

Agenda Item: 2.2
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Title: Report of 3GPP TSG RAN WG2 meeting #95bis,
Kaohsiung, 10th – 14th October 2016
Document for: Approval

Report of 3GPP TSG RAN WG2 meeting #95bis

held in Kaohsiung
October 10 - 14, 2016



3GPP

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Organisation of the meeting

Meeting: 3GPP TSG RAN WG2 #95bis
 Meeting location: Gothenburg, Sweden
 Duration: Monday 10.10.2016 - Friday 14.10.2016
 Host: TAICS (Taiwan Association of Information and Communication Standards), Mediatek, and Chunghwa Telecom

TSG RAN WG2 Chairman: Richard Burbidge (Intel Corporation) email: richard.c.burbidge@intel.com
 TSG RAN WG2 Vice chairman: Hu Nan (CMCC) email: hunan@chinamobile.com
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 Technical documents: http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_95bis/Docs
 Ad hocs: Official parallel ad hocs held (see agenda item 2.1) on
 For LTE Breakout sessions:
 Topics on Legacy LTE (D2D), feD2D, V2X, V2V, Latency red chaired by Diana Pani (Interdigital),
 Topics on VoLTE, Light conn, Mobility enh, , eMBMS, Context aware chaired by Hu Nan (CMCC),
 Topics on Rel-13 NB-IOT, eNB-IoT and feMTC chaired by Johan Johansson (MediaTek)
 For UMTS sessions:
 Topics on Legacy UMTS and Rel-13 corrections chaired by Diana Pani (Interdigital);
 Topic on DTX/DRX enhancements and multi-carrier enhancements chaired by Mark Curran (Ericsson),
 Topics on RRC optimizations, HS+LTE SI, Indoor positioning, HSPA-LTE joint operation chaired by Xudong Yang (Huawei).

next meetings:

TSG RAN WG2 #96	14.11. - 18.11.2016	Rino, Nevada (US)
TSG RAN #74	05.12. - 08.12.2016	Vienna (AT)
TSG RAN WG2-NR Ad-hoc	17.01. - 19.01.2017	US (US)
TSG RAN WG2 #97	13.02. - 17.02.2017	Athens (GR)
TSG RAN #75	03.06. - 09.03.2017	Dubrovnik (HR)

Statistics/Executive Summary

TSG RAN WG2 #95bis was held in Kaohsiung hosted by TAICS (Taiwan Association of Information and Communication Standards), Mediatek, and Chunghwa Telecom. This RAN WG2 meeting had 3 parallel sessions: UMTS session (see AI 10-14; Mon - Wed) and LTE Breakout sessions (see AI 7.5, 8.2, 8.4, 8.8 and 8.13 in [R2-167240](#) (Annex G) and AI 8.6, 8.9, 8.10, 8.16 and 8.18 in [R2-167241](#) (Annex H) and AI 7.14, 8.11 and 8.12 in [R2-167242](#) (Annex I)). All other topics were treated in the parallel main session.

- 221 participants (registered: 292 participants). (See <http://webapp.etsi.org/3GPPRegistration/fViewPart.asp?mid=31670>)
- 1325 Tdocs allocated with 1258 available contributions. (See attached Tdoc list)
- 37 incoming liaison statements (2 on UTRA, 35 on LTE; and x on joint aspects): 34 were noted and 3 were not treated as late incoming LSs. (See annex C)
- 28 outgoing liaison statements (2 on UTRA, 26 on LTE; and x on joint aspects), 0 of them approved by email. (See annex D)
- 33 email discussions scheduled after RAN2 #95bis meeting, see Annex F.
- In this bis meeting only the type draftCRs were treated. Among 273 draft change requests (CRs) in total: 104 draftCRs (10 draftCRs for UTRA 25.xxx specs, 94 draftCRs for LTE 36.xxx specs, 0 draftCRs for joint 37.xxx specs) were agreed in principle (49 of 106 are implicitly in principle agreed). They will be (re)submitted to RAN2 #96 for final agreement. See Annex E.
- 1 agreed RAN2 CR in RAN2#95 was mistakenly not submitted to RAN#73 for approval and hence was not included in the September specification. So the CRs are presented again to this meeting (as [R2-166847](#), and Rel-14 shadow in [R2-166857](#)) and were agreed again and will be submitted to RAN#74 for approval.

1 Opening of the meeting (9 AM)

TSG RAN WG2 chairman Richard Burbidge (Intel Corporation) opened the meeting RAN WG2 #95bis on Monday morning 10.10.2016 at 09:00 o'clock.

On behalf of the host, TAICS (Taiwan Association of Information and Communication Standards), Mediatek, and Chunghwa Telecom, Mr.Fu I-Kang (MediaTek) welcomed the delegates to Kaohsiung and explained organisational issues.

Following RAN WG2 meeting rooms in ICCK:

Main RAN2 room:	303B (3F),	planned for 250 participants, Mon-Fri
RAN2 LTE Breakout sessions room:	303A (3F),	planned for 100 participants, Mon - Thu
RAN2 LTE Breakout IoT sessions:	302 (3F),	planned for 50 participants, Mon - Thu
RAN2 UMTS session room:	307 (3F),	planned for 30 participants, Mon - Wed

1 Opening of the meeting (9 AM)

1.1 Call for IPR

Richard Burbidge (TSG RAN WG2 chairman) made the following call for IPRs and reminded the delegates of their obligations with respect to IPRs:

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 that were shortly presented by the RAN2 chairman:

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

The PCG has laid down the following conditions that were shortly presented by the RAN2 chairman:

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

[R2-166000](#) Proposed agenda for RAN2 #95bis in Kaohsiung, 10.10 - 14.10.2016 Intel (RAN2 Chairman)
agenda
=> Approved

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\Chair_note folder.

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\Chair_note folder.

Following schedule is just for your convenience from separate document by chairman:

Please note that the following schedule is only indicative - topics may move forward or backward. An updated schedule may be provided closer to the meeting.

New RAT will not start before Wednesday morning and may have comebacks on Friday.

Schedule	Main room	LTE Breakout room 1	LTE Breakout room 2	UMTS room
Monday				
09:00 ->	[1], [2], [3], [4], [5], [6] [7]			
11:00 ->	Legacy LTE corrections			[10][11] UMTS Rel-8/9/10/11/12 [12] Rel-13 corrections
14:30 ->	[7] Legacy LTE (cont)	[8.8] Latency red		[13.2] DTX/DRX enhancements [2] [13.3] Multi-carrier [2]
17:00 ->	[8.1] eLAA [8.21] Other R14 (to avoid overlap with MTC/NB-IoT) [8.22] TEI14 (start if time allows)	[7.5] D2D Rel-13 corrections [8.4] feD2D [1] [8.2] V2V corrections		
Tuesday				
08:30 ->	[8.15] Meas gap enh [1]	[8.18] VoLTE [1]	[7.14] NB-IoT Rel-13 corrections	[13.4] Indoor positioning [0.25]
11:00 ->	[8.17] High speed [0.5]	[8.10] eMBMS [1]		[13.5] HSPA-LTE joint operation [1] [13.6] QoE [1] [13.1] RRC optimizations
14:30 ->		[8.12] feMTC [1]		
17:00 ->		[8.11] eNB-IoT [1.25]		
	[8.20] UL enh [0.25] [8.19] 1Rx Cat 1 [0.25] [8.14] SRS switch [0.5] [8.7] IP[0.25] [8.5] eLWA [1.5] [8.22] TEI14 (cont)			
Wednesday				
08:30 ->	[9] New RAT [4]	[8.13] V2X [2]		[13.7] TEI14 [comebacks]
11:00 ->	User plane	[8.9] Light conn [1.5] [8.16] Context aware [0.5]		
14:30 ->				
17:00 ->				
20:00	Dinner reception hosted by TAICS			
Thursday				
08:30 ->	[9] New RAT [4]	[8.6] Mobility enh [1]		Comebacks if needed
11:00 ->	Control plane			
14:30 ->	Mobility			
17:00 ->				
Friday				
08:30 -> until 17:00	Left-overs, Comebacks including Joint LTE/UMTS			

Chairing of LTE Sessions:

Legacy LTE (D2D), feD2D, V2X, V2V, Latency red, SRS carrier switching will be chaired by Vice Chair Diana Pani (Interdigital)

VoLTE, Light conn, Mobility enh, eMBMS, Context aware will be chaired by Vice Chair Hu Nan (CMCC)

Rel-13 NB-IOT, eNB-IoT and feMTC will be chaired by Johan Johansson (MediaTek)

Chairing of UTMS Sessions:

Diana Pani (Interdigital): Legacy UMTS and Rel-13 corrections

Mark Curran (Ericsson): DTX/DRX enhancements and multi-carrier enhancements

Xudong Yang (Huawei): RRC optimizations, Indoor positioning, HSPA-LTE joint operation

Breaks

Morning coffee: 10:30 to 11:00

Lunch: 13:00 to 14:30

Afternoon coffee: 16:30 to 17:00

2.2 Approval of the report of the previous meeting

[R2-166001](#) Draft Report v1.0 for RAN2 #95 in Gothenburg, Sweden, 22.08 - 26.08.2016 ETSI MCC
report Late
Come back Friday to approve
=> Approved in [R2-166054](#)

2.3 Reporting from other meetings

RAN-73

1 - New WIs impacting RAN2

1. Voice and Video enhancement for LTE, RAN2 led, WID [RP-161856](#)
2. QoE Measurement Collection for Streaming in UTRAN, RAN2 led, WID [RP-161917](#)
3. New UE category with single receiver based on Category 1 for LTE, RAN2 led, [RP-161898](#)

2 - Closed WIs

1. Latency reduction WI
2. V2V WI
3. eVoLTE SI
4. RRC optimization for UMTS WI
5. eLAA is not closed due to incomplete RAN4 aspects but is complete from RAN2 point of view and the RAN2 CRs were approved.

3 - NR prioritisation

Some items were deprioritised within the scope of the NR study item as captured in [RP-161914](#). Note that we still need to consider forward compatibility to ensure that these items can be added at a later time.

4 - CRs

1 agreed RAN2 CR was mistakenly not submitted to RAN#73 for approval and hence was not included in the September specification. The CR is presented again to this meeting (as [R2-166847](#), and Rel-14 shadow in [R2-166857](#)) where the intention is that the CR will be again agreed (rather than just agreed in principle) and will be submitted to RAN#74 for approval.

2.4 Others

Rapporteur changes

Spec	former rapporteur	proposed new rapporteur
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Isolated impact analysis

Note that an isolated impact analysis is required for Rel-8 to Rel-13 CRs from Q2 2016 onwards.

Only corrections where there is a proven problem are allowed for frozen releases (Rel-8 to Rel-13).

RAN2 WG compendium

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

R2-166002	RAN2 Compendium v33.0 after RAN#73	ETSI MCC	other	Late
	Not treated			

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-73 is available at:

ftp://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_73/Info_for_workplan/

3 Incoming liaisons

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

3.1 Joint UMTS/LTE relevance

[R2-166030](#) Reply LS to [R2-165972](#) on QoE reporting for streaming services (S4-161126; contact: Huawei)
SA4 LS in to: RAN2 Rel-14 TEI14

Moved from 3.2 to 3.1

- Draft of response is in [R2-166449](#)
- => Noted

In addition, the following LSin:

- [R2-166010](#), [R2-166011](#), [R2-166015](#), [R2-166038](#) will be treated in AI 8.7 (UTRA_LTE_iPos_enh2-Core)

3.2 LTE relevance

UE categories

[R2-166006](#) LS on introducing 1.2Gbps and 1.6Gbps UE categories in Rel-13 ([R1-168377](#); contact: Huawei) RAN1 LS in to: RAN2 Rel-13 TEI13
=> Noted

Definition of SSTD measurement

[R2-166018](#) LS for definition of SSTD measurement (R4-167153; contact: CATT) RAN4 LS in to: RAN2 Rel-13 LTE_SC_enh_dualC-Core
=> Noted

MBMS enhancements for MCS:

[R2-166022](#) Response to LS S6-160914 on MBMS enhancements for MCS (S2-164937; contact: Motorola solution) SA2 LS in cc: RAN2Rel-14 FS_MBMS_MCservices
=> Noted

Rel-13 CIoT:

[R2-166024](#) Further LS on CIoT NAS retransmission timers (S2-165438; contact: Vodafone) SA2 LS in cc: RAN2 Rel-13 CIoT
=> Noted

Rel-14 CIoT

[R2-166023](#) LS on Enhanced Coverage authorization impact on cell and PLMN selection procedures (S2-165214; contact: Qualcomm) SA2 LS in cc: RAN2Rel-14 FS_CIoT_Ext
- Qualcomm understand that it applies to any UE that supports CE.
=> To be determined whether this will be discussed in main session of MTC/NB-IOT session based on contributions.
=> Draft response LS in [R2-167243](#) (Qualcomm)

[R2-167243](#) Draft reply LS on Enhanced Coverage authorization impact on cell and PLMN selection procedures (to: SA2; cc: CT1; contact: Qualcomm) Qualcomm LS out
This Tdoc is treated in IoT session.

[R2-166028](#) LS on overload control for CP CIoT EPS optimization (S2-165431; contact: NEC) SA2 LS in to: RAN2 Rel-14 FS_CIoT_Ext
=> Noted

Band 41 HPUE core specifications:

[R2-166026](#) Status of Band 41 HPUE core specifications (R4-167112; contact: Sprint) RAN4 LS in to: RAN2 Rel-14 LTE_B41_UE_PC2-Core
=> Noted

Category M1 UE and VoLTE

[R2-166039](#) LS on Category M1 UE and VoLTE (R5-167215; contact: Ericsson) RAN5 LS in to: RAN2 Rel-13 Late Reply LS provided in [R2-167179](#) under AI 7.15
New LS in R
- Draft response has been provided in [R2-167179](#)
=> Noted

In addition, the following LS in:

- [R2-166003](#) will be treated in AI 8.1 (LTE_eLAA-Core)
- [R2-166005](#), [R2-166020](#), [R2-166036](#) will be treated in AI 9.1 (FS_NR_newRAT)
- [R2-166007](#), [R2-166008](#) will be treated in AI 8.11 (NB_IOTenh-Core)
- [R2-166009](#) will be treated in AI 8.14 (LTE_SRS_switch-Core)
- [R2-166012](#), [R2-166021](#), [R2-166035](#) will be treated in AI 8.13 (LTE_V2X-Core)

- [R2-166013](#) will be treated in AI 8.10 (MBMS_LTE_enh2-Core)
- [R2-166014](#) will be treated in AI 8.17 (LTE_high_speed-Core)
- [R2-166016](#) will be treated in AI 8.6.1 (LTE_eMob-Core)
- [R2-166017](#) will be treated in AI 8.15 (LTE_meas_gap_enh-Core)
- [R2-166019](#), [R2-166025](#) will be treated in AI 7.4 (LTE_MTCe2_L1-Core)
- [R2-166029](#) will be treated in AI 8.16 (FS_LTE_context)
- [R2-166027](#) will be treated in AI 7.14 (NB_IOT-Core)
- [R2-166031](#) will be treated in AI 8.20 (LTE_UL_CAP_enh-Core)

3.3 UMTS relevance

The following LSiN:

- [R2-166004](#) will be treated in AI 13.3 (UTRA_Mce-Core)

4 Joint UMTS/LTE: Rel-13 and earlier releases

Contributions submitted under this agenda item will be handled in a joint UMTS/LTE session.

4.1 Joint UMTS/LTE: Rel-12 and earlier releases

- (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 corrections to joint LTE+UMTS TEI functionality in Rel-8 to 12. E.g. “Multiple Frequency Bands per Cell”, ...

Including output from email discussion [95#23][LTE/UMTS] LTE capability signalling in UMTS (Intel)

- [R2-166552](#) Report of email discussion on [95#23] LTE capability signaling in UMTS Intel Corporation discussion result of email discussion [95#23] Rel-10 TEI10
- Qualcomm's proposal is to simply not report any CA capability in UMTS.
 - Samsung think the same proposal was proposed before but not agreed due to concerns from network vendors. Also think it is possible for the network to request that no CA capabilities are reported by listing no bands in the request. Huawei think it needs to be checked if the list can be empty but the network could request just one band.
 - Huawei think there are many ways for network to reduce the capabilities reported, so don't see benefit for additional changes.
 - Intel think that in previous discussion it was felt that the frequency band alone would not be flexible enough to reduce the number of reported combinations and so something more was needed for LTE. Good to add same in UMTS.
- => Noted
- [R2-166270](#) Introduction of LTE UE capability signaling enhancements Intel Corporation draftCR 25.331 10.20.0 - - B Rel-10 TEI10
- => Not pursued

- [R2-166993](#) LTE CA capability inquiry Qualcomm Incorporated draftCR 25.331 11.17.0 - - B
Rel-11 TE11
=> Discuss offline whether alternative approach to include an empty list in the request can achieve the same aim.
- Update from offline: It is not possible to send an empty list but it is possible to request a single band and in this case there is no issue of a large connection setup complete.
=> Not pursued
- [R2-166764](#) Correction for traffic steering granularity for RAN assisted WLAN interworking Ericsson draftCR 36.300 13.5.0- - F Rel-13 UTRA_LTE_WLAN_interw-Core
- Ericsson clarify that the CR is only from Rel-13 as the NBIFOM is only from Rel-13.
- Qualcomm think we need to keep the part that higher layers perform traffic steering.
=> Revised in [R2-167244](#)
- [R2-167244](#) Correction for traffic steering granularity for RAN assisted WLAN interworking Ericsson draftCR 36.300 13.5.0- - F Rel-13 UTRA_LTE_WLAN_interw-Core
=> In principle agreed
- [R2-166765](#) Correction for traffic steering granularity for RAN assisted WLAN interworking Ericsson draftCR 36.300 14.0.0- - A Rel-14 UTRA_LTE_WLAN_interw-Core
Not treated

4.2 Joint UMTS/LTE: Rel-13 WIs

Including correction related to the following WIs:

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

- [R2-166451](#) Correction on ACDC handling Huawei, HiSilicon draftCR 36.331 13.3.0- - F Rel-13 ACDC-RAN-Core
- Intel suggest to add 'and due to ACDC'. Nokia think the change in the last section is not needed it is already captured that NAS is informed when access is barred due to ACDC.
- Huawei think that the CR is addressing a new use case where the UE is rejected.
=> Discuss offline whether the final change in the CR is really needed.
=> Revised in [R2-167175](#)
- [R2-167175](#) Correction on ACDC handling Huawei, HiSilicon draftCR 36.331 13.3.0- - F Rel-13 ACDC-RAN-Core
- Intel suggest to add to cover page that there is no interop problem.
- Intel think the etxt should also cover the ACDC part.
=> Postponed.
- [R2-166453](#) Correction on ACDC handling Huawei, HiSilicon draftCR 36.331 14.0.0- - A Rel-14 ACDC-RAN-Core
Not treated

5 Joint UMTS/LTE: Rel-14

UTRA_LTE_iPos_enh2-Core will be treated under separate UMTS and LTE agenda items in 8.7 and 13.4 respectively.

5.1 Other Joint UMTS/LTE Rel-14 WIs

- [R2-166449](#) [Draft] Reply LS on QoE reporting for streaming services Huawei LS out Rel-14 UMTS_QMC_Streaming-Core
=> Change UMTS part to UMTS WI
=> Change final bullet to say "RAN did not agree an LTE WI due to limited time availability in RAN2"
=> Approved in [R2-167245](#)

5.2 Joint UMTS/LTE TEI14 enhancements

Small Technical Enhancements affecting both LTE and UMTS 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!

- [R2-166874](#) Introduction of eDECOR in RAN Ericsson discussion
- Huawei think we should have received an LS from SA2. Would like to come back later in the week.
 - Intel thought that this would be network internal and no indication needed but ok to check
 - => Offline time to check the requirement from SA2.
 - Update from offline: Explained that ECN id is two octets based on what CT1 have defined.
 - Nokia think the confusion is that SA2 didn't send an LS. Nokia still have the understanding that 1 octet should be enough.
 - Huawei is ok to progress without an LS.
 - => CRs postponed to next meeting
- [R2-166862](#) Introduction of eDECOR in RAN Ericsson draftCR 36.331 14.0.0- - B Rel-14
DECOR-UTRA_LTE-Core
- [R2-166873](#) Introduction of eDECOR in RAN Ericsson draftCR 25.331 14.0.0- - B Rel-14
DECOR-UTRA_LTE-Core
Above 2 Tdocs not treated

6 LTE: Rel-12 and earlier releases

- (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](#))

[R2-166154](#) CR to correct RRC Connection Release with GERAN redirection to be sent only after security activation Apple Europe Limited draftCR 36.331 10.19.0 - - F Rel-10 TEI10
 - Intel ask what is the security issue that is resolved by the CR. How does avoiding redirection resolve GERAN's issues. Also ask if there is any impact to CSFB.
 - Nokia have same concern over CSFB impact.
 - Apple explain that UE can't authenticate the network as in UMTS/LTE. They see an attack where UEs can be redirected to a rogue GERAN cell. For CSFB the security could be started.
 - Ericsson understand it is allowed to be sent protected already today.
 - Vodafone see the use case but would like more time to check. DT agree and think this is a little different from previous cases we changed recently. CMCC would like more time to check
 - Qualcomm think this UE change would cause issues in legacy networks.
 => Offline discussion (Apple)
 => Postponed to next meeting

[R2-166155](#) CR to correct RRC Connection Release with GERAN redirection to be sent only after security activation Apple Europe Limited draftCR 36.331 11.16.0 - - F Rel-11 TEI11

[R2-166156](#) CR to correct RRC Connection Release with GERAN redirection to be sent only after security activation Apple Europe Limited draftCR 36.331 12.11.0 - - F Rel-12 TEI12

[R2-166153](#) CR to Correct RRC Connection Release with GERAN redirection to be sent only after security activation Apple Europe Limited draftCR 36.331 13.3.0- - F Rel-13 TEI13
 Above 3 Tdocs not treated

Moved from 7.16.2 to 6

[R2-166269](#) Clarification on UE category requirement Intel Corporation discussion
 - Samsung agree to the problem but don't see a nice way to resolve it. The statement is not fully correct today but just removing doesn't solve the problem.
 - Huawei, think we can add a note to state that in reduced CA combinations are reported then the reported combinations might not meet the peak data rate.
 - Qualcomm think there are 2 things, he UEs genuine Cat and the reported Cat. It should be allowed for the UE to adapt its Cat based on the requested bands as the eNB can't make

use of it. Huawei think we already have the cases that eNB can't make use of the reported category. Intel think we could also allow the UE to adapt its reported category.

- ZTE thinks it is complex for the eNB/UE if it is allowed to adapt its category. Qualcomm doesn't see how this would be complex for the network as the eNB just treats the UE based on how it is reported.
 - Ericsson think we seem to have 2 ways to report this, and concern that the soft buffer may change due to category change.
- => RAN2 understanding of the current spec is not clear whether the UE is required or not to adapt its reported category based on the actual reported band combinations due to the eNB requests to reduce band combinations reported.
- => It is desirable that the UE is not required to adapt.
- => Discuss offline what changes might be needed to clarify the specs. Draft CR may be provided as an outcome. (Intel)
- Update from offline: Conclusion is that companies are to have a clarification and a CR is provided.

[R2-167193](#) Clarification on UE category requirement Intel Corporation draftCR 36.306 11.13.0 -
 - F Rel-11 LTE_CA_enh-Core
 => Typo to be corrected
 => Agreed in principle in [R2-167298](#)

[R2-167145](#) timeInfoUTC in SIB16 Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.331 12.11.0 -
 - F Rel-12 LTE-L23
 - Intel ask if leap seconds are included or not now the text is deleted. Think it should be clear that leap seconds (since 1972) are included. Nokia think it could state including leap seconds since their introduction.
 => Coversheet to show Rel-12
 => Add text to clarify the leap seconds since their introduction.
 => Revised in [R2-167246](#)

[R2-167246](#) timeInfoUTC in SIB16 Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.331 12.11.0 -
 - F Rel-12 TEI12, LTE-L23 [R2-167145](#)
 - Qualcomm would like to confirm the numbers
 => Postponed (to double check the numbers)

DC:

[R2-166283](#) Clarification on HARQ feedback in DC HTC Corporation draftCR 36.321 12.9.0- - F
 Rel-12 LTE_SC_enh_dualC-Core
 - Ericsson understand that RAN4 use the term PCell Interruption, they do not use SpCell Interruption.
 - Qualcomm think the release 12 spec is pointing to a RAN4 requirement that was only added in Rel-13.
 => Add SPcell in brackets instead of change proposed.
 => Discuss offline regarding the inconsistent release between RAN4 and RAN2.
 => Revised in [R2-167247](#)

[R2-167247](#) Clarification on HARQ feedback on PSCell and PUCCH SCell HTC Corporation draftCR 36.321 13.3.0- - F Rel-13 LTE_SC_enh_dualC-Core, LTE_CA_enh_b5C-Core
 => Cat should be F
 => Agreed in principle in [R2-167299](#)

[R2-166754](#) FDD&TDD diff for mbms-AsyncDC Huawei, HiSilicon draftCR 36.331 12.11.0 - - F
 Rel-12 LTE_SC_enh_dualC-Core
 - Ericsson ask how the dependency works with other capabilities. Huawei suggest that this capability can only be set if the UE supported for both FDD and TDD.
 => Can discuss offline what additional requirement need to be captured
 => Revised in R2=167248

[R2-167248](#) FDD&TDD diff for mbms-AsyncDC Huawei, HiSilicon draftCR 36.331 12.11.0 - - F
 Rel-12 LTE_SC_enh_dualC-Core
 => Agreed in principle

D2D:

[R2-166307](#) Corrections on sidelink pre-configurations and default configurations Huawei, HiSilicon draftCR 36.331 12.11.0 - - F Rel-12 LTE_D2D_Prox-Core
 => Agreed in principle

- [R2-166308](#) Corrections on system information acquisition for Sidelink discovery Huawei, HiSilicon
draftCR 36.331 12.11.0 - - F Rel-12 LTE_D2D_Prox-Core
- Qualcomm think the change is not needed as the UE is not required to scan non primary frequencies blindly. Huawei think it is possible that the UE will not read SIB19 from the primary frequency, but can instead read from the non-primary frequency. Qualcomm think the UE always needs to read SIB19 of the primary frequency.
 - LG think that this is allowed in Rel-13 and it would be good to align with Rel-13. Intel agree and are ok with the CR.
 - Ericsson thinks there must have been a reason why this not in Rel-12 but is in Rel-13. Intel understand in Rel-12 reception was allowed and what we added in Rel-13 was transmission. Ericsson think the understanding in Rel-12 was that the frequency was configured in higher layers.
- => Discuss offline whether this is required in Rel-12 (Huawei)
=> Revised in [R2-167177](#)
- [R2-167177](#) Corrections on system information acquisition for Sidelink discovery Huawei, HiSilicon
draftCR 36.331 12.11.0 - - F Rel-12 LTE_D2D_Prox-Core
- => Agreed in principle
- [R2-166309](#) Corrections on SL-SCH retransmission condition Huawei, HiSilicon draftCR 36.321
12.9.0- - F Rel-12 LTE_D2D_Prox-Core
- Panasonic think the UE only has a retransmission opportunity if it had a new transmission. Huawei think in the current spec the retransmission opportunity and the grant are separate.
 - LG also think the UE only generates retransmission opportunities when it get a grant for a new transmission. Panasonic think the retransmission opportunities are determined when the UE gets an SL grant
- => Not pursued

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](#))

- [R2-166268](#) Configuration of DMTC for neighbour and serving cells in LAA carrier frequency Intel Corporation draftCR 36.331 13.3.0- - F Rel-13 LTE_LAA-Core
- Nokia is ok with the intention but not sure about the use of the term 'LAA band'. Intel think this is defined in RAN4 specs.
- => Editorial aspects can be progressed offline
=> Revised in [R2-167249](#)
- [R2-167249](#) Configuration of DMTC for neighbour and serving cells in LAA carrier frequency Intel Corporation draftCR 36.331 13.3.0- - F Rel-13 LTE_LAA-Core
- => Agreed in principle
- [R2-166540](#) Miscellaneous corrections for LAA NTT DOCOMO INC. draftCR 36.300 13.5.0- - F Rel-13 LTE_LAA-Core
- Ericsson think we need to wait for RAN4 response regarding the timing reference for LAA SCell. Also think that CC-RNTI is a cell identity and not a UE identity.
 - BlackBerry have the same view as Ericsson that we should not change unless we get input from RAN4. Nokia think the sTAG change is not needed for Rel-13 without UL. LG share the view of Nokia.
- => Not pursued
=> Regarding Rel-14 we will wait for RAN4 response before making changes.

7.2 WI: CA enhancements

(LTE_CA_enh_b5C-Core, leading WG: RAN1, REL-13; started: Dec. 14, closed: Dec. 15, WID: [RP-151984](#))

- [R2-166386](#) Clarification on HARQ feedback on PUCCH SCell HTC Corporation draftCR 36.321
13.3.0- - F Rel-13 LTE_CA_enh_b5C-Core
- Ericsson not sure this is the best way to capture it.
=> Check offline whether RAN4 has a requirement on PUCCH SCell interruption.
- Update from offline: The change is now covered by a DC CR.
=> Not pursued

7.3 WI: Single-Cell point-to-multipoint transmission

(LTE_SC_PTM-Core, leading WG: RAN2, REL-13; started: June 15, closed: Dec. 15, WID: [RP-151110](#))

Incoming LS:

- [R2-166037](#) LS on power allocation for SC-PTM (R1-1610780; contact: Huawei) RAN1 LS in
to: RAN2 Rel-13 LTE_SC_PTM-Core
New incoming LS
=> Noted
- [R2-167176](#) Draft Reply LS on power allocation for SC-PTM (to: RAN1; cc: -; contact: Huawei) Huawei LS
out reply to [R2-166037](#) = R1-1610780 Rel-13 LTE_SC_PTM-Core
=> Noted
- [R2-166275](#) Clarification on SC-PTM reception HTC Corporation draftCR 36.321 13.3.0- - F
Rel-13 LTE_SC_PTM-Core
- LG think that non serving Cell is not defined in MAC spec. HTC suggest referring to the
definition in 36.331
- Intel think that even in 36.331 we do not have this concept for SC-PTM reception
=> Discuss offline how to make it clear that the requirement refers to the cell from which the
UE has decided to receive SC-PTM. Can also consider how simultaneous reception
impacts this text.
=> Revised in [R2-167250](#)
- [R2-167250](#) Clarification on SC-PTM reception HTC Corporation draftCR 36.321 13.3.0- - F
Rel-13 LTE_SC_PTM-Core
=> Agreed in principle.
- [R2-166504](#) Correction on Downlink power allocation for SC-PTMTD Tech, Huawei CR 36.331
13.3.02351 - F Rel-13 LTE_SC_PTM-Core
- Introduction of the new parameter is under discussion this week in RAN1.
=> ASN needs to be checked
=> Impact analysis needs to be provided
=> Withdrawn and replacement is provided in [R2-167251](#)
- [R2-167251](#) Correction on Downlink power allocation for SC-PTMTD Tech, Huawei draftCR 36.331
13.3.0- - F replacement of [R2-166504](#) Rel-13 LTE_SC_PTM-Core
=> Agreed in principle

7.4 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](#))

Incoming LSs:

- [R2-166019](#) LS on on UCG parameters for eMTC (R4-167198; contact: Intel) RAN4 LS in
to: RAN2 Rel-13 LTE_MTCe2_L1-Core
- Handled in RAN plenary
=> Noted
- [R2-166025](#) LS to RAN2 regarding valid MBSFN subframes for eMTC ([R1-168425](#); contact: Qualcomm)
RAN1 LS in to: RAN2 Rel-13 LTE_MTCe2_L1-Core
=> Noted

7.4.1 Control Plane

[R2-166360](#) Issue on mismatched PUSCH repetition configuration for CE Mode A ZTE Corporation
draftCR 36.331 13.3.0- - F Rel-13 LTE_MTCe2_L1-Core
- Ericsson explain this is already fixed by an update to the field description done at the last meeting.
=> Not pursued

[R2-166392](#) Clarification on AS-Config HTC Corporation draftCR 36.331 13.3.0- - F Rel-13
LTE_MTCe2_L1-Core
=> Agreed in principle

[R2-166407](#) DMRS scrambling sequence initialization parameter for MPDCCH Qualcomm Incorporated
draftCR 36.331 13.3.0- - F Rel-13 LTE_MTCe2_L1-Core
=> Agreed in principle

[R2-166408](#) RSRP threshold when only CE level 0 is used Qualcomm Incorporated draftCR 36.331
13.3.0- - F Rel-13 LTE_MTCe2_L1-Core
- Ericsson ask if even in the case that the UE has only one CE level there needs to be one threshold. Qualcomm think in this case the UE will rely on cell selection criteria thresholds. Ericsson wonders if there is still a need to differentiate from CE level 0 and legacy cell selection criteria threshold.
- Samsung support the CR. Intel also support the CR.
- Huawei support the CR.
=> Agreed in principle

[R2-167078](#) Processing delay requirements for RRC procedures for eMTC UEs Ericsson discussion
- Intel ask if this is aligned to the NB-IoT discussion.
- MediaTek think the decision is not exactly the same in NB-IoT.
- Neul explain that even in the NB-IoT there was no conclusion on what the definition should be for processing delay.

Agreements

- 1 Legacy RRC processing delay definition is used for eMTC.
- 2 PDSCH processing delay is accounted for in the RRC processing delay value.
- 3 RRC processing delay does not need to account for a potential delay until the next MPDCCH occasion where the UL grant can be scheduled.
- 4 RRC processing delay is not extended for eMTC UEs (noting that NB-IoT will have a separate discussion on the values).

=> Discuss the FFS offline and may also be discussed at the same time as NB-IoT (Neul)
Update from offline: Discussed in the NB-IoT session and concluded that there was no need for any clarification in the spec.

MBSFN subframes

[R2-166409](#) Correction on fdd-DownlinkOrTddSubframeBitmapBR Qualcomm Incorporated draftCR
36.331 13.3.0- - F Rel-13 LTE_MTCe2_L1-Core
=> Agreed in principle

[R2-167149](#) Clarification on valid MBSFN subframes for eMTC Ericsson draftCR 36.331 13.3.0- -
F replacement of [R2-167081](#) Rel-13 LTE_MTCe2_L1-Core
=> Not pursued - covered by previous CR.

RRC Connection Release

[R2-167079](#) Delayed ACK for RRCConnectionRelease message for eMTC UEs Ericsson discussion
- Qualcomm think we intentionally did not specify the details, and think the UE doesn't need to ensure that the HARQ ack for the status report is sent.
- Neul agree with Qualcomm that the lower layer interaction should not be specified and also the 60s is not acceptable
- Intel have same concerns as Qualcomm and Neul.

- Nokia think the details of P1 are not needed but think that the timer needs to be extended
- Ericsson think we need to have some assumptions agreed to determine the delay.
- Samsung share the view of others regarding the P1 and think the P2 just needs to cover the repetition time. Ericsson think that if we go with P1 that P2 is not really needed in most cases.
- ZTE also think that P1 is not needed. For P2 think the timer can be extended and suggest 600ms
- Vodafone think that power consumption is very important when considering this.
- => Offline discussion to conclude (Ericsson). Can be discussed after further discussion for NB-IoT.
- Update from offline: This was discussed in NB-IoT and conclusion was to not specify this further the text relating to the UE internal details. But the number is to be updated and it was agreed for NB-IoT but the number was not discussed for MTC. Number for MTC can be finalised for next meeting.
- Ericsson propose te same 10s value for MTC. Qualcomm wish to check further for MTC.
- = Ericsson think that there is a general issue with async HARQ that needs to be discussed.
- => Value for MTC can be finalised at next meeting.
- => General issue with async HARQ can be discussed at the next meeting.

[R2-166697](#) Discussion on RRC connection release HTC Corporation discussion
=> Noted - covered by previous discussion.

