newRAT-Core
R2-1708005	Measurement Configuration with NR-SS and CSI-RS	MediaTek Inc.	discussion		NR_newRAT-Core
R2-1708114	Discussion on the configuration of the measurement object	ZTE Corporation	discussion		Rel-15 NR_newRAT-Core
R2-1708420	SS block and CSI-RS based measurement configuration in RRC_CONNECTED state			discussion	Rel-15 NR_newRAT-Core
R2-1709317	Further discussion on whitelist and blacklist measurement configuration				HTC Corporation
Late					
R2-1709685	Remaining issues of NR RRM measurement configuration	Samsung	discussion		

Withdrawn

R2-1708653 S-measure for Connected Mode Measurements Sony discussion Rel-15 NR_newRAT-Core
=> Withdrawn

10.4.1.4.4 Measurement events

Any additional aspects of measurement events, including Cx events, etc

Cx-like events

R2-1707900 Further considerations on events C1 and C2 CATT,OPPO, vivo, MediaTek discussion Rel-15 NR_newRAT-Core

R2-1709487 Reconfiguration beam management CSI RS config upon intra-cell mobility Samsung Telecommunications discussion Rel-15

R2-1709293 Measurement events Cx in NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1708115 Discussion on the introduction of SS-block specific events ZTE Corporation discussion Rel-15 NR_newRAT-Core

R2-1708252 Introducing Events C1 and C2 in NR MediaTek Inc. discussion

R2-1708679 C1/C2 events support in NR Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

R2-1708704 On the need for Cx events Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1708748 Measurement configuration with Ax and Cx events InterDigital discussion Rel-15 NR_newRAT-Core

Other

R2-1708707 Measurement report triggering mechanism in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

- MediaTek ask if this is just for A3, A6 C1, C2 today and asks if it is intended to be applicable for other events.
- Samsung think it is not an event specific mechanism and propose it should not be linked to specific events, even if there are restrictions.
- Nokia support the proposals. Qualcomm also support the proposals.

Agreements:

- 1: Support the 'reportOnLeave' measurement report triggering mechanism in NR.
- 2: When the measurement report is triggered due to reportOnLeave, the UE just reports the current remaining triggered cells, not the 'leave' cell(s), as in LTE.
- 3: The 'reportOnLeave' is applicable for all the measurement events and is configurable per reporting configuration.
- 4: Support the event-triggered periodic-report mechanism (with reportAmount and reportInterval) in NR.
- 5: When new cell fulfils the event entry condition during timeToTrigger, restart the periodic reporting timer and reset the numberOfReportsSent.

R2-1708251 N-mismatch Problem in NR Measurement Events MediaTek Inc. discussion

- Ericsson think it introduces unnecessary complication. We have agreed that beams are reported so the network has the information to make the handover decision. Think for cell reselection case where UE decides there may be an issue to address.
- Samsung think the cell quality derivation can achieve the results. MediaTek think for different cells the number of good beams can be different. Agree that the beam reporting can help.
- Huawei thought that a cell offset could address this case.
- Qualcomm think the proposal is unnecessary as the network will know based on the beam reporting. Even for triggering, this will complicate the UE triggering.

OPPO support the intention of the proposal but thing the details can be different.
=> Noted

R2-1707769	Additional Measurement Triggering and Event for NR	OPPO	discussion	
R2-1708214	Measurement configuration and procedures for SS and CSI-RS	Huawei, HiSilicon		
	discussion	Rel-15		
R2-1708589	On measurement events and the need of reportOnLeave	Nokia, Nokia Shanghai Bell		
	discussion	Rel-15	NR_newRAT-Core	
R2-1708708	Measurement trigger type in NR	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709492	Triggering condition for A1-A6 events in NR	Ericsson	discussion	Rel-15
	NR_newRAT-Core			
R2-1709511	Comparison of Cells with Different Numbers of Good Beams	Sony	discussion	Rel-15
	NR_newRAT-Core			

Withdrawn

R2-1708654	Comparison of Cells with Different Numbers of Good Beams	Sony	discussion	Rel-15
	NR_newRAT-Core			
	=> Withdrawn			

10.4.1.4.5 Inter-RAT measurements

Inter-RAT E-UTRA measurements for the purpose of inter-RAT handover from NR to -E-UTRA

R2-1708705	Events and measurements for handover from NR to E-UTRA	Huawei, HiSilicon		
	discussion	Rel-15	NR_newRAT-Core	

Agreements:

- 1: The following events for inter RAT measurements from NR to LTE are supported:
Event B1: Inter RAT neighbour becomes better than threshold
Event B2: PCell becomes worse than threshold1 and inter RAT neighbour becomes better than threshold2
- 2: Periodical inter-RAT measurement report configuration shall be supported in NR.
- 3: The measurement object for LTE in NR specification could reuse structure of measurement object for LTE frequency defined in LTE specification.
- 4: introduce separate MeasResults IE for NR and LTE.

R2-1707903	Inter-RAT measurement for NR	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1708122	Inter-RAT measurements for NR handover to EUTRAN	ZTE Corporation	discussion	
	Rel-15 NR_newRAT-Core			

Late

R2-1709682	Inter-RAT Measurement Events for NR	Samsung	discussion	
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10.4.1.4.6 Measurement gaps

For initial discussion in RAN2 but may be difficult to progress without input from RAN4.

R2-1708471	Intra and Inter-frequency definitions and Measurement gaps in NR	Nokia, Nokia Shanghai Bell		
	discussion	Rel-15	NR_newRAT-Core	
	- Qualcomm think that RAN4 is discussing these aspects. - Nokia think that RAN is discussing the need for any new terminology. Then we will need to decide if we need to use their terminology to try to map to it. - Qualcomm think in LTE we have some definitions for intra and inter and this is useful at stage 2 level but not at stage 3 in RAN2. Huawei think its main use functional use is for idle behaviour.. - Intel wonder if we could agree or ask RAN4 about gas for intra-freq.			

- => We will wait for RAN4 to provide us with information before we progress with measurement gaps.
=> Noted

R2-1707770	Measurement Gap Configuration Considering the Beam Sweeping	OPPO	discussion	
R2-1707974	Sliding measurement GAP	Spreadtrum Communications	discussion	Rel-15
R2-1708116	Consideration on measurement gap	ZTE Corporation	discussion	Rel-15
	NR_newRAT-Core			
R2-1708253	Measurement Gaps in NR	MediaTek Inc.	discussion	
R2-1708421	Discussion on measurement gap	vivo	discussion	Rel-15 NR_newRAT-Core
R2-1708706	Measurement gap configuration in NR	Huawei, HiSilicon	discussion	Rel-15
	NR_newRAT-Core			
R2-1708709	Definition of GAP assisted measurement in NR	Huawei, HiSilicon	discussion	Rel-15
	NR_newRAT-Core			
R2-1708780	Measurement gap in NR	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1709019	Measurement gap for NR	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1709131	Measurement gap considering beam	LG Electronics Inc.	discussion	Rel-15
	NR_newRAT-Core			
R2-1709294	Configuration of measurement gap in NR	Ericsson	discussion	Rel-15 NR_newRAT-Core
	Core			
R2-1709295	Draft LS to RAN4 on need of measurement gaps	Ericsson	discussion	Rel-15
	NR_newRAT-Core			

10.4.1.4.7 Other

Other RRM related aspects

Including output from email discussion [NR-AH2#13][NR/RRM] TP on RRM (Ericsson)

R2-1707855	Summary of [NR-AH2#13][NR/RRM] TP on RRM	Ericsson	discussion	Rel-15
	NR_newRAT-Core			
	=> Endorsed			

☒ **[99#32][NR] TP on RRM (Ericsson)**

To capture progress from this meeting.

The discussion can also resolve small FFS points (e.g. items taken from the LTE baseline that do not directly translate into NR without some discussion, and items (e.g. features added in later releases of LTE) from the LTE baseline for which there has not yet been an explicit decision whether to include them in NR).

Email discussion summary should provide a summary of any small decisions that were taken as well as provide a list of the remaining FFS points.

Intended outcome:

Deadline: Thursday 21/09/2017

Measurement BW, impact of BWP

R2-1708090	Issues on RRM measurement bandwidth in NR	Samsung	discussion	Rel-15
	Moved from 10.4.1.4.4 to 10.4.1.4.7			
	P1			
	- Samsung understand BWP is just for connected mode UE but we still need to configure the BW for the idle mode UE.			
	P3			
	- AT+T wonders if the BW configuration is tied to the BWP or the MO.			
	- MediaTek think it depends what functionality we need to support, e.g. for mobility for BWP management. Hence this would be in the measurement object.			
	=> Noted			

R2-1708207	Measurement configuration for carriers and bandwidth parts without SS blocks discussion <i>Moved from 10.4.1.4.3 to 10.4.1.4.7</i>	AT&T
R2-1708001	RRM Measurement for Bandwidth Part Operation MediaTek Inc. discussion Core	NR_newRAT-
<i>Other</i>		
R2-1709486	Measurement configuration and reporting, signalling baseline Samsung Telecommunications discussion Rel-15 => Offline discussion to progress on proposal 1 (Samsung, Offline discussion #49) => Proposal 1 to be discussion on the email progress the measurements TP	
R2-1707830	Definition of measurement object for NR Nokia, Nokia Shanghai Bell discussion 15 NR_newRAT-Core	Rel-
R2-1707831	Considerations on fast access inter-site small cells in NR Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core	
R2-1708026	Measurement configurations and signaling for fast setup Ericsson discussion 15 NR_newRAT-Core	Rel-
R2-1708091	RRM considerations for adaptive bandwidth in NR Samsung discussion Rel-15	
R2-1708092	RRM measurement for multiple numerologies in NR Samsung discussion 15	Rel-
R2-1708117	Discussion on the triggering of performing measurement ZTE Corporation discussion Rel-15 NR_newRAT-Core	
R2-1708578	s-Measure and its impact on cell level and beam level measurements in NR Ericsson discussion Rel-15 NR_newRAT-Core	
R2-1708580	Mobility states and speed based parameter scaling in NR Ericsson discussion 15 NR_newRAT-Core	Rel-
R2-1708581	ANR framework in NR Ericsson discussion Rel-15 NR_newRAT-Core	
R2-1708582	TP on ANR to 36.300 Ericsson discussion Rel-15 NR_newRAT-Core	
R2-1708710	Speed dependent mobility in connected state Huawei, HiSilicon discussion 15 NR_newRAT-Core	Rel-
R2-1709296	On cell and beam level report quantities Ericsson discussion Core Rel-15 NR_newRAT-	
R2-1709297	Draft LS on On the need to support quality measurements in NR Ericsson discussion Rel-15 NR_newRAT-Core	
R2-1709527	Definition of s-Measure for NR Convida Wireless LLC discussion Rel-15 NR_newRAT	
R2-1709593	NR CSI-RS configuration for RRM measurement Samsung Electronics discussion	
R2-1709601	Discussion on Adaptation of Measurement Related Parameters for Different Mobility Scenarios Samsung Electronics discussion	
R2-1709605	Discussion on s-Measure Considering NR-SS and CSI-RS Samsung Electronics discussion	
R2-1709606	The Impact of Beam Sweeping on RRM Measurement Samsung Electronics discussion	

10.4.1.5 System information

No documents should be submitted to 10.4.1.5. Please submit to 10.4.1.5.x.

10.4.1.5.1 System information content/structure

Progress details of the content and structure of system information with priority on MIB content required for EN-DC operation, including addressing the identified FFS points from last meeting.

PBCH content

R2-1708570	Finalising NR P-BCH contents from RAN2 viewpoints NTT DOCOMO, INC., Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core
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P1

- Ericsson wonder what is the benefit. If SIB 1 is not provided the UE will detect this.
- Samsung ask if the same bit achieves the existing cell barring behaviour as well as the avoidance of camping on EN-DC cells. DOCOMO explain the bit is meant to achieve the same purpose as today as well as for the EN-DC case.
- AT+T think there is benefit for the UE to have this as early as possible.
- Vivo also support the proposal. CATT also support.
- Huawei support the proposal to both in the MIB but think the existing behaviour might not be applicable for the EN-DC case, could be a longer time before the UE has to cell. Qualcomm think the scenario doesn't matter as the PCI could be reused in another place by a cell that is not an NSA only cell.
- Vodafone think the cell could be barred for longer than 300s. There could be longer barring timer due to different PCI reuse. Chair thinks the larger PCI reuse that could mean a longer timer for both EN-DC and normal barring case.
- ZTE wonder if there is a case where a cell is shared by 2 PLMNs one which uses it as NSA and one which uses it as SA.

a/ 2 bits in MIB (cellbarred and IFRI), 0 bits in SIB1

10

b/ 1 bit in MIB, cellbarred and IFRI in SIB1

11

c/ 0 bits in MIB, cellbarred and IFRI in SIB1

3

P3

- Vivo ask if the bit means that all the cells are synchronised. DOCOMO explains that it implies that all the neighbours identified from the serving cell are synchronised to it.
- ATT think the bit has been decided in RAN1 but RAN 2 to decide the location.
- DOCOMO explain the benefit is that the UE can skip to read the PBCH when it is performing measurements. AT+T share the view of DOCOMO.