[R2-167148](#) Delayed ACK for RRCConnectionRelease message for eMTC UEs Ericsson draftCR
36.331 13.3.0- - F replacement of [R2-167080](#) Rel-13 LTE_MTCe2_L1-Core
Not treated

Withdrawn:

[R2-166078](#) Issue on mismatched PUSCH repetition configuration for CE Mode A ZTE Corporation CR
36.331 13.3.02349 - F Rel-13 LTE_MTCe2_L1-Core

[R2-167080](#) Delayed ACK for RRCConnectionRelease message for eMTC UEs Ericsson CR 36.331
13.3.02352 - F Rel-13 LTE_MTCe2_L1-Core

[R2-167081](#) Clarification on valid MBSFN subframes for eMTC Ericsson CR 36.331 13.3.02353 -
F Rel-13 LTE_MTCe2_L1-Core

7.4.2 User Plane

[R2-166669](#) Correction on mac-ContentionResolutionTimer for eMTC Huawei, HiSilicon draftCR
36.321 13.3.0- - F Rel-13 LTE_MTCe2_L1-Core
=> Agreed in principle

7.5 WI: ProSe enhancements

(LTE_eD2D_Prox-Core, leading WG: RAN2, REL-13; started: Dec. 14, closed: Mar. 16, WID: [RP-150441](#))

WI complete from RAN2 perspective

Documents in this agenda item will be handled in the LTE Break Out session

[R2-166310](#) Corrections on reception of MBMS Huawei, HiSilicon draftCR 36.304 13.3.0- - F
Rel-13 LTE_eD2D_Prox-Core

[R2-166311](#) Minor corrections for Rel-13 eD2D Huawei, HiSilicon draftCR 36.331 13.3.0- - F
Rel-13 LTE_eD2D_Prox-Core

7.6 WI: LTE-WLAN Radio Level Integration

(LTE_WLAN_radio-Core, leading WG: RAN2, started: Mar. 15, closed: Mar. 16, WID: [RP-152213](#))

7.6.1 LTE+WLAN Aggregation

Periodic measurement support

[R2-166988](#) Periodic WLAN measurement reporting MediaTek Inc., Intel discussion

=> Noted

- [R2-166133](#) Support of periodic measurements for LWA Nokia, Alcatel-Lucent Shanghai Bell discussion
- Discussed together with previous paper
 - Qualcomm think we have not discussed and agreed it. The signalling allows it but the procedure text doesn't support it and changes are needed to make it work. It is too late now for R13 and can be discussed for R14.
 - Nokia view is that it is supported but there were omissions at the end of R14.
 - MediaTek think more discussion is needed to have periodic measurements and it is too late to make it work in R13.
 - Intel think the Nokia CRs show that the additions are not straight forward. It can be discussed in R14.
 - Ericsson think the MediaTek proposal in the paper is a hack.
 - BlackBerry think the intent was that it was only event triggered and the way the spec is written today is a mistake.
 - CATT share the view of MediaTek and Intel. It is clear we did not have an intention to introduce periodic reporting.
 - TCL would like to understand the added value of periodic measurements.
 - Samsung think that SON is clearly not supported but for regular think it is supported today.
- => Periodic WLAN measurements are not supported for Release 13 LWA, LWIP, and RCLWI features
- => Periodic WLAN measurements with reportStrongestCells will be added in Rel-14 (eLWA WI). Details FFS. Measurements for SON can be discussed further.
- => Draft LS in [R2-167252](#) to RAN4 to inform them of our decision (MediaTek)
- [R2-167252](#) Draft LS to RAN4 on Periodic WLAN measurement reporting (to: RAN4; cc: -; contact: MediaTek) MediaTek Inc., Intel LS out
- Ericsson think we should inform them of the R14 decision to support it and hence they will not remove from R14 spec.
 - BlackBerry think that currently RAN2 don't have this and so RAN4 shouldn't have this in there spec until that time.
- => Add "We agreed to support this for Rel-14 but the details are FFS"
- => Approved in [R2-167301](#)

- [R2-166285](#) Support of periodic WLAN measurement report Samsung discussion
- [R2-167119](#) Periodical WLAN Measurements QUALCOMM Incorporated discussion
- [R2-166134](#) Correction to support of periodic measurements for WLAN Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.331 13.3.0- - F Rel-13 LTE_WLAN_radio-Core
- [R2-166286](#) Clarifications on periodic WLAN measurement report Samsung draftCR 36.331 13.3.0- - F Rel-13 LTE_WLAN_radio-Core, LTE_WLAN_radio_legacy-Core
- Above 4 Tdocs not treated

- [R2-166985](#) Correction to WLAN measurement configuration MediaTek Inc., Intel, Qualcomm draftCR 36.331 13.3.0- - F Rel-13 LTE_WLAN_radio-Core
- => Change to the form "E-UTRAN does not configure..."
- => Revised in [R2-167253](#)

- [R2-167253](#) Correction to WLAN measurement configuration MediaTek Inc., Intel, Qualcomm draftCR 36.331 13.3.0- - F Rel-13 LTE_WLAN_radio-Core
- => Correct typo.
- => Agreed in principle in [R2-167300](#)

Stage 2 corrections

- [R2-166242](#) Clarifications on LWA and LWIP HTC Corporation draftCR 36.300 13.5.0- - F Rel-13 LTE_WLAN_radio-Core
- => To be finalised offline
- => Revised in [R2-167254](#)
- [R2-167254](#) Clarifications on LWA and LWIP HTC Corporation draftCR 36.300 13.5.0- - F Rel-13 LTE_WLAN_radio-Core
- => Agreed in principle

Stage 3 corrections

- [R2-166276](#) Corrections to LWA configuration HTC Corporation draftCR 36.331 13.3.0- - F Rel-13 LTE_WLAN_radio-Core

- Qualcomm think this is already covered when the DRB is added. HTC think that after the DRB is created the LWA configuration could be added or released several times and this text covers that case.
 - Nokia explain that the bearer config is released at handover and after handover they need to be configured again as LWA bearers and at this time LWAAP must be re-enabled.
 - HTC think it is not clear that the DRB is no longer a LWA bearer.
- => Offline discussion to conclude whether anything is needed.
Update from offline: No conclusion whether a change is required.
=> Postponed to next meeting

[R2-166450](#) Corrections to LWA release HTC Corporation draftCR 36.331 13.3.0- - F Rel-13 LTE_WLAN_radio-Core
- Nokia think it is safer to refer to the existing section.
=> Agreed in principle

[R2-166834](#) WLAN measurement event W1 leaving condition Intel Corporation draftCR 36.331 13.3.0- - F Rel-13 LTE_WLAN_radio-Core, LTE_WLAN_radio_legacy-Core
- Samsung think that this will force the eNB to add a mobility set after the event if triggered.
- Samsung think that intent seems to be that when a mobility set is added the WLAN is removed from the cells triggered, as subsequent triggering is based on the cells triggered.
=> To be revised to remove the WLAN from cells triggered
=> Revised in [R2-167258](#) but not provided
=> Postponed to next meeting

Withdrawn:

[R2-166135](#) Capability to support of periodic measurements for WLAN Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.306 13.3.0- - F Rel-13 LTE_WLAN_radio-Core

[R2-167258](#) WLAN measurement event W1 leaving condition Intel Corporation draftCR 36.331 13.3.0- - F Rel-13 LTE_WLAN_radio-Core, LTE_WLAN_radio_legacy-Core
Withdrawn by MCC after the meeting

7.6.2 Interworking Enhancements

No contributions received.

7.7 WI: Multicarrier Load Distribution in LTE

(LTE_MC_load-Core, leading WG: RAN2, started: Mar. 15, closed: Dec. 15, WID: [RP-152181](#))

No contributions received.

7.8 WI: Dual Connectivity Enhancements

(LTE_dualC_enh-Core, leading WG: RAN2, started: Mar. 15, closed: Dec. 15, WID: [RP-151739](#))

[R2-166136](#) Corrections to handling of uplink split Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.323 13.3.0- - F Rel-13 LTE_dualC_enh-Core
- LG think the case that needs to be clarified is for the case that the PDUs can be submitted to either SCG or MCG. They should be submitted to the entity that requested the data.
- Nokia explain the intent is that the PDUs are submitted to the correct entity for all cases.
- Ericsson thinks the existing wording is ok but it is ok to make it clearer.
- ZTE think that RLC layer might have similar issues.
- Intel think that the impact analysis might need to be clarified that this is the original intended behaviour.
- LG think this was discussed at length when it was agreed first time.
=> Change " requested to " to " requested by"
=> Wording for the case when data is above threshold can be discussed offline. Whether other changes are needed at all can also be discussed.
=> Revised in [R2-167255](#)
=> Postponed to next meeting.

[R2-167255](#) Corrections to handling of uplink split Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.323 13.3.0- - F Rel-13 LTE_dualC_enh-Core

=> Withdrawn by MCC after the meeting

7.9 WI: RAN enhancements for extended DRX in LTE

(LTE_extDRX-Core; leading WG: RAN2; started: Mar. 15; closed: Mar. 16; WID: [RP-150493](#))

- [R2-166617](#) eDRX correction on MME sending Paging message to eNB Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.300 13.5.0- - F Rel-13 LTE_extDRX-Core
- Intel think there is no restriction to send this only at the start of the PTW.
 - Nokia think the intent is to make it clear that the eNB doesn't store the page for a long time
 - LG have the same view as Intel.
 - Samsung don't see the need for the change.
 - Nokia think it is critical as the MME doesn't know when the paging occasion is.
 - Huawei agree to the change.
 - Intel support the change but think it is additionally useful to say that it might be sent later.
 - CATT agree with the CR.
 - MediaTek.
- => Add "or during PTW". Final wording to be concluded offline.
- => Revised in [R2-167256](#)
- [R2-167256](#) eDRX correction on MME sending Paging message to eNB Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.300 13.5.0- - F Rel-13 LTE_extDRX-Core
- => Agreed in principle

- [R2-166619](#) System Information update for eDRX Nokia, Alcatel-Lucent Shanghai Bell discussion
- MediaTek think it is clear that the UE works according to proposal 3. LG agree with MediaTek. MediaTek also think that nothing needs to be documented and it is eNB implementation how it handles these strange cases.
 - Samsung think this is an optimisation and the use cases are very rare cases.
 - Intel think there is nothing that needs to be changed.
 - Nokia clarify there is no intent to change UE behaviour but just want confirmation that P3 is the current understanding.
- => Offline discussion to conclude if the cases in the paper are real, and also discuss whether P3 is aligned to current spec (Nokia)
- Update from offline; Concluded it is a valid case that needs to be addressed and agree with proposal 3.
- => RAN2 confirm that the UE will read SIB at next eDRX acquisition period as long as it received at least one paging message indicating systemInfoModification-eDRX notification even though there may be other paging messages during the acquisition period that do not indicate systemInfoModification-eDRX.
- => Note to clarify the specification may be submitted to next meeting

- [R2-166249](#) Correction on UE behavior in Paging procedure HTC Corporation draftCR 36.331 13.3.0- - F Rel-13 LTE_extDRX-Core
- Huawei think that the eDRX UE should also act on the systemInfoModification and hence the CR is not needed. LG think that it doesn't apply for a eDRX UE.
 - MediaTek think the current text is the intent of the spec.
 - HTC think the field description indicates that this is only for eDRX UE.
- => Agreed in principle

7.10 WI: Elevation Beamforming/Full-Dimension (FD) MIMO for LTE

(LTE_EBF_FDMIMO-Core; leading WG: RAN1; started: June. 15; closed: Dec. 15; WID: [RP-151085](#))

- [R2-166655](#) Clarification regarding on CSI-RS resource configuration for FD-MIMO Samsung Telecommunications draftCR 36.331 13.3.0- - F Rel-13 LTE_EBF_FDMIMO-Core
- Ericsson think for the second change there is no clear agreement in RAN1 and we should not add it in RAN2.
 - Nokia are OK with the first change and for the second change share the view of Ericsson.
- => Remove the second change (can be discussed in RAN1)

=> Agreed in principle in [R2-167257](#)

7.11 WI: Further Enhancements of Minimization of Drive Tests for E-UTRAN

(LTE_eMDT2-Core; leading WG: RAN2; started: Sep. 15; closed: Dec 15; WID: [RP-151611](#))

No contributions received.

7.12 WI: Indoor Positioning Enhancements for UTRA and LTE

(UTRA_LTE_iPos_enh-Core; leading WG: RAN2; started: Sep. 15; closed: Dec 15; WID: [RP-152251](#))

No contributions received.

7.13 WI: LTE-WLAN RAN Level Integration supporting legacy WLAN

(LTE_WLAN_radio_legacy-Core; leading WG: RAN2; started: Sep. 15; closed: Mar 15; WID: [RP-151615](#))

No contributions received.

7.14 WI: Narrowband IOT

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

Time budget: N/A

Documents in this agenda item handled in the NB-IoT Break Out session. (See Annex I)

Incoming LSs

[R2-166027](#) Reply LS to C1-163890 = [R2-164639](#) on Multiple bearer capability handling (S2-165196; contact: Intel) SA2 LS in cc: RAN2Rel-13 CloT

Moved from 3.2 to 7.14

7.14.1 Control Plane

Including output from email discussion [95#39][NB-IoT] RRC processing delays.(Neul)

[R2-166315](#) Summary of [95#39][NB-IoT] NB-IoT RRC Processing Delays EMail Discussion Huawei, HiSilicon, Neul Ltd. report related to email discussion [95#39] Rel-13 NB_IOT-Core

[R2-166248](#) Corrections to NB-IoT SystemInformationBlockType2 handling HTC Corporation draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core

[R2-166290](#) Clarification to the security mode command procedure for NB-IoT Ericsson LM draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core

[R2-166314](#) Clarification on uplink carrier frequency Huawei draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core

[R2-166387](#) Clarification on system information acquisition for NB-IoT HTC Corporation draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core

[R2-166523](#) PDCCP COUNT with RRCConnectionResume Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core

[R2-166555](#) Editorial correction for NB-IoT Ericsson draftCR 36.300 13.5.0- - D Rel-13 NB_IOT-Core

[R2-166556](#) Editorial correction for NB-IoT Ericsson, ZTE Corporation draftCR 36.331 13.3.0- - D Rel-13 NB_IOT-Core

[R2-166557](#) Acknowledgement delay of RRCConnectionRelease message in NB-IoT Ericsson draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core

- [R2-166558](#) Acknowledgement delay of RRCConnectionRelease message in NB-IoT Ericsson discussion
[R2-166559](#) Processing delay requirements for RRC procedures Ericsson discussion
[R2-166705](#) NB-IoT RRC Processing Delays Neul Limited discussion
[R2-166719](#) Correction to PDCCH period description QUALCOMM INCORPORATED draftCR 36.321
 13.3.0- - F Rel-13 NB_IOT-Core
[R2-166846](#) Valid anchor/non-anchor carrier combinations QUALCOMM INCORPORATED discussion
[R2-166850](#) Definition of valid anchor and non-anchor carrier combinations QUALCOMM
 INCORPORATED draftCR 36.300 13.5.0- - F Rel-13 NB_IOT-Core
[R2-166863](#) Reference to valid non-anchor carrier configuration QUALCOMM INCORPORATED
 draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core
[R2-167096](#) Correction on field description of up-CIoT-EPS-Optimisation NEC, Intel Corporation
 draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core
- Withdrawn:**
[R2-166288](#) Clarification to the security mode command procedure for NB-IoT Ericsson LM CR 36.331
 13.3.02350 - F Rel-13 NB_IOT-Core
[R2-166707](#) Correction to PDCCH period description QUALCOMM INCORPORATED CR 36.321
 13.3.00927 - F Rel-13 NB_IOT-Core

7.14.2 User Plane

- [R2-166209](#) Correction to TS36.321 CATT draftCR 36.321 13.3.0- - F Rel-13 NB_IOT-Core
[R2-166274](#) Clarification on NB-IoT HTC Corporation draftCR 36.321 13.3.0- - F Rel-13
 NB_IOT-Core
[R2-166289](#) Clarification to the Random Access Procedure for NB-IoT Ericsson LM draftCR 36.321
 13.3.0- - F Rel-13 NB_IOT-Core
[R2-166361](#) Issue on mismatched procedures for indication to PDCP ZTE Corporation draftCR 36.331
 13.3.0- - F Rel-13 NB_IOT-Core
[R2-166457](#) Clarification on DRX HTC Corporation draftCR 36.300 13.5.0- - F Rel-13
 NB_IOT-Core
[R2-166695](#) Further clarification for PDCCH order in NB-IoT ZTE Corporation draftCR 36.321
 13.3.0- - F Rel-13 NB_IOT-Core
- [R2-166847](#) Correction to MAC RAR CATT CR 36.321 13.3.00891 3 F Rel-13 NB_IOT-Core
[R2-165828](#)
 NOTE: This CR was agreed in RAN2#95 but was mistakenly not submitted to RAN#73 and
 hence resubmitted as a CR to agree again in RAN2#95bis for approval in Dec.16
[R2-166857](#) Correction to MAC RAR CATT CR 36.321 14.0.00924 - A Rel-14 NB_IOT-Core
 NOTE: This CR was agreed in RAN2#95 but was mistakenly not submitted to RAN#73 and
 hence resubmitted as a CR to agree again in RAN2#95bis for approval in Dec.16
moved from 8.11.4 to 7.14.2
- Withdrawn:**
[R2-166277](#) Clarification to the Random Access Procedure for NB-IoT Ericsson CR 36.321 13.3.0
 0925 - F Rel-13 NB_IOT-Core
[R2-166356](#) Correction to NB-IoT Stage 2 description Ericsson LM draftCR 36.300 13.5.0- - F
 Rel-13 NB_IOT-Core
[R2-166458](#) Correction to MAC RAR CATT draftCR 36.321 13.3.0- - Rel-13 NB_IOT-Core

7.15 Other LTE Rel-13 WIs

- [R2-166941](#) Definition of cch-InterfMitigation-MaxNumCCs Intel Corporation, Qualcomm draftCR
 36.306 13.3.0- - F Rel-13 LTE_IM_DLCCH-Perf
 => Agreed in principle
- [R2-166942](#) Clarification on Rel-13 CCH-IM UE capability Intel Corporation, Qualcomm draftCR
 36.331 13.3.0- - F Rel-13 LTE_IM_DLCCH-Perf
 => Agreed in principle
- [R2-167179](#) Draft reply LS on Category M1 UE and VoLTE (to: RAN5; cc: RAN1, GSMA NG, GSMA
 RILTE; contact: Ericsson) Ericsson LS out reply to [R2-166039](#) = R5-167215 Rel-13
 Late
 - New draft LS
 Vodafone prefer to just indicate that VoLTE is not prohibited for CE mode A.

- Intel think we can indicate that VoLTE is supported in normal coverage.

=> Revised in [R2-167297](#)

[R2-167297](#) Draft reply LS on Category M1 UE and VoLTE (to: RAN5; cc: RAN1, GSMA NG, GSMA RILTE; contact: Ericsson) Ericsson LS out reply to [R2-166039](#) = R5-167215 Rel-13 Late

=> Approved in [R2-167316](#)

7.16 LTE TEI13 enhancements

Only corrections related to already agreed TEI13 proposals will be treated under this agenda item. New TEI proposals should be submitted to TEI14.

7.16.1 CloT optimisations

[R2-166440](#) Clarification on CloT HTC Corporation draftCR 36.300 13.5.0- - F Rel-13 TEI13

- Nokia think that both resume identity and resume ID are used but they are meant to be the same thing.
- Neul think it is not equivalent to an RNTI and is not a cell level identity and the change is not needed.

=> Select between resume ID and resume identity and be consistent

=> Address the fact that the resume identity it may not be a cell level identity.

=> Revised in [R2-167259](#)

[R2-167259](#) Clarification on CloT HTC Corporation draftCR 36.300 13.5.0- - F Rel-13 TEI13

=> Agreed in principle

[R2-166461](#) Correction on suitable cell requirements HTC Corporation draftCR 36.304 13.3.0- - F Rel-13 TEI13, NB_IOT-Core

- Ericsson think the bits are provided to NAS and it is all handled there . Not clear that we need to change the suitability criteria.
- HTC explain that the intent is that the UE is not stuck to this kind of cell. Qualcomm think that according to CT1 the UE is not stuck as the UE will trigger PLMN selection. HTC wonders what happens if this is the UEs own PLMN.
- MediaTek think the CT1 specs require that this feature is implemented on PLMN level. If we wanted to added support where the a single PLMN can have different support then this might be needed.

=> Not pursued

[R2-166295](#) Clarification on the RRC connection resume procedure HTC Corporation draftCR 36.331 13.3.0- - F Rel-13 TEI13

- Nokia ask why SIB14 is mentioned as it is not related to CloT. Ericsson clarify that the EAB check is required for the resume procedure.

=> Agreed in principle

[R2-166654](#) Correction of connection suspension related aspects Samsung Telecommunications draftCR 36.331 13.3.0- - F Rel-13 TEI13

- HTC think that SRB1 should be suspended for UL. Ericsson agree and would like SRB1 to be suspended. Suggest that it is suspended but can be resumed a bit earlier in the sequence during the resume procedure.
- LG think that only SRB2 should be suspended. And also think there is no deactivation of security in PDCP.
- Ericsson think resume is new compared to re-establishment as the resume message is on SRB1 but not ciphered.

=> Offline discussion to conclude what changes are required.

=> Revised in [R2-167260](#)

[R2-167260](#) Correction of connection suspension related aspects Samsung Telecommunications draftCR 36.331 13.3.0- - F Rel-13 TEI13

- Ericsson prefers that security is suspended rather than deactivated. Samsung think it is clear that this can only be done after initial activation.
- Neul would like to have more time to check.
- LG think this is no suspended state and so think that deactivated is more aligned sith current spec.

=> Postponed

[R2-167289](#) Correction of security handling upon connection suspension Samsung Telecommunications
draftCR 36.323 13.3.1- - F Rel-13 TEI13
=> Postponed

7.16.2 Other

UE capability related

[R2-166467](#) Combination for New UE Category MediaTek Inc. discussion

- Intel supports that some of the legacy DL categories should be paired with the new UL category. Wonder why the <1 Gbps threshold.
- Qualcomm is ok to pair with the legacy DL categories but do not think it is higher priority.
- Huawei think we should see some operator input and UE input.
- Ericsson think this has normally been discussed in RAN1. MediaTek think that combination of existing categories should be RAN2. Samsung agree it should be RAN2.
- Nokia think this was RAN1 in the past and communicated by LS from RAN1, but we will do the CRs.

=> Discuss offline during this week to see if any progress is possible this week (MediaTek)
=> For next meeting discussion will be in RAN1 or RAN2 to be confirmed by the chairs.

[R2-167191](#) Summary of Offline Discussion on Combination for New UE Category MediaTek discussion

- Some preference from some companies to have the category discussion in RAN2.
- Qualcomm think this has been discussed in RAN1 before but if we do this next time then it implies we commit to doing this task long term.

=> Combinations where the new UL UE category is combined with legacy DL UE category in addition to new DL UE category can be considered.

[R2-166659](#) UE capability and feature support Samsung Telecommunications discussion

- Samsung clarified that the UE should be able to be configured for all its supported features by a later release critical extension if that extension is needed for a supported later release feature.
- Huawei doesn't have the same understanding of P1. UE is not allowed to support a future release feature. If we agree this then the whole concept of release changes.
- Intel think in the past we have discussed early implementation (e.g. UL 64 QAM) and we have allowed such cases.
- Ericsson think in the past it has been discussed case by case but we can discuss to change the principles. Best would be to upgrade to the latest ASN.1 but not have any mandatory features.
- ZTE think it should be discussed case by case.
- Nokia share the view that P1 is not aligned to the current principle. Agree in the past we did this case by case. Can't agree to the proposal.
- Intel are ok not to have a general principle but wonder what is the case for certain cases where we agreed early implementation.
- Qualcomm is interested in early implementation and think it is needed to accommodate requests from the market.
- Huawei think we should avoid any mandatory features to eliminate the barrier to UEs implementing the latest release ASN.1. We should also find a good way to document the cases that we agreed where early implementation is possible.

=> We will try to avoid any mandatory features in a release to eliminate the barrier to UEs implementing the latest release ASN.1
=> We will find a good way to document the cases that we agreed that early implementation is possible. May need to clarify the release of ASN.1 supported by the UE for these cases.

[R2-166679](#) Clarification on UE power class 2 indication Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.306 13.3.0- - F Rel-13 TEI13

- Nokia clarify that 36.307 already states that the feature can be implemented from Release 10.

=> Agreed in principle

- [R2-166680](#) Clarification on UE power class 2 indication Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.331 13.3.0- - F Rel-13 TEI13
- Nokia think it is not clear from the changes that the signalling is release independent. Also suggest that sentence is aligned with the 306 CR.
 - Nokia think that the network will understand that the UE supports ASN.1 according to its release indicator, and if the network understands the capability of Rel-13 then the eNB can consider this.
 - Huawei think for this case it is fine to go with the approach to capture this capability in 36.307. But this approach might not be ok for other cases such as UL 64 QAM.
- => Text to be aligned to 36.306 CR
=> Agreed in principle in [R2-167261](#)

Other

- [R2-166612](#) UL grant in Random Access Response from PCell for SCell Nokia, Alcatel-Lucent Shanghai Bell, NTT DOCOMO, INC. draftCR 36.300 13.5.0- - F Rel-13 TEI13
- Intel ask if this is applicable to CA and DC? Intel think that is should not be applicable for DC.
 - LG think this is already clear from stage 3.
 - Ericsson support the CR.
- => Add the appropriate WI code where this was originally added.
=> To be added in Rel 14
=> Coversheet to make it very clear that this is alignment of stage 2 to what is already specified clearly in Rel-11 stage 3.
=> Revised in [R2-167262](#)
- [R2-167262](#) UL grant in Random Access Response from PCell for SCell Nokia, Alcatel-Lucent Shanghai Bell, NTT DOCOMO, INC. draftCR 36.300 14.0.0- - F Rel-14 TEI14
=> Agreed in principle

- [R2-166649](#) Clarification in DRX LG Electronics Inc. discussion
- Ericsson think that eNB will never configure SR prohibit on SRB. There is nothing we need to cover in the spec as it is just a strange eNB implementation. Nokia agree we don't need to specify for bad eNB implementation.
 - Qualcomm agree with the understanding of P1. Think there is a case that might happen in bad eNB implementation where DRX is configured but not activated.
- => Noted

- [R2-166651](#) Clarification in DRX with SR prohibition LG Electronics Inc. draftCR 36.321 13.3.0- - F Rel-13 LTE-L23, TEI13
=> Not pursued

Withdrawn:

- [R2-166650](#) Clarification in DRX with SR prohibition LG Electronics Inc. CR 36.321 13.3.00926 - F Rel-13 TEI13, LTE-L23

8 LTE Rel-14

8.1 WI: Enhanced LAA for LTE

(LTE_eLAA-Core; leading WG: RAN1; REL-14; started: Dec. 15; target: Dec. 16; WID: [RP-161832](#))

Time budget 0TU

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

Incoming LS:

- [R2-166003](#) LS on further RRC Parameters for Enhanced LAA for LTE ([R1-168346](#); contact: Huawei)
RAN1 LS in to: RAN2; resubmitted since it was not treated in RAN2#95 Rel-14
LTE_eLAA-Core

- Already captured in RRC CR agreed at last meeting
- => Noted

8.1.1 Stage 2

LBT

- [R2-166428](#) Correction on LBT for eLAA Huawei, HiSilicon draftCR 36.300 14.0.0- - F Rel-14 LTE_eLAA-Core
3 CRs discussed together
- Samsung support the Ericsson CR to be the starting point as it is the most concise.
 - Intel prefer the BlackBerry CR as the Ericsson omits the point about the 25us LBT that was agreed in RAN1. BlackBerry agree there is a subtle difference between the 2 cases and it needs to be taken into account as in the first case the eNB needs to consider the DL traffic. Huawei agree this aspect is missing, but think the BlackBerry CR misses the change in 5.7.1. BlackBerry understand that the point in 5.7.1 was actually a mistake in RAN1.
- => Can be discussed offline. Starting point can be the Huawei CR. Terminology should be aligned to that in RAN1 specs and can try to make more concise.
- => [R2-166428](#) revised in [R2-167263](#)
- [R2-167263](#) Correction on LBT for eLAA Huawei, HiSilicon draftCR 36.300 14.0.0- - F Rel-14 LTE_eLAA-Core
=> Agreed in principle
- [R2-166678](#) Inclusion of RAN1 agreements on coexistence for eLAA BlackBerry UK Limited draftCR 36.300 14.0.0- - F Rel-14 LTE_eLAA-Core
=> Not pursued as covered by previous CR
- [R2-166718](#) Channel Access Priority Class selection for UL and scheduling restrictions Ericsson draftCR 36.300 14.0.0- - F Rel-14 LTE_eLAA-Core
=> Not pursued as covered by previous CR

Other

- [R2-166447](#) Correction on cross-carrier scheduling for eLAA Huawei, HiSilicon draftCR 36.300 14.0.0- - F Rel-14 LTE_eLAA-Core
=> Agreed in principle

8.1.2 User plane

Two step scheduling

- [R2-166443](#) UL data transfer for Two-stage scheduling Huawei, HiSilicon discussion
=> Noted
- [R2-166709](#) MAC handling of data transmission with 2-step granting Ericsson discussion
2 documents discussed together
- Nokia think for the modelling that nothing is needed in MAC to reflect this. Maybe only DRX might lead us to make some changes. For BSR there will be no time to change the BSR in the transmission.
- Huawei P2
- Ericsson do not want to change the behaviour. The UE should still fill these fields according to the state after transmission has occurred.
 - Huawei clarify that the PDU is generated after the first grant and not the second grant. That is the reason that the UE decides early what PHR/BSR is included in the PDU.
 - Qualcomm think we agreed a long time ago that we would not change PDU content based on LBT outcome.
 - BlackBerry understand that today the UE generates the PDU at the time of first UL grant is received and hence we don't need to change anything in our specs.
 - LG think that RAN1 thinking was that MAC PDU would be generated on first grant and only the first grant matters from RAN2 point of view. For BSR the current requirement is that the UE considers the state after PDU construction and hence current spec is sufficient.

- => For basic UL transmission the MAC layer only needs to be aware of the first grant and no spec change is needed. (DRX to be discussed separately)
- => For PHR setting can be discussed more offline whether something more might be needed (Huawei)
- Update from offline on PHR: Conclude that no change needed in RAN2 but a LS to RAN1 is required.

[R2-167192](#) Draft LS on on PHR for two-stage scheduling (to: RAN1; cc: -; contact: Huawei) Huawei LS out Rel-14 LTE_eLAA-Core

- Samsung wonder whether we should support 2 step in this release given he WI is closed. LG have a similar concern as RAN2. BlackBerry also have concern.
- Ericsson think RAN1 have concluded and so we should add it. Nokia think there is not much RAN2 impact and it is mostly a modelling issue. Only for DRX there might be some impact.
- Qualcomm think we have identified the impacts already and discussed how to address them.

=> Approved in [R2-167302](#)

[R2-167197](#) Output from offline on 2-step RA and DRX Ericsson discussion Rel-14 LTE_eLAA-Core

=> Noted

- ✉ **[95bis#07][LTE/eLAA] 2 step RA and DRX (Ericsson)**
Address the questions in [R2-167197](#) and start to discuss a CR to be submitted to the next meeting.
Intended outcome: Email discussion report to the next meeting and potentially a CR to next meeting.
Deadline: Tuesday 01/11/2016

[R2-166434](#) Correction on UL data transfer for Two-stage scheduling Huawei, HiSilicon draftCR 36.321 14.0.0- - F Rel-14 LTE_eLAA-Core

Not treated

[R2-166710](#) MAC handling of data transmission with 2-step granting Ericsson draftCR 36.321 14.0.0- - Rel-14 LTE_eLAA-Core

Not treated

[R2-166460](#) Impact on HARQ and DRX of Two-stage scheduling Huawei, HiSilicon discussion

- Ericsson think it is specified in RAN1 when the UL grant is valid or not. In our specs we can just refer to whether the grant is valid or not. Ericsson also understand that this timer just indicates how long the grant is valid and not when the transmission can occur. Nokia have the same understanding as Ericsson. LG share the same view that the valid timer only relates to the 2nd grant reception.
- LG also think that MAC may not know if 2nd step is received or if the first UL grant is valid or not.
- Huawei's concern is to avoid the case that the 2nd grant is missed due to DRX. LG think this can all be handled by eNB implementation as it knows the DRX configuration. Ericsson think this may limit eNB flexibility as may force a long inactivity timer.

=> Noted

[R2-166462](#) Correction on HARQ and DRX for Two-stage scheduling Huawei, HiSilicon draftCR 36.321 14.0.0- - F Rel-14 LTE_eLAA-Core

Not treated

[R2-166713](#) DRX and 2-step granting Ericsson discussion P1

- Samsung agree that the UE should be active between the steps but not sure if this is a UE requirements or something the network must ensure. Ericsson intent is that this is meant as a new UE requirement. Samsung think it makes more sense to just start inactivity timer after first grant and not sure anything new is needed. Samsung think for all cases we

should agree that the first UL grant will be the only one visible to MAC. LG share the view of Samsung.

- BlackBerry think this 2 step scheduling relates to LAA carrier only, but active time applies to all carrier and it would add monitoring to the other carriers.
 - Qualcomm agrees with BlackBerry concern. Think we could specify just for the LAA carrier that the UE monitors until the step 2 is received but not changing DRX behaviour itself.
 - Huawei wonder how to handle the retransmission timer. Samsung think there is no problem for this case.
 - BlackBerry think we can't have complex additions to make this feature work given this is a closed WI.
- => Offline discussion regarding whether any change to DRX is required, specifically related to when inactivity timer and retransmission timer are started. (Ericsson)

[R2-166714](#) DRX and 2-step granting Ericsson draftCR 36.321 14.0.0- - Rel-14
LTE_eLAA-Core
=> Postponed

Other

[R2-166711](#) Inactivity timer for Multi-subframe scheduling Ericsson discussion
- Ericsson clarify that the delayed grant is just a step 2 grant that happens in the future. Hence can be discussed in offline.
=> Can be discussed offline together with the DRX aspect for 2 step scheduling

[R2-166712](#) Inactivity timer for Multi-subframe scheduling Ericsson draftCR 36.321 14.0.0- - Rel-14 LTE_eLAA-Core
Not treated

[R2-166456](#) PDCCH monitoring for eLAA Huawei, HiSilicon discussion
- Ericsson think this was discussed before and nothing needs to be changed in the spec.
- Nokia thinks it is clear if the subframe is UL then there is nothing to monitor. And this is fine today for TDD FDD aggregation.
=> RAN2 understanding that the MAC layer does not need to monitor the PDCCH in a subframe if it is considered as an UL subframe from UE's perspective. No need to clarify this in the specification.

[R2-166448](#) Correction on PDCCH monitoring for eLAA Huawei, HiSilicon draftCR 36.321 14.0.0- - F Rel-14 LTE_eLAA-Core
=> Not pursued

[R2-166715](#) PDCCH-subframe definition for LAA Ericsson draftCR 36.321 14.0.0- - Rel-14 LTE_eLAA-Core
- LG support the CR
=> Should be Cat F
=> Can be checked more offline
=> Revised in [R2-167264](#)

[R2-167264](#) PDCCH-subframe definition for LAA Ericsson draftCR 36.321 14.0.0- - F Rel-14 LTE_eLAA-Core
=> Agreed in principle

[R2-166452](#) Correction on UL RTT for eLAA Huawei, HiSilicon, HTC Corporation draftCR 36.321 14.0.0- - F Rel-14 LTE_eLAA-Core
- LG think the change is not needed. If there is only one repetition then that is also the last repetition.
=> Not pursued.

[R2-166793](#) Type 2 PH with LAA Scells Nokia, Alcatel-Lucent Shanghai Bell, HiSilicon, Huawei, Samsung discussion
=> Noted

- [R2-166794](#) Type2 PHR for eLAA Nokia, Alcatel-Lucent Shanghai Bell, HiSilicon, Huawei, Samsung
draftCR 36.321 14.0.0- - F Rel-14 LTE_eLAA-Core
- LG ask if the eNB can always configure the 2 things together. Qualcomm clarify that it is a capability and may not be supported.
- => Agreed in principle

8.1.3 Control plane

- [R2-166716](#) Capabilities for two step scheduling Ericsson draftCR 36.306 14.0.0- - F Rel-14
LTE_eLAA-Core
- Nokia understand if all UEs that support LAA UL need to support 2 step scheduling. Ericsson think we could double check with RAN1.
- => Check offline whether the 2 step uplink will be a requirement for UEs that support LAA UL
- => Revised in [R2-167265](#)

- [R2-167265](#) Capabilities for two step scheduling Ericsson draftCR 36.306 14.0.0- - F Rel-14
LTE_eLAA-Core
- Huawei think that RAN1 did not discuss whether the overall feature is meant to be optional for the UE. BlackBerry think that it should be optional. Qualcomm think it should be optional to be on the safe side.
- => Add a capability for the overall 2 step feature.
- => **Revised CR with added capability can be submitted to next meeting.**
- => CR is postponed
- => LS to RAN1 to inform them of our decision in [R2-167303](#) (Ericsson)

- [R2-167303](#) LS on capabilities for 2-step scheduling for eLAA Ericsson
- => State RAN2 agree to add a capability bit
- => Remove second paragraph
- => Action to take the information into account.
- => Approved in [R2-167307](#)

- [R2-166717](#) Capabilities for two step scheduling Ericsson draftCR 36.331 14.0.0- - F Rel-14
LTE_eLAA-Core
- => Revised in [R2-167198](#)

- [R2-167198](#) Capabilities for two step scheduling Ericsson draftCR 36.331 14.0.0- - F Rel-14
LTE_eLAA-Core [R2-166717](#)
- => Revised CR with added capability can be submitted to next meeting.
- => CR is postponed

- [R2-166422](#) Correction on RAN1 parameters for eLAA Huawei, HiSilicon draftCR 36.306 14.0.0- - F Rel-14 LTE_eLAA-Core
- Only change in 7.7.3 discussed
- Nokia wonder whether something similar to 7.7.3 is needed for PUCCH on SCell.
 - LG think the DC sentence is not needed as DC is not supported with LAA.
 - Qualcomm think RAN1 discussed and concluded this is mandatory and this is the only way for LAA UL to operate.
- => Can be checked offline whether an additional change is needed for PUCCH on SCell. Can be included in a separate CR (Rel-13) and submitted to next meeting.
- => Can be merged into revision of [R2-166716](#)

- [R2-166425](#) Correction on RAN1 parameters for eLAA Huawei, HiSilicon draftCR 36.331 14.0.0- - F Rel-14 LTE_eLAA-Core
- => Not pursued

- [R2-167147](#) Simultaneous transmission of PUSCH on LAA with PUCCH Qualcomm Incorporated draftCR 36.306 14.0.0- - F replacement of [R2-167131](#) Rel-14 LTE_eLAA-Core
- => Not treated - covered by previous papers.

Withdrawn:

- [R2-167131](#) Simultaneous transmission of PUSCH on LAA with PUCCH Qualcomm Incorporated CR 36.306 14.0.01355 - F Rel-14 LTE_eLAA-Core

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](#))

Time budget: 0 TU

This agenda item is for correction CRs to the closed WI

Documents in this agenda item handled in the LTE Break Out session. (See Annex G)

8.2.1 Stage 2

- [R2-166223](#) Corrections on V2V descriptions in TS 36.300 Huawei, HiSilicon draftCR 36.300 14.0.0-
- F Rel-14 LTE_SL_V2V-Core
- [R2-166226](#) Corrections on measurements provided by the physical layer Huawei, HiSilicon draftCR
36.302 14.0.0- - F Rel-14 LTE_SL_V2V-Core
- [R2-166549](#) Miscellaneous corrections on V2V ZTE Corporation draftCR 36.300 14.0.0- - F
Rel-14 LTE_SL_V2V-Core

8.2.2 User plane

- [R2-166217](#) Corrections on the number of resources reserved for mode 4 Huawei, HiSilicon draftCR
36.321 14.0.0- - F Rel-14 LTE_SL_V2V-Core
- [R2-166218](#) Discussion on the number of resources reserved for mode 4 Huawei, HiSilicon discussion
- [R2-166219](#) Miscellaneous corrections for V2V in TS 36.321 Huawei, HiSilicon draftCR 36.321
14.0.0- - F Rel-14 LTE_SL_V2V-Core
- [R2-166220](#) Corrections on SCI transmission Huawei, HiSilicon draftCR 36.321 14.0.0- - F
Rel-14 LTE_SL_V2V-Core
- [R2-166221](#) Corrections on MCS selection for V2X sidelink communication Huawei, HiSilicon draftCR
36.321 14.0.0- - F Rel-14 LTE_SL_V2V-Core
- [R2-166222](#) Corrections on V2V in TS 36.323 Huawei, HiSilicon draftCR 36.323 14.0.0- - F
Rel-14 LTE_SL_V2V-Core
- [R2-166227](#) Discussion on keeping resource Huawei, HiSilicon discussion
- [R2-166259](#) Further consideration for resource selection Intel Corporation discussion
Late
- [R2-166550](#) Correction on TS 36.321 for V2V ZTE Corporation draftCR 36.321 14.0.0- - F
Rel-14 LTE_SL_V2V-Core
- [R2-166643](#) Radio resource selection behaviour for autonomous resource allocation mode PANASONIC
R&D Center Germany discussion
- [R2-166708](#) Correction to Resource Selection for V2X Sidelink Communication Qualcomm Incorporated
draftCR 36.321 14.0.0- - F Rel-14 LTE_SL_V2V-Core
- [R2-166970](#) MAC Open Issues Ericsson discussion
- [R2-167028](#) Corrections to resource allocation in Sidelink Mode 4 LG Electronics Inc. discussion
Late
- [R2-167029](#) V2V corrections LG Electronics Inc. draftCR 36.321 14.0.0- - F Rel-14
LTE_SL_V2V-Core
Late

8.2.3 Control plane

- [R2-166224](#) Corrections on V2V in TS 36.331 Huawei, HiSilicon draftCR 36.331 14.0.0- - F
Rel-14 LTE_SL_V2V-Core
- [R2-166225](#) Corrections on V2V descriptions in TS 36.304 Huawei, HiSilicon draftCR 36.304 14.0.0-
- F Rel-14 LTE_SL_V2V-Core
- [R2-166546](#) Correction on TS 36.331 for V2V ZTE Corporation draftCR 36.331 14.0.0- - F
Rel-14 LTE_SL_V2V-Core
- [R2-166553](#) Correction on TS 36.302 for V2V ZTE Corporation draftCR 36.302 14.0.0- - F
Rel-14 LTE_SL_V2V-Core
- [R2-166554](#) Clarification on the usage of exceptional pool ZTE Corporation draftCR 36.331 14.0.0-
- F Rel-14 LTE_SL_V2V-Core

- [R2-166657](#) V2X corrections regarding Tx resource selection and pool usage Samsung Telecommunications draftCR 36.331 14.0.0- - F Rel-14 LTE_SL_V2V-Core Late
- [R2-166658](#) V2X remaining issues related to Tx resource selection and pool usage Samsung Telecommunications discussion
- [R2-166860](#) Considerations on pre-sensing on exceptional resource pool ZTE Corporation discussion
- [R2-166968](#) UE Location Reporting Ericsson discussion
- [R2-167008](#) Exceptional pool handling in RRC LG Electronics Inc. discussion
- [R2-167009](#) Geo-information reporting LG Electronics Inc. discussion
- [R2-167010](#) UE capability for V2X sidelink communication LG Electronics Inc. discussion
=> Revised in [R2-167154](#)
- [R2-167154](#) UE capability for V2X sidelink communication LG Electronics Inc. discussion
- [R2-167011](#) Addition of UE geographical information reporting LG Electronics Inc. draftCR 36.300 14.0.0- - F Rel-14 LTE_SL_V2V-Core
- [R2-167012](#) Addition of UE capability for V2X sidelink communication in 36.306 LG Electronics Inc. draftCR 36.306 14.0.0- - F Rel-14 LTE_SL_V2V-Core
=> Revised in [R2-167155](#)
- [R2-167155](#) Addition of UE capability for V2X sidelink communication in 36.306 LG Electronics Inc. draftCR 36.306 14.0.0- - F Rel-14 LTE_SL_V2V-Core
- [R2-167013](#) Correction on V2V feature LG Electronics Inc. draftCR 36.331 14.0.0- - F Rel-14 LTE_SL_V2V-Core

8.3 Void

8.4 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-14; started: Mar. 16; target: Jun. 17; SID: [RP-161839](#))

Time budget 1TU

Documents in this agenda item handled in the LTE Break Out session (See Annex G)

8.4.1 Organisational

Including incoming LSs, running TR, etc

Including output from email discussion [95#33][LTE/FeD2D] – Update TR 36.746 - LG

- [R2-167016](#) Update of TR 36.746 LG Electronics Inc. draft TR 36.746 0.1.1 result of email discussion [95#33] Rel-14 FS_feD2D_IoT_relay_wearable

8.4.2 UE-to-Network Relay enhancements

8.4.2.1 Common relay architecture aspects

Connectivity scenarios

Relaying options for UP/CP

Including output from email discussion [95#34][LTE/FeD2D] – Capture requirements – Ericsson

Including output from email discussion [95#35][LTE/FeD2D] – Scenarios and RRC states - Huawei

- [R2-166730](#) Text proposal to TR 36.746 from e-mail discussion 95#34 Ericsson (Rapporteur) pCR 36.746 Related to e-mail discussion [95#34]. Rel-14 FS_feD2D_IoT_relay_wearable
- [R2-166913](#) Summary of email discussion: [95#35][FeD2D] Scenarios and RRC states Huawei discussion result of email discussion [95#35] Rel-14 FS_feD2D_IoT_relay_wearable Late

- [R2-166188](#) Discussion on The Protocol Architecture of Layer 2 UE-to-Network Relay Guangdong OPPO Mobile Telecom. discussion
- [R2-166253](#) Discussion on Layer 2 relaying options Intel Corporation discussion
- [R2-166590](#) " Discussion on Control Plane Architecture for Evolved ProSe UE-to-NW relay" Shenzhen Coolpad Technologies discussion
- [R2-166592](#) Discussion on Potential Issues of Evolved ProSe Remote UEs in RRC_IDLE State Shenzhen Coolpad Technologies discussion
- [R2-166665](#) Relay Option for the evolved ProSe UE-to-Network Relay LG Electronics Inc. discussion
- [R2-166720](#) Relay RLC Operation Sony discussion
- [R2-166722](#) CIoT signaling optimisation reuse for Relay Sony discussion
- [R2-166723](#) Relay and Remote device physical layer capabilities Sony discussion
- [R2-166725](#) Control plane architecture Ericsson discussion
- [R2-166726](#) Control plane states Ericsson discussion
- [R2-166728](#) Relaying Scenarios with multiple UEs Ericsson discussion
- [R2-166731](#) User plane architecture Ericsson discussion
- [R2-166746](#) Pairing, RRC states and Control Plane relaying Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166802](#) Considerations on the evolved UE-to-Network Relay connectivity scenarios ZTE Corporation discussion
- [R2-166815](#) Discussion on layer 2 ProSe UE-to-network relay for feD2D ZTE Corporation discussion
- [R2-166831](#) Discussion on L2 relay architecture for FeD2D Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166871](#) Connectivity Scenarios for Wearables and IoT Devices InterDigital Communications discussion
- [R2-166914](#) Procedures for remote or relay UE in idle mode Huawei, HiSilicon discussion Late
- [R2-166915](#) Layer 2 architecture for UE-to-Network Relay Huawei, HiSilicon discussion Late
- [R2-166916](#) Principles of traffic management for wearable devices Huawei, HiSilicon discussion Late
- [R2-167017](#) Mobility aspect of remote UE LG Electronics Inc. discussion

8.4.2.2 Non-3GPP related aspects

Aspects specific to non-3GPP related scenarios (improvements to BT or WiFi are out of scope of this SI)

- [R2-166404](#) Support non-3GPP only access capability for low-cost wearables III discussion

8.4.2.3 Other

Mobility, authorization, connection setup, service continuity, etc

- [R2-166254](#) Path selection criteria Intel Corporation discussion
- [R2-166256](#) Introduction of paired mobility Intel Corporation discussion
- [R2-166262](#) Considerations to support CP via relaying in FeD2D Intel Corporation discussion
- [R2-166263](#) Scenarios for Service continuity in FeD2D Intel Corporation discussion
- [R2-166271](#) Text proposal for service continuity scenarios in FeD2D Intel Corporation discussion
- [R2-166292](#) Relay discovery and connection setup procedures on LTE Sidelink Huawei, HiSilicon discussion
- [R2-166394](#) Discussion on service continuity scenarios KDDI Corporation other
- [R2-166624](#) Discussion on connection setup for FeD2D ASUSTEK COMPUTER (SHANGHAI) discussion
- [R2-166663](#) Path selection and switch LG Electronics Inc. discussion
- [R2-166727](#) Quality of Service for the Relay solution Ericsson discussion
- [R2-166729](#) Service Continuity and Mobility Ericsson discussion
- [R2-166792](#) Discussion on connection setup procedure ZTE Corporation discussion
- [R2-166796](#) UE mobility aspect in the evolved UE-to-Network Relay architecture ZTE Corporation discussion
- [R2-166797](#) Connection establishment for UE-to-NW relaying Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-167018](#) Architecture for feD2D LG Electronics Inc. discussion

8.4.3 LTE sidelink enhancements

8.4.3.1 Evaluation assumptions

RAN2 specific evaluation assumptions and traffic modelling

No contributions received.

8.4.3.2 Other

Other RAN2 enhancements related to QoS, link efficiency, cost and power saving. As per RAN2 agreements the primary objective should be to address power efficiency for the wearable device (this is applicable to all UE categories).

- [R2-166255](#) Introduction of DRX over PC5 Intel Corporation discussion
- [R2-166264](#) QoS considerations in FeD2D Intel Corporation discussion
- [R2-166293](#) QoS Aspects for the UE-to-NW Relay over Sidelink Huawei, HiSilicon discussion
- [R2-166294](#) Draft LS on QoS support of UE-to-Network Relay over LTE sidelink Huawei, HiSilicon LS out
- [R2-166354](#) System Information Relaying Via Side-link SHARP Corporation other
- [R2-166798](#) Some considerations on the power efficiency of R14 feD2D ZTE Corporation discussion

8.5 WI: Enhanced LTE-WLAN Aggregation (LWA)

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

Time budget 1.5TU

For this meeting, agenda item 8.5.4, 8.5.5 and 8.5.6 will be treated before 8.5.2 and 8.5.3.

8.5.1 Organisational

Including incoming LSs, running CRs, etc

- [R2-166840](#) Stage-2 running CR for eLWA Intel Corporation, Qualcomm Incorporated draftCR 36.300
14.0.0- - Rel-14 LTE_WLAN_aggr-Core
 - Intel explain some clean up compared to the endorsed version from last meeting.
 - Nokia think the AC aspect needs to be checked by RAN3 before we can conclude it. Intel think this is covered by an editor's note.
 => Endorsed as the running CR
 => Revised in [R2-167276](#) to include agreements from this meeting
- [R2-167276](#) Stage-2 running CR for eLWA Intel Corporation, Qualcomm Incorporated draftCR 36.300
14.0.0- - B Rel-14 LTE_WLAN_aggr-Core

- ☒ **[95bis#01][LTE/eLWA] Stage 2 running CR (Intel)**
Endorse running CR with agreements from this meeting.
Intended outcome: Endorsed running CR
Deadline: Tuesday 20/10/2016

- [R2-166841](#) RRC running CR for eLWA Intel Corporation, Qualcomm Incorporated draftCR 36.331
14.0.0- - Rel-14 LTE_WLAN_aggr-Core
 - Intel explain some clean up compared to the endorsed version from last meeting.
 => Endorsed as the running CR
 => Revised in [R2-167277](#) to include agreements from this meeting

- [R2-167277](#) RRC running CR for eLWA Intel Corporation, Qualcomm Incorporated draftCR 36.331
14.0.0- - B Rel-14 LTE_WLAN_aggr-Core

- ☒ **[95bis#02][LTE/eLWA] RRC running CR (Intel)**
Endorse running CR with agreements from this meeting.
Intended outcome: Endorsed running CR
Deadline: Tuesday 20/10/2016

[R2-166842](#) PDCP running CR for eLWA Intel Corporation, Qualcomm Incorporated draftCR 36.323
 14.0.0- - Rel-14 LTE_WLAN_aggr-Core
 - Intel explain some clean up compared to the endorsed version from last meeting.
 => Endorsed as the running CR

=> Revised in [R2-167278](#) to include agreements from this meeting
[R2-167278](#) PDCP running CR for eLWA Intel Corporation, Qualcomm Incorporated draftCR 36.323
 14.0.0- - B Rel-14 LTE_WLAN_aggr-Core

☒ **[95bis#03][LTE/eLWA] PDCP running CR (Intel)**
 Endorse running CR with agreements from this meeting.
 Intended outcome: Endorsed running CR
 Deadline: Tuesday 20/10/2016

[R2-167153](#) LWAAP running CR for LWA LG Electronics Inc. (LWAAP rapporteur) draftCR 36.360
 13.0.0- - B replacement of [R2-166532](#) Rel-14 LTE_WLAN_aggr-Core
 - Same as endorsed at last meeting
 => Endorsed as running CR

[R2-166839](#) Uplink over WLAN in eLWA: Editor's notes and FFS's Intel Corporation discussion
 P5,6,7
 - Huawei think that WT is always deployed and so P6 is not needed.
 - Samsung think we don't need the case that eNB doesn't provide AC info to the UE.
 MediaTek would be to have a default value in the spec rather than leave to UE implementation. CATT support proposal 5.
 P 8,9
 - LG think the note would only be needed 4.5 and it should be specific to LWA bearers.
 Qualcomm agree it should be in 4.5
 - Ericsson think we need to discuss more what is data already send to WLAN. Ericsson think there is an issue with HFN desync if too much data is pushed to WLAN.

Agreements

1. Update changes in subclause 11.3 in the stage-2 running CR as "For LWA bearers in the UL, the bearers configured to use WLAN only do not trigger BSR. For bearers configured to use WLAN and LTE, only the data that may be sent over LTE (i.e., excluding UL data already sent or decided to be sent over WLAN) is considered for BSR."
2. Remove changes in subclause 14.2 from stage-2 running CR.
3. The specification should be consistent with DC. Stage 3 is already consistent Change to stage 2 required.
4. Remove Editor's note from PDCP-Config IE description in subclause 6.3.2 in RRC running CR.
5. Add "NOTE: For LWA bearers, only the data that may be sent over LTE (i.e., excluding UL data already sent or decided to be sent over WLAN) is considered as "data available for transmission"." in subclause 4.5 in PDCP specification.
6. Remove all editor's notes from PDCP running CR.

Withdrawn:

[R2-166532](#) LWAAP running CR for LWA LG Electronics Inc. (LWAAP rapporteur) CR 36.360
 13.0.00003 - B Rel-14 LTE_WLAN_aggr-Core

8.5.2 Uplink over WLAN

PDCP operation

[R2-166531](#) Preventing HFN de-synchronization in LWA bearer LG Electronics Inc. discussion
[R2-166701](#) Remaining PDCP considerations for LWA UL Ericsson discussion
[R2-166507](#) Issues related to UL retransmission Huawei, HiSilicon discussion
[R2-166287](#) PDCP data recovery for eLWASamsungdiscussion
[R2-166083](#) Remaining Issue for UL Bearer Support in eLWA CATT discussion
[R2-166479](#) Retransmission of PDCP PDUs over WLAN ITRI discussion
 Above 6 Tdocs not treated

Split bearer operation

- [R2-167127](#) Remaining Issues on Uplink Transmission for eLWA Qualcomm Incorporated discussion
 - [R2-166505](#) Remaining issues on uplink transmission for eLWA Huawei, HiSilicon discussion
 - [R2-166700](#) Sending small amounts of data via WLAN while UL is configured to LTE Ericsson discussion
 - [R2-166478](#) Consideration of Uplink Bearer Split ITRI discussion
 - [R2-166491](#) Considerations on splitting traffic between LTE and WLAN Fujitsu discussion
- Above 5 Tdocs not treated

MAC address

- [R2-167000](#) Uplink routing for enhanced LWA MediaTek Inc., Beijing Xiaomi Mobile Software Co. discussion
 - [R2-166084](#) Discussion on WLAN MAC Address Configuration for UL Routing CATT discussion
- Above 2 Tdocs not treated

Other

- [R2-166530](#) Restricting PDCP Control PDU transmission on LTE link LG Electronics Inc. discussion
- Not treated

8.5.3 Mobility enhancements

E.g. intra and inter eNB handover without WT change, enhancements to WT change, etc

Including output from email discussion [95#24][LTE/eLWA] PDCP key change at handover (Nokia)

PDCP key change

- [R2-166137](#) Report of email discussion [95#24][LTE/eLWA] PDCP key change at handover Nokia, Alcatel-Lucent Shanghai Bell report Summary of email discussion [95#24] Rel-14
LTE_WLAN_aggr-Core
- P1
- Samsung think this is similar to mobility enhancement and in that WI it was concluded that the source eNB can continue to send data even after the SB status transfer.
 - Samsung thinks the target should only start using the new key after it received the RACH from the UE.
- P5
- Nokia think that this WI is impacting WT in some places.
- P6
- Qualcomm think we need to be clear how the 2 keys are used before concluding this proposal.
 - Samsung think it is a fundamental principle that the key change is a hard switch. P7 is also a fundamental change.
 - MediaTek have a strong preference not to maintain 2 keys.
 - LG agree with proposal 6. ZTE also agree with the proposal
 - Qualcomm think if we don't allow 2 keys to be used at the same time then the whole solution is useless. Intel agree with Qualcomm and we will not achieve the WI objective. TCL also agree.
-
- Agreements:
- 1 The solution will ensure that PDCP deciphering using “wrong” key doesn’t happen at UE or eNB.
 - 2 It is up to eNB implementation when the source eNB stops sending DL packets to WT
 - 3: The impact to WT should be minimized for the handover procedure where WT is retained.
 - 4a: Solution will not require that UE has to retain two PDCP DL keys for LWA bearers (i.e. hard switch so that old key can be discarded as soon as the new key is used.)
 - 4b A UE implementation may retain 2 DPCP DL keys (pending confirmation of the entire solution with SA3)

- [R2-166138](#) Mobility procedure for eLWA Nokia, Alcatel-Lucent Shanghai Bell discussion
- Samsung ask if the WT needs to route to the correct eNB. Qualcomm think this is the case of the key indicator but for end marker the packets can be sent to the target and on receive the PDUs can be discard or deciphered in the source has the key from the target.
 - Intel think the difference between end marker and key indicator is the overhead of marking every packet.
 - Nokia thinks that the end marker approach doesn't work unless we can ensure in sequence delivery. Intel agree it could happen but it would not be a common occurrence. Qualcomm think the risk is that they might be deciphered with the wrong key.
- => Noted
- [R2-167114](#) User Plane Details for Handover without WT Change QUALCOMM CDMA Technologies discussion
- Nokia agrees that the key indicator requires RRC configuration but this is not an issue.
 - LG ask what the control PDU carry. Qualcomm explain it can be an empty PDU with a new type. If there is out of order then there is risk of the wrong key being used.
 - Intel think that last SN in the end marker would make sense. LG think this is then essentially the same as the RRC solution where the SN is carried by RRC.
 - Samsung think the SN approach doesn't work if a packet is transmitted after handover and might have a different key after the handover. So SN can't be relied on to change the key.
- => Noted
- [R2-166510](#) Discussion on the change of PDCP ciphering key Huawei, HiSilicon discussion
- Samsung think that RAN3 concluded this issue in a nice way.
- => Noted
- [R2-166149](#) LTE handover while keeping LWA: PDCP related security aspects Samsung R&D Institute UK discussion
- Samsung think this is almost the same proposal. Nokia think a small difference is that the key indicator would not have to be always sent.
- => Noted
- [R2-166833](#) Discussion of PDCP key and WT release issues Intel Corporation discussion
- => Not treated - covered by previous papers
- [R2-167021](#) Inter-eNB handover procedure in eLWA LG Electronics Inc. discussion
- Qualcomm wonder whether the source eNB can include the SN in the handover command. LG think this is like UMTS.
 - Intel think that this causes interruption from the moment the handover command is generated.
 - Samsung think the end marker also has a problem that the source sends the end marker and can then not send any more packets. For mobility enhancements we have never forwarded keys between eNB so we should avoid this for WLAN.
- => Noted
- => Offline discussion to try to come to a conclusion on which solution to adopt (Qualcomm)
- [R2-166702](#) Remaining issues for HO when LWA configuration is kept Ericsson discussion
- Not treated

WLAN security related

- [R2-166906](#) Re-keying timing considerations for eLWA HTC Corporation discussion
- [R2-167019](#) Security update for WLAN LG Electronics Inc. discussion
- [R2-166480](#) Inter eNB Handover without WT Change to Keep LWA Active ITRI discussion
- Above 3 Tdocs not treated

8.5.4 Support of 802.11ax, 802.11ad, and 802.11ay

8.5.4.1 Control plane enhancements

E.g. support 60 GHz band and channels in measurements,

[R2-166139](#) Support of 60 GHz WLAN in LWANokia, Alcatel-Lucent Shanghai Bell discussion
P3

- Qualcomm agree the intent to include 60GHz in the mobility set. Prefer that the eNB just indicates which bands the AP uses.
- MediaTek wonder why the eNB would prohibit a UE from using 60 GHz. Intel think that it should be up to the UE. Nokia is concerned about the case that the throughput at 60GHz is too high.
- Huawei think the eNB can just not list APs that operate at 60 GHz.
- Qualcomm think there is a frequency in the measurement config but not in the mobility set.

P4

- Ericsson think that FST should not be visible to the eNB. Intel agree.

=> Noted

[R2-166481](#) Mobility Set Regarding the Support of 60 GHz ITRI discussion
=> Noted

[R2-166085](#) Discussion on CP Aspect to Support 60GHz WLAN CATT discussion

[R2-166521](#) Control plane issues related to the support of 60GHz Huawei, HiSilicon discussion
Above 2 Tdocs not treated

8.5.4.2 User plane enhancements

E.g. enhancements for increased data rates of 802.11ax, 802.11ad, and 802.11ay, etc

[R2-166140](#) UE maximum bitrate with eLWA Nokia, Alcatel-Lucent Shanghai Bell discussion
- Qualcomm think it would be good not to limit the throughput by the UE cat, but think that it should be more flexible. We could do it as an SDU rate or a throughput. And it should be per category and also additional to what is available through LTE.
- MediaTek think this was discussed in R13 and agree with the intent but the proposal needs more discussion. This proposal could over engineer the solution.
- Intel also agree with the intent but the specific proposal needs more discussion.
=> Aim to define a UE requirement that relates to the throughputs supported on WLAN. Details are FFS (e.g. could be a signalled capability, could be related to UE category)

[R2-166835](#) eLWA optimizations for high data rate 802.11 technologies Intel Corporation discussion
- MediaTek wonder how this helps and not sure it reduces the processing load. Intel think encryption/decryption is performed fewer time. Qualcomm think this option is not possible and even for NR it is not on the table.
- Huawei share the view of MediaTek. CATT also share the view on the proposal but agree with the problem that the 60 GHz rate is very high.
- LG thinks the number of ciphering operations is reduced by increased the number of concatenation and de-concatenation operations. Ericsson think it is also a trade-off between different operations
- MediaTek think that jumbo frames would address the concern.
=> Noted

[R2-166086](#) Discussion on UP Aspect to Support 60GHz WLAN CATT discussion

P2

- LG things that the proposal makes sense but thinks it can already be handled by configuration.
- Qualcomm think that the eNB could do this but the eNB doesn't need to indicate this in the configuration.
- Intel thinks this goes back on the previous agreements

- CATT thinks this proposal is not to change the previous agreement, The proposal could just be a note in stage 2 that eNB only uses switches for 60 GHz. Nokia think this would make the use of 60 GHz very visible to eNB which we previous said we wanted to avoid.

P4

- Qualcomm thinks in R13 we could not find a good solution for how to extend the L2 buffer sizes. Intel agree with Qualcomm. Nokia think the previous discussion on WLAN through put may cover this aspect.
- Huawei concluded in their contribution that the current values are OK for LWA. Nokia is not sure about the Huawei calculations
- CATT think the situation is very different from R13 but this changes for 60 GHz.

=> We do not extend current 18 bit PDCP SN size to support 60GHz WLAN in eLWA.

[R2-166522](#) Discussion on L2 support of 60GHz WLAN Huawei, HiSilicon discussion
=> Not treated - covered by previous papers.

8.5.5 Feedback enhancements

E.g. additional information collection and feedback e.g. for better estimation of available WLAN capacity and LWA performance improvement

Measurement reporting enhancements

[R2-167112](#) Feedback Enhancements for LWA QUALCOMM CDMA Technologies discussion
P1

- Nokia think this is a RAN3 proposal but we cannot decide on this. We should decide whether to add UE based reporting.
 - Qualcomm think RAN2 can decide if the information is needed by the eNB and the details would be up to RAN3.
 - Intel support the proposal.
 - Ericsson think the usefulness depends on what is reported. The IEEE metric is not reliable to use by the eNB.
 - MediaTek think the key question is what metric captures throughput and then we can decide where to signal it.
 - LG would also prefer Xw in case it is able to provide the same info as can be provided on radio interface.
 - BlackBerry think it would be best to use the IEEE metric.
 - Huawei wonders why the throughput needs to be provided to the eNB as eNB can determine it.
 - Nokia explain the use case is for the eNB to determine whether to configure LWA based on measurements. To use PDCP would require the eNB to configure it to find out.
- => Offline discussion to try to come to a conclusion with regard to throughput metric (Qualcomm)

P2

- Ericsson ask if this proposal is the same as just removing the restriction on W1 that it is only on WLANs outside the mobility set. Qualcomm agree this would be one way to achieve this.
- MediaTek think these measurement were not defined for scheduling. For scheduling then periodic might be better.
- CATT think this is not necessary as RSSI can't be used to infer throughput. PDCP status report is a better method.

P3

- Apple think that without suspend resume the LWA solution doesn't work.
- Nokia ask how long is temporary. Qualcomm think the important thing is for the eNB to stop scheduling.
- Samsung also have a proposal to handle such a case in TEI14. The UE would be able to send the measurement report again after WLAN is available again. Samsung think this is a different case as it relates to the failure.
- Intel support the proposal. It is possible to suspend without de-configuring LWA.
- LG agree with Samsung proposal and think we don't need suspend resume to resolve this.

- Nokia think it is critical for the eNB to know how long the suspend will be.
 - MediaTek think that in a short gap then the DL packets can just be buffered.
 - Samsung think if the gap is 10s then the UE could receive PDCP SNs that old, so this will not work. Hence failure is better as the configuration is released.
 - Apple think 10s is overkill and the value in practice will be much lower, and still see a value in suspend /resume.
- => Offline discussion on the addressing the use case where UE WLANM is temporarily not available (Qualcomm)

[R2-167287](#) Summary of Offline Discussion on eLWA Qualcomm discussion

- => RAN2 will select one of the 4 solutions (key indicator in LWAAP, end-marker packet, last SN in RRC, no indication of key change).
- => When WLAN becomes temporarily unavailable, the UE will indicate this to the eNB by using a new cause value in WLAN Status Reporting.
- => RAN2 will select a solution (e.g. new cause value, W1 event, timer indication, ...) for addressing when WLAN becomes available again.
- => Agree to the LS to IEEE stating that RAN2 is considering the adoption of estimated WLAN throughput for eLWA and request feedback on the reliability of this metric.

[R2-167288](#) Draft LS on Estimated WLAN Throughput (to: IEEE; cc: -; contact: Qualcomm) Qualcomm LS out Rel-14 LTE_WLAN_aggr-Core
=> Approved in [R2-167306](#)

[R2-166998](#) Feedback enhancements for enhanced LWA MediaTek Inc., Beijing Xiaomi Mobile Software Co. discussion

[R2-166703](#) Measurements and other feedback reporting for eLWA Ericsson discussion

[R2-167053](#) Further enhancement of WLAN measurement report LG Electronics Inc. discussion
Above 3 Tdocs not treated

Moved from 8.5.7 to 8.5.5

[R2-167117](#) Improvements to WLAN Measurements for LAA-WiFi Co-existence Qualcomm Incorporated, Broadcom Corporation, Mediatek Inc. discussion
P1, P2

- Ericsson is ok with P1 but think P2 the UE doesn't know that the WLAN is for LWA.
- Ericsson think there is no issue with privacy for reporting all WLAN. Qualcomm think if here is no privacy issue then would be ok to report everything
- Huawei think there is no need to extend the measurement configuration as it can be done the existing signalling.
- Sony support proposal 1 but not proposal 2.
- MediaTek think that we don't want the UE's location to be known because the UE reports an domestic SSID. Also think the actual identity is not that important.

Agreements:

- 1: Modify Release-13 WLAN Measurement configuration to enable reporting of WLANs with WLAN IDs not listed in the measurement object.
- 2 Clarify that, in Release-13, no WLAN identifiers in the measurement config is an invalid network configuration.

[R2-166087](#) Discussion on Enhancements to Measurement for eLWA CATT discussion

[R2-166088](#) UE Location Collection for WLAN Mobility Set Configuration CATT discussion

[R2-166482](#) Quality of Experience for LWA Configuration ITRI discussion
Above 3 Tdocs not treated

Xw enhancements

[R2-166837](#) Considerations for additional WLAN metrics Intel Corporation discussion
Not treated

WLAN status report enhancements

[R2-166836](#) Suspend/resume functionality for LWA Intel Corporation, Qualcomm Incorporated, China
Telecom, Ruckus Wireless discussion
Not treated

Moved from 8.5.3 to 8.5.5

[R2-167054](#) Further enhancements of WLAN connection status report LG Electronics Inc. discussion
Not treated

Late

[R2-166141](#) Throughput estimation for LWA Nokia, Alcatel-Lucent Shanghai Bell discussion Late
Not treated

8.5.6 ANR for LWA

Including any aspects of ANR that RAN2 may be able to progress without input from RAN3, given that RAN3 have so far not made any conclusions and have now deprioritised the topic.

[R2-166142](#) ANR for enhanced LWA Nokia, Alcatel-Lucent Shanghai Bell discussion

- Ericsson think that the UE can remember measurement reports and based on this build up a data base of APs in the area. Nokia thinks there is still the issue for configuration of the initial measurement object.
- Nokia think the WT may have many APs and far greater than the 32 that can be configured.
- Ericsson wonder how many APs under a cell?
- LG think that for ANR detected APs should be reported and not just listed APs. MediaTek think there are privacy issues reporting detected APs. Qualcomm think we do need to be careful about this.

=> Noted

8.5.7 Other

[R2-166838](#) UE capabilities for eLWA Intel Corporation discussion
Not treated

8.6 WI: Further mobility enhancements in LTE

(LTE_eMob-Core; leading WG: RAN2; REL-14; started: Mar. 16; target: Dec. 16; WID: [RP-160921](#))

Time budget 1TU

Documents in this agenda item handled in the LTE Break Out session (See Annex H).

8.6.1 Organisational

Including incoming LSs, running CRs, etc

Including output from email discussion [95#36][LTE/eMob] Running stage 2 CR of introducing eMob (Intel)

Including output from email discussion [95#37][LTE/eMob] Running stage 3 CR of introducing eMob (ZTE)

Incoming LS:

[R2-166016](#) Reply LS on the feasibility of mobility enhancement solutions (R4-166817; contact: Ericsson)
RAN4 LS in to: RAN2 Rel-14 LTE_eMob-Core

[R2-166250](#) Introduction of RACH-less and Make Before Break for handover and SCG change Intel
Corporation draftCR 36.300 14.0.0- - result of email discussion [95#36] Rel-14
LTE_eMob-Core

[R2-166606](#) Introduction of mobility enhancement solutions ZTE Corporation draftCR 36.331 14.0.0-
- result of email discussion [95#37] Rel-14 LTE_eMob-Core

[R2-166577](#) Remaining Issues on Running Stage 2 CR ETRI discussion

[R2-166696](#) Remaining Issues on Running Stage 3 CR ETRI discussion

8.6.2 RACH-less handover

[R2-166251](#) UL grant for RACH-less handover Intel Corporation discussion

[R2-166395](#) Remaining Issues on RACH-less handover Huawei, HiSilicon discussion

[R2-166473](#) Further considerations on the RACH-less handover for the LTE mobility enhancements
Samsung discussion

[R2-166604](#) Introduction of mobility enhancement solutions ZTE Corporation draftCR 36.321 14.0.0-
- Rel-14 LTE_eMob-Core

[R2-166610](#) Stage-3 issues of Solution 1 ZTE Corporation discussion

[R2-167106](#) Initial UL Power Control for RACH-less HO LG Electronics France discussion

[R2-167108](#) The way to obtain UL grant and TA information for RACH-less HO LG Electronics France
discussion

[R2-167135](#) Uplink Grant for RACH-less Handover Qualcomm Incorporated discussion

8.6.3 Make before break handover

[R2-166252](#) Remaining issues for Make Before Break Intel Corporation discussion

[R2-166396](#) Remaining Issues on Make-before-break Handover Huawei, HiSilicon discussion

[R2-166474](#) Further considerations on solutions for maintaining a connection to the source eNB
Samsung discussion

[R2-166509](#) Consideration on handover failure China Telecom Corporation Ltd. discussion

[R2-166580](#) Further Discussion on Reliability Issue of UE Indication ETRI discussion

[R2-166608](#) RLF analysis on make before break solution ZTE Corporation discussion

[R2-166614](#) Signaling procedure clarification of make-before-break solution ZTE Corporation discussion

[R2-166673](#) Definition and setting of makeBeforeBreak field Ericsson discussion

[R2-167133](#) Discussion on Make-Before-Break Handover Qualcomm Incorporated discussion

Withdrawn:

[R2-166578](#) RLF Issues on Make-Before-Break solution ETRI discussion

8.6.4 Other

[R2-166397](#) UE Capabilities for Mobility Enhancements Huawei, HiSilicon, ZTE discussion

[R2-166398](#) UE Capability in 36.306 Huawei, HiSilicon, ZTE draftCR 36.306 14.0.0- - B Rel-
14 LTE_eMob-Core

[R2-166399](#) UE Capability in 36.331 Huawei, HiSilicon, ZTE draftCR 36.331 14.0.0- - B Rel-
14 LTE_eMob-Core

[R2-166749](#) Few clarifications on Further mobility enhancements in LTE Nokia, Alcatel-Lucent Shanghai
Bell discussion

[R2-167156](#) On co-existence of the RACH-less and make-before-break solutions Samsung discussion
Late

8.7 WI: Further Indoor Positioning enhancements for UTRA and LTE

(UTRA_LTE_iPos_enh2-Core; leading WG: RAN2; REL-14; started: Mar. 16; target: Dec. 16; WID: [RP-161850](#))

Time budget 0.25TU

Endorsed Running CR on RAN2#95 for 36.355 on Introduction of OTDOA enhancements: [R2-165892](#)

Endorsed Running CR on RAN2#95 for 36.355 Further Indoor positioning enhancements: [R2-165895](#)

Endorsed Running CR on RAN2#95 for 36.305 Further Indoor positioning enhancements: [R2-165894](#)

Incoming LSs

[R2-166010](#) LS on PRS sequence generation per TP ([R1-168557](#); contact: Huawei) RAN1 LS in to: RAN2 Rel-14 UTRA_LTE_iPos_enh2-Core
Moved from 3.1 to 8.7

=> Noted

[R2-166011](#) LS on PRS-based Terrestrial Beacon System (TBS) ([R1-168558](#); contact: Qualcomm) RAN1 LS in to: RAN2 Rel-14 UTRA_LTE_iPos_enh2-Core
Moved from 3.1 to 8.7

=> Noted

[R2-166015](#) LS on reducing quantization error of OTDOA (R4-166806; contact: Huawei) RAN4 LS in to: RAN2 Rel-14 UTRA_LTE_iPos_enh2-Core
Moved from 3.1 to 8.7

=> Noted

[R2-166038](#) LS on WLAN RSSI Measurement Report Mapping for Positioning (R4-168580; contact: Ericsson) RAN4 LS in to: RAN2 Rel-14 UTRA_LTE_iPos_enh2-Core Late
Moved from 3.1 to 8.7

- Ericsson explain that we should reference IEEE rather than RAN4 for this case so no problem in our spec. We should inform RAN4 and correct the reference in our spec. The issue applied to 25.331 and 36.355.
- => CR and outgoing LS can be submitted to next meeting.
- => Noted

8.7.1 OTDOA and CID/E-CID enhancements

[R2-166548](#) CR on OTDOA Enhancements for the Shared Cell-ID Scenario Huawei, HiSilicon draftCR 36.355 13.2.0- - B Rel-14 UTRA_LTE_iPos_enh2-Core

- Qualcomm explain that this CR and the PRS CR will clash and hence it makes sense to have a single CR for both.
- Nokia think that PRS based TBS enhancement could be seen as a OTDOA enhancement or as a RAT independent positioning method. Need to be clear how this is categorised in the spec. Qualcomm think that PRS based TBS fits into the TBS category but it can't be used standalone and hence is based on OTDOA. Consequence that it will be categorised a bit different in stage 2 and 3.

=> "support For" can be removed from the capability names
=> We will have a single CR for OTDOA enhancements and PRS based TBS introduction
=> To be merged with the CR introducing PRS based TBS
=> Merged into [R2-167273](#)

[R2-166676](#) On higher resolution RSTD measurement report mapping Ericsson discussion

- Qualcomm think there is no capability needed. Only the response needs to be changes and the UE can send it if it is supported. Can't see why the server would ask for this to be reported. Intel agree that a new capability is not needed, nor for the server to request its reporting.
- Ericsson think the device doesn't know the type of cell it measures and the resolution depends on the type of cell.
- Intel think the finer error resolution was not indicated in the LS from RAN4. Ericsson agree it is not from the LS and not really needed.
- Nokia agree with Qualcomm that UE doesn't need to provide capability nor a request.

=> Noted

[R2-166145](#) Higher resolution RSTD measurement report mapping Qualcomm Incorporated draftCR 36.355 13.2.0- - Rel-14 UTRA_LTE_iPos_enh2-Core

- Intel think should be merged with the Huawei CR where there are some text differences.

=> Offline to finalise the field descriptions considering also the descriptions used in the Huawei CR.
=> Merged into [R2-167273](#)

[R2-166547](#) CR for reducing RSTD quantization error Huawei, HiSilicon draftCR 36.355 13.2.0- -
B Rel-14 UTRA_LTE_iPos_enh2-Core
=> Not treated as covered by previous discussion.

Withdrawn:

[R2-166312](#) CR for reducing RSTD quantization error Huawei, HiSilicon CR 36.355 13.2.00153 -
B Rel-14 UTRA_LTE_iPos_enh2-Core

[R2-166313](#) CR on OTDOA Enhancements for the Shared Cell-ID Scenario Huawei, HiSilicon CR
36.355 13.2.00154 - B Rel-14 UTRA_LTE_iPos_enh2-Core

8.7.2 Enhancements for WLAN, Bluetooth, Barometric, and MBS

Including addition of assistance data and UE-based positioning

Including output from email discussion [95#25][LTE/IP] Progress specifics of WLAN assistance data (Intel)

[R2-166843](#) Report of email discussion [LTE/IP] Progress specifics of WLAN assistance data Intel
Corporation discussion result of email discussion [95#25] Rel-14
UTRA_LTE_iPos_enh2-Core
=> Noted

[R2-166832](#) Introduction of WLAN AP assistance data for UE-assisted and UE-based positioning Intel
Corporation draftCR 36.355 13.2.0- - B Rel-14 UTRA_LTE_iPos_enh2-Core

- Qualcomm have provided some minor points.
- Nokia think it the CR contains optimisations about the UE reporting the APs that are visible and UE indicating whether an AP to be reported is already available in internal memory. Intel think the server needs to know the visible APs to provide the correct assistance data. Nokia think this can be provided based on a rougher location of the UE. Intel think this approach may not work indoors as some other mechanism might be needed for a rough location estimate.
- Intel explain the reporting of APs with stored assistance has been used in other system so the server doesn't need to provide repeated assistance data that is already in the UE.