Working assumption

- 1: 1 bit (final name FFS, but same UE behaviour as cellbarred in LTE) is included in NR MIB to indicate that a cell cannot be camped on. intraFreqReselection is 'not allowed' (not signalled). BarredTimer is specified, value FFS.
cellBarred and intraFreqReselection signalling in SIB1 (as in LTE)

Agreements

- 2: Synchronisation information (1 bit) is provided to inform that the UE can utilise serving cell timing to derive the index of SS-block transmitted by neighbour cell (e.g. radio frame or SFN or symbol level synchronisation).
 - 3: The synchronisation information can be provided via both dedicated RRC signalling and broadcast, but not via NR MIB.
- FFS on the location of the bit in the SIBs

R2-1707764	Further Discussion on PBCH Left Issues	OPPO	discussion		
R2-1707877	Open issues on NR PBCH contents NR_newRAT-Core	Qualcomm	Incorporated discussion	Rel-15	
R2-1707904	Camping indication in NR-PBCH	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1708064	Discussion on detailed indications in MIB NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15	
R2-1708065	Draft LS on NR-PBCH content RAN1	Huawei, HiSilicon	LS out	Rel-15	NR_newRAT-Core
R2-1708160	Indication in NR system information that cell is not campable Rel-15 NR_newRAT-Core	Ericsson	discussion		

R2-1708422	Remaining issues on minimum system information content vivo	discussion	Rel-15
	NR_newRAT-Core		
R2-1709512	Barring Indication in MIB Sony	discussion	Rel-15 NR_newRAT-Core
<i>Other</i>			
R2-1709496	Remaining aspects of PBCH and SIB1 contents	SAMSUNG Electronics Co., Ltd.	discussion
R2-1707874	Organization of NR System Information	Qualcomm Incorporated	discussion Rel-15
	NR_newRAT-Core		
R2-1707879	Considerations on NR indication	Qualcomm Incorporated, KDDI	discussion Rel-15
	NR_newRAT-Core		
R2-1707880	Draft reply LS on NR indication	Qualcomm Incorporated	discussion Rel-15 NR_newRAT-Core
	Core		
R2-1708066	Discussion on maximum idle mode DRX value in NR	Huawei, HiSilicon	discussion
	Rel-15 NR_newRAT-Core		
R2-1708067	draft Reply LS on maximum idle mode DRX value	Huawei, HiSilicon	LS out Rel-15
	NR_newRAT-Core SA2		
R2-1708068	Detailed design on the contents of System Information	Huawei, HiSilicon	discussion
	Rel-15 NR_newRAT-Core		
R2-1708104	Content of the NR-RMSI	ZTE Corporation	discussion Rel-15 NR_newRAT-Core
R2-1708161	SS Block Index dependent system information	Ericsson	discussion Rel-15
	NR_newRAT-Core		
R2-1708162	System information structure and contents	Ericsson	discussion Rel-15 NR_newRAT-Core
	Core		
R2-1708163	SIBs needed for initial NR deployments	Ericsson	discussion Rel-15 NR_newRAT-Core
	Core		
R2-1708164	System information handling in EN-DC	Ericsson	discussion Rel-15 NR_newRAT-Core
	Core		
R2-1708828	System information to be provided in NR	Intel Corporation	discussion Rel-15
	NR_newRAT-Core		
R2-1709093	Considerations on support of supplementary uplink frequency	CMCC	discussion Rel-15
	NR_newRAT-Core		
R2-1709561	Structure and Content of Remaining Minimum SI	Nokia, Nokia Shanghai Bell	discussion
	Rel-15 NR_newRAT-Core		
R2-1709620	SIBs needed for NSA	Huawei, HiSilicon	discussion Rel-15 NR_newRAT-Core

Withdrawn

R2-1708103	Consideration on the fast camp indication	ZTE Corporation	discussion Rel-15
	NR_newRAT-Core		
	=> Withdrawn		
R2-1708655	Barring Indication in MIB Sony	discussion	Rel-15 NR_newRAT-Core
	=> Withdrawn		

10.4.1.5.2 Stored system information

*Further details of stored SI including index/identifier format**Maximum 1 tdoc per company*

R2-1707776	Necessity of Area ID for on-demand SI	NTT DOCOMO, INC., Qualcomm Incorporated	discussion Rel-15 NR_newRAT-Core
R2-1708741	Details of Stored System Information for NR	InterDigital	discussion Rel-15
	NR_newRAT-Core		

R2-1708042	On structure of SI index	MediaTek Inc.	discussion		
R2-1708105	Consideration on the Stored other SI NR_newRAT-Core	ZTE Corporation	discussion	Rel-15	
R2-1707695	Optimized design for the SI index	PANASONIC R&D Center Germany	discussion		
R2-1707875	NR SI area ID and value tag	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core
R2-1707906	Indexed SI in NR CATT		discussion	Rel-15	NR_newRAT-Core
R2-1708069	Area ID and value tag for SIBs	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708165	Stored system information	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708423	Stored SI for NR	vivo	discussion	Rel-15	NR_newRAT-Core
R2-1708869	The index of stored system information	Fujitsu	discussion	Rel-15	NR_newRAT-Core
R2-1708908	SI valid area configuration	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1709497	Index based approach and Stored SI	SAMSUNG Electronics Co., Ltd.	discussion		
R2-1709562	Signalling of System Information Area 15 NR_newRAT-Core	Nokia, Nokia Shanghai Bell	discussion	Rel-15	

10.4.1.5.3 System information modification

Maximum 1 tdoc per company

R2-1708424	SI Change Notification	vivo	discussion	Rel-15	NR_newRAT-Core
R2-1707676	System Information Update in NR NR_newRAT-Core	Samsung R&D Institute India	discussion	Rel-15	
R2-1707766	Discussion on NR SI Modification	OPPO	discussion		
R2-1708051	NR SI Update	MediaTek Inc.	discussion		
R2-1708070	SI Update procedure	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708106	Consideration on the SI Modification NR_newRAT-Core	ZTE Corporation	discussion	Rel-15	
R2-1708166	Change of System Information in NR Core	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708465	System information modification	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1708742	SI Modification Procedure in NR	InterDigital	discussion	Rel-15	NR_newRAT-Core
R2-1709080	Discussion on the granularity of SI change notification	ITRI	discussion		NR_newRAT-Core
R2-1709188	SI modification for Stored SI	ITL	discussion	Rel-15	
R2-1709564	System Information Modification in NR 15 NR_newRAT-Core	Nokia, Nokia Shanghai Bell	discussion	Rel-15	

10.4.1.5.4 System information scheduling

Maximum 1 tdoc per company

R2-1708071	Considerations on System Information scheduling 15 NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15	
R2-1707677	SI Message TX/RX in NR	Samsung R&D Institute India	discussion	Rel-15	NR_newRAT-Core
R2-1707767	Consideration on NR SI Scheduling	OPPO	discussion		
R2-1707943	Remaining issues on Other SI scheduling information NR_newRAT-Core	ETRI	discussion	Rel-15	
R2-1708167	System information scheduling	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708425	Scheduling of Other SI	vivo	discussion	Rel-15	NR_newRAT-Core

R2-1708466	System information scheduling Core	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-
R2-1709566	Indication for On-Demand SI Broadcast	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT-Core

10.4.1.5.5 On demand system information

Including need for additional bit to indicate if SI message is actually being broadcast

Maximum 1 tdoc per company

R2-1707871	Consideration on on-demand SI TX request in NR	Qualcomm Incorporated, Sony, NTT DOCOMO, INC., ZTE, Sanechips	discussion	Rel-15	NR_newRAT-Core
<i>moved from 10.4.1.5.1 to 10.4.1.5.6</i>					
R2-1707678	On Demand SI: Remaining Issues	Samsung R&D Institute India	discussion	Rel-15	NR_newRAT-Core
R2-1707765	Discussion on Remaining Issues of On-Demand SI	OPPO	discussion		
R2-1707878	Open issues on NR on-demand SI	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core
R2-1707905	Remaining issues of on-demand SI	CATT	discussion	Rel-15	NR_newRAT-Core
R2-1707946	Other SI broadcast indication mechanism	ETRI	discussion	Rel-15	NR_newRAT-Core
R2-1707976	Additional indicator for on demand SI scheduling	Spreadtrum Communications	discussion	Rel-15	
R2-1708041	Indicator for Other SI Transmission	MediaTek Inc.	discussion		
R2-1708063	Resolving remaining FFSS	Lenovo, Motorola Mobility	discussion	Rel-15	NR_newRAT-Core
R2-1708072	On demand SI acquisition and failure handling	Huawei, HiSilicon	discussion	Rel-15	NR_newRAT-Core
R2-1708107	Content of the Msg4 for the Msg3-based scheme	ZTE Corporation	discussion	Rel-15	NR_newRAT-Core
R2-1708168	Remaining issues for on-demand SI	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708229	On demand SI request at RLAU	NEC	discussion	Rel-15	NR_newRAT-Core
R2-1708426	On demand SI General Procedure	vivo	discussion	Rel-15	NR_newRAT-Core
R2-1708461	Remaining issues on on-demand SI request procedure	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1708743	On Demand SI Request Procedure	InterDigital	discussion	Rel-15	NR_newRAT-Core
R2-1708870	Multiple other SI requests in MSG1	Fujitsu	discussion	Rel-15	NR_newRAT-Core
R2-1708995	Trigger of request for cell-reselection system information	CMCC	discussion	Rel-15	NR_newRAT-Core
R2-1709079	Discussion on the additional indication for on-demand SI	ITRI	discussion		NR_newRAT-Core
R2-1709164	Remain issues of on-demand SI	Beijing Xiaomi Mobile Software	discussion	Rel-15	
R2-1709567	SI Request and Delivery using Msg 3 Approach	Nokia, Nokia Shanghai Bell	discussion	Rel-15	NR_newRAT-Core

10.4.1.5.6 System information -other

Other system information related aspects

Including output from email discussion [NR-AH2#14][NR] TP on system information (Samsung)

Email discussion

R2-1709493	Email discussion report on TP to 38.331 on System Information	SAMSUNG Electronics Co., Ltd.	report		
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=> Noted

R2-1709494 TP to 38.331 on System Information SAMSUNG Electronics Co., Ltd. other
=> Revised in R2-1709891 (Offline discussion #51)

R2-1709891 TP to 38.331 on System Information SAMSUNG Electronics Co., Ltd. other
=> Structure is agreed
=> Endorsed
=> People are invited to provide comment direct to the rapporteur.

Other

R2-1707881	UE battery life impact for NR cell DTX for network energy efficiency	Qualcomm
	Incorporated discussion Rel-15 NR_newRAT-Core	
R2-1708046	MSG4 content for on-demand SI request for SI broadcast	MediaTek Inc. discussion
R2-1708073	Assisted Delivery of "Minimum SI" Huawei, HiSilicon	discussion Rel-15 NR_newRAT-Core
R2-1708074	Public Warning system for NR Huawei, HiSilicon	discussion Rel-15 NR_newRAT-Core
R2-1708108	Upper layer actions for the Random Access problem	ZTE Corporation discussion
	Rel-15 NR_newRAT-Core	
R2-1708169	System information content at network sharing	Ericsson discussion Rel-15
	NR_newRAT-Core	
R2-1708170	Dedicated System Information	Ericsson discussion Rel-15 NR_newRAT-Core
R2-1708427	Considerations on RRC SI Request/Response Messages	vivo discussion Rel-15
	NR_newRAT-Core	
R2-1708428	Discussion on other SI request	vivo discussion Rel-15 NR_newRAT-Core
R2-1708467	UE dedicated on-demand SI delivery in NR	LG Electronics Inc. discussion Rel-15
	NR_newRAT-Core	
R2-1708901	Other-SI request and acquisition in CONNECTED	LG Electronics Inc. discussion Rel-15
	NR_newRAT-Core	
R2-1708914	On supporting multiple modification periods in NR	Samsung discussion NR_newRAT-Core
R2-1709489	Dedicated signalling of SI upon UE mobility	Samsung Telecommunications discussion
	Rel-15	

10.4.1.6 Inactive state

Note that details of procedures for state transitions involving inactive (e.g. RRC Connection Resume) are covered in be discussed in 10.4.1.3.

No documents should be submitted to 10.4.1.6. Please submit to 10.4.1.6.x.

10.4.1.6.1 RAN area configuration

Maximum 1 tdoc per company

R2-1708857	Consideration on RNA configuration	China Telecom Corporation Ltd. discussion
R2-1708474	RAN based notification area	Nokia, Nokia Shanghai Bell discussion Rel-15
	NR_newRAT-Core	
R2-1707669	RAN paging area for NR	Samsung discussion Rel-15 NR_newRAT-Core
R2-1707845	RAN area configuration	Ericsson discussion Rel-15 NR_newRAT-Core
R2-1707863	RAN-based Notification Area Definition	MTI discussion
R2-1707907	Open issues on RNA	CATT discussion Rel-15 NR_newRAT-Core
R2-1708155	Consideration on RAN area configuration	ZTE Corporation discussion Rel-15
	NR_newRAT-Core	

R2-1708178	Discussion on RAN Notification Area Configuration	SHARP Corporation	discussion	Rel-15
R2-1708254	RAN-based Notification Area in NR	MediaTek Inc.	discussion	
R2-1708711	RAN notification area configuration NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15
R2-1708805	RAN notification area configuration NR_newRAT-Core	Intel Corporation	discussion	Rel-15
R2-1708871	RAN based notification area configuration	Fujitsu	discussion	Rel-15 NR_newRAT-Core
R2-1709109	RAN area configuration	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core

10.4.1.6.2 RAN area update procedure

Maximum 1 tdoc per company

R2-1707670	RRC procedures for the RAN paging area	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1707843	RAN area update in RRC_INACTIVE	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1707864	UE-initiated RAN-based Notification Area Update Procedure	MTI	discussion	
R2-1707908	Periodic RNA update	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1708156	Consideration on periodic RAN area update procedure	ZTE Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708712	Discussion on CN location Update and RNA Update for inactive state		discussion	Huawei, HiSilicon
R2-1708744	RAN Location Area Update Procedure for NR	InterDigital	discussion	Rel-15 NR_newRAT-Core
R2-1709479	Discussion on RAN-based location area update procedure in NR	ASTRI, TCL Communication Ltd.	discussion	

10.4.1.6.3 Paging in inactive

RRC procedure to respond to paging, including any differences between RAN and CN paging

R2-1707909	Procedure of paging in inactive	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1707671	Further considerations on the CN and RAN paging	Samsung	discussion	Rel-15 NR_newRAT-Core
R2-1708171	Paging in RRC_INACTIVE	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708255	RAN-initiated Paging in NR	MediaTek Inc.	discussion	
R2-1708464	RAN paging DRX in RRC_INACTIVE	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1708806	RAN-initiated paging message and failure handling	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708990	Paging failure handling in RRC_INACTIVE	CMCC	discussion	Rel-15 NR_newRAT-Core
R2-1709107	CN-initiated paging for a UE in RRC_INACTIVE	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1709529	RAN initiated paging	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core

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

R2-1709284	Inter-RAT mobility between NR and eLTE for Inactive state	LG Electronics Inc	discussion	Rel-15
R2-1708713	Inter-RAT mobility for inactive UE	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1708807	Mobility of UE in INACTIVE between NR and E-UTRA connected to 5GC	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1707691	Text proposal UE re-selection in INACTIVE	Samsung, Nokia, Nokia Shanghai Bell	discussion	