=> To be merged into a revision of the running CR in [R2-17129](#)

[R2-167128](#) Running CR for 36.305 Further Indoor positioning enhancements NextNav draftCR 36.305
13.0.0- - B Rel-14 UTRA_LTE_iPos_enh2-Core
=> Cover sheet to be corrected
=> Agreed in principle in [R2-167274](#)

[R2-167129](#) Running CR for 36.355 Further Indoor positioning enhancements NextNav draftCR 36.355
13.2.0- - B Rel-14 UTRA_LTE_iPos_enh2-Core
=> Some ASN.1 corrections needed
=> WLAN CR to be merged in.
=> Revised in [R2-167275](#)

[R2-167275](#) Running CR for 36.355 Further Indoor positioning enhancements NextNav draftCR 36.355
13.2.0- - B Rel-14 UTRA_LTE_iPos_enh2-Core
=> Endorsed as running CR.

[R2-167130](#) Additional network assistance and UE-based support NextNav discussion

=> Add MBS network assistance data aligned with the ICD and incorporate a text proposal into the running TS 36.355 CR. Details of the text can be worked offline.

[R2-167132](#) LS to CT4 on UE-based positioning mode NextNav other
=> No need to send LS. Can be contributed directly to CT4.

8.7.3 TBS positioning based on PRS

Input from RAN1 required before RAN2 can progress this AI.

[R2-166146](#) Introduction of PRS-based Terrestrial Beacon System (TBS) Qualcomm Incorporated
discussion

=> Noted

[R2-166674](#) On PRS-based Terrestrial Beacon System (TBS) and same PCI Ericsson discussion
Moved from 8.7.1 to 9.7.3

- Ericsson explain the differences to the Qualcomm proposal. The main difference is that it proposes an index approach to reduce the assistance data but the downside is that it requires a restructure of the assistance data.
- Intel think that the neighbour index approach is not aligned with the RAN1 agreement. Qualcomm agree with Intel but also don't see how the proposal simplifies anything as it requires duplication of the assistance data for the cells. The Qualcomm enables TP Id to be used for any type of cell or TP.
- Nokia find it hard to map the Ericsson approach to what was agreed.

=> Noted

[R2-166147](#) Introduction of Transmission Points for OTDOA in Shared Cell-ID Scenario and PRS based Terrestrial Beacon Systems Qualcomm Incorporated draftCR 36.305 14.0.0- -
Rel-14 UTRA_LTE_iPos_enh2

- Intel would like to understand the need for an interface between E-SMLC and TP? Also the figure suggests that the TP is not associated with a cell but in practice it is associated with a cell. Qualcomm think that we already have a note about proprietary interfaces. It could be removed from the figure and left to implementation. Intel think it would be better to remove it.

=> Revised in [R2-167272](#)

[R2-167272](#) Introduction of Transmission Points for OTDOA in Shared Cell-ID Scenario and PRS based Terrestrial Beacon Systems Qualcomm Incorporated draftCR 36.305 14.0.0- -
Rel-14 UTRA_LTE_iPos_enh2

=> Endorsed as running CR.

[R2-166148](#) Introduction of PRS-based Terrestrial Beacon Systems Qualcomm Incorporated draftCR 36.355 14.0.0- - Rel-14 UTRA_LTE_iPos_enh2

- Intel think that supportForPRSbasedTBS should be sufficient and the other capability is not needed. Qualcomm think it is useful as the additional configuration options might be useful for UEs that don't support PRS based TBS.

=> Merge all CRs relating to OTDOA into a single CR (New title)

=> Merged CR in [R2-167273](#)

[R2-167273](#) Introduction of Further indoor positioning enhancements Qualcomm Incorporated draftCR 36.355 14.0.0- - Rel-14 UTRA_LTE_iPos_enh2

=> Endorsed as running CR.

[R2-166675](#) Introduction of support for PRS configurations based on PRS ID and PRS-based TBS
Ericsson draftCR 36.355 13.1.0- - B Rel-14 UTRA_LTE_iPos_enh2-Core
Moved from 8.7.1 to 9.7.3

=> Not treated as covered by earlier discussion.

8.7.4 Other

No contributions received.

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](#))

Time budget 0TU

This agenda item is for correction CRs to the closed WI

Endorsed Running CR on RAN2#95 for 36.321: [R2-165346](#)

Endorsed Running CR on RAN2#95 for 36.331: [R2-165763](#)

Documents in this agenda item handled in the LTE Break Out session (See Annex G).

- [R2-166267](#) UE capabilities for latency reduction Intel Corporation discussion
[R2-166621](#) UE capability for latency reduction Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166623](#) 36.306 CR on UE capabilities for Latency Reduction Nokia, Alcatel-Lucent Shanghai Bell
 draftCR 36.306 14.0.0- - Rel-14 LTE_LATRED_L2-Core
[R2-166626](#) 36.331 CR on UE capabilities for Latency Reduction Nokia, Alcatel-Lucent Shanghai Bell
 draftCR 36.331 14.0.0- - Rel-14 LTE_LATRED_L2-Core
[R2-166751](#) RV setting in SPS with skip UL Ericsson discussion
Moved from 8.22 to 8.8
[R2-166753](#) RV setting in SPS with skip UL Ericsson draftCR 36.321 14.0.0- - B Rel-14
 LTE_LATRED_L2-Core
Moved from 8.22 to 8.8
[R2-166766](#) RV setting in SPS with skip UL Ericsson draftCR 36.331 14.0.0- - B Rel-14
 LTE_LATRED_L2-Core
Moved from 8.22 to 8.8
[R2-166767](#) SkipUplinkTxSPS correction to enable adaptive retransmissions Ericsson discussion
[R2-166768](#) SkipUplinkTxSPS correction to enable adaptive retransmissions Ericsson draftCR 36.321
 14.0.0- - Rel-14 LTE_LATRED_L2-Core
[R2-166789](#) Capability for skipped padding and short SPS interval Ericsson draftCR 36.306 14.0.0-
 - Rel-14 LTE_LATRED_L2-Core
[R2-166790](#) Capability for skipped padding and short SPS interval Ericsson draftCR 36.331 14.0.0-
 - Rel-14 LTE_LATRED_L2-Core
[R2-166805](#) Discussion on UE capabilities on L2 latency reduction techniques Huawei, HiSilicon
 discussion
[R2-166806](#) UE capabilities on L2 latency reduction techniques Huawei, HiSilicon draftCR 36.331
 13.3.0- - C Rel-14 LTE_LATRED_L2-Core
[R2-166807](#) UE capabilities on L2 latency reduction techniques Huawei, HiSilicon draftCR 36.306
 13.3.0- - C Rel-14 LTE_LATRED_L2-Core
[R2-166943](#) UE capabilities for latency reduction Intel Corporation draftCR 36.331 14.0.0- - B
 Rel-14 LTE_LATRED_L2-Core
[R2-166944](#) UE capabilities for latency reduction Intel Corporation draftCR 36.306 14.0.0- - B
 Rel-14 LTE_LATRED_L2-Core
Withdrawn:
[R2-166791](#) Capability for skipped padding and short SPS interval Ericsson draftCR 36.331 14.0.0-
 - Rel-14 LTE_LATRED_L2-Core

8.9 WI: Signalling reduction to enable light connection for LTE

(LTE_LIGHT_CON-Core; leading WG: RAN2; REL-14; started: Mar. 16; target: Mar. 17; WID: [RP-160937](#))

Time budget 1.5TU

For this meeting, agenda item 8.9.4 will be treated before 8.9.2 and 8.9.3.

Documents in this agenda item handled in the LTE Break Out session (See Annex H).

8.9.1 Organisational

Including incoming LSs, running CRs, etc

Including output from email discussion [95#38][LTE/Light Con] Running stage 2 CR of light connection (Huawei)

- [R2-166627](#) Stage2 Running CR of light connection Huawei, HiSilicon draftCR 36.300 14.0.0- - B
 result of email discussion [95#38] Rel-14 LTE_LIGHT_CON-Core

- [R2-166687](#) Light Connection signaling and UE's modeling Intel Corporation discussion

8.9.2 Signalling reduction

Including contributions relating to objectives on signalling reduction at mobility (e.g. UE centric mobility), and S1 signalling reduction at mobility and state transitions, as well as further details of UE light connected considering RAN2#94 agreements.

Including output from email discussion [95#31][LTE/Light connection] Progress FFS (Intel)

- [R2-166688](#) Email discussion report on [95#31][LTE/Light connection] Progress FFS Intel Corporation discussion result of email discussion [95#31] Rel-14 LTE_LIGHT_CON-Core Late
- [R2-166062](#) Further considerations for the LTE light connection mode Samsungdiscussion
[R2-166095](#) RRC Signaling for Light Connection MediaTek Inc. discussion
[R2-166228](#) Operation of light connection Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166499](#) Mobility issue for lightly connected UE ITRI discussion
[R2-166602](#) Consideration on S-TMSI and IMSI at the eNB ZTE Corporation discussion
[R2-166628](#) Open issues for Light Connection Huawei, HiSilicon discussion
[R2-166629](#) Signalling and Procedures for states transition and PAU Huawei, HiSilicon discussion
[R2-166689](#) RAN-based Paging Area for light connection Intel Corporation discussion
[R2-166693](#) Lightly connected and RAN configured DRX cycleIntel Corporation draftCR 36.331 14.0.0- - B Rel-14 LTE_LIGHT_CON-Core
[R2-166694](#) RAN configured DRX cycleIntel Corporation draftCR 36.304 14.0.0- - B Rel-14 LTE_LIGHT_CON-Core
[R2-166858](#) UE behaviour and signalling for Light Connection Kyocera discussion
[R2-166952](#) RRC Suspend/Resume for Light Connection Ericsson discussion
[R2-167035](#) A CS fall back in lightweight connection LG Electronics Inc. discussion
[R2-167036](#) Use of RRC Connection Re-establishment procedure for a lightweight connected UE LG Electronics Inc. discussion
[R2-167038](#) Use of RRC Connection Reconfiguration procedure for a UE to enter to lightweight connection LG Electronics Inc. discussion
[R2-167146](#) Signalling impact analysys of RAN based paging NTT DOCOMO INC. discussion Late

8.9.3 Context storage/retrieval across eNBs

This aspect of the WI is led by RAN3 but RAN2 impacting aspects may be discussed here.

- [R2-166063](#) Signalling procedures for the LTE light connection mode Samsungdiscussion
[R2-166064](#) Analysis of the paging area change scenario with no X2 interface Samsungdiscussion
[R2-166213](#) Paging in Extended DRX for Light Connection CATT discussion
[R2-166630](#) RAN2 impact of Context fetch in light connection Huawei, HiSilicon discussion
[R2-166690](#) RAN-initiated paging and DRX cycle Intel Corporation discussion
[R2-166951](#) Tracking Areas in Light Connection Ericsson discussion
[R2-166953](#) Common and specific building blocks for light connected UEs Ericsson discussion

8.9.4 Paging enhancements

Details of RAN initiated paging design, e.g., DRX, paging ID

- [R2-166229](#) Reselections and Paging in Light Connection Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166423](#) Open issues for light connection Qualcomm Incorporated discussion
[R2-166500](#) Discussion on paging area update failure for lighted connected UE ITRI discussion
[R2-166631](#) On RAN initiated pagingHuawei, HiSilicon discussion
[R2-166732](#) UE specific Paging area definitionSony discussion
[R2-166950](#) Paging in Light Connection Ericsson discussion
[R2-167120](#) Considerations of paging area configuration on the LTE lightweight connection LG Electronics Inc. discussion
[R2-167121](#) The state of UE and UE ID in lightweight connection LG Electronics Inc. discussion

8.9.5 Other

- [R2-166502](#) General features for a lightly connected UE ITRI discussion

8.10 WI: eMBMS enhancements for LTE

(MBMS_LTE_enh2-Core; leading WG: RAN1; REL-14; started: Mar. 16; target: Mar. 17; WID: [RP-161297](#))

Time budget: 1TU

Documents in this agenda item handled in the LTE Break Out session (See Annex H).

Incoming LSs

[R2-166013](#) Reply LS to S2-163212 = [R2-164640](#) on RAN impacts from enTV study of SA WG2 (R3-162068; contact: Qualcomm) RAN3 LS in cc: RAN2Rel-14 FS_AE_enTV
Moved from 3.2 to 8.10

[R2-166033](#) LS regarding agreements for FeMBMS ([R1-168200](#); contact: Qualcomm) RAN1 LS in to: RAN2 Rel-14 MBMS_LTE_enh2-Core

8.10.1 MBSFN subframe enhancements

Including use of subframes 0, 4, 5, 9 (FS1) and 0, 1, 5, 6 (FS2) for MBSFN, and configuring MBSFN subframes without a unicast control region and cell-specific reference signals.

[R2-166402](#) MBMS Assistant Scheme for MBFSN Expansion Huawei, HiSilicon discussion
[R2-166737](#) System Information and notifications on FeMBMS carrier Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166935](#) Broadcasting system information on FeMBMS carrier Ericsson discussion
[R2-166936](#) FeMBMS System Information Ericsson discussion
[R2-166937](#) Cell reselection for idle mode UE Ericsson discussion
[R2-167055](#) Consideration on camping on FeMBMS carrier LG Electronics Inc. discussion
[R2-167138](#) Clarifications of RAN2 Agreements on FeMBMS Qualcomm Incorporated discussion
[R2-167139](#) System Information for FeMBMS Qualcomm Incorporated discussion

8.10.2 MBSFN dedicated carrier

[R2-166403](#) Discussion on Standalone MBMS Cell Huawei, HiSilicon discussion
[R2-166472](#) SI and MCCH change notification reception Samsung Electronics Co., Ltd discussion

8.10.3 Multicarrier MBMS operation

[R2-166938](#) Asynchronous multi-carrier MBMS reception Ericsson discussion

8.10.4 MBMS reception without authentication

[R2-166795](#) Authentication in eMBMS Ericsson discussion

8.10.5 Other

No contributions received.

8.11 WI: Enhancements of NB-IoT

(NB_IOTenh-Core; leading WG: RAN1; REL-14; started: June 16; target: Mar. 17; WID: [RP-161901](#))

Time budget: 1.5TU

Documents in this agenda item handled in the LTE Break Out session (See Annex I)

[R2-166007](#) LS on NB-IoT positioning ([R1-168553](#); contact: Huawei) RAN1 LS in to: RAN2 Rel-14 NB_IOTenh-Core

[R2-166008](#) LS regarding agreement on paging for NB-IoT ([R1-168554](#); contact: Qualcomm) RAN1 LS in to: RAN2 Rel-14 NB_IOTenh-Core

8.11.1 Multicast

This agenda item may be treated jointly with 8.12.1

Including output from email discussion [95#43][LTE/feMTC/NB-IOTenh] SC-PTM feedback mechanism (Huawei).

[R2-166316](#) Summary of email discussion [95#43][LTE/feMTC/NB-IOTenh] SC-PTM feedback mechanism (Huawei) Huawei, HiSilicon, Neul Ltd. report result of email discussion [95#43] Rel-14 NB_IOTenh-Core

R2-166127	Discussion on SC-MCCH scheduling and change notification	ZTE Corporation	discussion
R2-166128	Discussion on SC-MTCH scheduling	ZTE Corporation	discussion
R2-166129	Discussion on transmission reliability of SC-PTM	ZTE Corporation	discussion
R2-166214	SC-MCCH Transmission and Notification Mechanisms for NB-IoT and eMTC	CATT	discussion
R2-166216	Priority Handling between Multicast Reception and RRC Connection Establishment/Resume	CATT	discussion
R2-166317	SC-MCCH Scheduling and Update Notification in NB-IoT	Huawei, HiSilicon, Neul Ltd.	discussion
R2-166318	Coverage Enhancement for SC-MTCH in NB-IoT	Huawei, HiSilicon, Neul Ltd.	discussion
R2-166319	Cell Reselection Related to Multi-cast in NB-IoT	Huawei, HiSilicon, Neul Ltd.	discussion
R2-166320	Transmission Reliability of Multi-cast in NB-IoT	Huawei, HiSilicon, Neul Ltd.	discussion
R2-166321	Priority of Multi-Cast in NB-IoT	Huawei, HiSilicon, Neul Ltd.	discussion
R2-166322	Discussion on SC-PTM configuration in NB-IoT	Huawei, HiSilicon, Neul Ltd.	discussion
R2-166535	SC-PTM for FeMTC and eNB-IoT	Nokia, Alcatel-Lucent Shanghai Bell	discussion
R2-166685	Multicast RAN2 impacts for FeMTC and eNB-IoT	Intel Corporation	discussion
R2-166747	Multicast Support for eNB-IOT	Sony	discussion
R2-167056	CE level reporting for SC-PTM reception	LG Electronics Inc.	discussion
R2-167093	Introducing RLC UM for NB-IoT	Ericsson	discussion
R2-167105	Considerations on multicast support for NB-IoT	LG Electronics France	discussion
R2-167124	SC-PTM MTCH reception related issues in NB-IOT	LG Electronics Inc.	discussion
R2-167125	SIB related issues for SC-PTM in NB-IOT	LG Electronics Inc.	discussion
<i>draftCRs:</i>			
R2-167151	Introducing RLC UM for NB-IoT	Ericsson draftCR 36.300 14.0.0-	- B replacement of R2-167094 Rel-14 NB_IOTenh-Core
R2-167152	Introducing RLC UM for NB-IoT	Ericsson draftCR 36.322 13.2.0-	- B replacement of R2-167095 Rel-14 NB_IOTenh-Core
Withdrawn:			
R2-167094	Introducing RLC UM for NB-IoT	Ericsson CR 36.300 14.0.00916	- B Rel-14 NB_IOTenh-Core
R2-167095	Introducing RLC UM for NB-IoT	Ericsson CR 36.322 13.2.00123	- B Rel-14 NB_IOTenh-Core

8.11.2 Non-anchor PRB enhancements

Including output from email discussion [95#40][eNB-IoTenh] RACH on non-anchor carrier (CATT)

including output from email discussion [95#41][eNB-IoTenh] Paging open issues, (Ericsson)

R2-166210	Summary of email discussion [94#40] [eNB-IoTenh] RACH on non-anchor carrier	CATT	discussion
		result of email discussion [95#40]	Rel-14 NB_IOTenh-Core
R2-166278	Summary of email discussion [95#41][eNB-IoTenh] Paging open issues	Ericsson	other
		result of email discussion [95#41]	Rel-14 NB_IOTenh-Core
R2-166074	Further consideration on multi-carrier PRACH in NB-IoT	ZTE Corporation	discussion
R2-166075	Further consideration on multi-carrier paging in NB-IoT	ZTE Corporation	discussion
R2-166211	Multicast on Non-anchor Carrier for NB-IoT	CATT	discussion
R2-166212	Paging Enhancements for NB-IoT	CATT	discussion
R2-166279	Non-anchor carrier Paging in NB-IoT	Ericsson	other
R2-166280	Random access on non-anchor carrier	Ericsson	other
R2-166281	Non-anchor NPRACH resource configuration	Ericsson	other
R2-166323	NPRACH on Non-anchor NB-IoT Carrier	Huawei, HiSilicon, Neul Ltd.	discussion
R2-166324	Paging on Non-anchor NB-IoT Carrier	Huawei, HiSilicon, Neul Ltd.	discussion
R2-166405	Random access for eNB-IoT	SHARP Corporation	discussion
R2-166437	Discussion on paging in eNB-IoT	SHARP Corporation	discussion
R2-166492	Transmission of NPRACH on a non-anchor NB-IoT PRB	Fujitsu	discussion
R2-166681	Random Access in non-anchor carrier	Intel Corporation	discussion
R2-166682	Considerations of idle mode paging on non-anchor NB-IoT	Intel Corporation	discussion
R2-166699	Paging on non-anchor carrier enhancements	QUALCOMM INCORPORATED	discussion
R2-166933	Non-anchor paging configuration	Ericsson LM	other

- [R2-167048](#) Carrier reselection under backoff mechanism LG Electronics Inc. discussion
- [R2-167100](#) Paging on a non-anchor carrier Sequans Communications discussion
- [R2-167101](#) Support for CE level differentiated paging Sequans Communications discussion
- [R2-167103](#) NPRACH on a non-anchor carrier Sequans Communications discussion
- [R2-167126](#) Indication for supporting non-anchor PRB in NB-IoT LG Electronics Inc. discussion

Withdrawn:

- [R2-166406](#) Paging for eNB-IoT SHARP Corporation discussion

8.11.3 Mobility enhancements

Including output from email discussion [95#42][eNB-IoTenh] Mobility Enhancements

- [R2-166587](#) Report of email discussion [95#42][eNB-IoTenh] Mobility Enhancements Nokia report result of email discussion [95#42] Rel-14 NB_IoTenh-Core
- [R2-166072](#) Re-establishment for NB-IoT CP solution ZTE Corporation discussion
- [R2-166073](#) Mobility enhancement for NB-IoT UP solution ZTE Corporation discussion
- [R2-166130](#) Mobility considerations for NB-IoT Gemalto N.V. discussion
- [R2-166131](#) Measurement considerations for NB-IoT Gemalto N.V. discussion
- [R2-166215](#) Consideration on Mobility Enhancement CATT discussion
- [R2-166325](#) Mobility enhancements in connected mode Huawei, HiSilicon, Neul Ltd. discussion
- [R2-166326](#) Load balancing enhancement Huawei, HiSilicon, Neul Ltd. discussion
- [R2-166534](#) Mobility enhancement for NB-IoT UP solution Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166536](#) Mobility enhancement for NB-IoT CP solution Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166683](#) Connected mode mobility for NB-IOT UE using CP Clot EPS optimisation Intel Corporation discussion
- [R2-166684](#) Connected mode mobility for NB-IOT UE using UP Clot EPS optimisation Intel Corporation discussion
- [R2-166698](#) Security considerations for Mobility enhancement of NB-IoT CP solution Vodafone GmbH discussion
- [R2-167102](#) Considerations on connected mode mobility LG Electronics France discussion
- [R2-167107](#) Support of RRC Connection Re-establishment for CP solution LG Electronics France discussion

8.11.4 Other

- [R2-166076](#) Consideration on new UE power class ZTE Corporation discussion
- [R2-166327](#) Support 2 HARQ Processes in NB-IoT Huawei, HiSilicon, Neul Ltd. discussion
- [R2-166328](#) Overload Control for C-Plane solution Huawei, HiSilicon, Neul Ltd. discussion
- [R2-166329](#) Enhanced Coverage Authorisation Huawei, HiSilicon, Neul Ltd. discussion
- [R2-166330](#) This paper is related to LS S2-165431 from SA2. And it will also be submitted in 13.7
- [R2-166561](#) Positioning consideration in NB-IoT Huawei, HiSilicon, Neul Ltd. discussion
- [R2-166561](#) Release Assistance Indication Ericsson draftCR 36.331 14.0.0- - B Rel-14 NB_IoTenh-Core
- [R2-166562](#) Release Assistance Indication Ericsson draftCR 36.321 14.0.0- - B Rel-14 NB_IoTenh-Core
- [R2-166563](#) Release Assistance Indication Ericsson discussion
- [R2-166564](#) Authorization of use of Coverage Enhancements Ericsson discussion
- [R2-166565](#) CN overload protection for CP solution Ericsson discussion
- [R2-166566](#) Further reduced power class in NB-IoT Ericsson discussion
- [R2-166567](#) Inter-RAT idle mode mobility in NB-IoT Ericsson discussion
- [R2-166568](#) Mobility enhancements NB-IoT Ericsson discussion
- [R2-166569](#) Positioning enhancements for NB-IoT Ericsson discussion
- [R2-166595](#) Multiple HARQ processes MediaTek Inc. discussion Late
- [R2-167097](#) RAN aspects on MME overload for CP Clot optimization in NB-IoT NEC discussion
- [R2-167097](#) Related to SA2 Clot optimization enhancement (NB-IoT)

Withdrawn:

- [R2-166570](#) Processing delay requirements for RRC procedures Ericsson discussion

8.12 WI: Further Enhanced MTC for LTE

(LTE-feMTC-Core, leading WG: RAN1; REL-14; started: June 16; target: Mar. 17; WID: [RP-161464](#))

Time budget: 1TU

Documents in this agenda item handled in the LTE Break Out session (See Annex I).

8.12.1 Multicast

This agenda item may be treated jointly with 8.11.1

- [R2-166410](#) SC-MCCH scheduling and design for FeMTC Huawei, HiSilicon discussion
- [R2-166411](#) Service Continuity support for SC-PTM in FeMTC Huawei, HiSilicon discussion
- [R2-166412](#) Coverage Enhancement for SC-MTCH in FeMTC Huawei, HiSilicon discussion
- [R2-166413](#) High reliability for SC-PTM in FeMTC Huawei, HiSilicon discussion
- [R2-166414](#) SC-PTM reception in RRC_CONNECTED for FeMTC Huawei, HiSilicon discussion
- [R2-166415](#) Discussion on SC-PTM Configuration in FeMTC Huawei, HiSilicon discussion
- [R2-166416](#) SPS support for SC-PTM in FeMTC Huawei, HiSilicon discussion
- [R2-166748](#) Multicast Support for feMTC Sony discussion
- [R2-166845](#) Commonality and backward compatibility for multicast enhancements Kyocera discussion
- [R2-166848](#) Multicast reception of FeMTC UE in RRC Connected Kyocera discussion
- [R2-166849](#) SC-PTM transmission for Enhanced Coverage Kyocera discussion
- [R2-166851](#) RRC configuration of multicast enhancements for FeMTC and eNB-IoT Kyocera discussion
- [R2-166852](#) SC-PTM feedback scheme for link adaptation and retransmission Kyocera discussion
- [R2-167087](#) Architectural considerations of SC-PtM for eNB-IoT and FeMTC Ericsson discussion
- [R2-167088](#) Scheduling aspects of SC-PtM for FeMTC and eNB-IoT Ericsson discussion
- [R2-167089](#) Coverage enhancements of SC-PtM for FeMTC and eNB-IoT Ericsson discussion
- [R2-167090](#) Multicast for eMTC UEs in connected mode Ericsson discussion
- [R2-167091](#) Service continuity in multicast for eMTC and NB-IoT UEs Ericsson discussion
- [R2-167092](#) Transmission feedback and redundancy for SC-PtM Ericsson discussion
- [R2-167104](#) Considerations on multicast support for feMTCLG Electronics France discussion
- [R2-167122](#) SC-PTM MTCH reception related issues in feMTC LG Electronics Inc. discussion
- [R2-167123](#) SIB related issues for SC-PTM in feMTC LG Electronics Inc. discussion

8.12.2 Higher data rates

- [R2-166077](#) Consideration on supporting higher data rates in eMTC ZTE Corporation discussion
- [R2-166282](#) Higher data rates for MTC Ericsson other
- [R2-166417](#) On supporting larger maximum TBS and wider bandwidth for FeMTC Huawei, HiSilicon discussion
- [R2-166418](#) Introduction a capability of larger maximum UL TBS for TDD HD-FDD Huawei, HiSilicon draftCR 36.306 14.0.0- - B Rel-14 LTE_feMTC-Core
- [R2-166419](#) Indication for the extended maximum UL TBS for Cat M1 Huawei, HiSilicon draftCR 36.331 14.0.0- - B Rel-14 LTE_feMTC-Core
- [R2-166686](#) Higher TBS and VoLTE support Intel Corporation discussion

8.12.3 Other

- [R2-166420](#) Positioning consideration in FeMTC Huawei, HiSilicon discussion
- [R2-166560](#) Inter-frequency measurements for Further Enhanced MTC Ericsson discussion

8.13 WI: LTE-based V2X Services

(LTE_V2X-Core, leading WG: RAN1; REL-14; started: June 16; target: Mar. 17; WID: [RP-161894](#))

Time budget: 2TU

Documents in this agenda item handled in the LTE Break Out session (See Annex G).

Incoming LS:

- [R2-166034](#) LS on L1 parameters for sidelink-based V2V ([R1-168202](#); contact: LGE) RAN1 LS in to: RAN2 Rel-14 LTE_SL_V2V-Core
- [R2-166035](#) LS on RAN1 agreements for LTE-based V2X ([R1-168026](#); contact: LGE) RAN1 LS in to: RAN2 Rel-14 LTE_V2X-Core Late

8.13.1 SC-PTM/MBMSFN enhancements

Shorter modification/repetition periods.

Additional enhancements related to DL transmissions in small areas based on geographical areas – to be discussed if/after input from SA2/RAN3 has been received.

- [R2-166173](#) Impact of Multiple TMGI CATT discussion
- [R2-166174](#) Draft LS Response on Multiple TMGIs for support of small and variable MBMS areas CATT LS out
- [R2-166297](#) Inter-PLMN operation for Uu-based V2X Huawei, HiSilicon discussion
- [R2-166465](#) SC-PTM Enhancements for LTE V2X MediaTek Inc. discussion
- [R2-166466](#) On suitability of Uu transport and PC5 transport for V2X Solutions MediaTek Inc. discussion
- [R2-166750](#) MBMS Session Reception for V2X Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166980](#) LS Reply on Multiple TMGIs for support of small and variable MBMS areas Ericsson LS out
- [R2-166982](#) V2X Message Broadcasting Ericsson discussion
- [R2-166983](#) On MBMS Latency Ericsson discussion
- [R2-167033](#) MBMS enhancement for V2X LG Electronics Inc. discussion Late
- [R2-167034](#) draft response LS to RAN3 on Multiple TMGIs for support of small and variable MBMS areas LG Electronics Inc. LS out Late

8.13.2 SPS enhancements

Including output from email discussion [95#32][LTE/V2V] – SPS – Ericsson

- [R2-166975](#) Report from [95#32][LTE/V2V] SPS Ericsson discussion result of email discussion [95#32] Rel-14 LTE_V2X-Core
- [R2-166175](#) Discussion on V2X SPSCATT discussion
- [R2-166189](#) Discussion on Details of V2X SPS Enhancements Guangdong OPPO Mobile Telecom. discussion
- [R2-166299](#) Enhancements of Uplink SPS for Uu-based V2X Huawei, HiSilicon discussion
- [R2-166300](#) Further Discussion of SPS over Sidelink Huawei, HiSilicon discussion
- [R2-166431](#) Reporting issues on SL SPS Innovative Technology Lab Co. discussion
- [R2-166471](#) Discussion on Sidelink SPS configuration and UE assistant information Potevio discussion
- [R2-166616](#) Discussion on SPS related issues ZTE Corporation discussion
- [R2-166721](#) Details of DCI and SPS Configuration Qualcomm Incorporated discussion
- [R2-166872](#) Details on SPS for V2X InterDigital Communications discussion
- [R2-166964](#) Configuration of UE Assistance Information Ericsson discussion
- [R2-166976](#) Sidelink SPS Configuration Ericsson discussion
- [R2-166977](#) SPS Protocol for Uu Ericsson discussion
- [R2-167031](#) SPS and UE assistant information for V2X LG Electronics Inc. discussion Late
- draftCRs:*
- [R2-166961](#) Introducing Sidelink SPS in MAC Ericsson draftCR 36.321 14.0.0- - B Rel-14 LTE_V2X-Core
- [R2-166962](#) Introducing Sidelink SPS in RRC Ericsson draftCR 36.331 14.0.0- - B Rel-14 LTE_V2X-Core

8.13.3 V2P services

Specific aspects to V2P (e.g. resource selection) and power aspects

- [R2-166176](#) Discussion on P2V service CATT discussion
- [R2-166190](#) Discussion on V2P Guangdong OPPO Mobile Telecom. discussion
- [R2-166261](#) Resource pool management Intel Corporation discussion
- [R2-166298](#) Discussion on P2X Sidelink Communication Huawei, HiSilicon discussion
- [R2-166489](#) Discussion on power saving for V2P communications Fujitsu discussion
- [R2-166594](#) Discussion on power saving for P-UE Shenzhen Coolpad Technologies discussion

R2-166609	Discussion on V2P aspects ZTE Corporation discussion
R2-166733	V2P Services over PC5 Qualcomm Incorporated discussion
R2-166752	Efficient V2P/P2V activation Nokia, Alcatel-Lucent Shanghai Bell discussion
R2-166861	Consideration of the P2V transmission scheme Kyocera discussion
R2-166967	Discussion on Sidelink Operations for Pedestrian Ericsson discussion
R2-167032	Support for V2P service LG Electronics Inc. discussion Late

8.13.4 Other

QoS, Inter-PLMN and others

R2-166177	Consideration on DFN Offset CATT discussion
R2-166178	Inter-PLMN Operation for Uu-based V2X CATT discussion
R2-166179	CBR Report CATT discussion
R2-166180	UE location Report CATT discussion
R2-166181	Multi-carrier Operation on PC5 CATT discussion
R2-166182	Consideration on Cross-carrier Configuration CATT discussion
R2-166183	V2X dedicated carrier CATT discussion
R2-166184	Discussion of PC5/Uu Path Configuration CATT discussion
R2-166257	Further consideration for periodical geo-location reporting Intel Corporation discussion
R2-166258	Further consideration for inter-F V2X communication Intel Corporation discussion Late
R2-166260	Support of multiple carriers/PLMNs Intel Corporation discussion
R2-166296	Congestion Control for PC5-based V2X Huawei, HiSilicon discussion
R2-166301	Interface Selection between PC5 and Uu Huawei, HiSilicon discussion
R2-166302	Support of QoS for PC5-based V2X transport Huawei, HiSilicon discussion
R2-166303	Further Analysis of Inter-carrier Operation on PC5 based V2X Huawei, HiSilicon discussion
R2-166304	Support Multi-carrier Multi-PLMN Operations for PC5 Based V2X Huawei, HiSilicon discussion
R2-166305	Further Analysis for Sidelink Synchronization Issues Huawei, HiSilicon discussion
R2-166306	Sensing based UE autonomous resource selection Huawei, HiSilicon discussion
R2-166463	Support of inter-PLMN operation for V2X Samsung Electronics Co., Ltd discussion
R2-166464	Coexistence of Uu and PC5 operation Samsung Electronics Co., Ltd discussion
R2-166490	Discussion on service continuity in V2X communications Fujitsu discussion
R2-166599	Discussion on Necessity to Indicate Whether PC5 or Uu is Allowed for V2V Messages Transport within Network Coverage Shenzhen Coolpad Technologies discussion
R2-166605	Discussion on the necessity of V2X path configuration signalling ZTE Corporation discussion
R2-166607	Discussion on cross carrier scheduling ZTE Corporation discussion
R2-166613	Inter-PLMN operation for V2X ZTE Corporation discussion
R2-166618	Evaluation of supporting small and variable MBMS areas ZTE Corporation discussion
R2-166622	[Draft] Reply LS on Multiple TMGIs for support of small and variable MBMS areas ZTE Corporation LS out
R2-166724	Inter-PLMN V2X Communication Qualcomm Incorporated discussion
R2-166736	QoS for V2X Communication over PC5 Qualcomm Incorporated discussion
R2-166741	Support for Low Periodicity for V2X Sidelink Communication Qualcomm Incorporated discussion
R2-166744	Congestion Control in V2X Qualcomm Incorporated discussion
R2-166844	Inter-PLMN V2X aspects Nokia, Alcatel-Lucent Shanghai Bell discussion Resubmission of R2-165428 from RAN2#95
R2-166965	Congestion Control for Sidelink-based V2X Ericsson discussion
R2-166966	Discussion on PC5 Multiple Carrier Ericsson discussion
R2-166969	LS on V2x Sidelink Cross-Carrier Configuration Ericsson LS out
R2-166971	On Path Configuration Ericsson discussion
R2-166972	On the Need of Sidelink Gaps for V2V Ericsson discussion
R2-166973	On V2x Sidelink Cross-Carrier Configuration Ericsson discussion
R2-166974	QoS for PC5-based V2X Ericsson discussion
R2-166978	Enhancements to V2V Pool Design Ericsson discussion
R2-166979	DFN Offset for V2V Ericsson discussion
R2-166981	Inter-PLMN Operations for V2V Ericsson discussion
R2-167014	Support of inter-PLMN for PC5 and Uu LG Electronics Inc. discussion
R2-167015	Coexistence of transmission of sidelink V2X and Uu LG Electronics Inc. discussion

[R2-167030](#) Smaller periodicity on PC5 based V2V LG Electronics Inc. discussion Late
draftCR:

[R2-166963](#) Introducing the DFN Offset Ericsson draftCR 36.331 14.0.0- - B Rel-14
LTE_V2X-Core

8.14 WI: SRS switching between LTE component carriers

(LTE_SRS_switch-Core; leading WG: RAN1; REL-14; started: Mar.16; target: Dec. 16; WID: [RP-160935](#))

Time budget: 0.5 TU

Incoming LS:

[R2-166009](#) LS for SRS Carrier-Based Switching ([R1-168556](#); contact: Huawei) RAN1 LS in
to: RAN2 Rel-14 LTE_SRS_switch-Core

- Ericsson would like to understand the gain with the mechanism. Huawei explain that the gain is for the eNB to benefit from the reciprocal nature of the channel. Ericsson think it would be good to help us know how often SRS would need to be transmitted.
 - Nokia think the LS didn't indicate how often the change would be performed. Huawei think this is still discussed in RAN1.
- => Noted

[R2-166632](#) High layer impacts on SRS Carrier Based Switching for LTE Huawei, HiSilicon discussion

- Ericsson think that the SRS only cell will be active for a short time and then deactivated after the transmission. Huawei assume SRS is only transmitted on active SCells. Qualcomm have the same understanding as Huawei.
- Ericsson think the typical case is that the UE will have more DL SCell than UL SCell and SRS can only be sent on those UL SCells. Huawei explain that the UE switches SRS transmission among the different SCell according to a pattern defined. This only works among the activated SCells.

=> Noted

[R2-166939](#) Interruptions due to SRS switching Ericsson discussion

- Ericsson explain the interruption classes could be introduced as capabilities (not just a means to assess the impact). RAN1 and RAN4 also need to progress whether there are capabilities for this.
- Huawei think the interruption class is the same as indicating the RF switching time. Ericsson don't have a preference how it is defined.
- Samsung think that DL/UL and frequency switching may be different. SRS switching requires both to be switched in order to make the SRS transmission.
- Ericsson explain that the issue for RAN2 is whether we want to capture anything in MAC behaviour to cope with the interruptions.

=> Noted

draftCRs:

[R2-166633](#) Capture the high layer impacts on SRS Carrier Based Switching for LTE Huawei, HiSilicon
draftCR 36.331 14.0.0- - B Rel-14 LTE_SRS_switch-Core

- Nokia think we should not use existing fields and say that it should be ignored. It would be better to define a new field. Qualcomm have the same view. Ericsson which approach depends on whether this is viewed as transmission on a specific cell or on a frequency. Qualcomm explain this is on a cell as the UE needs to have time alignment etc. Nokia agree with Qualcomm.

=> Can be discussed offline if people have feedback on the CRs.
=> Postponed

[R2-166634](#) high layer impacts on SRS Carrier Based Switching for LTE Huawei, HiSilicon draftCR
36.321 14.0.0- - B Rel-14 LTE_SRS_switch-Core

- Ericsson thinks this is a good start.

=> Can be discussed offline if people have feedback on the CRs.
=> Postponed

[R2-166635](#) Introduce the new RNTIs for SRS Carrier Based Switching Huawei, HiSilicon draftCR
36.302 14.0.0- - B Rel-14 LTE_SRS_switch-Core

- => Can be discussed offline if people have feedback on the CRs.
- => Postponed

Email discussions to progress CRs based on expected RAN1 LS.

- ☒ **[95bis#08][LTE/SRS switching] 36.331 CR (Huawei)**
Progress CR to 36.331 based on expected LS from RAN1.
Intended outcome: Cr to be submitted to next meeting
Deadline: Tuesday 01/11/2016
- ☒ **[95bis#09][LTE/SRS switching] 36.321 CR (Huawei)**
Progress CR to 36.321 based on expected LS from RAN1.
Intended outcome: Cr to be submitted to next meeting
Deadline: Tuesday 01/11/2016

8.15 WI: Measurement Gap Enhancement for LTE

(LTE_meas_gap_enh-Core; leading WG: RAN4; REL-14; started: Mar. 16; target: Mar. 17; WID: [RP-160912](#))

Time budget: 1 TU

Incoming LS:

- [R2-166017](#) LS on Measurement gap enhancement (R4-167024; contact: Ericsson) RAN4 LS in to: RAN2 Rel-14 LTE_meas_gap_enh-Core
- Nokia ask if all 3 solutions are agreed or are they waiting for our feedback to conclude. Ericsson think it is a bit vague in RAN4 on what they will eventually conclude to add, so it is too early to say they have agreed.
 - Qualcomm think it is not clear if the per CC configuration can mix 6ms and network controlled short gap on different carriers.
 - Intel suggest we start to discuss the per CC gap signalling.
- => Ask RAN4 the question if the per CC configuration can mix 6ms and network controlled short gap (interruption gaps) on different carriers . Can be added to the response LS send from this meeting
- => Noted

- [R2-166265](#) Tentative work plan of measurement gap enhancement for LTE Intel Corporation discussion
- => Noted

Per CC gap configuration

- [R2-166266](#) Support of per component carrier based configuration gaps Intel Corporation discussion
- Nokia understand that the per CC gaps should not impact the measurement delay as RAN4 will not change the requirements. Intel think if more than one freq can be measured at a time it can reduce the measurement delay. Nokia understand the RAN4 performance requirement are based on the number of carriers to measure and not on the RF structure of the UE and ability to measure in parallel.
 - Huawei has concerns with option 4 as network may be requested to configure a pattern is can't support. Intel think that the network can override the configuration requested by the UE.
 - Qualcomm support the observations and also think that for static capabilities the UE will need take into account worst case. The flexibility of this option enables system to exploit the UEs abilities more. But think that option 3 is also possible.
 - Samsung ask if the network need to temporarily apply a default configuration until it has the information from the network. Intel think the UE will use the legacy gap configuration during this time. Samsung think it will be needed to fall back to legacy at every carrier change or measurement change.
 - Qualcomm think today the UE will only do measurements when a gap is configured, so if not configured for a time then UE can't do that measurement.

=> Noted

[R2-166955](#) Signalling of Short gaps and per cc measurement gaps Ericsson discussion

P3

- Nokia is not certain that a gap type needs to be indicated per band per CA band combination. The support for short gap should be per UE.

P4

- Intel ask if the UE chooses the gap and there is no acknowledgement to the UE, how does the UE interpret that. Ericsson understand that this would be considered as acceptance of the UEs request. Intel think it is strange not to have an acknowledgement from the network. Nokia tend to agree that an acknowledgement from the network is needed. Qualcomm also think a reconfiguration is needed from the network and if not received then the current gap configuration remains.

☒ **[95bis#10][LTE/Meas Gap enh] Per CC gap configuration (Intel)**

To discuss all the options indicated in the RAN4 LS and aim to reach a conclusion which approach to adopt.

Also to look at configuration signalling to be used to configure the gaps per CC

Intended outcome: Email discussion report to next meeting

Deadline: Tuesday 01/11/2016

[R2-166424](#) Measurement gap UE capability Qualcomm Incorporated discussion

- Qualcomm explain that the main point is that the UEs request for per CC gaps must be based on CA config and measurement config

=> Noted

[R2-166637](#) The UE capability report for the Measurement gap enhancement Huawei, HiSilicon discussion

=> Not treated. Covered by previous discussion

[R2-166230](#) Discussion on RAN2 impacts from proposed measurement gap enhancements Nokia, Alcatel-Lucent Shanghai Bell discussion
new MCL

- Nokia assume this would be a per UE capability. Samsung wonder if it can be configured per CC. Nokia explain that the LS explicitly stated that the short and legacy gaps cannot be mixed on different CCs and hence in a mix deployment of sync and non-sync cells then the longer legacy gap is needed.

=> UE support for the short gap is a per UE capability (not per band or per band combination)

NCSG

- Qualcomm think the observation 3 is true in a simplified case but think that the UE is asked to measure other frequencies that are not serving cells. Nokia agree it is a simplified case. Nokia think more thinking is needed on this.

☒ **[95bis#11][LTE/Meas gap enh] NCSG (Nokia)**

Come to understanding whether the observation in the Nokia paper would be sufficient for the eNB to configure use of NCSG. If not sufficient then try to conclude what additional information might be required.

Also to look at configuration signalling to be used to configure the NCSG (e.g. if configured per CC)

Intended outcome: Email discussion report to the next meeting

Deadline: Tuesday 01/11/2016

Other aspects

[R2-166636](#) Enhanced Measurement gap configuration Huawei, HiSilicon discussion

- Huawei explain that P3 is an alternative to the approach suggested in the Nokia paper and can cover all the case.

- Nokia assumed that the interruption gaps are common for all carrier. Think that P3 would be an option to configure it differently per carrier and it can be covered in the email discussion.
- => Noted

[R2-166954](#) Signalling of Measurement Gaps for Interruption Control Ericsson discussion
=> Not treated. Covered by earlier papers.

[R2-166956](#) Draft response LS on Measurement gap enhancement Ericsson other
=> To be revised to capture outcome from this meeting and ask the questions we have agreed to ask.
=> Revised in [R2-167267](#)

[R2-167267](#) Draft response LS on Measurement gap enhancement (to: RAN4; cc: RAN1; contact: Ericsson) Ericsson LS out
=> Approved in [R2-167317](#)

8.16 SI: Study on Context Aware Service Delivery in RAN for LTE

(FS_LTE_context; leading WG: RAN3; REL-14; started: Mar 16; target: Dec. 16; WID: [RP-160633](#))

Time budget: 0.5TU

Documents in this agenda item handled in the LTE Break Out session (See Annex H).

Incoming LS:

[R2-166029](#) Reply LS on SAND (S4-161121; contact: Intel)SA4 LS in
cc: RAN2 Rel-14 FS_LTE_context

[R2-166571](#) Throughput prediction and network assisted DASH Qualcomm Incorporated discussion

[R2-166574](#) Radio-aware TCP optimization Qualcomm Incorporated, CMCC, Huawei discussion

[R2-166576](#) TP for Radio-aware TCP optimization Qualcomm Incorporated, CMCC, Huawei pCR
36.933 1.0.0

[R2-166579](#) Solution to long backhaul latency issue Qualcomm Incorporated, CMCC discussion
36.933 1.0.0

[R2-166583](#) Impact analysis of critical data discard on UL Video transmission Intel Corporation
discussion

[R2-166585](#) TP for service information acquisition by E-UTRAN and UE assisted local cache Qualcomm
Incorporated, CMCC pCR 36.933 1.0.0

[R2-166597](#) Discussion on the solution on video optimization Huawei, HiSilicon, Qualcomm Incorporated,
CMCC discussion

[R2-166598](#) TP for the solution on video optimization Huawei, HiSilicon, Qualcomm Incorporated, CMCC
pCR 36.933 1.0.0

[R2-166600](#) Discussion on the solution of TCP optimization Huawei, HiSilicon, Qualcomm Incorporated,
CMCC discussion

[R2-166601](#) TP for the solution of TCP optimization Huawei, HiSilicon, Qualcomm Incorporated, CMCC
pCR 36.933 1.0.0

[R2-166642](#) Considerations on CASD issues Nokia, Alcatel-Lucent Shanghai Bell discussion

8.17 WI: Performance enhancements for high speed scenario in LTE

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

Time budget: 0.5TU

Incoming LS:

[R2-166014](#) LS on performance enhancements indicator for high speed scenarios (R4-166804; contact:
Ericsson) RAN4 LS in to: RAN2 Rel-14 LTE_high_speed-Core

- Qualcomm ask if this is just intra frequency or also for inter-frequency. Given the train scenario think it could be just intra-frequency. Huawei think this would not impact RAN2.

Qualcomm think there is RAN4 impact as we want to ensure only the relevant frequencies are measured with higher performance.

- Nokia wonder whether we need to provide an indication per neighbour frequency or neighbour cell. Qualcomm think there is an impact if the UE measures unnecessary frequencies with high performance.
- => Can ask RAN4 whether this applies only to intra-freq measurements or also to inter-freq measurements.
- => Can ask if the UE needs knowledge whether a neighbour cell requires high performance measurements when the UE is measuring that cell or only when the UE has moved to that cell.
- => Noted

[R2-166273](#) Enabling Indication of enhanced HST requirements in a cell Intel Corporation discussion
Not treated

[R2-166638](#) Discussion on the signalling in HST Huawei, HiSilicon discussion

- Ericsson think this is strange to add in mac configuration. We should understand of this is fixed in the cell or whether it might be updated. This affects where it would be added in the signalling.
- Nokia also think if we need to indicate for other carriers then the mobility control info might not be the best place.
- Nokia also doesn't know how it works without a capability.
- DOCOMO think RAN4 that this applies only if DRX is configured. Also think that the eNB needs to know whether the UE supports this.
- Intel understand that this applies for inter and intra frequency measurements. Qualcomm think if the requirements apply for both then it is needed to have an indicator per carrier to avoid doing it for all carriers unless needed.
- Huawei think for idle mode the per cell indication should apply for all measurements inter and intra.
- Samsung wonder how it interacts with reduced measurement performance.

=> Ask RAN4 how the reduced performance indication interacts with the reduced performance measurement on some carriers.

=> Draft LS to RAN4 in [R2-167268](#) to ask the questions identified during this discussion (Ericsson)

[R2-167268](#) Draft reply LS to RAN4 on performance enhancements indicator for high speed scenarios (to: rAN4; cc: -; contact: Ericsson) Ericsson LS out

- Revised in [R2-167270](#)

[R2-167270](#) Draft reply LS to RAN4 on performance enhancements indicator for high speed scenarios (to: RAN4; cc: -; contact: Ericsson) Ericsson LS out
reply to [R2-166014](#) = R4-166804 Rel-14 LTE_high_speed-Core
=> Approved in [R2-167308](#)

[R2-166272](#) Enabling Indication of enhanced HST requirements in a cell Intel Corporation draftCR
36.331 14.0.0- - B Rel-14 LTE_high_speed-Core

[R2-166639](#) Performance enhancements indicator for high speed Huawei, HiSilicon draftCR 36.331
14.0.0- - B Rel-14 LTE_high_speed-Core

[R2-166640](#) Capability on performance enhancements for high speed Huawei, HiSilicon draftCR 36.306
14.0.0- - B Rel-14 LTE_high_speed-Core

[R2-166641](#) Performance enhancements for high speed Huawei, HiSilicon draftCR 36.304 14.0.0- -
B Rel-14 LTE_high_speed-Core

[R2-167071](#) Discussion on signaling for high speed train scenario CMCC discussion
Above 5 Tdocs not treated

Withdrawn:

[R2-166231](#) Discussion on RAN2 impacts from high speed indication Nokia, Alcatel-Lucent Shanghai Bell discussion

8.18 WI: Voice and Video enhancement for LTE

(LTE_VoLTE_ViLTE_enh-Core; leading WG: RAN2; REL-14; started: Sep. 16; target: Mar. 17: WID: [RP-161856](#))

Time budget 1TU

Documents in this agenda item handled in the LTE Break Out session (See Annex H).

8.18.1 Codec mode/rate selection and adaptation

- [R2-166186](#) Discussion on RAN bit rate recommendation procedure Guangdong OPPO Mobile Telecom. discussion
- [R2-166582](#) RAN-based rate adaptation mechanism for VoLTE Intel Corporation discussion
- [R2-166757](#) UE assistance information for codec adaptation Huawei, HiSilicon discussion
- [R2-166759](#) The details on the codec adaptation solution Huawei, HiSilicon discussion
- [R2-166760](#) LS to SA4 on RAN-based codec adaptation solution Huawei, HiSilicon LS out
- [R2-166859](#) Details of RAN-assisted codec rate adaptation Kyocera discussion
- [R2-167082](#) RAN assisted codec rate selection and adaptation Ericsson discussion
- [R2-167083](#) Initial codec rate selection Ericsson discussion

8.18.2 VoLTE/ViLTE signalling optimization

- [R2-166670](#) Common establishment cause value for VoLTE/ViLTE call Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166755](#) Clarification of MO video cause value Huawei, HiSilicon draftCR 36.331 14.0.0- - F Rel-14 LTE_VoLTE_ViLTE_enh-Core
- [R2-166758](#) LS to CT1 on MO video cause value Huawei, HiSilicon LS out
- [R2-167085](#) DRAFT LS on VoLTE-ViLTE signaling prioritization Ericsson LS out
- [R2-167150](#) Introducing signalling prioritization for VoLTE-ViLTE Ericsson draftCR 36.331 14.0.0- - B replacement of [R2-167084](#) Rel-14 LTE_VoLTE_ViLTE_enh-Core
- Withdrawn:**
- [R2-167084](#) Introducing signalling prioritization for VoLTE-ViLTE Ericsson CR 36.331 14.0.02354 - B Rel-14 LTE_VoLTE_ViLTE_enh-Core

8.18.3. VoLTE quality/coverage enhancements

- [R2-166400](#) Discussion on eVoLTE Coverage Enhancements Huawei, HiSilicon discussion
- [R2-166756](#) Consideration on delay budget reporting Huawei, HiSilicon discussion
- [R2-167076](#) UE Indication of Shortened C-DRX Cycle for VoLTE Qualcomm Inc. discussion
- [R2-167086](#) Air interface delay budget Ericsson discussion

8.19 WI: Requirements for a 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; target: Mar. 17: WID: [RP-161898](#))

Time budget 0.25 TU

- [R2-166940](#) Single receiver category 1 UE Intel Corporation discussion
- P1
 - Qualcomm support the approach to focus on feasibility but don't think the 3rd bullet needs to be indicated to RAN. Nokia agree with Qualcomm as it is more a matter of opinion. Also agree that RAN will make the final decision.
 - Samsung ask if the category would just be a DL cat and would we need to discuss the combinations. Intel think it would just be a new DL cat and we could have the same combinations with UL as current Cat 1. Samsung think in this case the capability but has less impact to specifications.
 - Qualcomm think that we could add a combined UL and DL cat for this case.
 - Ericsson wonder if it is clear whether the Phy layer parameters will be the same. Ericsson wonder what would be the motivation for a new category if the parameters are the same.
 - Qualcomm understand there are operator demands to treat these UEs as different cat but technically it doesn't make a difference.
 - Ericsson wonder if we need to consider an early indication so that eNB knows as early as possible. Qualcomm think we the eNB just needs to live with the compromised DL performance until the eNB knows the new category.
- P2

- Qualcomm also prefer to indicate feasibility to RAN on whether it can be added to different releases. The CR submitted to this meeting shows it is feasible.
 - Gemalto would support to indicate it is feasible from R10 onwards.
 - Intel think it is feasible from release 8 but in practice we normally try to avoid changes in releases that are already commercially deployed. Qualcomm think we have many examples of late extension to earlier releases.
 - Nokia think it would even be feasible in Rel-9 but we prefer Rel-14
- => Draft LS to RAN to provide our conclusion in [R2-167269](#) (Intel)

Agreements

- 1: The following can be reported to RAN to enable them to make a final decision on the approach to use:
- Both a new UE category and a separate single receiver capability are feasible options to indicate the single receiver capability to the network.
 - There is no technical different between the introduction of a new UE category or introduction of a separate single receiver capability.
- 2: The following can be reported to RAN to enable them to make a final decision on the release:
- It would possible to introduce the signalling for the new UE category or new signal receiver capability from Rel-9 onwards.
It would also be possible for the CRs to be introduced from Rel-14 and state that early implementation is possible.

[R2-167269](#) Draft LS to RAN on Single receiver category 1 UE (to: RAN; cc: -; contact: Intel) Intel Corporation LS out
=> Approved in [R2-167309](#)

[R2-166401](#) Discussion on Single Receiver Based on Category 1 Huawei, HiSilicon discussion
[R2-166143](#) Signalling of 1Rx UE category Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166426](#) Introduction of Category 1bis Qualcomm Incorporated draftCR 36.331 14.0.0- - B
Rel-14 LTE_UE_cat_1RX-Core
[R2-166427](#) Introduction of Category 1bis Qualcomm Incorporated draftCR 36.306 14.0.0- - B
Rel-14 LTE_UE_cat_1RX-Core
Above 4 Tdocs not treated

Withdrawn:

[R2-166551](#) Single receiver category 1 UE Intel Corporation discussion

8.20 WI: Uplink Capacity Enhancements for LTE

(LTE_UL_CAP_enh-Core; leading WG: RAN1; REL-14; started: Mar. 16; target: Mar. 17: WID: [RP-160664](#))

Time budget: 0.25 TU

Incoming LS

[R2-166031](#) LS on introducing a new special subframe configuration ([R1-168559](#); contact: CMCC) RAN1
LS in to: RAN2 Rel-14 LTE_UL_CAP_enh-Core
=> Noted

256QAM

[R2-166946](#) Introducing 256QAM in UL Ericsson discussion

- Nokia think we should first consider the Rel-13 categories to ensure the numbering is consistent.

=> As for the new Rel-13 categories, the combinations will be discussed in the next meeting in either RAN1 or RAN2 as confirmed by WG chairs.
=> Noted

[R2-166949](#) Draft Response LS on Uplink Capacity Enhancements for LTE Ericsson other
=> Noted

[R2-166947](#) Introducing 256QAM in UL Ericsson draftCR 36.306 14.0.0- - B Rel-14
LTE_UL_CAP_enh-Core
=> Postponed

[R2-166948](#) Introducing 256QAM in UL Ericsson draftCR 36.331 14.0.0- - B Rel-14
LTE_UL_CAP_enh-Core
- DOCOMO asked if UL 256 QAM needs to be in broadcast signalling. Or could be just by dedicated signalling given that the feature is only support if the UE indicates it.
=> Move the configuration to PUCSH-ConfigDedicated
=> Can be updated for submission to the next meeting for this WI (Feb).
=> Postponed

New special subframe

[R2-166239](#) Introduction of a new special subframe configuration CATT discussion
P1
- Intel ask that ssp5 and ssp9 can be configured together. CATT explain that specialSubframePatterns (without suffix) can't configure ssp9.
P3
- Intel think that all new features should be optional. Why should it be mandatory. CMCC think from operator point of view it should be mandatory as they would like to use it.
- Intel think this should be left open now and final decision taken in RAN at end of release
P4
- Ericsson think in the SL config it describes a neighbour cell config and hence it does need to be included. CATT is not sure that the ssp will make sense in this case. Ericsson think we need to be able to describe the neighbour cell config correctly.

Agreements

- 1 the E-UTRAN configure special subframe pattern 10 only when setting specialSubframePatterns (without suffix) to ssp0 or ssp5.
 - 2: a new capability is used to indicate whether the UE supporting TDD special subframe pattern 10.
- FFS Whether tdd-Config-v1130 shall not be present in SL configuration.

[R2-166240](#) Introduction of a new special subframe configuration CATT draftCR 36.331 14.0.0- - B Rel-14 LTE_UL_CAP_enh-Core
=> Remove the SL config part until this issue is resolved.
=> UE requirement for when the network signals ssp10 needs to be specified.
=> Can be updated for the next meeting for this WI (Feb)
=> Postponed

[R2-166241](#) Introduction of a new special subframe configuration CATT draftCR 36.306 14.0.0- - B Rel-14 LTE_UL_CAP_enh-Core
=> Remove "It is mandatory for UEs of this release of the specification"
=> Can be updated for the next meeting for this WI (Feb)
=> Postponed

8.21 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.

[R2-167098](#) RAN aspects on MME overload for CP Clot optimization NEC discussion
Related to SA2 Clot optimization enhancement (non-NB-IoT) Rel-14 FS_Clot_Ext
- Qualcomm thinks there could be a non-NB-IoT UE that only support CP. If not the case then the better approach might be not reject the UE but to use UP instead.
- Nokia think that msg5 is too late. NEC tend to agree but think message 3 is limited. Ericsson also think that msg 3 is better so eNB can reject the connection.
- Intel understand that the use case where the connection is pinned to CP and reject might be ok , and case where connection is not pinned to CP and then it might be better for eNB

to not reject and instead set up the user plane. Also understand that SA2 is ok with a release with wait time instead of reject with wait time.

- Ericsson would prefer that if MME indicates overload start then the eNB takes all actions to avoid the overload.
 - Ericsson agree that the MME can be protected is the indication is in msg 5 as there is not signalling to MME before msg 5. But think it is not clear if it will always be the case and they are considering some cases of signalling to MME before msg5.
 - Neul think the SA2 discussion was only for the case of a UE only capable of CP.
 - Nokia think that for CIoT then maybe nothing is needed.
 - MediaTek think that AS doesn't know the intent to use CP but if the indication comes from NAS then it can be indicated to the eNB.
 - Vodafone would like to state that for NB-IoT there is nothing needed to done. Also doubt anything is needed for other UEs. Ericsson understand that this does apply to NB-IoT uses as well.
 - Ericsson think the eNB can't know if the connection is pinned and hence it is difficult for the eNB to act differently depending on this.
- => Noted

[R2-167099](#) DRAFT Reply LS on overload control for CP CIoT EPS optimization NEC LS out
 LS answer to LSin [R2-166028](#)=S2-165431 Rel-14 FS_CIoT_Ext

- Vodafone would like to remove any reference to NB-IoT
- Nokia suggest explaining that we also have the broadcast indication that CP solution is available. NEC think this is not needed as the MME might be able to handle some level of load and hence complete barring is not an acceptable solution. Ericsson explain the overload start indicated a percentage of connections to reject.
- Qualcomm ask if this is one or all MMEs overloaded. If only one then the eNB would need to know which MME is involved. Ericsson explain that it is known from S-TMSI which MME is involved.
- Qualcomm think the R13 mechanisms are sufficient.

=> Remove the last sentence relating to SA2 solution 9.
 => Clarify that " intention for using or preparedness to use data transfer via Control Plane CIoT EPS optimisation " would need to be indicated from NAS.
 => Further offline discussion to conclude the LS. The provided LS with the 2 changes above is the starting point (NEC)
 => Revised in [R2-167266](#)

[R2-167266](#) DRAFT Reply LS on overload control for CP CIoT EPS optimization (to: SA2, RAN3; cc: CT1; contact: NEC) NEC LS out Reply LS to [R2-166028](#) = S2-165431 Rel-14 FS_CIoT_Ext, NB_IOTenh-Core
 => Approved in [R2-167290](#)

[R2-166692](#) RAN impact to enable CN overload control for CP CIoT EPS Optimization Intel Corporation discussion

[R2-166328](#) Overload Control for C-Plane solution Huawei, HiSilicon, Neul Ltd. discussion
 This paper is related to LS S2-165431 from SA2. And it will also be submitted in 13.7

[R2-166565](#) CN overload protection for CP solution Ericsson discussion

[R2-167097](#) RAN aspects on MME overload for CP CIoT optimization in NB-IoT NEC discussion
 Related to SA2 CIoT optimization enhancement (NB-IoT)
 Above 4 Tdocs not treated

8.22 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!

RRC state mis-match:

[R2-167140](#) Discussion on RRC state mismatch issue NTT DOCOMO INC. discussion
 Proposal: To introduce the solution 3: Re-establish RRC Connection based on eNB configured inactivity timer.

=> Noted

- [R2-166671](#) RRC Idle/Connected mode mismatch Ericsson discussion
- Discussed together with the previous paper.
 - Nokia asks why we would want to re-establish if the DL has degraded. Qualcomm think the DL degradation can be temporary and may have recovered after the release was lost.
 - Intel think this is seen in some networks and there was an intention in NB-IoT session discussion that this should be resolved. Intel have a preference for the DOCOMO proposal for the non-NB-IOT case but for NB-IOT the autonomous release could be used as re-establishment may not be supported or AS security is not established.
 - MediaTek explain there was significant support to do something when this was discussed in NB-IoT. Think that the problem should not exist in a good eNB implementation but have seen it in the field and support to do something.
 - Ericsson the reverse mismatch is easier for the eNB to resolve.
 - Vodafone agree with Ericsson and think it could be solved as they propose. And it could be applicable to NB-IoT and other UEs.
 - MediaTek don't have a strong preference but a slight preference for timer release to idle.
 - Sony prefer to just release.
 - DOCOMO is concerned about the reverse mismatch with the autonomous release.
 - Samsung think there can be UE implementation specific solution for the normal UE case.
- => We will define a solution to address this issue for all UEs
- => Offline discussion on the solution (starting point is release to idle or re-establishment) (DOCOMO)
- Update from offline: No conclusion as some companies require more time and suggested to progress by email

- ☒ **[95bis#12][LTE/TEI14] State mismatch (DOCOMO)**
- Discuss potential options and determine the pros and cons so that decision can be made at the next meeting.
- Intended outcome: Email discussion report to the next meeting.
- Deadline: Tuesday 01/11/2016

- [R2-166691](#) UE RRC state mismatch between UE and network Intel Corporation discussion
- [R2-167077](#) Avoid UEs Staying in RRC Connected State Unnecessarily Qualcomm Inc. discussion
- [R2-166672](#) Clarification of RRC connection release procedure Ericsson draftCR 36.331 14.0.0- - F Rel-14 TEI14
- [R2-167141](#) Introduction of RRC connection re-establishment timer NTT DOCOMO INC. draftCR 36.331 14.0.0- - B Rel-14 TEI14
- [R2-167142](#) Introduction of RRC connection re-establishment timer NTT DOCOMO INC. draftCR 36.321 14.0.0- - B Rel-14 TEI14
- Above 5 Tdocs not treated

eCall over IMS:

- [R2-166421](#) Addition of eCall over IMS Indication in SIB1 Qualcomm Incorporated draftCR 36.331 14.0.0- - B Rel-14 TEI14
- Qualcomm explains that CT1 specified that this is not supported then the UE needing eCall will trigger PLMN selection.
- => Add SA2 WI code to coversheet as well.
- => Add 'forward to upper layers'
- => Add reference to CT1 specification that defines the requirements.
- => Revised in [R2-167280](#)
- [R2-167280](#) Addition of eCall over IMS Indication in SIB1 Qualcomm Incorporated draftCR 36.331 14.0.0- - B Rel-14 TEI14, EIEI
- => Add impact analysis relating to the one change that impacts the legacy behaviour.
- => Postponed to next meeting.

PollByte extension

- [R2-166541](#) Discussion on extension of RLC parameter NTT DOCOMO INC. discussion
- Nokia support the intent but wonder if this works for future UE categories that a legacy eNB might not be aware of. DOCOMO think the UE can assume the maximum category

indicated to the eNB. There would be a mismatch between UE and eNB but it will not cause an issue as it will still avoid L2 overflow.

- LG think the only problem might be frequent status report transmission but eNB can control this by ignoring polls.
- Samsung think the polling only relates to retransmission but the L2 buffer is for UL and DL.
- Intel agree with the problem.
- Samsung think we can define enough values to make it future proof

=> Offline discussion to conclude the need to introduce this

Update from offline: One company still has a strong concern regarding the percent approach but agreed a way forward based on new absolute values.

=> Noted

[R2-166542](#) Extension of RLC parameter NTT DOCOMO INC. draftCR 36.331 14.0.0- - B
Rel-14 TEI14

=> Revised in [R2-167195](#)

[R2-166543](#) Extension of RLC parameter NTT DOCOMO INC. draftCR 36.306 14.0.0- - B
Rel-14 TEI14

=> Revised in [R2-167196](#)

[R2-167195](#) Extension of RLC parameter NTT DOCOMO, INC. draftCR 36.331 14.0.0- - B
Rel-14 TEI14

=> Postponed for checking of the values for the new code points.

[R2-167196](#) Extension of RLC parameter NTT DOCOMO, INC. draftCR 36.306 14.0.0- - B
Rel-14 TEI14

=> Postponed (together with 36.331 CR).

IDC for WLAN:

[R2-166761](#) IDC for WLAN integration Ericsson discussion

- Samsung think it is already possible to report this with existing IDC. The meas id in the existing message will give the eNB the information it needs.
- BlackBerry think if we add this then we should include LAA as the IDC issue is the same for all cases. Ericsson think it is because UE can use WLAN by itself. BlackBerry think this is also true of LWA etc that they can't be used without eNB configuration.
- Intel support Samsung's view.
- LG also support the view of Samsung and Intel. And would like to understand why the eNB needs to know this information. Ericsson think that if the problem is due to LWA, etc. then the eNB can take action by stopping LWA.
- Ericsson assume that the UE can be doing several WLAN activities at the same time.
- Huawei think that based on the discussion that the WLAN can only connect to one AP then do not see anything is needed above the current solution.
- Nokia see some benefits.

=> Noted

[R2-166763](#) IDC for WLAN integration Ericsson draftCR 36.331 14.0.0- - B Rel-14 TEI14,
LTE_WLAN_radio-Core

[R2-166762](#) IDC for WLAN integration Ericsson draftCR 36.306 14.0.0- - B Rel-14 TEI14,
LTE_WLAN_radio-Core

[Above](#) 2 Tdocs not treated

Contention based uplink:

[R2-166808](#) Support of contention based uplink transmission Huawei, Qualcomm, Ericsson, HiSilicon discussion

- Intel think this has some RAN1 impact and also think that in the case of contention it could be infinite delay as the resources will all collide. Qualcomm explain that the UE can detect which UEs contended and then do adaptive retransmissions.
- Nokia think that the TR states that performance depends on DMRS detection reliability and the TR says this needs to be studied. Also as this is TEI it is meant to be limited one WG.
- LG think the latency study did not conclude this was the best one and if we want to add something then we need to evaluate them again.

- Qualcomm think the advantage of this is that it can be done mainly in RAN2.
- => Noted

[R2-166809](#) Support of contention based uplink transmission Huawei, Qualcomm, Ericsson, HiSilicon
draftCR 36.331 14.0.0- - B Rel-14 TEI14
Not treated

Other:

[R2-166656](#) Clearing of measurements upon reporting WLAN unavailability Samsung Telecommunications
draftCR 36.331 14.0.0- - F Rel-14 TEI14
- Qualcomm suggest this should be a release 13 correction.
=> Agreed in principle in [R2-167281](#) for Rel 13 as a correction to LWA WI.

[R2-167134](#) Barometric Pressure Uncertainty IEs NextNav draftCR 36.355 14.0.0- - F Rel-14
TEI14
=> ASN.1 to be corrected.
=> "This field is optional and is provided, if available." in field description to be removed
=> WI should be TEI14
=> Agreed in principle in [R2-167282](#)

9 SI: Study on New Radio Access Technology

FS_NR_newRAT; leading WG: RAN1; REL-14; started: Mar. 16; target: Jun. 17; WID: [RP-161596](#)

Time budget: 8 TUs

9.1 Organisational

LSs, work plan, skeleton TR, status from other groups, etc

Incoming LSs:

[R2-166005](#) LS on RAN1 agreements for NR initial access and mobility ([R1-168214](#); contact: Ericsson)
RAN1 LS in to: RAN2 Rel-14 FS_NR_newRAT
=> Noted

[R2-166020](#) Reply LS to [R2-165967](#) on NR requirements ([RP-161916](#); contact: ZTE) RAN LS in
to: RAN2 Rel-14 FS_NR_newRAT
=> Noted

[R2-166036](#) LS on wider bandwidth operation for NR (R1-1610655; contact: NTT DOCOMO) RAN1 LS in
cc: RAN2 Rel-14 FS_NR_newRAT Late
=> Noted

[R2-166079](#) RAN WG's progress on NR technology SI in the August meeting NTT DOCOMO, INC.
(Rapporteur) discussion
=> Noted

9.2 Radio protocol architecture

9.2.1 User plane

9.2.1.1 Overall user plane architecture

Allocation of user plane protocol functions to protocol layers, possible merger of functions, etc.

Based on the time plan discussion at last meeting, we should aim to agree an initial recommendation on order/placement/grouping of functions in U-plane protocol layers, and provide this information to RAN3.

Considering both standalone and any LTE-NR tight interworking aspects.

Including output from email discussion [95#26][LTE/NR] Concatenation (Ericsson)

Including output from email discussion [95#27][LTE/NR] Reordering (Intel)

[R2-167143](#) Way forward on U-plane modifications to LTE baseline Qualcomm Incorporated, Intel, Nokia, Panasonic, Sony, Broadcom, CATT, KDDI, Convida wireless, MediaTek, LG Electronics Inc. discussion

=> MAC sub headers placement with respect to the MAC payload can be determined once the rest of the U-plane is more stable.

Retransmission

[R2-166828](#) Second level retransmissions in NR Ericsson discussion

- CATT understand that ARQ should not deal with front haul errors but ARQ above the front haul can bring benefits in multiconnectivity scenarios to help cope with link failures. We should not preclude that ARQ is in the CU
 - LG would like to discuss this again after reordering is decided
- => Comeback to discuss P3
- LG think that ARQ could be in PDCP based on PDCP SN.
 - MediaTek support ARQ in RLC especially for DC cases.
 - CATT think it should be possible to configure ARQ in PDCP, to deal with the fact that the link can break quickly. It should not be ruled out at the moment. Ericsson think if it is in PDCP then we have backhaul issues. This doesn't preclude duplication in PDCP to send packets on different links and it is also a lower delay solution. Huawei also think that an eNB could resend packets on the other link if it detects low throughput on the other link.
 - ZTE agree with the proposal.

Agreement

- The ARQ will be supported in RLC.
- RLC adds an RLC SN

[R2-166348](#) Consideration on the Retransmission for NR UP ZTE, ZTE Microelectronics discussion

Reordering

[R2-166883](#) Report of email discussion: [95#27][LTE/NR] Reordering (Intel) Intel Corporation discussion result of email discussion [95#27] Rel-14 FS_NR_newRAT

Agreement

1: NR specification should not prohibit out-of-order deciphering of PDCP PDUs.

[R2-166897](#) Reordering in NR Intel Corporation discussion

=> Noted

[R2-166346](#) Consideration on the Reordering for NR UP ZTE, ZTE Microelectronics discussion
=> Noted [R2-166195](#) L2 Reordering and Retransmission Functions Huawei, HiSilicon discussion

- 3 contributions above discussed together
- Nokia think we don't really have reordering for RLC segments but reassemble as all the PDUs have the same SN. The proposals of the ZTE paper capture the way it should work.
- Huawei think we do need reassembly but the RLC need to look at both SN number and offset.
- Intel think the main thing that we need to consider is the in sequence delivery to PDCP. It can be delivered as long as there is complete PDU.
- Huawei see reordering is separate to out of order delivery.

- LG think that out of order delivery of PDCP PDUs to upper layers is not allowed in current spec but support both proposals from ZTE.
- CATT think that ZTE proposal 1 is ok as a first step, but think that out of order segments should not yet be precluded and should be FFS
- IDC support ZTE proposals.

Agreements

Proposal 1: Complete PDCP PDUs can be delivered out-of-order from RLC to PDCP. RLC delivers PDCP PDUs to PDCP after the PDU is reassembled

Proposal 1a: PDCP reordering is always enabled if in sequence delivery to layers above PDCP is needed (i.e. even in non-DC case)

[R2-166477](#) Reordering for NR SAMSUNG Electronics Co., Ltd. discussion
[R2-166524](#) PDU level reordering in NR L2 LG Electronics Inc. discussion
[R2-166194](#) NR User Plane Function Analysis Huawei, HiSilicon discussion
Above 3 Tdocs not treated

Concatenation

[R2-166904](#) Report from [95#26] Concatenation (Ericsson) Ericsson discussion result of email discussion [95#26] Rel-14 FS_NR_newRAT

Agreements:

- 1 RAN2 should consider both the processing of both the transmitter and the receiver when evaluating whether to divert from the LTE-baseline.

[R2-166475](#) Concatenation for NR SAMSUNG Electronics Co., Ltd. discussion
Proposal 1. RLC concatenation can be removed for NR UP protocol stack.
=> Noted

[R2-166196](#) Analysis of L2 Segmentation and Concatenation in NR Huawei, HiSilicon discussion

Proposal1: Depending on the TB sizes and QoS requirements supported by NR, segmentation may be disabled per radio bearer for services with small packets.

Proposal 2: Concatenation in RLC shall be kept as it is in LTE.