Moved from 10.1 to 10.4.1.6.4

R2-1707672	Inter-RAT mobility in the RRC INACTIVE state NR_newRAT-Core	Samsung	discussion	Rel-15
R2-1707847	TP to 38.331 on RRC states	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1707852	Mobility between LTE and NR for inactive UE NR_newRAT-Core	Ericsson	discussion	Rel-15

10.4.1.6.5 Inactive - other

Other inactive state related aspects

R2-1707844	CN area updating in RRC_INACTIVE Core	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1707846	UE Context ID	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708154	CN area update in Inactive state Core	ZTE Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708172	RAN sharing and identifier aspects in NR Core	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708215	RLAU procedure and interaction with TAU	Huawei, HiSilicon	discussion	Rel-15
R2-1708429	DRX configuration for Inactive UE	vivo	discussion	Rel-15 NR_newRAT-Core
R2-1708459	Handling of radio bearers and security for data transmission in RRC_INACTIVE Electronics Inc.	discussion	Rel-15 NR_newRAT-Core	LG
R2-1708472	Consistent support of RRC_INACTIVE NR_newRAT-Core	Nokia, Nokia Shanghai Bell	discussion	Rel-15
R2-1708473	Security in inactive state	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT-Core
R2-1708808	Inactive and dual connectivity	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708809	NAS/AS interaction when resuming NR_newRAT-Core	Intel Corporation	discussion	Rel-15
R2-1708815	Cell reselection for inactive UE Core	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1709058	State transition from RRC_CONNECTED to RRC_INACTIVE Rel-15 NR_newRAT-Core	ASUSTeK	discussion	
R2-1709104	Consideration on MICO mode for RRC_INACTIVE NR_newRAT-Core	LG Electronics Inc.	discussion	Rel-15
R2-1709108	Support for PLMN selection in RRC_INACTIVE NR_newRAT-Core	LG Electronics Inc.	discussion	Rel-15
R2-1709110	Offloading UEs in RRC_INACTIVE NR_newRAT-Core	LG Electronics Inc.	discussion	Rel-15
R2-1709332	UE actions upon cell reselection in RRC_INACTIVE discussion NR_newRAT-Core	ASUSTEK COMPUTER (SHANGHAI)		
R2-1709500	PLMN Selection in RRC INACTIVE state	SAMSUNG Electronics Co., Ltd.	discussion	
R2-1709635	RRC_INACTIVE Principles	" Qualcomm Incorporated"	discussion	

R2-1707665	On terminology for the NR RRC states Core	Samsung	discussion	Rel-15 NR_newRAT-Core
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Moved from 10.4.1.2 to 10.4.1.6.5

10.4.1.7 Access control

Continue to progress unified access control

R2-1709206	Access Barring in NG-RAN NR_newRAT-Core	Nokia, Nokia Shanghai Bell	discussion	Rel-15
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R2-1708916	way-forward for NR access control	Samsung	discussion	NR_newRAT-Core
R2-1709648	Unified Access Control in different RRC Modes	Qualcomm Incorporated	discussion	
R2-1709207	Access Control applicability to different RRC states	Nokia, Nokia Shanghai Bell		
	discussion	Rel-15 NR_newRAT-Core		
R2-1708993	Discussion on unified access control for NR	CMCC	discussion	Rel-15 NR_newRAT-Core
R2-1707703	Discussion on access control in NR	OPPO	discussion	Rel-15 NR_newRAT-Core
R2-1707883	QoS Flow based Access Control for CONNECTED Mode in NR	TCL	discussion	
	NR_newRAT-Core			
R2-1707910	Access control mechanism in NR	CATT	discussion	Rel-15 NR_newRAT-Core
R2-1708111	Consideration on the access control in NR	ZTE Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708455	Access category based access barring for RRC_IDLE and RRC_INACTIVE	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1708458	Access category based access barring mechanism for RRC_CONNECTED	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1708463	Random Access Backoff and Access Barring	LG Electronics Inc.	discussion	Rel-15 NR_newRAT-Core
R2-1708528	Access Control for NR	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708529	Access Control for RRC_CONNECTED	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708530	Access Control for RRC_INACTIVE	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708531	Unified Access Control Assessment	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708532	Signalling of Access Control Parameters	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708533	Default access control categories	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708534	Establishment causes for NR	Ericsson	discussion	Rel-15 NR_newRAT-Core
R2-1708535	DRAFT LS on Establishment Causes and Call Types in NR	Ericsson	LS out	Rel-15 NR_newRAT-Core
R2-1708811	5G access control mechanism in IDLE and INACTIVE	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708812	5G access control mechanism in CONNECTED	Intel Corporation	discussion	Rel-15 NR_newRAT-Core
R2-1708917	NR access control procedure	Samsung	discussion	NR_newRAT-Core
R2-1708918	On Establishment Cause and standardized access category	Samsung	discussion	NR_newRAT-Core
R2-1708919	Barring configuration in NR access control	Samsung	discussion	NR_newRAT-Core
R2-1708921	Barring skip indicator in NR	Samsung	discussion	NR_newRAT-Core
R2-1709208	Congestion Control for RRC_CONNECTED	Nokia, Nokia Shanghai Bell	discussion	Rel-15 NR_newRAT-Core
R2-1709242	Considerations on NR Access Control	KT Corp.	discussion	
R2-1709540	Generic Access Barring	MediaTek Beijing Inc.	discussion	
R2-1709542	Access Control in RRC_INACTIVE	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709545	Basic Access Control in NR	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core
R2-1709551	Access Control in NR for RRC_CONNECTED	Huawei Technologies France	discussion	Rel-15 NR_newRAT-Core
R2-1709552	Access Control for MT	Huawei, HiSilicon	discussion	Rel-15 NR_newRAT-Core

10.4.1.8 Inter-Node RRC messages

Based on stage 2 progress, start to define structure and content of the Inter-Node RRC messages used for MN/SN procedures.

R2-1709022	NSA procedure: measurement result contents and its encoding for SN addition	Samsung Electronics Romania	discussion	
R2-1709621	Inter-node message design for LTE-NR DC NR_newRAT-Core	Huawei, HiSilicon	discussion	Rel-15

10.4.1.9 Other

Other RRC related aspects

R2-1708173	Wait Timer in NR	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1708457	Configurable cause for NR Core	LG Electronics Inc.	discussion	Rel-15	NR_newRAT-Core
R2-1708599	RRC processing delays in NR and EN-DC Core	Ericsson	discussion	Rel-15	NR_newRAT-Core
R2-1709170	RAN2 consideration on control plane latency enhancement	Samsung Electronics GmbH	discussion		
R2-1709324	Control of UE beamforming in RRC_CONNECTED NR_newRAT-Core	ASUSTEK COMPUTER (SHANGHAI)	discussion		
R2-1709504	RRC signalling to support LTE+NR Co-existence	SAMSUNG Electronics Co., Ltd.	discussion		
R2-1709655	Considerations on Establishment cause for NR	KDDI	discussion	Rel-15	

10.4.2 Idle/inactive mode procedures

10.4.2.1 TS

Latest 38.304, other rapporteur inputs, anything related to specification methodology. Please submit any new text proposals to the appropriate agenda item.

R2-1709627	New Generation Radio Access Network; User Equipment (UE) procedures in Idle mode	Qualcomm Incorporated	draft TS38.304 0.0.4	Rel-15	NR_newRAT-Core
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10.4.2.2 Selection/reselection rules

Basic criteria and rules for cell selection and reselection

Maximum 1 tdoc per company

R2-1708816	Further considerations for cell (re)selection	Intel Corporation	discussion		
R2-1709634	Cell selection and reselection for NR	Qualcomm Incorporated	discussion		
R2-1708476	Cell selection and reselection for NR IDLE - cell selection/reselection criteria	Nokia, Nokia Shanghai Bell	discussion		
R2-1707911	Service types in inactive Mode	CATT	discussion		
R2-1708075	Cell selection and reselection rules	Huawei, HiSilicon	discussion		
R2-1708256	Cell Selection and Reselection in NR	MediaTek Inc.	discussion		
R2-1708315	Discussion on cell (re)selection while the beam number is less than N	HTC Corporation, Mediatek	discussion		
R2-1708858	Service based Inter-RAT cell reselection	China Telecom Corporation Ltd.	discussion		
R2-1708983	A cell-specific parameter for cell reselection	CMCC	discussion		
R2-1709298	Cell selection and re-selection criteria and measurement rules	Ericsson	discussion		
R2-1709594	NR IDLE mode Cell Selection/Reselection	Samsung Electronics	discussion		

10.4.2.3 Cell quality derivation

Derivation of cell quantity from beam measurements (including filtering and FFS points from previous meetings)

Maximum 1 tdoc per company

R2-1709595	NR IDLE mode Cell quality derivation	Samsung Electronics	discussion
R2-1708579	Cell quality derivation in Idle mode	Ericsson	discussion
R2-1708475	Cell selection and reselection for NR IDLE - cell quality derivation	Nokia, Nokia Shanghai Bell	discussion
R2-1707912	Considerations on idle mode measurement	CATT	discussion
R2-1708076	Derivation of cell quality in IDLE/INACTIVE	Huawei, HiSilicon	discussion
R2-1708430	Cell quality derivation in idle inactive mode	vivo	discussion
R2-1708817	Cell quality derivation for idle mobility	Intel Corporation	discussion
R2-1708898	Cell quality derivation in IDLE/INACTIVE	LG Electronics Inc.	discussion
R2-1708996	Cell quality derivation for NR idle UE	CMCC	discussion
R2-1709526	Cell Quality Derivation for Cell Reselection	Convida Wireless LLC	discussion

10.4.2.4 Service based reselection

Maximum 1 tdoc per company

R2-1708077	Service-based camping	Huawei, HiSilicon	discussion
R2-1708174	Service-based RAT/frequency selection in INACTIVE or in IDLE	Ericsson	discussion
R2-1707687	Cell Re-selection: Service Specific Frequency Prioritisation in NR	Samsung R&D Institute India	discussion
R2-1707913	Service based cell reselection	CATT	discussion
R2-1708818	Service based cell reselection	Intel Corporation	discussion
R2-1708904	Service based cell reselection	LG Electronics Inc.	discussion
R2-1709078	Discussion on service-based cell reselection	ITRI, ASUSTeK	discussion

10.4.2.5 Selection/reselection - other aspects

Including, for example mobility states, speed dependent scaling, forward compatibility for CSG, cell reservations, etc

R2-1708078	Speed dependent mobility in Idle and Inactive mode	Huawei, HiSilicon	discussion
R2-1708079	Cell reservation and forward compatibility for CSG in NR	Huawei, HiSilicon	discussion
R2-1708175	CSG-like selection and camping limitations in NR	Ericsson	discussion
R2-1708176	Camping in NR	Ericsson	discussion
R2-1708431	Cell selection reselection in NR	vivo	discussion
R2-1708432	Consideration on forward compatibility	vivo	discussion
R2-1708433	Sync assistant information for RRC idle/inactive state	vivo	discussion
R2-1708718	Support of Redistribution priority in NR	Huawei, HiSilicon	discussion
R2-1708719	Cell reselection for inactive UEs	Huawei, HiSilicon	discussion
R2-1708906	Mobility state estimation in NR	LG Electronics Inc.	discussion
R2-1709279	NR forward compatibility issue for CSG	LG Electronics Inc.	discussion
R2-1709281	Idle Measurement Enhancement using UE speed	LG Electronics Inc.	discussion
R2-1709299	Mobility states and state based scaling	Ericsson	discussion
R2-1709596	Speed dependant mobility related parameters in NR IDLE or INACTIVE mode	Samsung Electronics	discussion
R2-1709630	CSG Type Functionality for NR	Qualcomm Incorporated, Deutsche Telekom	discussion
R2-1709633	Cell Barring and Reservations for NR	Qualcomm Incorporated	discussion

10.4.2.6 Idle/inactive paging

Including beam related aspects, response driven paging and calculation of paging occasion.

R2-1707914	Paging in multi-beam operation	CATT	discussion	
R2-1709249	Configurable Paging Procedure for NR	Nokia, Nokia Shanghai Bell	discussion	
R2-1707688	Paging in NR – Beamforming Aspects	Samsung R&D Institute India	discussion	
R2-1707689	PO Determination for Paging Reception	Samsung R&D Institute India	discussion	
R2-1707704	Discussion on paging in NR	OPPO	discussion	
R2-1707761	Paging occasion and time slot in NR	OPPO	discussion	
R2-1707977	Paging design consideration	Spreadtrum Communications	discussion	
R2-1708093	Paging for wideband carrier in NR	Samsung	discussion	
R2-1708112	Calculation of paging occasion in NR	ZTE Corporation	discussion	
R2-1708152	Overhead Reduction for Paging in Multi-beam Operation	ZTE Corporation	discussion	
R2-1708177	DRX in idle state	Ericsson	discussion	
R2-1708216	Definition of PF and PO	Huawei, HiSilicon	discussion	
R2-1708217	Efficiency of direct and response-driven paging	Huawei, HiSilicon	discussion	
R2-1708257	Overhead Reduction for Paging in Multi-beam Operation	MediaTek Inc.	discussion	
R2-1708434	NR paging design vivo		discussion	
R2-1708456	CN paging DRX in RRC_IDLE	LG Electronics Inc.	discussion	
R2-1708536	Paging delivery in NR	Ericsson	discussion	
R2-1708537	Response-driven paging to reduce beam sweeping overhead in NR		Ericsson	discussion
R2-1708538	DRAFT LS on maximum DRX value for NR in Release 15	Ericsson	LS out	
R2-1708745	Paging in High Frequency InterDigital		discussion	
R2-1708746	Paging Indicator Design	InterDigital	discussion	
R2-1708819	Calculation of paging occasion	Intel Corporation	discussion	
R2-1709178	Providing more information relating to MT data in Paging	Beijing Xiaomi Mobile Software	discussion	
R2-1709248	Comparison between different paging schemes	Nokia, Nokia Shanghai Bell	discussion	
R2-1709250	Evaluation of Uplink Access using Paging Indicators	Nokia, Nokia Shanghai Bell	discussion	
R2-1709528	UE Assisted Paging	Convida Wireless LLC	discussion	
R2-1709554	Paging mechanism with beam sweeping	Huawei Technologies France	discussion	
R2-1709641	Use of multiple P-RNTIs for NR paging	Qualcomm Incorporated	discussion	
R2-1709642	Consideration on NR paging	Qualcomm Incorporated	discussion	

10.4.3 UE capability specification

Note, this agenda item is related to specification structure and principle. Discussion of UE capabilities for NSA and SA will take place in agenda item 10.2.6

10.4.3.1 TS

Latest 38.304, other rapporteur inputs, anything related to specification methodology.