- 2 papers above discussed together
- Samsung think that fixed size RLC header is important from processing point of view.
- LG think today the RLC concatenation is after UL grant received and tis process is quite heavy and not efficient for high data rate. Also with fixed size RLC header makes pre-construction is easy.
- Ericsson think that anyway the MAC header has to be created after the UL grant is received and don't see why the RLC header is a problem.
- DOCOMO support he Huawei proposal and think that precomputation problem can be resolved by the header design rather than moving concatenation.
- Ericsson also support Huawei.
- Panasonic agree with all observations in Samsung proposal.
- ZTE support the Huawei proposal. Think that even with this it is possible to not do everything in real time.
- Nokia think the Samsung proposal is essential to provide the bit rates we require for NR
- Intel also support the Samsung proposal. CATT also support, LG also. IDC also. Convida also. Sony also support and think it is the repeated processing at high rate that causes the issue. Xiaomi also support.
- MediaTek think pre construction of RLC PDUs is important and so support Samsung.
- Qualcomm support Samsung proposal and see benefit for receive side as well. The fixed RLC header format will simplify header format.
- DOCOMO wonder what the UL rate will be in NR. Requirement is 10 Gbps in uplink. Samsung think that well below this rate the UE processing will be an issue. Samsung also think DL is also simplified by fixed header size. DOCOMO wonder how often the UE will experience such a peak rate and we shouldn't create more overhead to help address this

rare case. Nokia think the processing must be designed for the worst case that has to be handled. Nokia also observe that all UE vendors want this for the UL.

- Samsung also think that to reduce the delay the UE has to cope with reduced processing time and increased rate.
- Nokia think that the processing time is 16 times less that LTE based on what RAM1 are thinking.
- Ericsson think that end to end delay needs to be considered so we need to consider receiver processing delay.
- Verizon also support the Samsung proposal.
- Vodafone would support the Samsung proposal.
- DOCOMO think the proposal can be harmful in overhead for low rate cases. Nokia think for low rates there are typically only one PDU per TTI.
- CMCC think we agreed to stick to LTE as baseline.
- KDDI support DOCOMO's comments.

Show of hands:

No Concatenation in RLC 18

Concatenation in RLC 12

=> Offline discussion to discuss way forward for concatenation. Potential way forward could be:

Potential working assumption:

RLC concatenation can be removed for NR UP protocol stack.

Email discussion to progress the next level of detail for the solution

Will revisit this assumption if it is not possible to find a working solutions.

[R2-167190](#) Way forward for concatenation discussion Ericsson, Huawei, ZTE discussion

- New document

=> Noted

[R2-167199](#) On concatenation in NR Samsung, Alcatel-Lucent Shanghai Bell, ASUSTeK, Broadcom, CATT, CHITL, Convida wireless, ETRI, HTC, Innovative Technology Lab Co., Intel, InterDigital, ICom, KT Corp., LG Electronics Inc, Nokia, NTU, OPPO, Panasonic, Qualcomm Incorporated, Verizon Wireless, Xiaomi discussion Rel-14

FS_NR_newRAT

- Nokia think that the number of companies supporting is more than the show of hands and suggest that we ask if there is a sustained objection.

=> RAN2 aim to make a final decision at the next meeting.

=> Proponents of solutions to next meeting must identify the what issues (e.g. easing implementation aspects, overhead, etc) are being addressed by their proposals.

=> Noted

[R2-166160](#) MAC Concatenation Nokia, Alcatel-Lucent Shanghai Bell discussion

[R2-166884](#) NR user plane architecture to ease Tx processing Intel Corporation discussion

[R2-166824](#) Placement of RLC/MAC headers Ericsson discussion

[R2-166544](#) Discussion on L2 protocol for NR NTT DOCOMO INC. discussion

[R2-166483](#) Non-Real-Time Segmentation and Concatenation for NR ITRI discussion

Moved from 9.2.1.3 to 9.2.1.1

[R2-166347](#) Consideration on the Pre-concatenation in RLC for NR ZTE, ZTE Microelectronics discussion

[R2-166525](#) Segmentation and Concatenation in NR L2 LG Electronics Inc. discussion

[R2-166110](#) User Plane Architecture and high level Layer 2 functions PANASONIC R&D Center Germany discussion

Above 8 Tdocs not treated

Segmentation

[R2-166488](#) Considerations on the segmentation function in NR Fujitsu discussion

P2

- LG think that segmentation should be in the lowest layer (i.e. MAC). CATT also think it should be the lowest layer.
- Nokia think that it should be in RLC. Ericsson also support segmentation in RLC. Intel think this was the assumption when reordering was discussion.
- Huawei agree it should be per logical channel and hence at RLC. ZTE also support. Samsung also support.

P1

- MediaTek think that at high rate it would be good to not have it configured.
- Nokia think it should not be configurable at logical channel level. If we want to avoid it in some cases it might be better to do it at transport block level.
- DOCOMO support proposal 1, otherwise the network always needs to provide a large grant.
- BlackBerry support it to be configurable. It is needed based on grant size but there may also be grant free transmission and in this case no segmentation could be configured. Ericsson think in case of grant free transmission the block size is also given from network.
- IDC think it should be based on rules at transport level such as if the block is larger than a certain size.
- Samsung has some sympathy on making it configurable.
- Huawei prefer this to be configurable.

Agreements

1: In NR, the segmentation function is only placed in the RLC layer as in LTE.

[R2-166511](#)

Segment Offset-based Segmentation for NR Samsung Electronics Co, LTD discussion

- Intel ask if the proposal assumes that concatenation is removed. Samsung clarify that this is the assumption taken but it can also be considered as an independent issue.
- MediaTek think the proposal is quite nice but don't see why it assumes concatenation is removed. Samsung explain the intent was to decouple from SN and concatenation.
- Samsung explain it doesn't make assumption about RLC SN or PDCP SN is used.
- CATT support the proposal.
- Qualcomm support this and think it could work with both RLC and PDCP SN.
- Ericsson think this may cause more overhead for small TB sizes, but in principle support simplifying RLC if needed.
- Intel support the proposal. Panasonic also support. Nokia also support this and think it can be precomputed before grant is received. LG also support the proposal.
- Samsung clarify if segmentation is not needed then the SO field is not needed.

Agreement

=> SO-based segmentation can be considered for both segmentation and resegmentation as a baseline in NR user plane to support high data rate. (Does not imply anything about location of concatenation). At least overhead for the low data rate case should be analysed further.

[R2-166355](#)

Segmentation in NR Nokia, Alcatel-Lucent Shanghai Bell discussion

[R2-166990](#)

Segmentation and concatenation for NR UP MediaTek Inc. discussion

Above 2 Tdocs not treated

PDCP SN use at RLC

[R2-166159](#)

On usage of PDCP SN at RLC Nokia, Alcatel-Lucent Shanghai Bell discussion

- Nokia think for a split bearer each RLC PDU could indicate the following SN in case there is a gap so that the receiver can know what to expect. Nokia think that the transmitter could also indicate that the buffer is empty.
- Ericsson wonder how this is carried from CU to DU if there is such a split. CATT think this would be the next step to discuss. If nothing is done then RLC might receive a SR with a gap but it know it didn't transmit it.
- Nokia explain it would need a SN for PDCP control PDU
- LG think there are some complexities based on this discussion.
- Ericsson think this is a complex optimisation.

- Samsung think it is not clear that there is an overhead gain.
 - Qualcomm think that RLC SN could be introduced just for split bearer case and think this could be discussed.
 - Huawei also see some complexity issues and especially for the DC case.
- => Noted

COUNT transmission

- [R2-166158](#) Using COUNT over the air for PDCP PDU Nokia, Alcatel-Lucent Shanghai Bell discussion
- Ericsson think it must be possible to disable this for some services such as voice. Hence UE will anyway need to implement it so the benefit is reduced.
 - Qualcomm think that voice is the biggest use case as this is where HFN desync occurs today.
 - Ericsson think that HFN desync is often due to poor implementations in network or UE.
 - MediaTek think that for eMBB overhead is less of an issue and processing is important so support the proposal.
 - DOCOMO think that HFN desync can be resolved by using a longer SN.
 - Qualcomm explain that full COUNT reduces processing overhead, and additionally addresses the out of sync problem. Intel agree it is beneficial for the high data rate case. Samsung think the HFN processing is not such a large gain and if configurable then UEs will have to cope with the worst case.
 - Ericsson think there is more complexity with inter-RAT change between LTE and NR.
- => Noted

Multi-connectivity/SCG split bearer

- [R2-166517](#) Comparison of user plane architecture options for LTE-NR tight interworking Huawei, HiSilicon discussion
- ZTE also see a benefit in changing the SCG split bearer to SCG bearer more easily without re-establishing PDCP. Huawei think in LTE this kind of bearer type change is not allowed to avoid complexity. Ericsson think that SeNB could just stop using the MeNB leg instead of reconfiguring
 - Ericsson think this could be added later. Nokia would be ok to exclude this for now although not convinced that it doesn't impact buffering for the UE due to the different rates of the legs.
 - Huawei would also be ok to exclude this for now. LG would also be ok to exclude
 - Samsung think the drawbacks are in the case of a small eNB. They go way in the case of cloud RAN eNB.
 - DOCOMO have a different view to the paper on mobility.
- => TP to be drafted to capture some analysis and conclusions on the SCG split bearer. (DOCOMO)
- => Can continue to study at future meetings
- [R2-167194](#) Text Proposal to TR 38.804 on bearer type comparison NTT DOCOMO, INC. 38.804
0.3.0 Rel-14 FS_NR_newRAT
- => "any" added in following: "For UE moving out of coverage of any SeNB scenario"

✉ **[95bis#04][NR] TP on SCG split bearer (DOCOMO)**

Intended outcome: Agreed TP to add to TR

Deadline: Tuesday 20/10/2016

- [R2-166545](#) Mobility of split bearer via SCG NTT DOCOMO INC. discussion
- [R2-166648](#) Support of SCG and SCG-split bearer in NR LG Electronics Inc. discussion
- [R2-166495](#) Split Bearers in NR ITRI discussion
- Moved from 9.2.1.3 to 9.2.1.1

- [R2-166192](#) Support of Multi-Connectivity in NR Huawei, HiSilicon discussion
- [R2-166112](#) NR U-plane multiconnectivity configurations CATT discussion
- Above 5 Tdocs not treated

Aggregation

- [R2-166817](#) MAC impacts of different numerologies and flexible TTI duration Ericsson discussion
- P1
- Samsung would prefer a common DRX scheme regardless of numerology
 - Ericsson think that perhaps DRX might need to consider the 'reference TTI' discussed in RAN1 when the actual TTI is changing.
 - IDC think this impact other power saving schemes as well as DRX
- P2
- Panasonic agree with the proposal. Think that services that require a certain numerology should use that numerology and not use grants from other numerologies.
 - Nokia think that the UE should only base LCP on priority.
 - LG think that L2 is also associated to a numerology.
- P3
- Samsung think that one MAC entity per numerology may lead to many MAC entities which may lead to complexity.
 -

Agreements

- 1 The eNB should have means to control which logical channels the UE may map to which numerology and/or TTIs with variable duration. Details FFS (e.g. whether semi-static or dynamic, hard split/soft split, etc)
- 2 A UE can support multiple numerologies from a single cell. FFS whether this is modelled as 1 or multiple MAC entities.

- [R2-166193](#) Carrier Aggregation in NR Huawei, HiSilicon discussion
Not treated

Overall u-plane architecture

- [R2-166080](#) Text Proposal to TR 38.804 on Layer 2 functions for NR NTT DOCOMO, INC. pCR 38.804 0.3.0 Rel-14 FS_NR_newRAT
- => Main text of TR should be stage 2 like to allow easy transition to stage 2 spec at start of WI phase
 - => Some motivations for decisions may be captured in an informative annex
 - => Some study of items that may not be progressed in first phase of WI can be captured in separate sections.
- ☒ **[95bis#05][NR] User plane TP (DOCOMO)**
Intended outcome: Agreed TP for TR
Deadline: Tuesday 20/10/2016

- [R2-166152](#) 5G User Plane radio protocol overview Samsung R&D Institute UK discussion
- [R2-166111](#) NR U-plane design CATT discussion
Above 2 Tdocs not treated

Other

- [R2-166476](#) Multiplexing for NR SAMSUNG Electronics Co., Ltd. discussion
- [R2-166820](#) Logical Channel Multiplexing in MAC for NR Ericsson discussion
- [R2-166515](#) Consideration on PDCP design for NR and evolved LTE Huawei, HiSilicon discussion
- [R2-166518](#) User plane design details for LTE-NR tight interworking Huawei, HiSilicon discussion
- [R2-167037](#) EPC – NR PDCP interaction for tight interworking: User Plane Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166157](#) PDCP Sublayer for NR Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166644](#) Support of different numerologies in NR LG Electronics Inc. discussion
- [R2-166197](#) Pre-Construction of RLC PDU Huawei, HiSilicon discussion
- [R2-166506](#) Grouping of NR User Plane Functions and Placements in CU-DU Split Samsung Electronics Co, LTD discussion
Above 9 Tdocs not treated

Withdrawn:

[R2-167063](#) Way forward on U-plane modifications to LTE baseline Qualcomm Incorporated, Intel, Nokia, Panasonic, Sony, Broadcom, CATT, KDDI, Convida wireless, MediaTek discussion
=> Replacement in [R2-167143](#)

9.2.1.2 QoS

Addressing impacts of the QoS model for NextGen core as being developed by SA2. 'Any control plane aspects related to QoS may also be considered in this agenda item.

DRB mapping

[R2-166198](#) General Principles for Flow to DRB Mapping Huawei, HiSilicon discussion

Agreements

- 1: RAN determines the mapping relationship between QoS flow (as determined by the UE in UL or marked by the CN in DL) and DRB for UL and DL.
 - 1a RAN can map multiple QoS flows to a DRB.
- 2 Specification will not forbid a GBR flow and non-GBR flow to be mapped to the same DRB, but we will not introduce mechanisms to optimise this case.
- 3 Specification will not forbid more than one GBR flow to be mapped to the same DRB, but we will not introduce mechanisms to optimise this case.

FFS: Whether traffic from different PDU sessions can be mapped to one DRB or not.

[R2-166161](#) Mixing PDU session into the same DRB Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166892](#) Relationship between DRBs and QoS flows Intel Corporation discussion
[R2-166091](#) QoS model for NR RAN Samsung discussion
[R2-166336](#) Consideration on the impact of QoS on NR UPZTE, ZTE Microelectronics discussion
[R2-166526](#) Flow to RB mapping LG Electronics Inc. discussion
[R2-166996](#) On QoS for NR MediaTek Inc. discussion
[R2-167047](#) Flows and DRBs Mapping Convida Wireless discussion
 Above 7 Tdocs not treated

Bearer establishment, UL operation

[R2-167069](#) QoS considerations Qualcomm Incorporated discussion
=> Noted

[R2-166162](#) DRB Mapping in Uplink Nokia, Alcatel-Lucent Shanghai Bell discussion

Agreements

- 1 Default DRB is established by eNB at PDU session establishment (or an existing DRB may be used if mapping of more than one session to a DRB is allowed)
2. If the first packet of the flow is UL packet, if no mapping rule is configured in the UE, the packet is sent through default DRB to the network.

FFS How and when the network can remap the flow to more appropriate DRB.

FFS the first packet is handled in the case that pre-authorized QoS is configured

FFS whether the pre-authorized QoS applies to RAN or only to the UE.

FFS whether there is a single level of mapping from UL TFT (5 tuple) to DRB, or whether there is a 2 level mapping from UL TFT to QoS flow and then from QoS flow to DRB.

[R2-166199](#) DRB Management and QoS Control Huawei, HiSilicon discussion
[R2-166895](#) Supporting Next Gen QoS in NR Intel Corporation discussion
[R2-167110](#) DRB Establishment in Flow based QoS Concept NTT DOCOMO INC. discussion
[R2-166335](#) Consideration on the impact of QoS on NR CPZTE, ZTE Microelectronics discussion
[R2-166113](#) DRB management and NR QoS CATT discussion
[R2-166575](#) Data Radio Bearers MediaTek Inc. discussion

[R2-166801](#) QoS framework for NR Ericsson discussion
[R2-166854](#) Radio Bearers and Per-Flow QoS for New Radio Access InterDigital Communications discussion
Above 8 Tdocs not treated

Other

[R2-167111](#) Reviewing the benefit of Flow based QoS NTT DOCOMO INC. discussion
Not treated
Moved from 9.2.1.1 to 9.2.1.2

9.2.1.3 Other user plane aspects

May include more detailed discussion of specific user plane functions, e.g. MAC functions.

DRX

[R2-166647](#) DRX enhancement in NR LG Electronics Inc. discussion

Agreements

1. DRX enhancement is studied in NR in order to support multiple services with different requirements and/or numerologies.

[R2-167060](#) Connected Mode DRX Considerations Qualcomm Incorporated discussion
=> Noted

[R2-166816](#) Adapting the LTE DRX framework for NR Ericsson discussion
[R2-166869](#) Power Savings for NR InterDigital Communications discussion
[R2-166818](#) DRX considering different traffic Ericsson discussion
[R2-166358](#) C-DRX for NR Samsung Research America discussion
Above 4 Tdocs not treated

Random access

[R2-166065](#) Random Access Procedure in NR Samsung Electronics Co., Ltd discussion
[R2-166813](#) Requirements on random access procedure in NR Huawei, HiSilicon discussion
Moved from 9.2.2.4 to 9.2.1.3

[R2-166351](#) Consideration on the Random access in NR ZTE, ZTE Microelectronics discussion
Moved from 9.2.2.4 to 9.2.1.3

[R2-166826](#) Random Access enhancements Ericsson discussion
Moved from 9.2.2.4 to 9.2.1.3

[R2-166122](#) Random access procedure for NR CATT discussion
[R2-166066](#) Random Access in NR – Flexible UE BW Aspects Samsung Electronics Co., Ltd discussion
[R2-166589](#) Random access procedure in NR ASUS/TEK COMPUTER (SHANGHAI) discussion
[R2-166591](#) Flexible RACH MediaTek Inc. discussion
[R2-166800](#) Aspects for pre scheduling and contention based UL transmission Ericsson discussion
[R2-166123](#) Consideration on random access in NR CATT discussion
[R2-166625](#) Discussion on latency of random access in NR ASUS/TEK COMPUTER (SHANGHAI) discussion
[R2-166646](#) Potential impact of beam sweeping on RA LG Electronics Inc. discussion
[R2-166811](#) Initial considerations on random access procedure in NR Huawei, HiSilicon discussion
Above 13 Tdocs not treated

Moved from 9.2.2.4 to 9.2.1.3

UL scheduling

- [R2-166799](#) Uplink dynamic scheduling in NR Ericsson discussion
 - [R2-166645](#) Scheduling aspect with multiple eNBs LG Electronics Inc. discussion
 - [R2-166470](#) UL Scheduling Issues for Supporting Low Latency in NR Samsung Electronics discussion
- Above 3 Tdocs not treated

Support of multiple services/numerologies

- [R2-166201](#) Support of Multiple Numerologies Huawei, HiSilicon discussion
 - [R2-166114](#) NR MAC modeling CATT discussion
 - [R2-166888](#) MAC entities to support multiple NR verticals Intel Corporation discussion
 - [R2-166102](#) Layer 2 Aspects for Supporting Multiple Services Samsung Electronics Co., Ltd discussion
 - [R2-166528](#) QoS provision in radio interface LG Electronics Inc. discussion
- Above 5 Tdocs not treated

Low latency/URLLC

- [R2-166115](#) NR latency analysis CATT discussion
 - => Revised in [R2-167283](#)
 - [R2-167283](#) NR latency analysis CATT discussion
 - [R2-166821](#) UP aspects for URLLC traffics Ericsson discussion
 - [R2-166991](#) Scheduling for URLLC Huawei, HiSilicon discussion
 - [R2-166989](#) Support for ultra-reliable low latency communication (URLLC) Huawei, HiSilicon discussion
 - [R2-166487](#) MAC function for URLLC support Fujitsu discussion
- Above 6 Tdocs not treated

HARQ

- [R2-166200](#) Asynchronous HARQ Procedure in NR Huawei, HiSilicon discussion
- Not treated

PDCCP operation

- [R2-166822](#) PDCCP operation - HFN desync Ericsson discussion
 - [R2-166823](#) PDCCP operation - SN and PDU size Ericsson discussion
- Above 2 Tdocs not treated

Other

- [R2-166653](#) Robust design to support various spectrums in NR Samsung discussion
 - [R2-166668](#) Potential hurdle in maximising DL TCP throughput NTT DOCOMO, INC. discussion
 - => Revised in [R2-167159](#)
 - [R2-167159](#) Potential hurdle in maximising DL TCP throughput NTT DOCOMO, INC. discussion
 - [R2-166830](#) UP-specifications for NR Ericsson discussion
 - [R2-166997](#) Infrequent small data transmission in NR Huawei, HiSilicon discussion
 - [R2-167075](#) New MAC Functions in NR CMCC discussion
- Above 6 Tdocs not treated

Withdrawn

- [R2-166853](#) UE support and impact of multiple numerology InterDigital Communications discussion
- Late

9.2.2 Control plane

9.2.2.1 States

Including further study of the 'RAN controlled state'

Including output from email discussion [95#28][NR] Data transmission in 'new state' (Huawei)

- [R2-166082](#) Text Proposal to TR 38.804 on UE states and state transitions for NR NTT DOCOMO, INC.
pCR 38.804 0.3.0 Rel-14 FS_NR_newRAT
- Huawei think that the background information is not objective and can be removed.
 - => Can be progressed offline and updated based on today's discussion.
 - => Postponed

UL data in new state

- [R2-166986](#) Summary of email discussion: [95#28][NR] Data transmission in 'new state' Huawei discussion result of email discussion [95#28] Rel-14 FS_NR_newRAT Late
- MediaTek think that we can fulfil all requirements with a single configuration so it is good to understand which requirements apply in which state.
 - Intel do not see this state only for MTC but also for eMBB.

Agreements for how progress the study:

- 1: For any solution to send uplink packet, the latency, signalling overhead and UE power consumption, UE mobility shall be evaluated.
 - 1a We need to discuss and determine the use case for data transmission
 - 1b Determine the latency requirements from the RAN TR that apply for the "new state".
- 2 2 potential approaches for further evaluation (in addition to baseline move to connected and then transmit data)
 - b) Transmit data together with initial RRC message for transition to connected
 - c) Transmit data in "new state"
- 3 Questions for be answered for any proposal ()
 - whether there is RACH, if so whether it is 2-step or 4-step (there could be 3 options)?
 - contention resolution, at which step (depends on exact procedure)?
 - grant size, what are the supported sizes and how to perform size selection?
 - whether 0, 1, 2 or 3 RRC messages are used (from latency and overhead perspective, less messages could be better)?
 - usage of HARQ/ARQ?
 - how to perform UE identification/(authentication/context fetch)?
 - how to configure U-plane for transmission?
 - for b)
 - when does the UE start full connected operation, e.g. RLM, CSI/RRM measurements, etc.
 - how to determine whether to move to "full connected" or not
 - whether data would always be concatenated in order to establish the RRC connection, and whether that would affect the coverage by deteriorating the successful rate of RRC connection establishment/resume
 - for c), how to decide when to use c) rather than a)

=> List can be further progressed offline (Huawei)

- [R2-167211](#) How to progress the study for UL data transmission in NR new state Huawei discussion
Rel-14 FS_NR_newRAT
- => Updated list of questions is to be agreed.

[R2-166284](#) Data transmission in "low activity state" Huawei, HiSilicon discussion

[R2-166538](#) Comparison between active and inactive state for small data transmission from energy efficiency perspective Samsungdiscussion

[R2-166921](#) Issues in small data transmission in inactive state Ericsson discussion

[R2-166059](#) Transmission of Data Grant-Free in New StateSierra Wireless, S.A. discussion

- [R2-166238](#) Discussion on Connectionless Nokia, Alcatel-Lucent Shanghai Bell discussion
 - [R2-166581](#) Infrequent Small Data and New State MediaTek Inc. discussion
 - [R2-166870](#) UE Transmissions in New State for NR InterDigital Communications discussion
 - [R2-166922](#) Small data transmission for inactive UesEricsson discussion
 - [R2-166118](#) Small data transmission in inactive stateCATT discussion
 - [R2-166187](#) Discussion on Efficient Small Data transmission in “Inactive” StateGuangdong OPPO Mobile Telecom. discussion
 - [R2-166527](#) Data transmission in New State LG Electronics Inc. discussion
 - [R2-166593](#) Consideration small data transmission in New State III discussion
=> Revised in [R2-166596](#)
 - [R2-166596](#) Consideration small data transmission in New State III discussion
 - [R2-166704](#) UE behaviour in new state ETRI discussion
 - [R2-167067](#) Data transmission in the NR inactive state Qualcomm Incorporated discussion
- Above 15 Tdocs not treated

DL data in new state

- [R2-166734](#) Downlink data transmission in ‘new state’ Sony discussion
 - [R2-166486](#) DL data reception in INACTIVE stateFujitsu discussion
- Above 2 Tdocs not treated

New state - other aspects

- [R2-166060](#) Design principles for the new RAN controlled state Samsungdiscussion
 - Samsung explain that in LTE light connection it will be modelled as part of idle or part of connected. For NR independent might be cleaner.
 - LG think it is good to be aligned with LTE and NR and prefer it to be part of connected as a sub mode or part of configuration. Qualcomm agree to align and prefer part of connected..
 - Nokia see no need to align with NR and think it not too critical to decide the modelling at this time. Intel share this view but think it is good to align functionality.
 - Vodafone prefer a new state.
- P3
 - Samsung think ideally we should have 1 UE ID but maybe we may find that we need 2 .Intel also agree ideally a single ID should be used.
- P4
 - Panasonic think that the UE needs to be known at the cell level in this new state to allow data transmission in this state.
 - LG think we should have one new state but the area may be configured as a cell or large area.

Agreements

- 1 Modelling will be concluded when functionality is understood (maybe in WI phase). For the scope of the study we will refer to RRC_INACTIVE.
- 2: A UE and at least 1 gNB should keep the AS context information in the RRC_INACTIVE state.
- 3: Limit number of radio network identifiers
- 4: In the RRC_INACTIVE state, a UE location can be known at the RAN based area level where that area may be a single cell or more than one cell. Area is determined by the network..

- [R2-166995](#) Further discussion on RAN controlled state in NR Huawei, HiSilicon, Telefonica discussion
- [R2-166880](#) Discussion on new RAN states for NR Intel Corporation discussion
- [R2-166232](#) Discussion on Idle mode in NR Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166236](#) NR Control Plane Latency in new RRC state Nokia, Alcatel-Lucent Shanghai Bell discussion

- [R2-166109](#) Placement, characteristics and functionalities of New State PANASONIC R&D Center Germany discussion
- [R2-166485](#) Discussion on the new state for NR ITRI discussion
- [R2-167045](#) RRC “new state” in NR Convida Wireless discussion
- [R2-167070](#) UE states in NR CMCC discussion
- [R2-167025](#) State transitions and basic signalling flows for new state LG Electronics Inc. discussion
Late
Above 9 Tdocs not treated

Notification/tracking

- [R2-166116](#) Inactive state and RAN based notification aera CATT discussion
- [R2-166919](#) CN and RAN interaction for inactive UEs Ericsson discussion
- [R2-166237](#) Paging and location tracking in the new RAN controlled state Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166611](#) Further consideration on the new RAN controlled state in NR ZTE, ZTE Microelectronics discussion
- [R2-166865](#) RAN Controlled State for New Radio Access InterDigital Communications discussion
- [R2-166864](#) RAN Based Paging for New Radio Access InterDigital Communications discussion
- [R2-166866](#) UE Mobility in RAN Controlled State for New Radio Access InterDigital Communications discussion
- [R2-166881](#) Discussion on RAN notification area for the new RRC state Intel Corporation discussion
- [R2-166898](#) RAN based update mechanism for new RAN state Intel Corporation discussion
- [R2-167062](#) NR inactive state principles Qualcomm Incorporated discussion
- [R2-166960](#) DRX in idle and “inactive state” Ericsson discussion
- [R2-167023](#) RAN initiated notification in the new state LG Electronics Inc. discussion Late
Above 12 Tdocs not treated

Other

- [R2-167136](#) UE state transition diagram for NR NTT DOCOMO, INC. discussion
Is revision of [R2-164713](#)
- [R2-166539](#) Energy efficient connection management assuming low CN signaling overhead in inactive state Samsung discussion
- [R2-166920](#) Signalling flows for paging and resume for inactive state Ericsson discussion
- [R2-167061](#) NR idle mode principles Qualcomm Incorporated discussion
- [R2-166117](#) Inactive state and support of CA, DC and inter-RAT mobility CATT discussion
- [R2-166061](#) Analysis of the signalling load for a new RRC state Samsung discussion
Above 6 Tdocs not treated

Withdrawn:

- [R2-166233](#) NR Control Plane Latency in new RRC state Nokia, Alcatel-Lucent Shanghai Bell discussion

9.2.2.2 System information

Including minimisation of system information overhead, impact of beam sweeping, etc

Including output from email discussion [95#29][NR] On demand SI (Samsung)

On demand SI

- [R2-166497](#) Report of email discussion: [95#29][NR] On demand SI Samsung India report result of email discussion [95#29] Rel-14 FS_NR_newRAT
- LG asked what minimum SI was used in the analysis and assume an LTE baseline of approx 400 bits. Samsung think for the relative analysis it doesn't matter,

=> After discussion today we will draft a TP to include a description of the mechanism and evaluations (which evaluations to capture to be discussed further and duplication to be avoided).

- [R2-166068](#) On Demand SI – UE Energy Consumption Analysis Samsung Electronics Co., Ltd discussion
- LG think that the SI shared among cells can apply to broadcast SI as well and so would expect power consumption for broadcast should also show improvement with N. Samsung assumed LTE baseline for broadcast. LG think that if SI is shared among cells for the broadcast case then broadcast may be better. Samsung think the UE power is not the main gain for in demand but this shows it is not worse than broadcast.
 - MediaTek agree with LG's view but also agree that the main benefit for this is not UE power consumption but overhead.
 - Panasonic also think LG's observation is valid.
- => Noted

- [R2-166918](#) Evaluation of resource gain using on-demand SI delivery in NR NEC Telecom MODUS Ltd. discussion
- MediaTek ask if the conclusion that we need to make it flexible whether it is flexible for the network decide what is delivered by broadcast to on demand.
 - Panasonic think this shows for low periods for SI broadcast there is no gain. NEC think that if there is a longer interval then there is a larger chance of UEs arriving in that period
 - DOCOMO think that most minimum SI will need to be broadcast in a short period. Other SI will likely have a larger period and for LTE the maximum is 5s and this should also be analysed.
 - ZTE ask if this is in demand unicast or on demand broadcast. NEC only broadcast was considered.
- => Noted

- [R2-167041](#) Performance Evaluation of System Information Delivery in NR Nokia, Alcatel-Lucent Shanghai Bell discussion
- DOCOMO would like to understand how SI is broadcast in beamforming case. Understand that SI is transmitted in each beam. Would like to understand the beamforming cost. Nokia explain that there gamma value is a rough estimate of the additional overhead when beamforming is applies.
 - MediaTek think that the benefits of this are dependent on the coverage area, and think the benefits come at low rates. In small coverage areas there would not be many UEs and hence low rates of on demand delivery.
 - Samsung think this is a good analysis to capture in the TR.
- => Noted

- [R2-166203](#) Delivery of "Other SI" in NR Huawei, HiSilicon discussion
- P1
- Panasonic wonders what impact this have on UE. Will all UEs see that something has changed because the network has on demand broadcast something for other UEs. Huawei don't expect that all UEs will need to monitor the delivery, only those that are interested.
 - Huawei explain this goes further than the agreement last meeting as the broadcast is not continuous.
 - DOCOMO think this mechanism is needed for SI change as well as ETWS and CMAS.
 - LG support the proposal and also think this may be in response to a UE request
 - OPPO think the proposal is reasonable.
 - Samsung ask if there should be an indication in minimum SI whether this is broadcast. Huawei think yes.
 - CATT wonder if the minimum SI is always broadcast, or always broadcast when it is delivered.
- P3
- Intel support proposal 3. LG also support. CATT also agree it is not needed to go to connected.
 - Nokia think this needs more analysis.
 - MediaTek think it should be obvious that we don't want state transition for on demand delivery.

- DOCOMO think this is needed but wonder if there is a need for on demand in connected.
P4

Agreements

- 1: For on demand SI, other SIs may be broadcasted at configurable periodicity (equivalent to SI period in LTE) and for a certain duration.
- 2 Request of the other SI by idle and “new state” UE should be performed without state transition.
- 3 For an SI required by the UE, the UE should know whether it is available in the cell and whether it is broadcast or not before it sends the other SI request (e.g. by checking minimum SI).

- [R2-166120](#) On-demand system information delivery mechanism CATT discussion
 - [R2-166885](#) System information for standalone NR deployment Intel Corporation discussion
 - [R2-166343](#) Consideration on the Other SI delivery in NR ZTE, ZTE Microelectronics discussion
 - [R2-166573](#) On-demand SI Delivery MediaTek Inc. discussion
 - [R2-166603](#) Initial Views about On Demand SI Delivery for 5G NR Shenzhen Coolpad Technologies discussion
 - [R2-166706](#) On-demand SI delivery mechanism ETRI discussion
 - [R2-166771](#) Further benefits of on demand SI delivery Ericsson discussion
 - [R2-167050](#) Other SI delivery in broadcast manner LG Electronics Inc. discussion
 - [R2-167051](#) Efficient SI request for other SI LG Electronics Inc. discussion
 - [R2-166867](#) System Information Acquisition for New Radio Access InterDigital Communications discussion
- Above 10 Tdocs not treated

- [R2-167284](#) Text Proposal to TR 38.804 on on-demand SI provisioning for NR NTT DOCOMO, INC. pCR 38.804 0.3.0 Rel-14 FS_NR_newRAT Late
=> Withdrawn by MCC after the meeting due to non availability.

✉ [95bis#13][NR] TP on On demand SI (DOCOMO)

Intended outcome: Agreed TP for TR
Deadline: Tuesday 01/11/2016

Minimum SI

- [R2-166202](#) Further Discussions of "Minimum SI" Huawei, HiSilicon discussion
- P1
- Spreadtrum think we need to restrict the content of minimum SI.
- P2
- Intel think this aspect must wait for RAN1.
 - Huawei explain that the proposal is that the minimum SI gives more accurate info on beam sweeping.
 - DOCOMO agree this depends on what the beam sweeping operation looks like. It could look like it is in a fixed position
- P3
- CATT think ETWS/CMAS should always be broadcasted. Hence this is an exception to the rule for Other SI that it may be broadcast or on demand. MediaTek think it should be possible to unicast this SI as well.
 - Samsung think the ETWS/CMAS is an event. If the UE is notified then it needs to attempt to receive like other SI. Agree it can be other SI.
 - Qualcomm think there is never a UE request for this info.
- P4
- Ericsson that the index based distribution would enable a UE to use SI acquired in other cells to access the cell and this even applies to minimum.
 - Huawei think the UE should be able to camp on a cell without having to have camped on another cell previously. Think the UE should be able to camp without assistance from another cells. ZTE agree with this view. LG also agree. Panasonic also agree and think

the index is a different mechanism. MediaTek also have the same understanding, and agree indexing and storage is important but it doesn't mean that it doesn't mean minimum doesn't need to be provided. Qualcomm. Xiaomi have the same view.

- CMCC agree with Ericsson's view and think it should be possible to use minimum SI from one cell on another cell.
- CATT think the UE should not have to go to another cell to know if it can camp on a cell

Agreements

- 1: In addition to basic information for initial access to the cell, the minimum SIs should include the scheduling information for broadcasted SIs/
- 2: PWS information can be classified into other SI. FFS whether this PWS would need additional enhancements.

FFS Whether the minimum SIs is broadcasted periodically in every cell on which a UE can camp

FFS Whether there are cells in the system where the UE cannot camp.

- [R2-166393](#) Principle/Guideline: Minimum SI TX in Camping Cell Samsung Electronics Co., Ltd, Nokia, Mediatek Inc., Panasonic discussion
- [R2-167074](#) Further considerations on minimum SI CMCC discussion
- [R2-166493](#) Contents of Minimum System Information Samsung India discussion
- [R2-166342](#) Consideration on the Minimum SI delivery in NR ZTE, ZTE Microelectronics discussion
- [R2-166484](#) Including Cell reselection information in the Minimum SI ITRI discussion
- [R2-166393](#) Principle/Guideline: Minimum SI TX in Camping Cell Samsung Electronics Co., Ltd, Nokia, Mediatek Inc., Panasonic discussion
- [R2-166493](#) Contents of Minimum System Information Samsung India discussion
- [R2-166868](#) Structure and Contents of System Information for NR InterDigital Communications discussion
- Above 8 Tdocs not treated

Indexed/stored SI

- [R2-166132](#) System Information for NR including ID and version tag Gemalto N.V. discussion
- [R2-166572](#) Stored System Information MediaTek Inc. discussion
- [R2-166772](#) Index based provisioning of system information in NR Ericsson discussion
- [R2-166353](#) NR System Information Areas for Other SI SHARP Corporation discussion
- [R2-166498](#) system information support for mobility ITRI discussion
- Above 5 Tdocs not treated

High-frequency/beam sweeping for SI

- [R2-166774](#) System information distribution on high frequency bands Ericsson discussion
- [R2-166163](#) Beam Sweeping Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-167113](#) High Frequency NR System Information Provisioning Through Beam Sweeping National Taiwan University discussion
- [R2-167158](#) High Frequency NR System Information Provisioning Through Beam Sweeping National Taiwan University discussion
- Above 4 Tdocs not treated

Other

- [R2-166770](#) Broadcasting SI by means of SFN transmission in NR Ericsson discussion
- [R2-167020](#) Narrow and Wideband Compatibility of Broadcast Control Information Sierra Wireless, S.A. discussion
- [R2-166119](#) NR cell and system Information CATT discussion
- [R2-166191](#) Discussion on NR System Information Design Guangdong OPPO Mobile Telecom. discussion
- [R2-166735](#) System Information Enhancements for NR Sony discussion

[R2-166773](#) NR System information distribution - principles and example Ericsson discussion
[R2-167039](#) Distribution of System Information in NR Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-167040](#) NR System Information Open Issues Convida Wireless discussion
 Above 8 Tdocs not treated

Withdrawn:

[R2-166106](#) Broadcasting other SI while SI updating in NR Spreadtrum Communications discussion
[R2-166234](#) Paging and location tracking in the new RAN controlled state Nokia, Alcatel-Lucent Shanghai Bell discussion

9.2.2.3 LTE-NR tight interworking specific aspects

Including transport for the control plane (e.g. via LTE, NR or both), transparency to LTE, ciphering/integrity, UE capability coordination, etc.

Including output from email discussion [95#30][NR] Capability coordination for NR and LTE (Qualcomm)

RRC capability/configuration coordination

[R2-167065](#) Report of e-mail discussion [95#30] Capability coordination for NR and LTE Qualcomm Incorporated discussion result of email discussion [95#30] Rel-14 FS_NR_newRAT

P2

- Nokia think it better to discuss interworking and keep the standalone case separate for now. We should focus on the capabilities relevant to the tight interworking concept.
- Ericsson wonder if the basic NR solution should be discussed first. Huawei have the same view. Intel think the proposal is reasonable and we should have a common framework for both cases. Samsung support the view from Ericsson and Huawei.
- Qualcomm think for interworking we need to know how capability works in NR.