R2-1708750 Draft TS 38.306 v0.0.3 Intel Mobile Communications draft TS38.306 0.0.3
Rel-15 NR_newRAT-Core
=> Endorsed

R2-1708820 Open issues on TS38.306 Intel Corporation discussion

Agreements:

- 1 NR UE category, if needed, are included into TS38.306 to indicate a peak data rate.
- 1a If concluded that peak data rate is derived from other parameters (e.g BCs etc) then the derivation should be captured in 36.306
- 2 NR part of NSA related capabilities are captured into TS38.306. LTE part of NSA related capabilities are captured in TS 36.306 (with linking and referencing between specs)
- FFS Location of common part of NSA related capabilities
- 3 UE capability ASN.1 and procedure parts remain in RRC spec
- FFS Whether it is possible to avoid duplication of procedural text between LTE and NR specs for the retrieval for NR capabilities

=> Offline discussion to conclude appropriate question relating to the definition of the parameters related to UE category that determine the data rate. Can be added to the LS agreed to be sent following the capability coordination discussion. (Offline discussion ??)

R2-1709622	Handling of UE capability related parts in TS38.331	Huawei, HiSilicon	discussion
R2-1707832	Excluding ASN.1 from TS38.306	Nokia, Nokia Shanghai Bell	discussion

11 Comebacks

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

11.1 LTE breakout sessions

11.1.1 Report from Break-Out session

Report from session on Rel-14 LTE and NR UP

R2-1709663	Report from Break-Out Session, Vice-Chair (InterDigital)		
	CBF: Report from LTE Break-Out Session, Vice-Chair (InterDigital)		
	=> Approved		
	- R2-1709806 double allocated		
R2-1709347	Correction to eLAA configuration	HTC Corporation	CR
	LTE_eLAA-Core	3041	F
	=> Keep deleted sentence. Change " If the field is absent " to "If the field is not configured"		
	=> Agreed in R2-1709947		
R2-1709806	Introduction of new NS values for V2X sidelink communication	Huawei, HiSilicon	CR
	Approval	36.331 2978 2 B	LTE_V2X-Core Rel-14 14.3.0
R2-1709956	Introduction of new NS values for V2X sidelink communication	Huawei, HiSilicon	CR
	Approval	36.331 2978 2 B	LTE_V2X-Core Rel-14 14.3.0
	=> Agreed		
R2-1709796	Corrections to random selection for P2X related V2X sidelink communication		LG
	Electronics Inc.	CR	36.321 1147 2
	=> Agreed		
R2-1709797	Corrections to random selection for P2X related V2X sidelink communication		LG
	Electronics Inc.	CR	36.331 2997 2
	=> Agreed		
R2-1709798	[Draft] LS to RAN1 on P2X	LG Electronics Inc.	
	=> Approved in R2-1709948		
R2-1709846	Additional OTDOA Capabilities	Qualcomm Incorporated	CR
			36.355 0183

=> Agreed

R2-1709773 Correction on UE category combination in 36.306 Huawei, HiSilicon CR Rel-14
36.306 14.3.0 LTE_UL_CAP_enh-Core 1494 F
=> Agreed

R2-1709778 [DRAFT] Reply LS on QoS support over PC5 Nokia, Nokia Shanghai Bell discussion
Approval - - - - FS_feD2D_IoT_relay_wearable Rel-15
=> Approved in R2-1709949

R2-1709783 [DRAFT] LS on SPS and SR for sTTI Huawei, HiSilicon
- Nokia suggest that add that only one SR is delivered to L1
=> Add sentence to clarify that only one SR will be delivered to L1
=> Revised in R2-1709950

R2-1709950 [DRAFT] LS on SPS and SR for sTTI Huawei, HiSilicon
=> Approved in R2-1709972

R2-1709784 [draft] Reply LS to RAN1 on DRX Ericsson
=> Approved in R2-1709951

11.1.2 Report from Break-Out session

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

R2-1709664 Report from Break-Out Session, Vice-Chair (CMCC)
CBF: Report from LTE Break-Out Session, Vice-Chair (CMCC)
=> Relating to R2-1709631 the agreement is modified to
"2 The UE does not transmit on autonomous access resources when an UL grant is
received for the same TTI, for the same cell case"
=> Approved

R2-1708387 Correction on TAT in RACH-less handover in 36.331 Huawei, HiSilicon CR Rel-14
36.331 14.3.0 LTE_eMob-Core 2994 F
- Samsung would like to know the relation between this CR and the issue.
- Nokia think removing the action is not proper.
=> Find a better way rather than removing the action.
CBF: => Revised in R2-1709736 (offline 201)

R2-1709736 Correction on TAT in RACH-less handover in 36.331 Huawei, HiSilicon CR Rel-14
36.331 14.3.0 LTE_eMob-Core 2994 F
=> Inserted text should be at level 2 and 3 (not 3 and 4)
=> Agreed in R2-1709962

R2-1709735 Correction on TAT in RACH-less handoverHuawei 36.321 CR
=> Revised in R2-1709963

R2-1709963 Correction on TAT in RACH-less handoverHuawei 36.321 CR
=> Agreed

R2-1708974 Correction of RACH-less handover Kyocera CR Rel-14 36.300 14.3.0
LTE_eMob-Core 1032 2 F
- Qualcomm think it is not necessary.
- Samsung support the clarification.

- Intel suggest offline discussion for better wording.
CBF: => Revised in R2-1709737 for better wording. (offline 202)

R2-1709737 Correction of RACH-less handover Kyocera CR Rel-14 36.300 14.3.0
LTE_eMob-Core 1032 2 F
=> Agreed, but then revised:
[MCC]: Revision marks on the coversheet.
=> **Agreed in R2-1709761.**

eVoLTE

R2-1709210 RAN-recommended bit rate restriction Nokia, Nokia Shanghai Bell CR Rel-14
36.300 14.3.0 LTE_VoLTE_ViLTE_enh-Core 1053 F
CBF:=> Revised in R2-1709739 (offline 203) and Draft reply LS in R2-1709740 to SA4, CT3 (Nokia)
R2-1709739 RAN-recommended bit rate restriction Nokia, Nokia Shanghai Bell CR Rel-14
=> Agreed

R2-1709740 [Draft] Reply LS
=> Removed "the eNB guarantees"
=> Fix WI code
=> Approved in R2-1709930

eViLTE

CBF: => Offline discussion on how to progress the issue of local caching (CMCC). Report to the main session. Report in R2-1709745 (offline number 2000)

R2-1709745 Report of RAN2#99 offline discussion #2000 on UE assistance information for local caching (CMCC)

Agreements:

- UE assistance information bit is introduced for local caching when local cache is co-located with the eNB.
- Introducing this UE assistance information bit is not intended to change the specified architecture for local caching in RAN3 and/or open discussions for specifying a new local-caching architecture as part of this WI.
- The mechanism to be specified shall not make eNB service-aware.

☒ [99#33][LTE/eViLTE] UE assistance information (CMCC)

Progress on details of UE assistance method.
2 phase discussion to progress solution and then prepare CRs
Intended outcome: Report to next meeting and draft CRs to RAN2#100
Deadline: Thursday November meeting

CBF: => Offline discussion on how to progress on awareness of critical data. Report the result to main session in R2-1709746 (offline number 299). (Intel)

- Update from offline: Some companies still have doubts on the benefits. Companies are invited to bring contributions raising concerns and providing draft CRs to next meeting.

UDC

R2-1708359 Update of Description and Evaluation Results for Deflate CATT CR Rel-15 36.754
15.0.0 FS_LTE_UDC 0002 F
=> Only capture Simulation results with RFC 1951 (with 1 byte UDC header) for both cases.
=> Indicate the results without cross check.
CBF: => Revised in R2-1709742 (offline number 222)

R2-1709742 Update of Description and Evaluation Results for Deflate CATT CR Rel-15 36.754
15.0.0 FS_LTE_UDC 0002 F
=> Agreed, but then revised:
[MCC]: Source to TSG should be R2
⇒ **Agreed in R2-1709762.**

UAV

CB on Friday: => Draft LS in R2-1709744 to consult SA2, SA3 and RAN3 the above agreement.
(DOCOMO) (offline number 286)

R2-1709744 [DRAFT] LS on Certification/License and Identification of Aerial Vehicles DOCOMO LS out
=> Align all uses of the terms " certificate/licence/authorization "
=> Approved in R2-1709973

CBF: => Draft LS to RAN1 in R2-1709747 to inform our understanding on latency (offline
number 0824) (DOCOMO)

R2-1709747 [DRAFT] LS on latency requirement for Aerial Vehicles DOCOMO LS out
=> Change TS to TR
=> Approved in R2-1709974

✉ **[99#06][LTE/UAV] Align simulation assumption (Qualcomm)**
Align assumptions including the RAN1 part.
Intended outcome: Aligned assumptions
Deadline: Thursday 2017-08-31
=> The email discussion report is noted in R2-1709899.

feLAA

CBF: Draft LS to RAN1 in R2-1709754 to inform our agreements. (Offline number 543) (Nokia)

R2-1709929 DRAFT LS on RAN2 agreements on Enhancements to LTE operation in unlicensed spectrum
Nokia
=> Approved in R2-1709967

11.1.3 Report from Break-Out session

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

R2-1709665 Report from Break-Out Session, Session Chair (MediaTek)
CBF: Report from LTE Break-Out Session, Session Chair (MediaTek)
=> Approved

11.1.4 Report from Break-Out session

Report from session on Rel-15 MTC

R2-1709666 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 Positioning WI

R2-1709667 Report from Break-Out Session, Session Chair (Huawei)

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

- R2-1709755 Draft LS on UE GNSS RTK measurement for high accuracy positioning Nokia
LS to RAN4 Cc: RAN1
=> Revised to R2-1709935
- R2-1709935 Draft LS on UE GNSS RTK measurement for high accuracy positioning Nokia
LS to RAN4 Cc: RAN1
=> Approved in R2-1709961

11.1.6 Report from Break-Out session

Report from session on Rel-15 V2X WI

- R2-1709668 Report from Break-Out Session, Session Chair (Intel)
CBF: Report from LTE Break-Out Session, Session Chair (Intel)

11.2 Main session

This section contains a temporary list of comebacks (press F9 to update while the cursor is inside the list).

- ☞ => Draft LS in R2-1709915 (Huawei, Offline discussion #52)
- ☞ => Discuss offline how to respond and try to avoid overlap with aspects that RAN1 is expected to cover. (Ericsson, Offline discussion #02)
- ☞ => Check whether a merge with other CRs is needed. UE capability aspect can be discussed offline. (Offline discussion #29)
- ☞ => Discuss offline the potential issue with the CR preventing a broadcast only UE. (Intel, Offline discussion #04).
- ☞ => To be merged with CR on NS value extension in R2-1708477 (Nokia, Offline discussion #06). Merged CR should have an appropriate title to cover both issues.
- ☞ => Offline discussion to try to conclude (DOCOMO, Offline discussion #08)
- ☞ => Revised in R2-1709733 (Offline discussion #11)
- ☞ Potential agreement to be discussed further offline:
- ☞ => Revised in R2-1709813 (Offline discussion #17)
- ☞ => Revised in R2-1709814 (Offline discussion #18)
- ☞ => Offline discussion to progress the table to clearly capture the scope of features that need to be worked on within this WI. Also conclude whether to send LS to SA2/CT1/etc on how the UE behaves if desired services (e.g. MBMS) are not available via the 5GC (Offline discussion #25)
- ☞ => Offline discussion to see if RAN2 can respond (e.g. explain our desire that TRP is not visible in the spec). Draft LS in R2-1709815 (ZTE, Offline discussion #19).
- ☞ => Revised in R2-1709936
- ☞ => Offline discussion to identify the key stage 2 aspects that still need to be address in this AI. May be the progressed by email to the next meeting. (ZTE, Offline discussion #28)
- ☞ => Offline discussion to conclude on whether NR or LTE is used to encode the measurement results and to start to progress on the detailed content of the measurement results. (Vivo, Offline discussion #30)
- ☞ => Draft LS to RAN4 to ask if a UE capability "need for 1 Tx operation" is required (e.g. if the need for 1 Tx operation applies to all operating with a given band combination or only some UEs), and if so with what granularity it should be provided (e.g. per band combination). (Nokia, Offline discussion #31). Draft LS in R2-1709843
- ☞ => Proposal above to be progressed at lunch 14:15.
- ☞ => Offline discussion to progress the issue. The following text can be used as a starting point in that offline: (Nokia, Offline discussion #37):
- ☞ - Detail points to be added to the email discussion scope.
- ☞ => Revised to R2-1709928
- ☞ => Revised in R2-1709869 (Offline discussion #43)
- ☞ => Revised in R2-1709870 (Offline discussion #44)
- ☞
- ☞ Tentative email discussion
- ☞ => Offline discussion to progress FFS1 and FFS2 points. Can also consider the LTE and NR procedures that would correspond to this structure (Ericsson, Offline discussion #45)
- ☞ => Revised in R2-1709871 (Ericsson, Offline discussion #45)

- ✍ => Send LS to RAN1/4 to explain that we have agreed and captured the measurement model and that the cell quality derivation will be captured in RRC. Draft LS in R2-1709874, ZTE, Offline discussion #47
- ✍ => Offline activity to try to conclude on the additional information (periodicity, time offset, window) for both SSB and CSI-RS based on received parameters from RAN1. (Ericsson, Offline discussion #48)
- ✍ => Offline discussion to progress on proposal 1 (Samsung, Offline discussion #49)
- ✍ => Revised in R2-1709891 (Offline discussion #51)
- ✍ CBF: Report from LTE Break-Out Session, Vice-Chair (InterDigital)
- ✍ => Revised in R2-1709950
- ✍ CBF: => Revised in R2-1709736 (offline 201)
- ✍ CBF: => Revised in R2-1709737 for better wording. (offline 202)
- ✍ **CBF:** => Revised in R2-1709739 (offline 203) and Draft reply LS in R2-1709740 to SA4, CT3 (Nokia)
- ✍ **CBF:** => Offline discussion on how to progress the issue of local caching (CMCC). Report to the main session. Report in R2-1709745 (offline number 2000)
- ✍ **CBF:** => Offline discussion on how to progress on awareness of critical data. Report the result to main session in R2-1709746 (offline number 299). (Intel)
- ✍ **CBF:** => Revised in R2-1709742 (offline number 222)
- ✍ **CB on Friday:** => Draft LS in R2-1709744 to consult SA2, SA3 and RAN3 the above agreement. (DOCOMO) (offline number 286)
- ✍ **CBF:** => Draft LS to RAN1 in R2-1709747 to inform our understanding on latency (offline number 0824) (DOCOMO)
- ✍ **CBF:** Draft LS to RAN1 in R2-1709754 to inform our agreements. (Offline number 543) (Nokia)
- ✍ CBF: Report from LTE Break-Out Session, Session Chair (MediaTek)
- ✍ CBF: Report from LTE Break-Out Session, Session Chair (Ericsson)
- ✍ CBF: Report from LTE Break-Out Session, Session Chair (Huawei)
- ✍

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.

R2-1708390	[DRAFT] Reply LS to SA2 on progress of eVoLP SA4	Huawei LS out	Rel-15	FS_eVoLP	SA2
R2-1708597	Discussion on response to SA2 LS R2-1707652 on low latency Rel-15		Vodafone		discussion
	=> Revised in R2-1709670				
R2-1709670	Discussion on response to SA2 LS R2-1707655 on low latency discussion		Vodafone Group Plc		Rel-15

13 Any other business

14 Closing of the meeting (17:00)

The meeting was closed on Friday, 25.08.2017, at 18:04 by the chairman.

Annex A: List of participants

RAN2#99 participants list is at: <http://webapp.etsi.org/3GPPRegistration/fViewPart.asp?mid=17066>

Total number of participants: 269 (registered 343)

Annex B: List of Tdocs

The list of tdocs of this RAN2#99 is attached to this report.

Total number of tdocs was 2394 of which 2368 tdocs were available.

Annex C: Incoming liaison statements

TDoc	Title	Source	Status	Rel	Related WIs	To	Cc	Original LS
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R2-1707603	Liaison Statement from NGMN Alliance to 3GPP on Test Results of Technology Building Blocks phase of the Trial and Testing Initiative (contact: KT Corp, Telecom Italia)	NGMN Alliance	noted	Rel-15		RAN1	RAN2, RAN3, RAN4	R2-1707603_170629_Liaison Statement NGMN TTI TTBB to 3GPP final
R2-1707604	LS on E-UTRA connected to 5GC (C1-172641; contact: Qualcomm)	CT1	noted	Rel-15	5GS_Ph1-CT	SA1	SA2, CT6, RAN2	C1-172641
R2-1707605	LS on Solution 9 (Option 2) for CN overload control for CP data (C1-172759; contact: Huawei)	CT1	noted	Rel-14	ClOT_Ext-CT	SA2, RAN3	RAN2	C1-172759
R2-1707606	Reply LS on RAN-Assisted Codec Adaptation (C3-173176; contact: Nokia)	CT3	noted	Rel-14	LTE_VoLTE_ViLTE_enh-Core	SA4	RAN2, SA2	C3-173176
R2-1707607	LS on UL HARQ processes and collision handling for short processing time with 1ms TTI (R1-1709243; contact: Sharp)	RAN1	noted	Rel-15	LTE_sTTIandPT-Core	RAN2		R1-1709243
R2-1707608	LS on the conclusions for the SI on a simplified HS-SCCH for UMTS (R1-1709326; contact: Ericsson)	RAN1	withdrawn	Rel-15	FS_UTRA_simplified_HSSCCH	RAN2	RAN3	R1-1709326
R2-1707609	Response LS on resource reselection for P2X UEs (R1-1709334; contact: Nokia)	RAN1	noted	Rel-14	LTE_V2X-Core	RAN2		R1-1709334
R2-1707610	LS on enhanced scheduling for UMTS (R1-1709567; contact: Huawei)	RAN1	withdrawn	Rel-15	FS_UTRA_CA_sched_enh	RAN2	RAN3	R1-1709567
R2-1707611	Monitoring of partial NPDCCH search spaces (R1-1709716; contact: Qualcomm)	RAN1	withdrawn	Rel-13	NB_IOT-Core	RAN2		R1-1709716
R2-1707612	LS on NB-IoT small cell (R1-1709780; contact: Ericsson)	RAN1	noted	Rel-15	NB_IOTenh2-Core	RAN4	RAN2	R1-1709780
R2-1707613	LS on RAN1 agreements on CA (R1-1709826; contact: Ericsson)	RAN1	noted	Rel-15	LTE_eV2X-Core	RAN2, RAN4		R1-1709826
R2-1707614	LS on System acquisition time reduction for Rel-15 LTE MTC (R1-1709834; contact: Ericsson)	RAN1	noted	Rel-15	LTE_eMTC4-Core	RAN2, RAN4		R1-1709834
R2-1707615	LS on early data transmission in MTC and NB-IoT in Rel-15 (R1-1709835; contact: Ericsson)	RAN1	noted	Rel-15	LTE_eMTC4-Core, NB_IOTenh2-Core	RAN2		R1-1709835
R2-1707616	LS on RAN1 agreements on key performance indicator, evaluation assumptions, and channel modelling (R1-1709862; contact: Ericsson)	RAN1	noted	Rel-15	FS_LTE_Aerial	RAN2		R1-1709862
R2-1707617	LS on RAN1 agreements on channel modelling (R1-1709869; contact: Ericsson)	RAN1	noted	Rel-15	FS_LTE_Aerial	RAN2		R1-1709869
R2-1707618	LS on NR UL SPS / UL transmission without UL grant (R1-1711686; contact: NTT DOCOMO)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1711686
R2-1707619	LS on Single UL transmission (R1-1711878; contact: NTT DOCOMO)	RAN1	noted	Rel-15	FS_NR_newRAT	RAN2, RAN3, RAN4		R1-1711878
R2-1707620	LS on Beam Aspects of NR RACH (R1-1711880; contact: Huawei)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1711880
R2-1707621	Reply LS response on reading time index indication for RRM measurements (R1-1711966; contact: Intel)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1711966
R2-1707622	Reply LS response on NR basic handover (R1-1711987; contact: Samsung)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1711987
R2-1707623	Response LS on Support for fake gNB detection mechanisms (R1-1711997; contact: Intel)	RAN1	noted	Rel-15	NR_newRAT-Core	SA3	RAN2, RAN4	R1-1711997

	contact: Nokia)							
R2-1707624	LS on Bandwidth Part Operation in NR (R1-1711998; contact: MediaTek)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2, RAN4		R1-1711998
R2-1707625	LS on power sharing for LTE-NR Dual Connectivity (R1-1711999; contact: Ericsson)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN4	RAN2	R1-1711999
R2-1707626	LS on support of multi-TRP transmission in NR (R1-1712000; contact: Intel)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2	RAN3	R1-1712000
R2-1707627	LS on NR initial access and mobility (R1-1712001; contact: NTT DOCOMO)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1712001
R2-1707628	Reply LS on PDCCH design (R1-1712005; contact: Ericsson & CATT)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1712005
R2-1707629	LS on NR Beam Management (R1-1712007; contact: Qualcomm)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1712007
R2-1707630	LS on HARQ operation (R1-1712008; contact: Nokia)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1712008
R2-1707631	Reply LS on CSI-RS Design for Beam Management (R1-1712009; contact: NTT DOCOMO)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN4	RAN2	R1-1712009
R2-1707632	Reply LS on MBMS Bearer Event Notification (R3-172007; contact: Ericsson)	RAN3	noted	Rel-15	MBMS_Mcservices, TEI15	SA6	SA2, RAN2	R3-172007
R2-1707633	Reply to LS on EUTRAN sharing enhancement (R3-172026; contact: Ericsson)	RAN3	noted	Rel-14	TEI14	RAN2, RAN	SA2, SA	R3-172026
R2-1707634	LS on RAN4 agreements for FeD2D SI (R4-1706074; contact: Intel)	RAN4	noted	Rel-14	FS_feD2D_IoT_relay_wearable	RAN1, RAN2		R4-1706074
R2-1707635	LS on RSRP range (R4-1706175; contact: Huawei)	RAN4	noted	Rel-13	LTE_MTCe2_L1-Core	RAN2		R4-1706175
R2-1707636	Reply LS on UE measurement capabilities across LTE and NR (R4-1706905; contact: Nokia)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2		R4-1706905
R2-1707637	Reply LS on the feasibility of DC-related mobility enhancements in NR (R4-1706913; contact: Huawei)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2	RAN1	R4-1706913
R2-1707638	Reply LS on support of supplementary uplink in NR (R4-1706967; contact: CMCC)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN1, RAN2		R4-1706967
R2-1707639	LS on spectrum utilization (R4-1706974; contact: Vodafone)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN1, RAN2		R4-1706974
R2-1707640	Reply LS on the support of Unicast and Groupcast transmission over PC5 for eV2X (S2-173610; contact: LGE)	SA2	noted	Rel-15	FS_eV2XARC	RAN	SA, SA1, SA3, RAN2	S2-173610
R2-1707641	LS on EUTRAN sharing enhancement (S2-173701; contact: Ericsson)	SA2	noted	Rel-15	TEI14	RAN2, RAN, SA, SA5	RAN3	S2-173701
R2-1707642	Reply LS on QoS support over PC5 (S2-173877; contact: Nokia)	SA2	noted	Rel-15	FS_REAR	RAN2		S2-173877
R2-1707643	Reply LS on mapping between service types and V2X frequencies (S2-174064; contact: Huawei)	SA2	available	Rel-14	V2XARC	RAN2, CT1		S2-174064
R2-1707644	Reply LS on Reply LS to RAN3 on support of redirection for VoLTE (S2-174069; contact: Nokia)	SA2	noted	Rel-14	LTE_VoLTE_ViLTE_enh-Core	RAN3	RAN2	S2-174069
R2-1707645	Reply LS on RAN2 agreements on NR paging (S2-174801; contact: LGE)	SA2	noted	Rel-15	NR_newRAT-Core	RAN2, RAN3		S2-174801
R2-1707646	LS on progress of enhanced VoLTE performance (S2-	SA2	noted	Rel-15	FS_eVoLP	RAN2	SA4	S2-174844

	174844; contact: Huawei)							
R2-1707647	Reply LS on UE capabilities for MBMS (S2-175071; contact: Qualcomm)	SA2	noted	Rel-14	LTE_feMTC-Core, NB_IOTenh-Core	RAN1, RAN2, RAN3	CT3, CT4	S2-175071
R2-1707648	Reply LS on NR Idle Mode procedures (S2-175089; contact: Qualcomm)	SA2	noted	Rel-15	5GS_Ph1, LTE_5GCN_connect-Core	RAN2, RAN3, CT1		S2-175089
R2-1707649	Reply LS on the need for EPS Bearer ID knowledge in NG-RAN for (inter-RAT) inter-system handover (S2-175157; contact: NTT DOCOMO)	SA2	noted	Rel-15	5GS_Ph1	RAN3	RAN2	S2-175157
R2-1707650	Reply LS on Supported features by 5GC for E-UTRA connected to 5G CN (S2-175192; contact: Nokia)	SA2	noted	Rel-15	5GS_Ph1	RAN2	CT1, SA5, RAN3, SA1, RAN, SA	S2-175192
R2-1707651	Reply to LS on Dual Connectivity with 5GC (S2-175197; contact: Nokia)	SA2	noted	Rel-15	5GS_Ph1	RAN3	RAN2	S2-175197
R2-1707652	LS reply on NAS Reflective QoS (S2-175244; contact: Intel & MediaTek)	SA2	noted	Rel-15	NR_newRAT-Core	RAN2, RAN3		S2-175244
R2-1707653	Reply LS on RAT restriction in 5GS (S2-175261; contact: Qualcomm)	SA2	noted	Rel-15	5GS_Ph1	CT1, RAN2	SA1	S2-175261
R2-1707654	LS on NR indication (S2-175270; contact: Qualcomm)	SA2	noted	Rel-15	EDCE5	RAN2	CT1, SA1	S2-175270
R2-1707655	LS on EPC QoS aspects for TSG RAN's lower latency features (S2-175276; contact: Ericsson)	SA2	noted	Rel-15	LTE_sTTIandPT-Core, EDCE5, NR_newRAT-Core	RAN, SA, RAN1, RAN2, RAN3	SA1, CT1	S2-175276
R2-1707656	LS on Status Icons related to 5G (S2-175303; contact: MediaTek)	SA2	noted	Rel-15	5GS_Ph1, NR_newRAT-Core, LTE_5GCN_connect-Core	GSMA FNW, NGMN	SA, SA1, RAN, CT, CT1, RAN2	S2-175303
R2-1707657	Response LS on LTE connectivity to 5G-CN (S2-175310; contact: Qualcomm)	SA2	noted	Rel-15	5GS_Ph1, NR_newRAT-Core	RAN2	RAN3	S2-175310
R2-1707658	Reply LS on providing WT MAC address to the UE using eNB signalling (S3-171528; contact: Intel)	SA3	noted	Rel-14	LTE_WLAN_aggr-Core	RAN2	RAN3	S3-171528
R2-1707659	Reply LS on LTE call redirection to GERAN (S3-171554; contact: Ericsson)	SA3	noted	Rel-12	TEI12	RAN2, CT1	RAN3	S3-171554
R2-1707660	Reply LS on RAN-Assisted Codec Adaptation (S4-170720; contact: Intel)	SA4	noted	Rel-14	LTE_VoLTE_ViLTE_enh-Core	CT3, RAN2	SA2	S4-170720
R2-1707661	LS on eVoLP parameters (S4-AHM355; contact: Qualcomm)	SA4	noted	Rel-15	FS_eVoLP	SA2, RAN2	RAN3	S4-AHM355
R2-1707662	Reply LS to RAN3 on MBMS bearer event notification (S6-171129; contact: Motorola Solutions)	SA6	noted	Rel-15	MBMS_Mcservices	RAN3, SA2	RAN2	S6-171129
R2-1707663	LS on support of CACC and platooning applications by 3GPP systems (SAE International)	SAE DSRC Technical Committee	noted	Rel-15		SA2, RAN2	SA1, RAN1	SAE DSRC TC LS 06132017-rev5
R2-1709672	LS on DL & UL channel bandwidth for NR (R4-1706978; contact: Intel)	RAN4	noted	Rel-15	FS_NR_newRAT	RAN1, RAN2		R4-1706978
R2-1709673	Reply LS on Closed Subscriber Group in 5GS (RP-171479; contact: Qualcomm)	RAN	withdrawn	Rel-15	SMARTER, NR_newRAT	SA1, RAN2	SA2, SA3, RAN3	RP-171479
R2-1709674	Reply LS to RAN2 on Counter Check Procedure and SCG	SA3	noted	Rel-15	NR_newRAT-Core	RAN2		S3-172077