P3

- Intel think it if important to study update without attach/detach.

Agreements

- 1: RAN2 shall consider the LTE/NR tight interworking (with LTE eNB, NR gNB or eLTE eNB as a master node) for the coordination of capabilities.
- 2: We should aim to minimum the differences between the NR capability reporting across the LTE/NR tight interworking cases (NR gNB as a master node) and the standalone NR gNB case.
- 3: At least some band combinations across RATs should be coordinated across the master and the secondary nodes.
- 4: Layer 2 buffer capabilities should be coordinated across the RATs should be coordinated across the master and the secondary nodes.
- 5: RAN2 aim for a solution where the master node and secondary node are not required to comprehend each others UE configuration.

[R2-166243](#) On UE capability and network node coordination aspects in LTE-NR tight interworking Nokia, Alcatel-Lucent Shanghai Bell discussion

Agreements:

- 1: Agree the following principle: the master node and the secondary node only need to use own RAT UE capabilities (which will include some other RAT capabilities relating to the interworking). At least for the initial configuration of interworking case these are provided on the master node RAT or from core network
- 2: Allow gNB to format NR RRC PDUs for the UE configuration.

[R2-166779](#) UE capability coordination for tight interworking Ericsson discussion
[R2-166660](#) UE capability coordination in case of IRAT DC Samsung Telecommunications discussion
[R2-166891](#) LTE and NR configuration interaction for tight interworking Intel Corporation discussion
[R2-166098](#) UE capability coordination for LTE and NR interworking CATT discussion

- [R2-166349](#) Consideration on the capability coordination in LTE NR tight interworking ZTE, ZTE Microelectronics discussion
 - [R2-166520](#) UE capability coordination in LTE-NR tight interworking Huawei, HiSilicon discussion
 - [R2-167049](#) NR capability fetch for tight interworking scenario LG Electronics Inc. discussion
 - [R2-167068](#) Considerations on UE capability reporting Qualcomm Incorporated discussion
 - [R2-167109](#) UE Capability and Radio Configuration Coordination for NR-LTE tight interworking NTT DOCOMO INC. discussion
- Above 9 Tdocs not treated

Configuration message transmission

- [R2-166340](#) Consideration on the transmission of NR RRC Message in LTE/NR tight interworking ZTE, ZTE Microelectronics discussion
 - [R2-166775](#) RRC configuration in LTE-NR tight interworking Ericsson discussion
 - [R2-166896](#) Discussion on NR SeNB configuration Intel Corporation discussion
 - [R2-166519](#) Control plane aspects for LTE-NR tight interworking Huawei, HiSilicon discussion
 - [R2-166089](#) Discussion on RRC Architecture for LTE-NR Tight Interworking CATT discussion
 - [R2-166856](#) Control Plane Functions and transport mechanism for Interworking between NR and LTE InterDigital Communications discussion
 - [R2-167144](#) RRC entity in LTE-NR tight interworking NEC Corporation discussion
- Above 7 Tdocs not treated

RRC diversity

- [R2-166090](#) Discussion on RRC Diversity for LTE-NR Tight Interworking CATT discussion
 - [R2-166776](#) RRC diversity Ericsson discussion
 - [R2-166494](#) RRC message related issues for LTE-NR tight interworking ITRI discussion
 - [R2-166615](#) Discussion on Control plane aspects for LTE-NR tight interworking KT Corporation discussion
- Above 4 Tdocs not treated

RRM

- [R2-166661](#) Use of RRM measurements in IRAT DC Samsung Telecommunications discussion
 - [R2-166777](#) RRM and related control plane aspects for LTE-NR tight-interworking Ericsson discussion
- Above 2 Tdocs not treated

Other

- [R2-166516](#) Management of secondary node for LTE-NR tight interworking Huawei, HiSilicon discussion
 - [R2-166099](#) CP procedures for LTE and NR interworking CATT discussion
 - [R2-166105](#) Principles for LTE-NR Tight Interworking in CU/DU Architecture Beijing Xiaomi Mobile Software discussion
 - [R2-166352](#) Clarification on the scenarios of LTE/NR tight interworking with NR as master ZTE, ZTE Microelectronics discussion
 - [R2-166738](#) Discussion on Multi-connectivity Samsung R&D Institute UK discussion
 - [R2-166739](#) SCG (split) bearer and SCG change in tight interworking Sony discussion
- Above 6 Tdocs not treated

Withdrawn:

- [R2-166097](#) Principles for LTE-NR Tight Interworking in CU/DU Architecture Beijing Xiaomi Mobile Software discussion
- [R2-166235](#) Discussion on Connectionless Nokia, Alcatel-Lucent Shanghai Bell discussion

R2-166096 Principles for LTE-NR Tight Interworking in CU/DU Architecture Beijing Xiaomi Mobile
Software discussion Late
withdrawn by MCC after the meeting

9.2.2.4 Other

Other aspects may include the initial access, security (although little discussion on security may be possible until we have more information from SA3), etc

Security

[R2-166909](#) Security consideration for NR Huawei, HiSilicon discussion Late
[R2-166164](#) Security Handling for UP in NR Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166781](#) Security in NREricsson discussion
[R2-166886](#) Routing restriction and security for aggregation within NR Intel Corporation discussion
[R2-166780](#) Draft LS to SA3 about securityEricsson LS out
[R2-166165](#) DRAFT LS on Security for NR Nokia LS out
Above 4 Tdocs not treated

Access control

[R2-166359](#) Barring mechanism for NR Samsung Research Americadiscussion
[R2-166810](#) Access control in NRHuawei, HiSilicon discussion
[R2-166957](#) Access control for NR Ericsson discussion
[R2-166814](#) QoS-aware initial access Huawei, HiSilicon discussion
[R2-167022](#) Connection Establishment and Access Control for Standalone NRLG Electronics Inc.
discussion Late
Above 5 Tdocs not treated

Paging/DRX

[R2-166070](#) Paging in NR – Beamforming Aspects Samsung Electronics Co., Ltd discussion
[R2-166244](#) Paging in NR at HF operation Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166882](#) DRX operation in NR for idle and lightly connected mode Intel Corporation discussion
Above 3 Tdocs not treated

UE capabilities

[R2-166782](#) UE capability principle and signalling Ericsson discussion
[R2-166890](#) UE capability signaling framework for NR Intel Corporation discussion
Above 2 Tdocs not treated

Initial access

[R2-166855](#) System Access and Support for Different Numerologies InterDigital Communications
discussion
[R2-166652](#) Initial access to support multiple numerologies in NR Samsungdiscussion
[R2-166934](#) Connection Establishment in Multiple Numerology Environment Samsungdiscussion
[R2-166783](#) Basic access configuration acquisition principles for NR Ericsson discussion
Above 4 Tdocs not treated

SRBs

- [R2-166204](#) RRC Architecture and its Signaling Transmission Huawei, HiSilicon discussion
 - [R2-166245](#) NR PDCP control plane protocol stack considerations Nokia, Alcatel-Lucent Shanghai Bell discussion
 - [R2-166529](#) SRB transmission on split bearer LG Electronics Inc. discussion
- Above 3 Tdocs not treated

Other

- [R2-166069](#) SFN based Broadcast TX at Higher Frequencies Samsung Electronics Co., Ltd discussion
 - [R2-166121](#) RRC for standalone NR CATT discussion
 - [R2-166205](#) RRC Support of Multiple Numerologies Huawei, HiSilicon discussion
 - [R2-166341](#) Consideration on the eLTE ZTE, ZTE Microelectronics discussion
 - [R2-166514](#) Necessary RRC functions for NR and evolved LTE Huawei, HiSilicon discussion
 - [R2-166677](#) NR RRC methodology Ericsson discussion
 - [R2-166827](#) RRC specification evolution Ericsson discussion
 - [R2-166911](#) Low frequency assisted high frequency operation Huawei, HiSilicon discussion Late
 - [R2-166959](#) LTE and NR migration paths Ericsson discussion
 - [R2-166994](#) Consideration on control plane latency Huawei, HiSilicon discussion
- Above 10 Tdocs not treated

9.2.3 Other architectural aspects

May include other protocol architecture aspects that don't fit with the agenda items above. If there is an appropriate agenda item above, please use it.

NR-NR multiconnectivity

- [R2-166893](#) Control plane coordination for intra-NR DC Intel Corporation discussion
 - [R2-166246](#) Control Plane architecture for NR-NR multi-connectivity Nokia, Alcatel-Lucent Shanghai Bell discussion
 - [R2-167044](#) Intra-frequency multi-connectivity in standalone NR Nokia, Alcatel-Lucent Shanghai Bell discussion
 - [R2-167046](#) Upper layer aggregation for NR-NR multi-connectivity Nokia, Alcatel-Lucent Shanghai Bell discussion
- Above 4 Tdocs not treated

Other

- [R2-166081](#) Framework for leveraging an ultra-wideband spectrum NTT DOCOMO, INC. discussion
 - [R2-166071](#) Forward Compatibility Design for NR Integrated Access and Backhaul AT&T discussion
 - [R2-166620](#) Requirements on Future Railway Mobile Communication ZTE Corporation, China Academy of Railway Sciences (CARS), CATR, CMCC, China Telecom, China Unicom, CATT discussion
 - [R2-166537](#) Discussion on Ultra Reliable Low Latency Communications considering mobility Samsung R&D Institute UK discussion
 - [R2-166513](#) Architectures and protocols of evolved LTE connecting to NG-Core Huawei, HiSilicon discussion
 - [R2-166740](#) UE capability in NR RRC connection request Sony discussion
 - [R2-166887](#) Characterizing Impact of Blockage on End to End Performance of High Frequency NR Intel Corporation discussion
 - [R2-167042](#) Tight interworking of evolved LTE and NR Nokia, Alcatel-Lucent Shanghai Bell discussion
 - [R2-167115](#) Power Saving Consideration for Directional NR National Taiwan University discussion
- Above 9 Tdocs not treated

9.3 Mobility

9.3.1 Intra NR RAT

9.3.1.1 Mobility with RRC involvement

Including study of 'cell' level network controlled mobility, further discussion of cell definition, measurements for 'cell' level mobility, use of UL measurements, etc

Cell definition

[R2-167285](#) Summary of RAN2#95bis offline discussions on NR Cell definition and relation to beams in Connected mode Ericsson

Agreements for DL-based mobility in RRC_CONNECTED mode (optimized for data transmission, at least for network-controlled mobility) mobility with RRC involvement, concerning beams and the relation to the NR cell definition:

1. UE at least measures one or more individual beams and gNB should have mechanisms to consider those beams to perform HO. Note: This is necessary at least to trigger inter-gNB handovers and to optimize HO ping-pongs / HO failures.
 - FFS: whether UE report individual and/or combined quality of multiple beams
2. UE should be able to distinguish between the beams from its serving cell and beams from non-serving cells for RRM measurements in active mobility. UE should be able to determine if a beam is from its serving cell.
 - FFS whether serving/non serving cell may be termed 'serving/non serving set of beam)
 - FFS: whether the UE is informed via dedicated signalling or implicitly detected by the UE based on some broadcast signals.
 - FFS how the cell in connected relates to the cell in idle
3. Study how to derive a cell quality based on measurements from individual beams
4. In connected mode, intra-cell mobility can be handled by mobility without RRC involvement.
 - FFS whether there may be cases that do require RRC involvement.
- 5 UE should be able to identify a beam. FFS how beams are identified (to be defined by RAN1)

Agreements for IDLE

- 1 In IDLE mode, UE performs cell selection and reselection on NR Cells.
- 2 Study how to derive a cell quality based on measurements.

=> Draft LS to RAN1 in [R2-167178](#) to inform them of our agreements. May also ask a specific question on e.g. detection of synchronization and reference signals supporting idle mode operation (e.g. broadcasted NR cell ID) by connected mode UEs using high gain beamforming). Detail of question to be progressed offline. (Ericsson)

[R2-167178](#) Draft LS to RAN1 on RAN2 agreements on NR Cell definition and relation to beams in Connected mode (to: RAN1; cc: -; contact: Ericsson) Ericsson LS out Rel-14

FS_NR_newRAT

=> CORRECT WG in the next meetings

=> Add missing agreement

=> Change question to " - What are the RAN1 assumptions on whether the signals (e.g. reference and/or synchronisation signals) supporting idle or connected mode operations are transmitted in the same manner or not such as in terms of beamforming configuration (e.g. single beam, multi-beam)?"

=> Approved in [R2-167313](#)

[R2-166151](#) Mobility in NR CONNECTED-ACTIVE Samsung R&D Institute UK discussion
[R2-166876](#) Definition of NR Cell Intel Corporation discussion
[R2-166924](#) Signals for idle mode operation and connected mode mobility Ericsson discussion
[R2-166925](#) Identifiers for idle mode signals 'xSS' and connected mode signals 'RS' Ericsson discussion
[R2-167072](#) Cell identity concerning UE and non-UE specific RS in NR CMCC discussion
[R2-166999](#) RRC based mobility Huawei, HiSilicon discussion
[R2-167001](#) Cell definition Huawei, HiSilicon discussion
[R2-166103](#) Further consideration on NR 'cell' MediaTek Inc. discussion
[R2-166345](#) Consideration on the cell concept in NR ZTE, ZTE Microelectronics discussion
[R2-166362](#) Cell Identification in NR Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166166](#) Cell Definition and Mobility in NR Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-167043](#) RRC based Mobility Management in NR Convida Wireless discussion
 Above 12 Tdocs not treated

RRM/DL Measurements

[R2-166101](#) Evaluation of beam-based RRM Measurement Samsung Electronics Co., Ltd discussion
 => Revised in [R2-167157](#)
[R2-167157](#) Evaluation of beam-based RRM Measurement Samsung Electronics Co., Ltd discussion

- DOCOMO ask if this is applicable also in idle. Samsung propose only for connected mode but idle needs more discussion whether the UE is aware of the beams.
- MediaTek has similar results and support the proposal. But we can't yet to conclude how to combine.
- Intel also have similar observations and support the proposal.
- Huawei think this only considers ping pong rate and doesn't consider handover success/failure rate. Ericsson agree and think the network should be able to decide whether it is a single or multiple beam.
- MediaTek explain their analysis that covered handover failure/success as well and the rate was not affected by use of one or more beams.

Agreement

1 For connected mode, cell level signal quality for RRM measurement can be derived from multiple beams, if multiple beams can be detected (this does not preclude RRM measurement made on a single beam)
 FFS how to combine beam measurements to a cell level single quality

[R2-166923](#) RRM measurements and mobility control in RRC CONNECTED Ericsson discussion
[R2-166667](#) Frequency domain resources for NR measurements NTT DOCOMO, INC. discussion
 Moved from 9.2.2.3 to 9.3.1.1

[R2-166092](#) Downlink Measurements for NR Mobility MediaTek Inc. discussion
[R2-166337](#) Consideration on the Measurement for NR ZTE, ZTE Microelectronics discussion
[R2-166468](#) RRM Measurement for Cell Level Mobility Samsung Electronics discussion
[R2-166586](#) Consideration on beamforming for cell level mobility ASUSTEK COMPUTER (SHANGHAI) discussion
[R2-166803](#) Inter-Virtual Cell Handover in Two-Layer NR Networks ASTRI, TCL Communication Ltd. discussion
[R2-166812](#) Measurement and mobility in high frequency Huawei, HiSilicon discussion
 Above 8 Tdocs not treated

Handover mechanisms

[R2-166338](#) Consideration on the intra-NR mobility ZTE, ZTE Microelectronics discussion
[R2-166875](#) Mobility type support in NR Intel Corporation discussion
[R2-166784](#) How to realize zero ms UP interruption in NR Ericsson discussion
[R2-166124](#) Connected mode mobility in NR CATT discussion
[R2-166496](#) Context awareness optimization for high speed mobility ITRI discussion
[R2-166825](#) Possible Optimization for CA in NR Ericsson discussion

[R2-166928](#) Robust HO via early HO command Ericsson discussion
[R2-167058](#) RRC procedures for network based and UE based mobility Qualcomm Incorporated discussion
 Above 8 Tdocs not treated

UL measurements

[R2-167286](#) Proposed Way Forward on Uplink-Based Mobility Huawei, HiSilicon, Qualcomm Incorporated, Sony

Agreement
 1: Concerning RRC driven UL-based connected mode mobility:

- For connected active state mobility, DL-based handover is supported, and UL based mobility can continue to be studied.
- For connected inactive state, DL-based reselection is supported, and UL-based mobility can also be studied
- Benefits of UL based mobility, compared to DL based mobility, should be studied with performance analysis.

[R2-167002](#) UL Measurements in active state Huawei, HiSilicon discussion
[R2-166889](#) Analysis of UL measurement vs DL measurement for connected state Intel Corporation discussion
[R2-166094](#) Uplink Measurements for NR Mobility MediaTek Inc. discussion
[R2-166743](#) Mobility Using Uplink Measurements. Sony discussion
 Above 4 Tdocs not treated

Other

[R2-166100](#) High Frequency NR RRC Mobility Samsung Electronics Co., Ltd discussion
[R2-166093](#) Performance Evaluation for NR Mobility with Beamforming MediaTek Inc. discussion
[R2-166104](#) Beam sweeping and impact to mobility MediaTek Inc. discussion
[R2-166150](#) Intra-5G Mobility related requirements Samsung R&D Institute UK discussion
[R2-166389](#) Discussion of TRP and DU Mobility in NR Samsung Electronics Co., Ltd discussion
[R2-166584](#) Hybrid controlled Mobility for NR ETRI discussion
[R2-166804](#) Measurement Configuration Reduction for Intra-NR Mobility ASTRI, TCL Communication Ltd. discussion
[R2-166926](#) Neighbour relation establishment in NR Ericsson discussion
[R2-166927](#) Inter-node ping-pong avoidance in state transitions Ericsson discussion
[R2-167004](#) Discussion on mobility for URLLC Huawei, HiSilicon discussion
[R2-167052](#) Partial UE-centric Mobility in NR-LTE interworking scenario LG Electronics Inc. discussion
[R2-167073](#) Discussion on intra-NR mobility CMCC discussion
[R2-167118](#) Vehicular Mobility Management in NR National Taiwan University discussion
[R2-167137](#) Beam-based aspects for New Radio INTERDIGITAL COMMUNICATIONS discussion
 Above 14 Tdocs not treated

Withdrawn:

[R2-166742](#) Mobility Using Uplink Measurements. Sony discussion
[R2-166908](#) Benefit of UL tracking Huawei, HiSilicon discussion Late

9.3.1.2 Mobility without RRC involvement

Including study of RAN2 aspects of 'beam' level network controlled mobility, terminology, beam management, measurements for 'beam' level mobility, etc. May need to be treated with lower priority until further progress has been made by RAN1.

- [R2-166391](#) DL Beam Management in the Multi-Beam based NR system Samsung Electronics Co., Ltd discussion
- [R2-166167](#) Beam Management in NR Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166168](#) UE and Network Based Beam Management in NR Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166247](#) Implications of High Frequency Bands on Mobility Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166390](#) Discussion on Beam Terminology for Beam based Mobility Samsung Electronics Co., Ltd discussion
- [R2-166588](#) Beam management in NR ASUSTEK COMPUTER (SHANGHAI) discussion
- [R2-166769](#) Intra-Cell and Inter-Cell Mobility in NR NEC Telecom MODUS Ltd. discussion
- [R2-167024](#) Management of Beam, TRP and Cell LG Electronics Inc. discussion Late
Above 8 Tdocs not treated

9.3.1.3 UE controlled mobility

Including study of UE controlled mobility (e.g. cell reselection) for idle mode and the RAN controlled 'state'

Cell selection/reselection

- [R2-166664](#) Cell selection and reselection in NR NTT DOCOMO, INC. discussion
Moved from 9.2.2.4 to 9.3.1.3
- [R2-166107](#) IDLE mode operation in NR MediaTek Inc. discussion
- [R2-166666](#) Text Proposal to TR 38.804 on cell selection and reselection in NR NTT DOCOMO, INC. pCR
Moved from 9.2.2.4 to 9.3.1.3
- [R2-166388](#) Discussion of NR IDLE mode operation Samsung Electronics Co., Ltd discussion
- [R2-167005](#) Idle mode support in NR Huawei, HiSilicon discussion
- [R2-166125](#) NR cell for idle state CATT discussion
- [R2-166350](#) Consideration on the UE controlled mobility ZTE, ZTE Microelectronics discussion
- [R2-166879](#) Mobility and paging reception for idle Intel Corporation discussion
- [R2-167026](#) UE controlled mobility in new state LG Electronics Inc. discussion Late
- [R2-167116](#) Multi-Connectivity Support for mmWave NR National Taiwan University discussion
- [R2-166067](#) Service Specific Cell (Re-) Selection in NR Samsung Electronics Co., Ltd discussion
Above 11 Tdocs not treated

Moved from 9.2.2.4 to 9.3.1.3

UL tracking

- [R2-167066](#) NR uplink measurement based mobility in the inactive state Qualcomm Incorporated discussion
 - MediaTek think there is a trade-off between the beacon space and the zone size. In a small zone the beacon can be shorter but it needs more frequent reconfiguration. Qualcomm explain the analysis is within a zone, but assume the zone is very large.
 - Nokia ask if in a large zone there will be a large number of unique IDs, and how many are needed. Qualcomm think that UL mobility would be configured for all UEs, only some UEs would be in this state.
 - Intel ask about the risk of collision if there are a large number of UEs. Qualcomm think that in some cases UL is better and others DL is better and the network should select the best approach. E.g. MTC UEs that are stationary could use DL.
 - Huawei think that an area can support a few million UEs depending on sequence length.
 - IDC ask how the UE knows that it leaves its zone. Qualcomm assume that it will monitor its sync signal that will carry the zone ID.

- Intel ask if there is any inter-frequency mobility needed. Qualcomm understand it is intra-frequency only as it is used on the capacity layer. Qualcomm assume that even for the DL measurement case the operator would deploy sufficient cells on the same carrier.
 - DOCOMO wonder why the high speed scenario is the case where the power consumption is better. Qualcomm explain it is due to UE loosing the call and doing cell search.
- => Noted

- [R2-166987](#) Benefit of UL beacon tracking for "power saving state" Huawei, HiSilicon, Telefonica discussion
- Ericsson ask if it intended only for lower frequencies or also for higher frequencies and if so how would it work for beam sweeping. Huawei think it is difficult to use at high frequencies and assume it would mainly be used on the low frequency layer. Qualcomm think it can be use on high frequency layer.
 - LG wonder if there would be benefit if the UE could receive DL data in inactive even for the DL tracking case. Huawei think the gain comes from the network having enough information about the UL transmission to initiate DL transmission in an optimal way. Qualcomm agree that DL case can be optimised but the disadvantage if that the eNB doesn't know the UEs location and hence the DL notification must be broadcast..
 - Intel ask if the network needs to configure a large area of TPs to detect the UE. Qualcomm assume that the UL transmission will use RA resource so all TP will be able to detect.
 - OPPO would like to understand if the UL transmission is on dedicated or common resource.
 - Ericsson think this work should also consider the need for long DTX times on the network side.
- => Noted.

Moved from 9.3.1.1 to 9.3.1.3

- [R2-166291](#) UL Measurement based Inactive Mode Mobility Aspects Samsung Electronics Co., Ltd discussion

- [R2-166877](#) Analysis of UL measurement vs DL measurement for inactive connected state Intel Corporation discussion

- [R2-166907](#) Energy conserved operation evaluation Huawei, HiSilicon discussion Late#

Moved from 9.3.1.1 to 9.3.1.3

- [R2-166899](#) Power consumption aspects for UP-based and DL-based measurements Intel Corporation discussion
Above 4 Tdocs not treated

Moved from 9.3.1 to 9.3.1.3

Withdrawn:

- [R2-166930](#) IDLE mode operation and initial access Ericsson discussion Late
Withdrawn by MCC after the meeting

9.3.1.4 Other

Including e.g. RLM,RLF, etc

RLM/RLF

- [R2-166108](#) RLF and RLM in NR MediaTek Inc. discussion

- [R2-166533](#) Radio Link Failure detection in High Frequency NR systems Samsung R&D Institute UK discussion

- [R2-166878](#) Considerations on radio link failure Intel Corporation discussion

- [R2-167003](#) RLF for NR Huawei, HiSilicon discussion

URLLC impacts

- [R2-166992](#) RRC connection reliability of URLLC Huawei, HiSilicon discussion

- [R2-166958](#) Consideration on mobility for URLLC and eV2x Ericsson discussion

- [R2-166785](#) Faster measurements and signaling for Ultra reliable mobility Ericsson discussion

[R2-167027](#) Support of reliable RRC connection LG Electronics Inc. discussion Late
Above 8 Tdocs not treated

Other

[R2-167064](#) UE battery life impact for NR cell DTX for network energy efficiency Qualcomm Incorporated
discussion
Not treated

9.3.2 Inter-RAT

Including consideration of mobility between NR and LTE, and potentially other RATs.

Inter-RAT handover

[R2-166778](#) Scenarios for inter-RAT inter-working Ericsson discussion
Moved from 9.2.2.3 to 9.3.2

[R2-167006](#) Discussion on LTE-NR handover Huawei, HiSilicon discussion
[R2-166787](#) UE context handling during inter RAT handover Ericsson discussion
[R2-166339](#) Consideration on the inter-RAT mobility ZTE, ZTE Microelectronics discussion
[R2-166745](#) Inter-RAT Inter-MeNB handover in LTE-NR tight interworking Sony discussion
[R2-166929](#) IRAT measurements Ericsson discussion
Above 6 Tdocs not treated

Dual radio

[R2-166357](#) Further considerations on TDM Operation across Different RATs Samsung Research
America discussion
[R2-167057](#) Concurrent RAT operation with RX sharing Qualcomm Incorporated discussion
[R2-167059](#) TX/RX Sharing Concurrent RAT operation with NR Qualcomm Incorporated discussion
[R2-166829](#) Simultaneous RX-TX in LTE and NR Ericsson discussion
Above 4 Tdocs not treated

Dual attach

[R2-166894](#) Inter-RAT mobility between NR and legacy technologies Intel Corporation discussion
Not treated
Moved from 9.2.3 to 9.3.2

Inter-RAT for inactive UE

[R2-167007](#) Inactive UE inter-RAT mobility Huawei, HiSilicon discussion
[R2-166786](#) Mobility between LTE and NR for inactive UEs Ericsson discussion
Above 2 Tdocs not treated

9.4 Other

Other aspects may include e.g. the impacts of slicing (although little discussion on slicing may be possible until we have more information from SA2), etc

Slicing

[R2-166344](#) Consideration on the impact of NW slicing on RAN ZTE, ZTE Microelectronics discussion
[R2-166206](#) Key Principles for Support of Network Slicing in RAN Huawei, HiSilicon discussion
[R2-166207](#) RRC Support of Network Slicing Huawei, HiSilicon discussion
[R2-166126](#) Consideration on RAN slicing support CATT discussion
[R2-166170](#) RAN Slicing Overview Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166171](#) Radio Resource Isolation Requirements for Slicing Nokia, Alcatel-Lucent Shanghai Bell
discussion

[R2-166172](#) RACH Isolation for Slices Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166208](#) RAN Support of Network Slice Discovery Huawei, HiSilicon discussion
[R2-166917](#) End-to-End Network Slicing: RAN Requirements Samsungdiscussion
[R2-166931](#) Radio interface implications of network slicing Ericsson discussion
 Above 10 Tdocs not treated

Other

[R2-166144](#) WLAN-NR deployment and architecture Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166169](#) Scheduling Framework Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166469](#) Enhancement of LCP for Supporting Multiple Numerologies in NR Samsung Electronics discussion
[R2-166501](#) Co-existence scenarios for LTE and NR Samsung India discussion
[R2-166662](#) Evolution of specification methodology for NR RRC Samsung Telecommunications discussion
[R2-166788](#) Long network DTX in NR Ericsson discussion
[R2-166819](#) Future compatibility for operating NR in unlicensed spectrum Ericsson discussion
[R2-166910](#) General aspects for NR HF cell Huawei, HiSilicon discussion Late
[R2-166912](#) UE power saving mechanism in High Frequency Huawei, HiSilicon discussion Late
 Above 9 Tdocs not treated

10 UTRA Release 11 and earlier releases

[R2-166365](#) Discussion on UE measurement capability of E-UTRAN Huawei, HiSilicon discussion
 => Agree that Interpretation 1 is the correct interpretation:
 If the UE includes an UE-RadioAccessCapabBandFDD3 with omitting both IEs, it means that the UE shall support MeasurementCapabilityExt3 for all supported UTRA bands. The UE is not allowed to include a different MeasurementCapabilityExt3 for a specific UTRA band. In other words, if the UE supports more than one MeasurementCapabilityExt3, it shall not include an UE-RadioAccessCapabBandFDD3 with omitting both IEs.

11 UTRA Release 12

(EDCH_enh-Core, leading WG: RAN2, REL-12, started: Dec. 13, closed: Dec. 14, WID: [RP-140127](#))

(UTRA_SIBenh-Core, leading WG: RAN2, started: Dec. 13, closed: Sep 14, WID: [RP-140131](#))

(UTRA_hetnet_enh-Core, leading WG: RAN1, started: Dec.13, closed: Sep. 14, [RP-140463](#))

(UTRA_DCHenh-Core, leading WG: RAN1, started: Sept.13, closed: Sep. 14, [RP-131357](#))

(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](#))

Input to any other Rel-12 WI/SI not explicitly listed above.

(UTRA_hetnet_mob-Core, leading WG: RAN2, Started: Dec.13, closed: June 14, WID: [RP-140463](#))

(LCS_BDS-UTRA-Core, leading WG: RAN2, started: March 13, closed: Dec.13, WID: [RP-130416](#))

(EHNB_enh3-Core, leading WG: RAN3, REL-12, started: Sep.12, closed: Dec 13, WID: [RP-130741](#))

(LCR_TDD_HSPA_sign_enh-Core, leading WG: RAN1, started: Dec 12, closed: Dec 13, WID: [RP-121984](#))

(LTE_UTRA_SDL_BandL-Core, leading WG: RAN4, started: June 13, closed: June 14, WID: [RP-140092](#))

Including corrections for UTRA functionality introduced as TEI12.

- [R2-166901](#) Clarification on signalling for DCH Enhancements Ericsson draftCR 25.331 12.11.0 - -
F Rel-12 UTRA_DCHEnh-Core
- Samsung wonders why "IE "TFCS Explicit Configuration" mentioned. Ericsson explains that it is to differentiate between the case of new configuration and when the network tell the UE to continue.
 - Nokia Net indicates that the cover sheet should be updated to be aligned with the text
- => The CR is postponed.

12 UTRA Release 13

12.1 WI: L2/L3 Downlink enhancements for UMTS

(UTRA_EDL_L23-Core, leading WG: RAN2, started: June 15, closed: Dec. 15, WID: [RP-152184](#))

- [R2-166366](#) Correction on the stored retrievable configuration for CELL_FACHHuawei, HiSilicon draftCR 25.331 13.4.0- - F Rel-13 UTRA_EDL_L23-Core
- Ericsson thinks that the reason for change should be updated
 - Samsung thinks that the burden should not be on the UE. The network should know when it should provide this information and for configuration.

After comeback there is no consensus on the CR. However, the common understanding is that the UE does not store any IE's from System Information in the UE variable.

=> The CR is postponed.

- [R2-166367](#) Correction on the stored retrievable configuration for CELL_FACHHuawei, HiSilicon draftCR 25.331 14.0.0- - A Rel-14 UTRA_EDL_L23-Core

- [R2-166902](#) Clarifications for seamless transition to CELL_FACH state functionality Ericsson draftCR 25.331 13.4.0- - F Rel-13 RANimp-UplinkEnhState, UTRA_EDL_L23-Core
- Samsung thinks that we can add a magic sentence for the early releases
 - Samsung suggests that we also fix the 8.2.2.3 section. Ericsson will add and circulate.
- => Keep both WI codes and add magic sentence. CR will be updated into [R2-167172](#).

– check with RAN2 secretary and add the two additional changes suggested by Samsung.

- [R2-167172](#) Clarifications for seamless transition to CELL_FACH state functionality Ericsson draftCR 25.331 13.4.0- - F Rel-13 RANimp-UplinkEnhState, UTRA_EDL_L23-Core

=> The CR is in principle agreed.

12.2 WI: Power saving enhancements for UMTS

(UTRA_SDATA_POWSAV-Core, leading WG: RAN2, started: June 15, closed: Dec 15, WID: [RP-151998](#))

- [R2-166373](#) Correction on extended DRX in Idle mode Huawei, HiSilicon draftCR 25.331 13.4.0- - F Rel-13 UTRA_SDATA_POWSAV-Core

- Nokia thinks that it may be better to just refer to the subclause or clarify the stop condition
- Ericsson indicates that this section is informative so the cover sheet should be update.

=> Check the stop condition and only include conditions that fully stop the timer

=> No inter-operability issues

=> The CR is updated into [R2-167173](#)

- [R2-167173](#) Correction on extended DRX in Idle mode Huawei, HiSilicon draftCR 25.331 13.4.0- - F Rel-13 UTRA_SDATA_POWSAV-Core

- Nokia: The text for the Stop condition should say "When upper layers indicate T332 timer value is configured or no T332 timer value is received, see subclause 8.6.1.4"

=> The CR is revised in [R2-167174](#).

- [R2-167174](#) Correction on extended DRX in Idle mode Huawei, HiSilicon draftCR 25.331 13.4.0- - F Rel-13 UTRA_SDATA_POWSAV-Core

=> The CR is in principle agreed.

[R2-166374](#) Correction on extended DRX in Idle mode Huawei, HiSilicon draftCR 25.331 14.0.0- -
A Rel-14 UTRA_SDATA_POWSAV-Core
=> Not treated

12.3 WI: Support of EVS over UTRAN CS

(EVSoCS_UTRAN-Core; leading WG: RAN2, started: Dec. 14, closed: Dec 15, WID: [RP-142282](#))

No contributions received.

12.4 WI: Network-Assisted Interference Cancellation and Suppression for UMTS

(UTRA_NAICS-Core, Leading WG: RAN1, started: Sep. 15, closed: Dec. 2015, WID: [RP-151879](#))

No contributions received.

12.5 WI: Multiflow Enhancements for UTRA

(HSDPA_MFTX_enh-Core, leading WG: RAN2, started March 15, closed: Sep. 15, WID: [RP-150288](#))

No contributions received.

12.6 WI: HSPA Dual-Band UL carrier aggregation

(HSUPA_DB_MC-Core; leading WG: RAN4; REL-13; started: Dec. 14; closed: Dec. 15; WID: [RP-151852](#))

[R2-166371](#) Correction on dual band dual cell E-DCH capability Huawei, HiSilicon draftCR 25.306
13.1.0- - F Rel-13 HSUPA_DB_MC-Core
=> Update text to “If the UE support Dual Band Dual Cell E-DCH then the UE shall also support Dual Cell E-DCH transmission.” And update cover page.

=> The CR is revised in [R2-167160](#)

[R2-167160](#) Correction on dual band dual cell E-DCH capability Huawei, HiSilicon draftCR 25.306
13.1.0- - F
=> The CR is in principle agreed.

[R2-166372](#) Correction on dual band dual cell E-DCH capability Huawei, HiSilicon draftCR 25.306
14.0.0- - A Rel-14 HSUPA_DB_MC-Core
=> Not treated

12.7 WI: Application specific Congestion control

(ACDC-RAN-Core; leading WG: RAN2; REL-13; started: Mar. 15; closed: Dec. 15; WID: [RP-150512](#))

UMTS specific aspects of ACDC

No contributions received.

12.8 WI: Indoor Positioning enhancements for UTRA and LTE

(UTRA_LTE_iPos_enh-Core; leading WG: RAN2; REL-13; started: Sept. 15; closed: Dec. 15; WID: [RP-152251](#))

UMTS specific aspects of indoor positioning

No contributions received.

12.9 WI: Downlink TPC enhancements for UMTS

(UTRA_EDL_TPC-Core; leading WG: RAN1; REL-13; started: Sept. 15; closed: Dec. 15; WID: [RP-151880](#))

No contributions received.

12.10 WI: Dual Carrier HSUPA Enhancements for UTRAN CS

(DC_HSUPA_CS-Core; leading WG: RAN2; REL-13; started: Sept. 15; closed: Dec. 15; WID: [RP-151780](#))

No contributions received.

12.11 UTRA TEI13 enhancements

Small Technical Enhancements affecting UMTS Rel-13 that do not belong to any Rel-13 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!

[R2-166369](#) Correction on extension of frequency priorities Huawei, HiSilicon draftCR 25.331 13.4.0-
- F Rel-13 LTE_MC_load-Core

=> Update coverage to indicate that there is not inter-operability issues

=> The CR is principle agreed with the cover page changes above in [R2-167161](#)

[R2-166370](#) Correction on extension of frequency priorities Huawei, HiSilicon draftCR 25.331 14.0.0-
- A Rel-14 LTE_MC_load-Core

=> Not treated

[R2-166508](#) Rapporteur correction for 25.321 MAC specification Nokia draftCR 25.321 13.2.0- - D
Rel-13 TEI13

=> The CR in in principle agreed

[R2-166900](#) ASN.1 nesting level Ericsson discussion

=> RAN2 agrees to start using LTE approach to handling nonCriticalExtension for all future updates to RRC messages in TS 25.331. We will use this approach from Rel-14

[R2-166903](#) Breaking the ASN.1 nesting level in the Measurement Report message Ericsson draftCR
25.331 13.4.0- - F Rel-13 TEI13 Late

=> Withdrawn

Withdrawn:

[R2-166503](#) Rapporteur correction for 25.321 MAC specification Nokia CR 25.321 13.2.00818 - D
Rel-13 TEI13

13 UTRA Rel-14

13.1 WI: RRC optimization for UMTS

(UTRA_RRCoOpt-Core; leading WG: RAN2; REL-14; started: Dec. 15; closed: Sept. 16; WID: [RP-160287](#))

Time budget 0 TUs

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

13.1.1 Filtered UPH measurements;

No contributions received.

13.1.2 Simultaneous RAB setup and release

No contributions received.

13.1.3 Others

No contributions received.

13.2 WI: DTX/DRX enhancements in CELL_FACH

(FACH_DTXDRX-Core, leading WG: RAN2; REL-14; started: Dec. 15; target: Dec. 16; WID: [RP-160185](#))

Time budget 2 TUs

Including output from email discussion [95#44][UMTS/DTX DRX enh] Running CRs on HS-SCCH DRX (Qualcomm)

Incoming LS:

[R2-166032](#) LS on Updates on HS-SCCH DRx Feature in Cell FACH ([R1-168030](#); contact: Qualcomm)
 RAN1 LS in to: RAN2 Rel-14 FACH_DTXDRX-Core
 => Noted.