	SRB integrity check failure (S3-172077; contact: Nokia)							
R2-1709675	Reply LS on algorithm selection in E-UTRA-NR Dual Connectivity (S3-172078; contact: Ericsson)	SA3	noted	Rel-15	EDCE5	RAN2, RAN3, CT1		S3-172078
R2-1709676	LS on NR security input parameters (S3-172079; contact: Qualcomm)	SA3	noted	Rel-15	NR_newRAT	RAN2	ETSI SAGE	S3-172079
R2-1709677	Response LS on security keys in EN-DC and actions upon DRB IP check failure (S3-172080; contact: Ericsson)	SA3	noted	Rel-15	NR_newRAT-Core	RAN2		S3-172080
R2-1709678	Reply LS on encrypting broadcasted positioning data (S3-172134; contact: Ericsson)	SA3	noted	Rel-15	LCS_LTE_acc_enh-Core	RAN2	SA2	S3-172134
R2-1709679	Reply LS on PC5 Secure Communication (S3-172153; contact: Intel)	SA3	noted	Rel-15	FS_REAR	SA2, RAN2		S3-172153
R2-1709835	Response LS on default DRB establishment for PDU session (S2-176409; Contact: InterDigital)	SA2	withdrawn	Rel-15	5GS_Ph1	RAN2	RAN3	S2-176409
R2-1709847	LS on RRC parameters for NR (R1-1714969; contact: Ericsson)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1714969
R2-1709848	Response LS on default DRB establishment for PDU session (S2-176475; Contact: InterDigital)	SA2	noted	Rel-15	5GS_Ph1	RAN2	RAN3	S2-176475
R2-1709861	LS on multiple SSBs within a wideband carrier (R1-1715071; contact: Ericsson)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1715071
R2-1709862	LS on RAN1 agreements on Enhancements to LTE operation in unlicensed spectrum (R1-1715080; contact: Nokia)	RAN1	available	Rel-15	LTE_unlic	RAN2		R1-1715080
R2-1709863	LS on response to EPC QoS aspects for TSG RAN's lower latency features (R1-1715089; contact: Ericsson, Vodafone)	RAN1	noted	Rel-15	EDCE5, NR_newRAT, LTE_HRLLC, LTE_sTTIandPT	SA2, RAN2	SA1, CT1, RAN, SA, RAN3	R1-1715089
R2-1709882	Support of early contention resolution in NB-IoT (R1-1714719; contact: Qualcomm)	RAN1	noted	Rel-13	NB_IOT-Core	RAN2	RAN3	R1-1714719
R2-1709883	LS to RAN2 on Text Proposals for 3GPP TR 36.746 (R1-1715120; contact: Intel)	RAN1	noted	Rel-15	FS_feD2D_IoT_relay_wearable	RAN2	RAN4	R1-1715120
R2-1709884	"New configuration and UE capabilities for NB-IoT (R1-1715149; contact: Qualcomm)"	RAN1	noted	Rel-14	NB_IOTenh-Core	RAN2		R1-1715149
R2-1709885	LS response on spectrum utilization (R1-1715184; contact: Huawei)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN4, RAN2, RAN3		R1-1715184

79 incoming LS, of which 72 were noted. Two LS were not discussed and will be moved to RAN2#99bis.

Annex D: Outgoing liaison statements

TDoc	Title	Release	Related WIs	To	Cc
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R2-1709705	LS on CSG support in NB-IoT	Rel-15	NB_IoTenh2-Core	RAN3, RAN4	RAN1
R2-1709782	Reply LS on Relay UE discovery	Rel-15	FS_feD2D_IoT_relay_ wearable	RAN1	
R2-1709800	LS on RACH agreements	Rel-15	NR_newRAT-Core	RAN1	
R2-1709801	Response LS on BWP operation in NR	Rel-15	NR_newRAT-Core	RAN1	
R2-1709802	LS on Transport Block Sizes	Rel-15	NR_newRAT-Core	RAN1	
R2-1709803	LS on SDAP header design	Rel-15	NR_newRAT-Core	SA2	
R2-1709804	LS to SA3 on RAN2 agreements on jumbo frames	Rel-15	NR_newRAT-Core	SA3	
R2-1709816	Reply LS on spectrum utilization	Rel-15	NR_newRAT-Core	RAN4, RAN1	
R2-1709851	Reply LS on UE measurement capabilities across LTE and NR	Rel-15	NR_newRAT-Core	RAN4	
R2-1709902	LS on RAR reception for NB-IoT	Rel-14	NB_IOT-Core	RAN1	
R2-1709930	RAN-assisted codec adaptation restriction	Rel-15	LTE_VoLTE_ViLTE_e nh-Core	SA4, CT3	
R2-1709948	Response LS to RAN1 on P2X	Rel-14	LTE_V2X-Core	RAN1	
R2-1709949	Reply LS on QoS support over PC5	Rel-15	FS_feD2D_IoT_relay_ wearable	SA2	RAN1
R2-1709951	Reply LS on sPDCCH monitoring in sTTI	Rel-15	LTE_sTTIandPT	RAN1	
R2-1709954	LS on Baseband capability signaling	Rel-15	NR_newRAT-Core	RAN4	RAN1
R2-1709955	LS on NR handover related parameters	Rel-15	NR_newRAT-Core	RAN1, RAN4	
R2-1709961	LS on UE GNSS RTK measurement for high accuracy positioning	Rel-15	LCS_LTE_acc_enh- Core	RAN4	RAN1
R2-1709967	LS on RAN2 agreements on Enhancements to LTE operation in unlicensed spectrum	Rel-15	LTE_unlic-Core	RAN1	
R2-1709969	Reply LS on NR security input parameters	Rel-15	NR_newRAT	SA3	ETSI SAGE, SA2
R2-1709971	LS on measurement model for cell quality derivation in NR	Rel-15	NR_newRAT-Core	RAN1, RAN4	
R2-1709972	LS on SPS and SR for sTTI	Rel-15	LTE_sTTIandPT	RAN1	
R2-1709973	LS on Certification/License and Identification of Aerial Vehicles	Rel-15	FS_LTE_Aerial	SA2	RAN3, SA3
R2-1709974	LS on latency requirement for Aerial Vehicles	Rel-15	FS_LTE_Aerial	RAN1	
R2-1709975	Reply LS to SA2 on progress of eVoLP	Rel-15	FS_eVoLP	SA2	SA4, RAN3
R2-1709976	Reply LS to SA2 on 5QIs for URLLC	Rel-15	NR_newRAT-Core, LTE_HRLLC, LTE_sTTIandPT	SA2	RAN1
R2-1709977	LS reply on extension of NS and CA_NS signalling space	Rel-14	TEI14	RAN4	
R2-1709978	LS on NR indication	Rel-15	NR_newRAT-Core	SA2	CT1, SA1, GSMA FNW, NGMN
R2-1709979	LS on UE categories and capabilities	Rel-15	NR_newRAT-Core	RAN1, RAN4	RAN
R2-1709980	LS reply on Support for fake gNB detection mechanismss	Rel-15	NR_newRAT	SA3	RAN1, RAN4
R2-1709981	LS on CN node selection for LTE features when E-UTRA is connected to 5G CN	Rel-15	5GS_Ph1	CT1	SA2
R2-1709982	Response LS on security keys in EN-DC	Rel-15	NR_newRAT-Core	SA3	
R2-1709983	Reply LS on multiple SSBs within a wideband carrier	Rel-15	NR_newRAT-Core	RAN1	

32 outgoing LS.

Annex E: List of agreed CRs

Agreed CRs:

TDoc	Title	Source	Rel	Spec	Related WIs	CR	Rev	Ca
R2-1707861	RoHC profile support for CIoT-only NB-IoT UE	Qualcomm Incorporated	Rel-13	36.306	NB_IOT-Core	1485		F
R2-1707862	RoHC profile support for CIoT-only NB-IoT UE	Qualcomm Incorporated	Rel-14	36.306	NB_IOT-Core	1486		A
R2-1707865	Correction on UE states for MBMS reception	Qualcomm Incorporated	Rel-14	36.300	NB_IOTenh-Core	1042		F
R2-1708311	Clarification that DL only bands are not supported in NB-IoT	Huawei, HiSilicon	Rel-13	36.331	NB_IOT-Core	2988		F
R2-1708312	Clarification that DL only bands are not supported in NB-IoT	Huawei, HiSilicon	Rel-14	36.331	NB_IOT-Core	2989		A
R2-1708317	Miscellaneous corrections for NB-IoTenh and feMTC	Huawei, HiSilicon	Rel-14	36.321	LTE_feMTC-Core, NB_IOTenh-Core	1143		F
R2-1708357	Clean Up of the TR 36.754	CATT	Rel-15	36.754	FS_LTE_UDC	0001		F
R2-1708389	Corrections on eVoLTE	Huawei, HiSilicon	Rel-14	36.331	LTE_VoLTE_ViLTE_enh-Core	2995		F
R2-1708859	Correction on SR prohibit	Huawei, HiSilicon, Nokia Shanghai Bell	Rel-12	36.321	TEI12	1153		F
R2-1708872	Correction on SR prohibit	Huawei, HiSilicon, Nokia Shanghai Bell	Rel-13	36.321	TEI12	1154		A
R2-1708889	Correction on SR prohibit	Huawei, HiSilicon, Nokia Shanghai Bell	Rel-14	36.321	TEI12	1155		A
R2-1708890	Correction on eLAA	Huawei, HiSilicon	Rel-14	36.321	LTE_eLAA-Core	1156		F
R2-1709010	Correction in PUSCH Config description	Qualcomm Korea	Rel-13	36.331	LTE_CA_enh_b5C-Core, LTE_SC_enh_dualC-Core	3016		F
R2-1709015	Correction in PUSCH Config description	Qualcomm Korea	Rel-12	36.331	LTE_SC_enh_dualC-Core	3017		F
R2-1709021	Correction in PUSCH Config description	Qualcomm Korea	Rel-14	36.331	LTE_CA_enh_b5C-Core, LTE_SC_enh_dualC-Core	3018		A
R2-1709180	Cat-M1 indication by Cat-M2 UE	Nokia, Nokia Shanghai Bell	Rel-14	36.306	LTE_feMTC-Core	1499		F
R2-1709181	Cat-M1 indication by Cat-M2 UE	Nokia, Nokia Shanghai Bell	Rel-14	36.331	LTE_feMTC-Core	3022		F
R2-1709184	Miscellaneous ASN.1 corrections	Nokia, Nokia Shanghai Bell	Rel-14	36.331	LTE_feMTC-Core	3023		F
R2-1709195	Clarification on systemInformationBlockType2Dedicated	Intel Corporation	Rel-14	36.331	LTE_feMTC-Core	3028		F
R2-1709198	Adding reference to SystemInformationBlockType1-BR to the section on cell status and cell reservations	Intel Corporation	Rel-13	36.304	LTE_MTCe2_L1-Core	0385		F
R2-1709224	Correction for connEstFailOffset	Nokia	Rel-14	36.331	NB_IOTenh-Core	3036		F
R2-1709288	Clarification to GNSS-TimeModelList	Qualcomm Incorporated	Rel-14	36.355	TEI14	0184		F
R2-1709346	Clarification on LWIP aggregation	HTC Corporation	Rel-14	36.331	TEI14	3040		F
R2-1709383	Corrections on logical channel for Rel-13 MTC	Huawei, HiSilicon	Rel-13	36.322	LTE_MTCe2_L1-Core	0128		F
R2-1709389	Corrections on Bandwidth preference indication for Rel-14 MTC	Huawei, HiSilicon	Rel-14	36.331	LTE_feMTC-Core	3047		F
R2-1709391	Corrections on TS 36.306 for Rel-14 MTC	Huawei, HiSilicon	Rel-14	36.306	LTE_feMTC-Core	1500		F
R2-1709490	Corrections to references	Ericsson	Rel-14	36.321	TEI14	1178		F
R2-1709499	Corrections to RLC for re-establishment for NB-IoT using control plane	Qualcomm Incorporated	Rel-14	36.322	NB_IOTenh-Core	0130		F
R2-1709650	Support of RLC UM for LWA bearer	Qualcomm Incorporated	Rel-14	36.300	LTE_WLAN_aggr-Core	1031	2	C
R2-1709651	UE Capability for support of RLC UM for LWA bearer	Qualcomm Incorporated	Rel-14	36.306	LTE_WLAN_aggr-Core	1502		C
R2-1709701	Correction on eCA with Dual Connectivity	ROHDE & SCHWARZ	Rel-13	36.331	LTE_CA_enh_b5C-Core	3056		F
R2-1709702	Correction on eCA with Dual Connectivity	ROHDE & SCHWARZ	Rel-14	36.331	LTE_CA_enh_b5C-Core	3057		A
R2-1709704	Cleanup for NB-IoT Enhancements	Huawei, HiSilicon	Rel-14	36.331	NB_IOTenh-Core	2990	1	F
R2-1709710	Clarification on the freqHoppingParametersDL during handover	Intel Corporation	Rel-13	36.331	LTE_MTCe2_L1-Core	3024	1	F
R2-1709711	Clarification on the freqHoppingParametersDL during	Intel Corporation	Rel-14	36.331	LTE_MTCe2_L1-Core	3025	1	A

	handover							
R2-1709712	Clarification on rsrp-ThresholdsPrachInfoList during handover	Intel Corporation	Rel-13	36.331	LTE_MTCe2_L1-Core	3026	1	F
R2-1709713	Clarification on rsrp-ThresholdsPrachInfoList during handover	Intel Corporation	Rel-14	36.331	LTE_MTCe2_L1-Core	3027	1	A
R2-1709714	Clarification on number of RACH CE levels vs number of RSRP thresholds	Intel Corporation	Rel-13	36.331	LTE_MTCe2_L1-Core	3062		F
R2-1709716	Clarification on UE behaviour for Contention Resolution with Padding	Qualcomm Incorporated	Rel-14	36.321	LTE_feMTC-Core	1164	1	F
R2-1709717	Corrections on TS 36.321 for Rel-13 MTC	Huawei, HiSilicon	Rel-13	36.321	LTE_MTCe2_L1-Core, NB_IOT-Core	1175	1	F
R2-1709718	Corrections on TS 36.321 for Rel-13 MTC	Huawei, HiSilicon	Rel-14	36.321	LTE_MTCe2_L1-Core, NB_IOT-Core	1176	1	A
R2-1709719	Corrections on TS 36.331 for Rel-13 MTC	Huawei, HiSilicon	Rel-13	36.331	LTE_MTCe2_L1-Core	3043	1	F
R2-1709720	Corrections on TS 36.331 for Rel-13 MTC	Huawei, HiSilicon	Rel-14	36.331	LTE_MTCe2_L1-Core	3044	1	A
R2-1709721	Minor corrections on TS 36.355 for Rel-14 MTC	Huawei, HiSilicon	Rel-14	36.355	LTE_feMTC-Core	0185	1	F
R2-1709727	Corrections on TS 36.331 for Rel-14 MTC	Huawei, HiSilicon	Rel-14	36.331	LTE_feMTC-Core	3048	1	F
R2-1709732	Clarification on SI repetition pattern	NTT DOCOMO INC.	Rel-13	36.331	LTE_MTCe2_L1-Core, NB_IOT-Core	2991	2	F
R2-1709738	Correction of MBMS-dedicated cell definition	Qualcomm Incorporated	Rel-14	36.300	MBMS_LTE_enh2-Core	1057	1	F
R2-1709739	RAN-recommended bit rate restriction	Nokia, Nokia Shanghai Bell	Rel-14	36.300	LTE_VoLTE_ViLTE_enh-Core	1053	1	F
R2-1709741	Correction of field descriptions for recommendedBitRate and recommendedBitRateQuery	Ericsson	Rel-14	36.331	LTE_VoLTE_ViLTE_enh	3008	1	F
R2-1709748	Clarification on SCell status during PUCCH SCell change/removal	Intel Corporation	Rel-13	36.300	LTE_CA_enh_b5C-Core	1060		F
R2-1709749	Clarification on SCell status during PUCCH SCell change/removal	Intel Corporation	Rel-14	36.300	LTE_CA_enh_b5C-Core	1061		A
R2-1709750	Clarification on PUCCH SCell change	Intel Corporation	Rel-13	36.331	LTE_CA_enh_b5C-Core	3069		F
R2-1709751	Clarification on PUCCH SCell change	Intel Corporation	Rel-14	36.331	LTE_CA_enh_b5C-Core	3070		A
R2-1709757	Adding reference to SystemInformationBlockType1-BR to the section on cell status and cell reservations	Intel Corporation	Rel-14	36.304	LTE_MTCe2_L1-Core	0386	1	A
R2-1709758	Corrections on logical channel for Rel-13 MTC	Huawei, HiSilicon	Rel-14	36.322	LTE_MTCe2_L1-Core	0129	1	A
R2-1709759	Clarification on number of RACH CE levels vs number of RSRP thresholds	Intel Corporation	Rel-14	36.331	LTE_MTCe2_L1-Core	3063	1	A
R2-1709760	Correction on definition of PRS Occasion Group	ZTE Wistron Telecom AB	Rel-14	36.355	LTE_feMTC-Core	0182	2	F
R2-1709761	Correction of RACH-less handover	Kyocera, Samsung	Rel-14	36.300	LTE_eMob-Core	1032	4	F
R2-1709762	Update of Description and Evaluation Results for Deflate	CATT	Rel-15	36.754	FS_LTE_UDC	0002	2	F
R2-1709766	Clarification on NCSG UE capability	Intel Corporation, NTT DOCOMO	Rel-14	36.331	LTE_meas_gap_enh-Core	3051	1	F
R2-1709769	Clarification on per CC measurement gap	HTC Corporation	Rel-14	36.331	LTE_meas_gap_enh-Core	3054	1	F
R2-1709770	Miscellaneous correction to V2X in TS 36.331	Huawei, HiSilicon	Rel-14	36.331	LTE_V2X-Core	2977	1	F
R2-1709772	Correction on TTI bundling for TDD configurations 2 and 3	NEC	Rel-14	36.331	LTE_UL_CAP_enh-Core	2983	1	F
R2-1709773	Correction on UE category combination in 36.306	Huawei, HiSilicon	Rel-14	36.306	LTE_UL_CAP_enh-Core	1494	1	F
R2-1709774	Corrections to UL 256 QAM capability field descriptions	Ericsson	Rel-14	36.331	LTE_UL_CAP_enh-Core	3052	1	F
R2-1709791	CR on conditon for RRC connection establishment and condition for sidelink UE information for V2X sidelink communication	Huawei, HiSilicon	Rel-14	36.331	LTE_V2X-Core	2993	2	F
R2-1709794	Packet Reordering for Sidelink	Ericsson	Rel-14	36.322	LTE_V2X-Core	0127	2	F
R2-1709795	Packet Reordering for Sidelink	Ericsson	Rel-14	36.331	LTE_V2X-Core	3042	2	F
R2-1709796	Corrections to random selection for P2X related V2X sidelink communication	LG Electronics Inc.	Rel-14	36.321	LTE_V2X-Core	1147	2	F
R2-1709797	Corrections to random selection for	LG Electronics Inc.	Rel-14	36.331	LTE_V2X-Core	2997	2	F

	P2X related V2X sidelink communication							
R2-1709808	Clarification on Bandwidth Reduced operation	Intel Corporation	Rel-13	36.331	LTE_MTCe2_L1-Core	3029	2	F
R2-1709810	Clarification of the PTAG value for the RACH-less handover	Samsung	Rel-14	36.331	LTE_eMob-Core	3059		F
R2-1709811	Support of RLC UM for LWA bearer	Qualcomm Incorporated	Rel-14	36.323	LTE_WLAN_aggr-Core	0200	3	C
R2-1709812	Introduction of RLC UM support for LWA	Qualcomm Incorporated	Rel-14	36.331	LTE_WLAN_aggr-Core	3055	1	C
R2-1709819	Clarification on NCSG UE capability	Intel Corporation, NTT DOCOMO	Rel-14	36.306	LTE_meas_gap_enh-Core	1501	2	F
R2-1709820	Correction on SPS assistance information in TS 36.331	OPPO	Rel-14	36.331	LTE_SL_V2V-Core	2961	2	F
R2-1709821	Adding abstract syntax notation one description of sidelink pre-configuration	CATT	Rel-14	36.331	LTE_V2X-Core, LTE_D2D_Prox-Core, LTE_eD2D_Prox-Core	2980	3	A
R2-1709822	Adding abstract syntax notation one description of sidelink pre-configuration	CATT	Rel-12	36.331	LTE_D2D_Prox-Core	3060	2	F
R2-1709823	Adding abstract syntax notation one description of sidelink pre-configuration	CATT	Rel-13	36.331	LTE_D2D_Prox-Core, LTE_eD2D_Prox-Core	3061	2	A
R2-1709824	Clarification on Bandwidth Reduced operation	Intel Corporation	Rel-14	36.331	LTE_MTCe2_L1-Core	3030	2	A
R2-1709846	Additional OTDOA Capabilities	Qualcomm Incorporated	Rel-14	36.355	LTE_UE_cat_1RX-Core	0183	1	F
R2-1709856	additionalSpectrumEmission extension	Nokia, Nokia Shanghai Bell, Samsung, Huawei, T-Mobile USA	Rel-10	36.331	TEI10	2998	2	F
R2-1709857	additionalSpectrumEmission extension	Nokia, Nokia Shanghai Bell, Samsung, Huawei, T-Mobile USA	Rel-11	36.331	TEI10	2999	2	A
R2-1709858	additionalSpectrumEmission extension	Nokia, Nokia Shanghai Bell, Samsung, Huawei, T-Mobile USA	Rel-12	36.331	TEI10	3000	2	A
R2-1709859	additionalSpectrumEmission extension	Nokia, Nokia Shanghai Bell, Samsung, Huawei, T-Mobile USA	Rel-13	36.331	TEI10	3001	2	A
R2-1709860	additionalSpectrumEmission extension	Nokia, Nokia Shanghai Bell, Samsung, Huawei, T-Mobile USA	Rel-14	36.331	TEI10	3002	2	A
R2-1709877	Clarification on TAT restart without valid TA value	MediaTek Inc.	Rel-12	36.321	LTE_SC_enh_dualC-Core	1140	1	F
R2-1709897	Clarification to PUCCH-ConfigDedicated	Nokia, Nokia Shanghai Bell	Rel-13	36.331	LTE_CA_enh_b5C-Core	2806	4	F
R2-1709898	Clarification to PUCCH-ConfigDedicated	Nokia, Nokia Shanghai Bell	Rel-14	36.331	LTE_CA_enh_b5C-Core	2807	4	A
R2-1709900	RAR reception for NB-IoT	Nokia, Nokia Shanghai Bell	Rel-14	36.321	NB_IOT-Core	1160	1	A
R2-1709903	RRC Connection Re-establishment for Control Plane CIoT EPS Optimization	MediaTek Inc.	Rel-14	36.331	NB_IOTenh-Core	2985	2	F
R2-1709904	Clarification to positioning measurement in idle state	Ericsson	Rel-14	36.305	NB_IOTenh-Core	0070	2	F
R2-1709905	Correction to contention free random access	Huawei, HiSilicon	Rel-14	36.331	NB_IOTenh-Core	3064	1	F
R2-1709906	Correction to contention free random access	Huawei, HiSilicon	Rel-14	36.321	NB_IOTenh-Core	1181	1	F
R2-1709919	Clarification on MBMS reception with 256QAM	Intel Corporation	Rel-12	36.306	LTE_SC_enh_L1-Core	1496	2	F
R2-1709920	Clarification on MBMS reception with 256QAM	Intel Corporation	Rel-13	36.306	LTE_SC_enh_L1-Core	1497	2	A
R2-1709921	Clarification and simulation results for APDC	CATT	Rel-15	36.754	FS_LTE_UDC	0007		F
R2-1709922	RRM Measurement Clarification on Discovery Signals for LAA	Qualcomm Korea	Rel-14	36.331	LTE_LAA-Core	3014	2	A
R2-1709923	Clarification on MBMS reception with 256QAM	Intel Corporation	Rel-14	36.306	LTE_SC_enh_L1-Core	1498	2	A
R2-1709924	RRM Measurement Clarification on Discovery Signals for LAA	Qualcomm Korea	Rel-13	36.331	LTE_LAA-Core	3013	2	F
R2-1709932	Clarification on TAT restart without	MediaTek Inc.	Rel-13	36.321	LTE_CA_enh-Core,	1183	1	A

	valid TA value				TEI12			
R2-1709933	Clarification on TAT restart without valid TA value	MediaTek Inc.	Rel-14	36.321	LTE_CA_enh-Core, TEI12	1184	1	A
R2-1709938	Remove the description of Inter RAT Redirection value for MMTEL	Ericsson	Rel-14	36.300	LTE_VoLTE_ViLTE_enh-Core	1059		F
R2-1709940	Introduction of interference randomization in NB-IoT	Qualcomm Incorporated	Rel-14	36.306	NB_IOTenh-Core	1507	1	F
R2-1709941	Introduction of interference randomization in NB-IoT	Qualcomm Incorporated	Rel-14	36.331	NB_IOTenh-Core	3068	1	F
R2-1709947	Correction to eLAA configuration	HTC Corporation	Rel-14	36.331	LTE_eLAA-Core	3041	1	F
R2-1709952	Corrections on the use of plmn-IdentityList in field descriptions	Qualcomm Incorporated	Rel-14	36.331	TEI14	2984	2	F
R2-1709956	Introduction of new NS values for V2X sidelink communication	Huawei, HiSilicon	Rel-14	36.331	LTE_V2X-Core	2978	2	B
R2-1709962	Correction on RACH-less SeNB Change	Huawei, HiSilicon	Rel-14	36.331	LTE_eMob-Core	2994	2	F
R2-1709963	Correction on TAT in RACH-less handover	Huawei, HiSilicon	Rel-14	36.321	LTE_eMob-Core	1144	2	F
R2-1709970	Clarification on SI repetition pattern	NTT DOCOMO INC.	Rel-14	36.331	LTE_MTCe2_L1-Core, NB_IOT-Core	2992	2	A
R2-1709985	TM9 capabilities in CE mode	Qualcomm Incorporated	Rel-13	36.331	LTE_MTCe2_L1-Core	3066	2	F
R2-1709986	TM9 capabilities in CE mode	Qualcomm Incorporated	Rel-14	36.331	LTE_MTCe2_L1-Core	3067	2	A
R2-1709987	TM9 capabilities in CE mode	Qualcomm Incorporated	Rel-13	36.306	LTE_MTCe2_L1-Core	1505	2	F
R2-1709988	TM9 capabilities in CE mode	Qualcomm Incorporated	Rel-14	36.306	LTE_MTCe2_L1-Core	1506	2	A
R2-1709989	Introduction of Release Assistance Indication	Gemalto N.V.	Rel-14	36.300	LTE_feMTC-Core	1058	2	C
R2-1709990	Introduction of Release Assistance Indication	Gemalto N.V.	Rel-14	36.306	LTE_feMTC-Core	1504	2	C
R2-1709991	Introduction of Release Assistance Indication	Gemalto N.V.	Rel-14	36.321	LTE_feMTC-Core	1182	2	C
R2-1709982	Introduction of Release Assistance Indication	Gemalto N.V.	Rel-14	36.331	LTE_feMTC-Core	3065	2	C

119 agreed CRs.

Annex F: Email Approvals

Deadline Monday, 2017-08-28, 23:59 Pacific Time

[99#01][NR] UE capability LS (Ericsson)

Intended outcome: Approved LS to RAN4 in R2-1709979

Deadline: Monday 2017-08-28

=> The LS is approved in R2-1709979.

Deadline Thursday, 2017-08-31, 23:59 Pacific Time

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

[99#02][LTE/feD2D] Update to 36.746 (LG)

To add TP from RAN1

Intended outcome: Agreed TR v2.0.0 for submission to RAN for approval

Deadline: Thursday 2017-08-31

=> The TR is agreed in R2-1709984.

[99#03][LTE/CA] Clarification on PUCCH SCell configuration (Intel)

Intended outcome: Agreed CR

Deadline: Thursday 2017-08-31

=> The CRs are agreed in R2-1709748, R2-1709749, R2-1709750, R2-1709751,

[99#04][NR] TS 38.300 (Nokia)

Update TS with agreements from this meeting

Intended outcome: Endorsed TS 38.300v1.0.0 for submission to RAN for information

Deadline: Thursday 2017-08-31

=> TS 38.300 is revised in R2-1709937 (v0.7.0).

=> The TS is endorsed in R2-1709937.

[99#05][NR] TS 37.340 (ZTE)

Update TS with agreements from this meeting

Intended outcome: Endorsed TS 37.340v1.0.0 for submission to RAN for information

Deadline: Thursday 2017-08-31

=> TS 37.340 is revised in R2-1709939 (v0.4.0).

=> The TS is endorsed in R2-1709939.

[99#06][LTE/UAV] Align simulation assumption (Qualcomm)

Align assumptions including the RAN1 part.

Intended outcome: Aligned assumptions

Deadline: Thursday 2017-08-31

=> The email discussion report is noted in R2-1709899.

[99#10][NR UP] – Running draft TS 38.321 - Samsung

After endorsing v1.0.0 for submission to RAN, email discussion can continue to address further comments and create an updated version to be endorsed at the next meeting.

Intended outcome: Endorsed TS 38.321v1.0.0 for submission to RAN for information

Deadline: Thursday 2017-08-31

=> The TS is endorsed in R2-1709946.

[99#11][NR UP] – Running draft TS 38.322 - Mediatek

After endorsing v1.0.0 for submission to RAN, email discussion can continue to address further comments and create an updated version to be endorsed at the next meeting.

Intended outcome: Endorsed TS 38.322v1.0.0 for submission to RAN for information

Deadline: Thursday 2017-08-31

=> The TS is endorsed in R2-1709752.

[99#12][NR UP] – Running draft TS 38.323 - LG

After endorsing v1.0.0 for submission to RAN, email discussion can continue to address further comments and create an updated version to be endorsed at the next meeting.

Intended outcome: Endorsed TS 38.323v1.0.0 for submission to RAN for information

Deadline: Thursday 2017-08-31

=> The TS is endorsed in R2-1709753.

[99#13][NR UP] – Running draft TS 37.324 - Huawei

After endorsing v1.0.0 for submission to RAN, email discussion can continue to address further comments and create an updated version to be endorsed at the next meeting.

Intended outcome: Endorsed TS 37.324v1.0.0 for submission to RAN for information

Deadline: Thursday 2017-08-31

=> The TS is endorsed in R2-1709756.

[99#14][LTE/UDC] CR to 36.754 (CATT)

CR of 36.754 on capturing the simulation results of APDC

- Capture the simulation results from R2-1708296, R2-1708383, R2-1708572, R2-1709041 and R2-1708360 for the buffer size of 8K and 16K.
- Remove in TR 36.754 the statement “The same results are obtained for setups with 8Kbyte and 32Kbyte compression buffer size” in Section 7.2.4.2 and the statement “No compression efficiency variation due to buffer size was observed in UDC solution 4” in Section 7.3, and

indicate instead that "APDC compression efficiency varies as a function of the compression buffer size".

- Clarify the buffer size issue of APDC.
Intended outcome: Agreed CR
Deadline: Thursday 2017-08-31
=> The resulting CR is agreed in R2-1709921.

[99#15][MTC] UE capabilities for tm9 (Qualcomm)

Objective to discuss and agree CRs to 36.331 and 36.306 for Rel-13 and Rel-14, based on R2-1709887, R2-1709888, R2-1709889, R2-1709890

Intended outcome: Agreed CRs

Deadline: Thursday 2017-08-31

=> The CRs are revised in R2-1709942, R2-1709943, R2-1709944 and R2-1709945.

=> The CRs are agreed in R2-1709985, R2-1709986, R2-1709987 and R2-1709988.

[99#16][NB-IoT] Interference Randomisation in NB-IoT (Qualcomm)

Objective to agree CRs (for upcoming RP), and determine whether a Capability is needed or not, based on R2-1709894, R2-1709895.

Intended outcome: Agreed CRs

Deadline: Thursday 2017-08-31

=> The CRs are agreed in R2-1709940 and R2-1709941.

Deadline Thursday, 2017-09-07, 23:59 Pacific Time

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

[99#17][NR] LS in RLM/RLF (Samsung)

Intended outcome: Approved LS

Deadline: Thursday 2017-09-07

=> The LS is approved in R2-1709993

Deadline Thursday, 2017-09-07, 23:59 Pacific Time

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

[99#18][NR] Bearer Type Change (Huawei)

Progress the following issues:

Issue 2: allowed bearer type change, including how to handle PDCP version change for DRB, only handover?

Issue 3: based on the answer of issue 1 and 2, to update the detailed L2 handling of bearer type change

Intended outcome: Report to next meeting on L2 behaviour for each bearer type change.

Deadline: Thursday 2017-09-07

Deadline Thursday, 2017-09-21, 23:59 Pacific Time

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

[99#19][LTE/CA] Unnecessary mandatory IE in UE capability signalling (Intel)

Progress the issue to the next meeting

Intended outcome: Report and possible CR to the next meeting

Deadline: Thursday 2017-09-21

[99#20][LTE/TEI14] Overheating (Huawei)

Discuss the additional information provided in the request and progress CRs for next meeting.

Intended outcome: Report and CRs submitted to next meeting.

Deadline: Thursday 2017-09-21

[99#21][LTE/TEI14] CQI-ReportConfig (Nokia)

Intended outcome: CR submitted to next meeting

Deadline: Thursday 2017-09-21

[99#22][NR] L1 parameters (Ericsson)

Start to progress how to capture and structure the L1 parameters in RRC

Intended outcome: First TP on the ASN.1 including L1 parameters

Deadline: Thursday 2017-09-21

[99#23][NR] L2 Parameters (Huawei)

Start to progress how to capture and structure the L2 parameters in RRC

Intended outcome: First TP on the ASN.1 including L2 parameters

Deadline: Thursday 2017-09-21

[99#24][NR] Decoupling DL band and UL bands (Intel)

To progress the decoupling of DL and UL bands in capabilities.

Intended outcome: Report to next meeting

Deadline: Thursday 2017-09-21

[99#25][NR] Capability coordination, Part 1 (Intel)

Part 1: MR-DC band capability signalling aspects

Stage 3 aspects for band combination structure for MR-DC

Separate container for MR-DC band combination

Identify Other UE capabilities for MR-DC

Intended outcome: Stage 3 TP

Deadline: Thursday 2017-09-21

[99#26][NR] Capability coordination, Part 2 (DOCOMO)

Part 2: Details of baseband capability structure for NR and LTE

Starting point is Example 1 and Example 2 as captured in RAN4 LS (R2-1709945)

Discuss whether the baseband capability structure is also applied for LTE standalone

Intended outcome: Design details of baseband capability structure

Deadline: Thursday 2017-09-21

[99#27][NR] Capability coordination, Part 3 (Nokia)

Part 3: MR-DC capability coordination aspects

Phase 1: How to coordinate MR-DC band combination

Phase 2: Coordination of MR-DC baseband capability and joint MR-DC band combination and baseband capability

Intended outcome: Email discussion report

Deadline: Thursday 2017-09-21

[99#28][NR] Beam selection for HO access (Intel)

Progress on beam selection for HO access including developing a TP for stage 2 and stage 3.

Intended outcome: Report and TPs for next meeting

Deadline: Thursday 2017-09-21

[99#29][NR] Connection Control (Intel)

To progress proposals 18, 19, 20 (Reject on SRB1 or SRB0 and the target state) from R2-1708799.

Intended outcome: Report to next meeting

Deadline: Thursday 2017-09-21

[99#30][NR] RRC Connection Reconfiguration (Ericsson)

- To discuss the following open issues and also draft stage 3 ASN.1 and procedures, including the LTE part:

Security configuration and parameters

If all bullets apply to SRBs

Bearer change between LTE and NR PDCP

Next steps

Update text proposal and share with others

Check L2 actions

Focus should be on the high level structure and only if time allows the discussion could discuss other unrelated parts of the configuration.

Intended outcome: Report and TP to next meeting

Deadline: Thursday 2017-09-21

[99#31][NR] Additional information for SSB and CSI-RS config (Ericsson)

- To conclude on the additional information (periodicity, time offset, window) for both SSB and CSI-RS based on received parameters from RAN1

Intended outcome: Report to next meeting

Deadline: Thursday 2017-09-21

[99#32][NR] TP on RRM (Ericsson)

To capture progress from this meeting.

The discussion can also resolve small FFS points (e.g. items taken from the LTE baseline that do not directly translate into NR without some discussion, and items (e.g. features added in later releases of LTE) from the LTE baseline for which there has not yet been an explicit decision whether to include them in NR).

Email discussion summary should provide a summary of any small decisions that were taken as well as provide a list of the remaining FFS points.

Intended outcome: TP submitted to next meeting

Deadline: Thursday 21/09/2017

[99#33][LTE/eViLTE] UE assistance information (CMCC)

Progress on details of UE assistance method.

2 phase discussion to progress solution and then prepare CRs

Intended outcome: Report to next meeting and draft CRs to RAN2#100

Deadline: Thursday 2017-09-21

[99#34][LTE/sTTI] – SPS for sTTI

- review and provide comments on running CR for SPS

Intended outcome: Report to next meeting

Deadline: Thursday 2017-09-21

[99#35][NR UP] Reassembly for RLC UM - Qualcomm

Intended outcome: Agreeable text proposal

Deadline: Thursday 2017-09-21

[99#36][NR UP] Out-of-order delivery in PDCP – LG

Intended outcome: Agreeable text proposal

Deadline: Thursday 2017-09-21

[99#37][LTE/UAV] DL and UL Interference detection (DOCOMO)

- Discuss other observations from the contributions in 9.4.3 and capture the agreed observations
- Based on the agreed observations, solutions can be discussed
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#38][LTE/UAV] Running TR36.777 (DOCOMO)

- Capture the agreements from this meeting
Intended outcome: Running TR
Deadline: 2017-09-21

[99#39][LTE/QMC] RAN controlled CP based solution (Huawei)

- Figure out the details of CP solution with a mechanism to control the measurement report by RAN
- The spec impact should be identified for the proposed mechanisms.
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#40][MTC] UE in CE (Intel)

Objective to clarify UE in CE and the Tentative Issue that a UE in CE may bar a cell also for non-CE/BR operation.
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#41][NB-IoT/MTC] Measurement relaxation (Ericsson)

Objective to discuss the a) mechanisms to detect whether measurement relaxation applies or not, focusing on the mechanisms on the table (counting cells/detect cell change, RSRP measurement serving cell) including stage-3 details, and b) discuss in more detail how this is configured (per UE, per cell etc).
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#42][NB-IoT] SPS options (Huawei)

Objective to become better familiar with pros/cons, etc, to be able to make decisions at next meeting. Discuss Use case, Benefits, Impacts, Implications.
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#43][NB-IoT] RRC Connection release (Mediatek),

Objective to iron out the character of the proposals on the table, to be able to take well informed decisions at next meeting
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#44][NB-IoT] UE differentiation (Huawei)

Focus on what information is beneficial for the eNB w.r.t. Uu operation, can also discuss how the information becomes available in the network, e.g. for non-static information, if any.
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#45][NB-IoT/MTC] Early data transmission (Qualcomm)

Detailed aspects of early data transmission
To address the following but not limited to:
RRC signalling, e.g. whether there is any RRC signalling, at which point control information is sent and how. Security aspects, indication of UE's intention of early data, contents of Msg2, Msg3, Msg4, Msg5, how to identify a UE etc.

Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#46][MTC] Skipping SIB1-BR (Sierra Wireless)

Identifying the use cases for skipping SIB1-BR
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#47][LTE/Positioning] RTK assistance data encoding (Huawei)

To finalise the pros/cons of the two options and try to reach a consensus for one, considering the longer term concerns as well as Rel-15. Start from the table in R2-1708518.
Deadline: for next meeting
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#48][eV2X] Selection of Tx carriers (Huawei)

- Focus on mode 4
- Factors/options to be taken into account as criteria of Tx carrier selection (including pros and cons, not precluding Rx consideration)
 - Inter-layers interactions between AS and upper layers (what information would be provided by upper layer)
- Check companies' views/preferences.
Intended outcome: Report to next meeting
Deadline: 2017-09-21

[99#07][LTE/STTI] – Running CR 36.300 – Ericsson

Intended outcome: Endorse running CR
Deadline: Thursday 2017-09-21

[99#08][LTE/STTI] – Running CR 36.331 – Ericsson

Intended outcome: Endorse running CR
Deadline: Thursday 2017-09-21

[99#09][LTE/STTI] – Running CR 36.321 Ericsson

Intended outcome: Endorse running CR
Deadline: Thursday 2017-09-21

[99#49][NR] MN/SN procedures (ZTE)

To progress further details regarding MN/SN procedures as described in R2-1709953
Intended outcome: Report to next meeting
Deadline: 2017-09-21

Annex G: History

Document history		
Date	TSG RAN WG2 Tdoc	Subject
31.08.2017	-	Draft report v1
10.09.2017	-	Draft Report v2
06.10.2017	-	Draft Report v3
08.08.2017	R2-1710001	Version submitted for approval in RAN2#99bis
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