[R2-166454](#) Introduction of HS-SCCH DRx feature in enhanced Cell FACH Huawei, HiSilicon draftCR
 25.308 13.2.0- - B Rel-14 FACH_DTXDRX-Core
 ///: The statement “the UTRAN indicates a HS-SCCH DRX cycle length and a HS-SCCH RX burst length, in addition to the parameters for HS-DSCH DRX operation in CELL_FACH state” is a bit misleading. There is no new burst or cycle length.
 - QC: It is not an extension of the legacy DRX, but separate functionality. This has been clarified after the comments received during the mail discussion.
 - Samsung: Is this building on top of REL-8 or completely independent?
 - Samsung: The new longer eDRX coupled with the 2nd DRX cycle will lead to higher power gain?
 - Huawei: Which way should we go, build on top of legacy or ‘overwrite’ the legacy with new functionality. The current CR is simple.

We should check with RAN1 if they have seen better gain with REL-14 DRX over REL-11 two cycle DRX.

After check, HW and E/// indicated that in RAN1, the comparison is between R14 HS-SCCH DRX and R8 DRX, i.e. two level DRX was not compared.

///: would prefer two cycle DRX if both two cycle DRX and R14 HS-SCCH DRX are configured.

- QC: would prefer a simple way, i.e., R14 overright legacy DRX mechanism.
- Samsung: no strong view, but the cleanest way is to apply R14 HS-SCCH DRX on top of R8/R11 DRX mechanism; if to choose between the two above, seems E/// view is more attractive.
- HW: since in R11 DRX, the cycle length could be up to 5120 ms, in that sense, E///’s way would bring more gains.

///&QC: if we go for dedicated signalling, then it is up to network to configure R14 mechanism, if configured, UE just overrights the legacy one.

///: but we should follow the mechanism which we had for R11 & R8.

- HW: we could consider an indication from network.
 - QC: We have option of Dedicated signalling or System information. If we go for System - Information, then we can add an indication as proposed by Huawei to allow NW to
 - Indicate which DRX scheme the UE should prioritise.
 - Huawei: Dedicated signalling is perhaps cleaner. Also we should consider the impact SIB capacity.
 - Nokia: We see a benefit with Dedicated in that the NW can differentiate between the REL-14 UE’s
 - QC: We are fine with either option.
- => The CR is postponed

Agreement

1. The activation of the HS-SCCH DRX is done via dedicated signalling only (Radio Bearer Reconfiguration and Cell Update Confirm).

[R2-166455](#) Introduction of HS-SCCH DRx feature in enhanced Cell FACH Huawei, HiSilicon draftCR
 25.300 14.0.0- - B Rel-14 FACH_DTXDRX-Core
 - Nokia: Why we need this CR.
 - Huawei: After 25.300 was introduced, it was discussed to list all functionality in 25.300 and reference the 25.308/319.
 - The CR is taken as a baseline, pending the check with RAN1.

- After comeback, and given the agreement to use Dedicated signalling to activate the feature, the text will be updated to add description that dedicated signalling is used for activation.
- => The CR is postponed.

[R2-166984](#) Introduction of HS-SCCH DRX feature in enhanced Cell FACH Qualcomm Incorporated
draftCR 25.304 13.0.0- - B Rel-14 FACH_DTXDRX-Core
///: Is this CR needed, the text already covers HS-DSCH discontinuous reception.
- QC: We are OK with not having the CR of other companies think not necessary.
=> The CR is not pursued.

[R2-166945](#) Introduction of HS-SCCH DRX feature in enhanced Cell FACH Qualcomm Incorporated
draftCR 25.306 14.0.0- - B result of email discussion [95#44] Rel-14
FACH_DTXDRX-Core
///: The reference to 25.304 can be removed on the cover page.
///: Change “then the UE shall also support HS-DSCH DRX operation in CELL_FACH” to “, it shall also support HS-DSCH DRX operation in CELL_FACH”
- QC: There are examples also where the proposed text is used.
///: OK, but just add the “,” in the sentence
///: Also update the coversheet to add the missing underscore in “CELL FACH”
=> The CR is revised in [R2-167162](#)

[R2-167162](#) Introduction of HS-SCCH DRX feature in enhanced Cell FACH Qualcomm Incorporated
draftCR 25.306 14.0.0- - B result of email discussion [95#44] Rel-14
FACH_DTXDRX-Core
///: editorials in cover sheet, such as CR no., other specifications. It should be better to have an email discussion to make progress.
=> The CR is postponed.

[R2-166932](#) Introduction of HS-SCCH DRX feature in enhanced Cell FACH Qualcomm Incorporated
draftCR 25.331 14.0.0- - B result of email discussion [95#44] Rel-14
FACH_DTXDRX-Core
- QC: Samsung indicated that during that the mail discussion they had some concern with the multicast approach of activating the functionality via SIB.
- Samsung: This is now somewhat dependent on the clarification we will get from RAN1, so we can wait until that feedback.
- Samsung: Why not reuse Subframe_number in the formulae in 8.5.xy (as in REL-11)
- Samsung: Is there a need to add new capability in CELL_UPDATE. There are many REL-11 FE FACH capabilities which we did not add in message?
- QC: It is in case the UE reselects cell, allows NW to determine which DRX scheme the UE will apply if the NW broadcasts 2 (or more) in System information.
- Chair: We should check if we missed anything with the FE FACH features in REL-11. Also we should check URA_UPDATE message also.
=> The CR is revised in [R2-167163](#)

[R2-167163](#) Introduction of HS-SCCH DRX feature in enhanced Cell FACH Qualcomm Incorporated
draftCR 25.331 14.0.0- - B result of email discussion [95#44] Rel-14
FACH_DTXDRX-Core
=> The CR is postponed.
=> Then, withdrawn by MCC after the meeting due to non availability of Tdoc.
☒ **[95bis#32][UMTS/DTX/DRX Enhancements] – Qualcomm**
- **to progress the CR's to 20.300, 25.306, 25.308 and 25.331.**
- **Deadline: one week before next meeting**

Withdrawn:

[R2-166363](#) Introduction of HS-SCCH DRX feature in enhanced Cell FACH Qualcomm Incorporated CR
25.331 14.0.05887 - B Rel-14 FACH_DTXDRX-Core

[R2-166364](#) Introduction of HS-SCCH DRX feature in enhanced Cell FACH Qualcomm Incorporated CR
25.308 13.2.00176 - B Rel-14 FACH_DTXDRX-Core

R2-166368 Introduction of HS-SCCH DRx feature in enhanced Cell Fach Qualcomm Incorporated CR
25.304 13.0.00393 - B Rel-14 FACH_DTXDRX-Core

13.3 WI: Multi-Carrier Enhancements for UMTS

(UTRA_MCe-Core, leading WG: RAN2; REL-14; started: Jun. 16; target: Dec 16; SID: [RP-161259](#))

Time budget 2 TUs

Incoming LS:

[R2-166004](#) LS to RAN2/3 on RAN1 progress on MC enhancements ([R1-168037](#); contact: Huawei) RAN1
LS in to: RAN2 Rel-14 UTRA_Mce-Core

- Nokia: Does power scaling refer to ETFC selection procedures.
 - Huawei: No it is separate.
 - Nokia: Agreement 2 is not within RAN1 responsibility.
 - Huawei: Companies in RAN1 thought it would be beneficial to have
 - Nokia: But at last RAN2 meeting we agreed that this was low priority, how do we proceed.
 - Nokia: We should first finish discussion on RRC configuration, then if we have time we can start discussion on TTI switching.
 - Huawei: We agree.
- => Noted.

[R2-166331](#) TTI switching for Multi-Carrier Enhancements Ericsson discussion

- Proposal 1: The MCI for TTI switching can be sent on any of the carriers. The scope of the MCI is primary carrier or secondary carrier or both.
 - Huawei: We are OK with this proposal.
- => Noted

[R2-166383](#) Analysis of enhanced TTI switching in MC enhancements Huawei, HiSilicon discussion

- Samsung: Given we have one more meeting remaining, we should be realistic about what we can get done for this topic. We also need to see how this TTI switching works with the new combinations, but also the legacy 2ms TTI & 2ms TTI case.
- Huawei: We have almost closed all open issues in RAN2 for the RRC configuration, so we can start to work on the TTI switching.

Agreements

1. The MCI for TTI switching can be sent on any of the carriers. The scope of the MCI is primary carrier or secondary carrier or both.
2. The pre-configured TTI configuration can be stored separately.
3. Introduce a new IE for pre-configured TTI information on secondary uplink frequency.

=> We will send LS to RAN1 to define the HS-SCCH order for 4 cases of enhanced TTI switching for MC enhancements

[R2-167164](#) LS to RAN1 on TTI switching for MC enhancements (contact: Huawei) LS out to: RAN1
Rel-14 UTRA_Mce-Core

⇒ This LS is revised into [R2-167170](#).

=> We will send LS to RAN3 to ask them to add the necessary IE's for TTI switching for MC enhancement combinations.

[R2-167165](#) LS to RAN3 on TTI switching for MC enhancements (contact: Huawei) LS out to: RAN3
Rel-14 UTRA_Mce-Core

⇒ This LS is merged to [R2-167170](#)

[R2-167170](#) LS on TTI switching for MC enhancements (contact: Huawei) LS out to: RAN1&RAN3
Rel-14 UTRA_Mce-Core

⇒ To update the first sentence to "TTI switching for MC enhancements was discussed, RAN2 will include this enhancement only if core functionality is completed"

⇒ With this change, the LS is approved in [R2-167171](#).

[R2-166332](#) Switching of primary carrier Ericsson discussion

- Proposal 1: Introduce a faster way of switching primary carrier.
- Huawei: This was discussed as part of the REL-12 Study Item and it was not agreed, so what has changed.
- ///: Now that it will be possible to have different TTI configurations on each carrier, this will be beneficial for change of primary carrier as it will be faster.
- Huawei: We have some interest, but not sure if we will have time for it along with RRC Configuration and TTI switching.
- ///: But this is related to the TTI switching.
- Nokia: This will require new HS-SCCH Order and MCI?
- ///: Yes
- Huawei: We would need to see more detail on the pre-configuration.
- => Noted.

[R2-166333](#)

RRC configuration of Multi-Carrier Enhancements Ericsson discussion

- Proposal 2: Discuss if the new configuration of a secondary carrier with different TTI is to be considered as a separate transport channel.
 - Samsung: It is always E-DCH as the transport channel. The Channel type will be the same, but there can be separate physical channel. Specified in 25.302?
- => Noted.

[R2-166382](#)

Analysis of RRC configuration impacts due to MC enhancements Huawei, HiSilicon discussion

- Huawei: In addition to the IE's below, E-DCH TTI length should also be considered.

///: We agree, we just differ on where it is proposed to signal it.

Agreements:

1. The following IE's are assumed to be needed (pending RAN1 discussion/agreement)

E-DPCCH/DPCCH power offset	MP		Integer (0..8)	Refer to quantization of the power offset in [28]	REL-14
Happy bit delay condition	MP		Enumerated (2ms, 10ms, 20ms, 50ms, 100ms, 200ms, 500ms, 1000ms)	To be used when determining the setting of the happy bit (see [15])	REL-14
E-TFC Boost Info	OP		E-TFC Boost Info 10.3.6.106	Absence of this IE means that boosting of E-DPCCH is disabled	REL-14
E-TFCI table index	MP		Integer (0..1)	Indicates which standardised E-TFCI TB size table shall be used. See Note 3.	REL-14
Reference E-TFCIs	MP	1 to 8		See [29]	REL-14
Maximum channelisation codes	MP		Enumerated (sf256, sf128, sf64, sf32, sf16, sf8, sf4, 2sf4, 2sf2, 2sf2and2sf4)		REL-14
Power Offset for Scheduling Info	MP		Integer (0..6)	Only used when no MACd PDUs are included in the same MAC-e or MAC-i PDU. Unit is in dB.	REL-14

2. In addition to the IE's above, E-DCH TTI length will also be signalled.
3. These new IEs are only needed when there are different TTIs on both primary and secondary uplink frequency.
4. The IEs needed on the secondary uplink frequency, we will add them into the IE "Secondary E-DCH info common".
5. For the E-DCH TTI length, we can include it as part of the Transport Channel IE's where the legacy E-DCH TTI length is signalled.
6. FFS whether the REL-12 DTX enhancement feature can be supported for 10ms+10ms DC-HSUPA.

[R2-166334](#) Power allocation for Multi-Carrier Enhancements Ericsson discussion
 - Samsung: The proposed solution is one option to fix the issue.

=> The following was Agreed and will be indicated to RAN4 asking for their input:

On the Common Boundary we apply the legacy formula.

On non-Common Boundary, the power allocation for the carrier configured with 2ms TTI is updated at its not common TTI boundary, accounting for a reserved power associated to the carrier transmitting on a 10ms TTI basis which is updated only at common TTI boundaries

[R2-167166](#) LS to RAN4 (cc RAN1) on Power allocation for MC enhancements (contact: Ericsson) LS
 out to: RAN4 Rel-14 UTRA_Mce-Core
 - Samsung: why the RAN4 contributions should be mentioned in the LS? Ok to refer RAN2 papers, simplest way is to remove the reference.
 - E///: just try to make RAN4 to be clear.
 - NN: share view as Samsung.

- ⇒ Remove “See also the RAN4 contributions R4-167648 and R4-167649.”
- ⇒ Boundary => boundary
- ⇒ “.....to discuss the power allocation for Multi-carrier Enhancement and provide feedback back to RAN2” => “.....to verify RAN2 agreements and provide feedback back to RAN2”
- ⇒ With the updates, the LS is approved in [R2-167169](#).
LS to RAN4 (cc RAN1) on Power allocation for MC enhancements (contact: Ericsson)
LS out to: RAN4 Rel-14 UTRA_Mce-Core
- ⇒ The LS is approved.

[R2-167169](#)

- [R2-166384](#) Analysis of E-TFC selection procedure in MC enhancements Huawei, HiSilicon discussion
- Proposal 1: In case of 2ms+10ms MC case, when performing E-TFC selection on 2ms TTI, the UE could use the SG generated in the 10ms TTI boundary.
 - Samsung: This proposal is already what happens today.
- => Noted:

- [R2-166385](#) Discussion on UE capability due to MC enhancements Huawei, HiSilicon discussion
- Proposal 1: It is proposed RAN2 to agree introduce three category for MC enhancements.
 - Samsung: Why do we need a separate Category for 2ms&10ms?
 - Huawei: There may be UE only supporting 10ms & 10ms case, so cannot have dependency to DC HSUPA.
 - Samsung: If we are being pragmatic, then there will be a dependency to the REL-9 DC HSUPA capability.
- ///: We agree with Samsung.
- => We will introduce a new capability for MC Enhancements which concerns the RRC configuration of the feature i.e. the new TTI combinations.

- [R2-166429](#) Introduction of RRC configuration of MC enhancements Huawei, HiSilicon draftCR 25.300
14.0.0- - B Rel-14 UTRA_Mce-Core
///: Our preference is to have one capability for all the TTI combinations in MC enhancements.
- Samsung: We would like to see the feature name aligned across 25.300 & 25.319.
 - Samsung: We can keep the 25.300 CR but change the heading to “Dual Cell E-DCH operation enhancements” and then add reference to 25.319.
- ///: We could also include the 10ms & 2ms case in the description.
- => The CR is revised in [R2-167167](#)

- [R2-167167](#) Introduction of RRC configuration of MC enhancements Huawei, HiSilicon draftCR 25.300
14.0.0- - B Rel-14 UTRA_Mce-Core
///: The feature name on the coversheet should be updated.
- => The CR is postponed.

- [R2-166430](#) Introduction of RRC configuration of MC enhancements Huawei, HiSilicon draftCR 25.319
13.1.0- - B Rel-14 UTRA_Mce-Core
- Samsung: Change the wording from “2 ms TTI is supported on both , 10ms and 2ms plus 10ms are supported on the Primary Uplink Frequency and the Secondary Uplink Frequency” to “2 ms TTI is supported on both 10ms TTI is supported on both or a combination of 2ms TTI plus 10ms TTI are supported on the Primary Uplink Frequency and the Secondary Uplink Frequency”
- => The CR is revised in [R2-167168](#)

- [R2-167168](#) Introduction of RRC configuration of MC enhancements Huawei, HiSilicon draftCR 25.319
13.1.0- - B Rel-14 UTRA_Mce-Core
- Samsung: Propose to update the wording to “2 ms TTI is supported on both Primary Uplink Frequency and the Secondary Uplink Frequency, 10ms TTI is supported on both frequencies and a combination of 2ms TTI plus 10ms TTI are supported”
- ///: The feature name on the coversheet should be updated.
- => The CR is postponed.

- [R2-166432](#) Introduction of RRC configuration of MC enhancements Huawei, HiSilicon draftCR 25.331
14.0.0- - B Rel-14 UTRA_Mce-Core
- Samsung: The feature name should be consistent across all the final CR's. In 25.300 we have agreed to use “Dual Cell E-DCH operation enhancements”.

=> The CR is postponed.

[R2-166433](#) Introduction of RRC configuration of MC enhancements Huawei, HiSilicon draftCR 25.321
13.2.0- - B Rel-14 UTRA_Mce-Core
The update to formulae is dependent on input from RAN4 based on LS R2-16xxxx.
=> The CR is postponed.

[R2-166435](#) Introduction of enhanced TTI switching for MC enhancements Huawei, HiSilicon draftCR
25.300 14.0.0- - B Rel-14 UTRA_Mce-Core
///: Remove the text “for performing filtered UPH measurements on either primary uplink frequency or secondary uplink frequency, and”
=> The CR is postponed.

[R2-166436](#) Introduction of enhanced TTI switching for MC enhancements Huawei, HiSilicon draftCR
25.319 13.1.0- - B Rel-14 UTRA_Mce-Core
///: We should clarify that the scope of the MCI can be primary, secondary or both.
=> The CR is postponed.

[R2-166438](#) Introduction of enhanced TTI switching for MC enhancements Huawei, HiSilicon draftCR
25.321 13.2.0- - B Rel-14 UTRA_Mce-Core
///: If the scope of the MCI is both carriers, then there are other updates needed.
=> The CR is postponed.

[R2-166439](#) Introduction of enhanced TTI switching for MC enhancements Huawei, HiSilicon draftCR
25.331 14.0.0- - B Rel-14 UTRA_Mce-Core
///: We have not checked in detail, but it looks like we are much aligned as to what changes are needed.
=> The CR is postponed.

[R2-166441](#) Introduction of MC enhancements Huawei, HiSilicon draftCR 25.306 14.0.0- - B
Rel-14 UTRA_Mce-Core

Changes to Table 5.1g can be removed as we agreed not to introduce new UE Categories.
///: We prefer to have that if the UE supports MC enhancements & the legacy (REL-12) TTI switching feature, then the UE shall support the TTI switching for MC enhancements. SO no need for a new capability.
Huawei: Yes this is one option, companies should think about it for next meeting.
=> The CR is postponed.

13.4 WI: Further Indoor Positioning Enhancements for UTRA and LTE

(UTRA_LTE_iPos_enh2-Core, leading WG: RAN2; REL-14; started: Mar. 16; target: Dec. 16; WID: [RP-161850](#))

Time budget 0.25 TUs

No contributions received.

13.5 SI: Study on HSPA and LTE Joint Operation

(FS_UTRA_LTE_JOP, leading WG: RAN3; REL-14; started: Mar. 16; target: Dec. 16; SID: [RP-160571](#))

Time budget: 1 TU

[R2-166375](#) Discussion on remaining issue on use case 2 for single standby scenario Huawei, HiSilicon discussion

- E///: observation 2 is OK depending on if there is any critical transmission ongoing in LTE side; observation 3 in general is correct pending on the size of the gap.
- NN: there are other messages, e.g. IDT, such messages should also be considered when setting gap.
- Chair: why IDT messages could not be transmitted using DCH+ mechanism?

- E///: we need to check that point, could be checked during email discussion.
 - NN: for ongoing LTE service, we think the impact should be acceptable since basically the service is best effort.
- ⇒ Noted.

- [R2-166376](#) TP on use case 2 for single standby scenario Huawei, HiSilicon pCR 37.805 1.1.0
- E///: for the UMTS impact, should add something like: pending on the DRX configured in LTE side; for the impact on LTE, we need confirmation from LTE side.
 - NN: agree with E/// on the impact on LTE side; for UMTS impact, we need time to check due to the discussion on the contribution above.
 - HW: we just have half hour for next meeting in the main session, we need to progress.
 - NN: suggest an email discussion focusing on LTE impacts, and submit to next meeting for discussion and approval. E///: agree with NN that in next meeting in main session, we should focus on LTE related parts.
- ⇒ Merged into single TP for email discussion. Texts could be considered as a baseline, the report of email discussion could be used as an input for next meeting main session discussion.

- [R2-166377](#) Discussion on remaining issue on use case 3 for single standby scenario Huawei, HiSilicon discussion
- E///: for observation 1, not sure if it is correct, we should consider power ramping; for observation 2, we agree with the analysis here; for observation 3, anyway, we need confirmation from LTE side.
 - NN: all the observations are on LTE? HW: yes.
 - NN: any impacts on UMTS side?
 - HW: no, cause UE has to use 10+10 to access to LTE.
- ⇒ Noted.

- [R2-166378](#) TP on use case 3 for single standby scenario Huawei, HiSilicon pCR 37.805 1.1.0
- Chair: power ramping related analysis should be added.
 - E///: the texts could be used as baseline for email discussion.
- ⇒ Merged into email discussion. Suggested TPs could be used as baseline.

- [R2-166379](#) Considerations on remaining issue for dual standby scenario Huawei, HiSilicon discussion
- NN: it is not clear in the table if the drawbacks are to UE or to network, e.g. out of network control.
 - HW: out of network control means inter-RAT cell reselection will not be used.
 - NN: for example, for c), the analysis seems not correct, could also exist for single standby case if network set higher priority for UTRAN;
 - HW: for single standby, UE just follow the legacy behaviour if reselection to UTRAN.
 - E///: for network indication of preference, what if LTE network doesn't know the preference from UMTS side.
 - NN: we don't there is a need for the network to indicate preference.
 - E///: but we also need to be clear on UE behaviour if there is no network indication preference.
 - NN: we think it is up to UE implementation.
 - E///: from network side, should understand UE behaviour, e.g. down prioritize the inter-RAT cell reselection.
 - NN: since UE is in idle mode, there is no need for the network to know such info.
 - HW: if there is no network indication of preference, we prefer (d).
 - NN: for (d), what's the motivation for UE not to perform dual-standby operation if reselecting to UMTS.
 - HW: we don't have strong opinion, but we have concern on (a), this behaviour should be excluded.
 - E///: fine with (c) or (d).
 - Noted.

- [R2-166380](#) TP on remaining issues for dual standby scenario Huawei, HiSilicon pCR 37.805 1.1.0
- ⇒ Not treated.

- [R2-166381](#) Considerations on the co-ordination between UMTS and LTE Huawei, HiSilicon discussion
- ⇒ E///: the email discussion report could be used as an input for main session discussion of next meeting; compaies could also have separate paper on those LTE impacts. Noted.

- [R2-166512](#) Analysis on FFS in Use case 1 of dual standby Nokia, Alcatel-Lucent Shanghai Bell discussion
- Chair: what if both RATs broadcast conflicting criteria?
 - NN: then there will be ping-pong behaviour.
 - Chair: maybe we should also capture something in the TP.

- HW&E///: the suggested TP from NN makes sense. E///: the suggested TP also covers what HW's paper wants to say, and generic.
- ⇒ The suggested TP will be taken as baseline, will also consider some texts from HW's suggested TP.
- ☒ **[95bis#33][UMTS/HSPA<E joint operation] – Huawei**
- ☒ **-to reach an agreeable TP on LTE impacts from UMTS side, and submit for discussion and approval during next meeting in main session, with an email discussion report highlighting the LTE impacts.**
- ☒ **- Deadline: one week before next meeting**

13.6 WI: QoE Measurement Collection for Streaming in UTRAN

(UMTS_QMC_Streaming, leading WG: RAN2; REL-14; started: Sep. 16; target: Mar. 17; WID: [RP-161917](#))

Time budget: 1 TU

[R2-166185](#) Work Plan on QMC for streaming services in UTRAN China Unicom Work Plan

Proposal: It is proposed RAN2 to agree the work plan in table 2.

- NN: the work plan is reasonable; we would like to have more background information to understand the WI better. For example, what parameters from UE to RNC, why and when?
- HW: in the LS from SA4, there are descriptions and also TR attached from which we could see motivations.
- HW: in our discussion papers, we will try to analysis the parameters.
- ⇒ Noted, the work plan is endorsed.

[R2-166442](#) Discussion QoE Measurement Collection for streaming services in UTRAN Huawei, HiSilicon discussion

Proposal 1: It is proposed RAN2 to agree that both signalling based QMC Initiation and management based QMC Initiation are allowed.

Proposal 2: It is proposed RAN2 to discuss both QMC solutions and decide which solution to be used.

Proposal 3: It is proposed RAN2 to agree on applying QMC solutions only in CELL_DCH state.

Proposal 4: It is proposed RAN2 to introduce new UE capability of supporting the QMC solutions.

Proposal 5: If RAN2 agrees on QMC solutions and possible standard impacts on other WGs are confirmed, it is proposed RAN2 to send LSs to these WGs in order for their work on QMC solutions.

- NN: some parameters are of constant values?
- HW: for MDT, the collected parameters are variable and mostly AS layer; but the QoE metrics are NAS layer.
- E///: on observation 1, all the metrics will be included in the container?
- HW: yes.
- NN: maybe we need to understand to what extent RAN is aware.
- HW: it depends on the solutions.
- QC: we prefer solution 1.
- NN: we need some time to analyze which metrics that are already included in current MDT reporting, e.g. bit rate which we already have in MDT reporting.
- Chair: then technically it might go to solution 2, NN: yes,
- E///: we would also like to have some time to analyze the metrics.
- ⇒ Noted.
- ⇒ RAN2 agree to apply QMC solutions only in CELL_DCH state.

[R2-166444](#) Introduction of QoE Measurement Collection for streaming services in UTRAN Huawei, HiSilicon draftCR 25.300 14.0.0- - B Rel-14 UMTS_QMC_Streaming-Core

- [R2-166445](#) Introduction of QoE Measurement Collection for streaming services in UTRAN Huawei, HiSilicon draftCR 25.306 14.0.0- - B Rel-14 UMTS_QMC_Streaming-Core
- [R2-166446](#) Introduction of QoE Measurement Collection for streaming services in UTRAN Huawei, HiSilicon draftCR 25.331 14.0.0- - B Rel-14 UMTS_QMC_Streaming-Core
- HW: all the three draft CRs are based on solution 1.
 - ⇒ The above three CRs are postponed.

13.7 TEI14

Small Technical Enhancements affecting UMTS 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!

No contributions received.

14 Outgoing LSs and email discussions from UTRA session

14.1 Agreed outgoing LSs from UTRA session

- [R2-167169](#) LS on Multi-carrier enhancements for UMTS (to: RAN4; cc: RAN1; contact: Ericsson) RAN2 LS out Rel-14 UTRA_MCe-Core [R2-167166](#)
- [R2-167171](#) LS on TTI switching for MC enhancements (to: RAN1, RAN3; cc: -; contact: Huawei) RAN2 LS out Rel-14 UTRA_MCe-Core [R2-167170](#)

14.2 Email discussions from UTRA

[95bis#32][UMTS/DTX/DRX Enhancements] – Qualcomm

- To progress the CR's to 20.300, 25.306, 25.308 and 25.331.
- Deadline: Tuesday 01/11/2016

[95bis#33][UMTS/HSPA<E joint operation] – Huawei

To reach an agreeable TP on LTE impacts from UMTS side, and submit for discussion and approval during next meeting in main session, with an email discussion report highlighting the LTE impacts.

- Intended outcome: TP
- Deadline: Tuesday 01/11/2016

15 Comebacks

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

15.1 LTE breakout sessions

15.1.1 Report from LTE Break-Out session

- [R2-167240](#) Report from LTE Break-Out Session, Vice-Chair (InterDigital)
CBF: Report from LTE Break-Out Session, Vice-Chair (InterDigital)
=> Approved

feD2D

- [R2-167181](#) Text proposal to TR 36.746 from e-mail discussion 95#34 Ericsson (Rapporteur)pCR
36.746 Rel-14 FS_feD2D_IoT_relay_wearable
=> Agreed to be added to TR

[R2-167182](#) TP on Scenarios and RRC states Huawei discussion result of email discussion [95#35]
Rel-14 FS_feD2D_IoT_relay_wearable
=> Agreed to be added to the TR

V2V

[R2-167183](#) Miscellaneous corrections for V2V in TS 36.321 Huawei, HiSilicon draftCR 36.321
14.0.0- - F Rel-14 LTE_SL_V2V-Core
=> In principle agreed

[R2-167185](#) Corrections on V2V in TS 36.331 Huawei, HiSilicon draftCR 36.331 14.0.0- - F
Rel-14 LTE_SL_V2V-Core
=> In principle agreed

V2X

[R2-167186](#) [Draft] Response LS to RAN3 on MBMS Session Reception for V2X Nokia, Alcatel-Lucent
Shanghai Bell LS out Rel-14 LTE_V2X-Core
=> Change " but is able to." to "but a UE implementation may be able to"
=> Approved in [R2-167291](#)

15.1.2 Report from LTE Break-Out session

[R2-167241](#) Report from LTE Break-Out Session, Vice-Chair (CMCC)
CBF: Report from LTE Break-Out Session, Vice-Chair (CMCC)
=> Approved

Related to [R2-167135](#), modification of the agreement as follows:

=> UL grant can be provided by RRC signalling. If UE doesn't get the UL grant from RRC signalling from source eNB, UE should monitor the PDCCH of target eNB for getting UL grant.

Related to [R2-166579](#), wording of the agreement to be discussion offline. Possible option
"Enhancing the current PDCP protocol for UE to mark PDCP data packet to assist network perform selective acceleration is feasible from PDCP signalling point of view. The detailed solution is not discussed. Other solutions may also be discussed."

VoLTE

[R2-167200](#) Draft LS on RAN-based codec adaptation mechanism (to: SA4; cc: -; contact: Huawei)
Huawei LS out Rel-14 LTE_VoLTE_ViLTE_enh-Core
=> Typos to be fixed
=> Approved in [R2-167292](#)

[R2-167203](#) WF on the signaling method for conveying codec adaptation information CMCC, Verizon, Ericsson, Huawei, HiSilicon, ZTE, Qualcomm Incorporated, Moto Solution, Intel, Panasonic, Kyocera, OPPO, Xiaomi

=> MAC CE based signalling is selected as the method to convey codec adaptation information from eNB to UE.

LIGHT_CON

[R2-167205](#) Draft LS to CT1, cc RAN3 on RAN2 agreements (to: CT1; cc: RAN3; contact: Huawei)
Huawei LS out Rel-14 LTE_LIGHT_CON-Core
=> Add description of model A and model B into the body of the LS.
=> Revised in [R2-167310](#)

[R2-167310](#) Draft LS to CT1, cc RAN3 on RAN2 agreements (to: CT1; cc: RAN3; contact: Huawei)
Huawei LS out Rel-14 LTE_LIGHT_CON-Core
=> [R2-166627](#) can be removed from the attachments
=> Approved in [R2-167314](#)

[R2-167206](#) Draft LS to on STMSI (to: SA3; cc: -; contact: Ericsson) Ericsson LS out
Rel-14 LTE_LIGHT_CON-Core
=> Add RAN3, CT1 in CC

- => Change final sentence to " In RAN2 discussion, concern was raised on the potential security issues of exposing S-TMSI in an RRC message for RAN initiated paging without MME being in control. "
- => Change action to " RAN2 asks SA3 for feedback on potential security issues of exposing S-TMSI in an RRC message RAN initiated paging without MME being in control ."
- => Change second bullet to " - a RAN identity controlled allocated by the "anchor eNB"."
- => Approved in [R2-167293](#)

CBF: Decide whether to continue the email discussion ([R2-166688](#)) about the left issues.

- [R2-167304](#) Discussion on Light Connection identified FFS Intel, Huawei, HiSilicon discussion
- => RAN2 understanding is that legacy TAU behaviour applies also for a UE lightly connected. This means that the UE always perform TAU when changing TA boards.
 - => Other proposal will continue to be discussed at the next meeting

LTE_context

- [R2-167207](#) Draft LS on the solution of TCP optimization (to: RAN3; cc: -; contact: Qualcomm) Qualcomm LS out Rel-14 FS_LTE_context
- => Revised in [R2-167305](#)

- [R2-167305](#) Draft LS on RAN2 agreements on Context Aware Service Delivery SI (to: RAN3; cc: -; contact: Qualcomm) Qualcomm LS out Rel-14 FS_LTE_context
- Come back
 - => RAN2 confirms the problem where PDCP may discard critical UL data. RAN2 did not discuss the solution (modifies the agreement shown in the meeting report from the breakout session)
 - => Enhancing the current protocol for the UE to mark data packets to assist the network to perform selective acceleration is feasible from signalling point of view. RAN2 discussed PDCP as one option, but no detailed solution was discussed. (reworded relative to agreement in breakout report)
 - => Approved in [R2-167311](#)

LTE_eMob

- [R2-167208](#) Draft LS on Remaining issues for Make Before Break (to: RAN3; cc: RAN1, RAN4; contact: Intel) Intel LS out Rel-14 LTE_eMob-Core
- => Revised to R2-1672109

- [R2-167209](#) Draft LS on Remaining issues for Make Before Break (to: RAN3; cc: RAN1, RAN4; contact: Intel) Intel LS out Rel-14 LTE_eMob-Core
- => Revised to [R2-167210](#)

- [R2-167210](#) Draft LS on Remaining issues for Make Before Break (to: RAN3; cc: RAN1, RAN4; contact: Intel) Intel LS out Rel-14 LTE_eMob-Core
- => Add " Regarding to item 2, it is RAN2 understanding that the make-before-break indication should be included in the RRC container. RAN3 is kindly asked to verify if there is any issue with such approach. " as a second action
 - => Approved in [R2-167312](#)

15.1.3 Report from NB-IOT session

- [R2-167242](#) Report from NB-IOT Break-Out Session, Session Chair (MediaTek)
- CBF: Report from LTE Break-Out Session, Session Chair (MediaTek)
- => Approved

- [R2-167224](#) Correction on field description of up-CIoT-EPS-Optimisation NEC, Intel Corporation draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core
- => In principle agreed

- [R2-167233](#) Draft reply LS on Enhanced Coverage authorization impact on cell and PLMN selection procedures (to: SA2; cc: CT1; contact: Qualcomm) Qualcomm LS out Rel-14 FS_CIoT_Ext
- => Q5: change 'if' to 'whether'.
 - => Approved in [R2-167294](#)

✉ [\[95bis#31\]\[LTE/NB-IOT/eMTC\] Coverage authorisation \(Ericsson\)](#)

Conditional on receiving a response LS from SA2. To discuss the requirements from SA2 and to discuss potential solution to meet those requirements
Intended outcome: Email discussion report to the next meeting
Deadline: Tuesday 01/11/2016

[R2-167237](#) Draft LS on mobility enhancements for NB-IoT (to: RAN3, CT1; cc: SA2; contact: Huawei))
Huawei LS out Rel-14 NB_IOTenh-Core
=> To be discussed offline. Starting point for revision of 2 bullets can be
" - RAN2 would like RAN3 and CT1 to confirm that the DL NAS data transport PDUs can be transmitted by the MME to the new eNB when the MME is notified that the UE has accessed via the new eNB, and whether it is this could be supported by RAN3 and CT1 specifications.
- RAN2 would like CT1 to confirm that the UL NAS data transport PDUs can be retransmitted by the UE to the new eNB after the RRC connection re-establishment to the new eNB, and whether this could be it is supported by CT1 specifications, assuming that AS provides an indication to NAS that the NAS PDU has not been transmitted.. "

=> Revised in [R2-167295](#)

[R2-167295](#) Draft LS on mobility enhancements for NB-IoT (to: RAN3, CT1; cc: SA2; contact: Huawei))
Huawei LS out Rel-14 NB_IOTenh-Core
=> Approved in [R2-167315](#)

[R2-167238](#) DRAFT LS on Security aspects of RRC Connection Re-Establishment for NB-IoT (DoNAS) (to: SA3; cc: RAN3/CT1; contact: Vodafone) Vodafone LS out Rel-14 NB_IOTenh-Core 15.4
Email Discussions from main session
=> Approved in [R2-167296](#)

15.2 UMTS breakout session

Email discussion agree in UMTS breakout session that is relevant to LTE and the outcome will be discussion in joint LTE/UMTS session at the next meeting.

✉ **[95bis#33][UMTS/HSPA<E joint operation] – Huawei**

To reach an agreeable TP on LTE impacts from UMTS side, and submit for discussion and approval during next meeting in main session, with an email discussion report highlighting the LTE impacts.

Deadline: one week before next meeting

15.3 Main session

This section is used during the meeting.

16 Outgoing LS from LTE and Joint

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.

Draft outgoing LSs (not related to any Agenda Item above)

No contributions received.

Approved LSs

Please see Annex D.

17 Any other business

Future meeting dates

Click [here](#) for the overview of all RAN2 and RAN meeting dates.

Other

18 Closing of the meeting (17:00)

The TSG RAN WG2 chairman Richard Burbidge (Intel Corporation) thanked the delegates for participating and session chairs for contributing to RAN WG2 meeting #95bis. He also thanked TAICS (Taiwan Association of Information and Communication Standards), Mediatek, and Chunghwa Telecom for hosting this meeting.

TSG RAN WG2 chairman Richard Burbidge (Intel Corporation) closed the meeting on Friday 14.10.2016 around 17:15.

Annex A: List of participants

The list of participants of this RAN WG2 meeting #95bis is at: <http://webapp.etsi.org/3GPPRegistration/fViewPart.asp?mid=31670>

Total number of participants: 221 (registered 292)

Annex B: List of Tdocs

The list of Tdocs of this RAN WG2 meeting #95bis is attached to this report.

Total number of Tdocs: 1325 of which 67 Tdocs are not available, i.e. 1258 Tdocs are available.

Annex C: Incoming liaison statements for TSG RAN WG2 #95bis

RAN2 Tdoc	title (original Tdoc; contact)	source	original Tdoc	status	final LS answer	additional comments
R2-166003	LS on further RRC Parameters for Enhanced LAA for LTE (R1-168346; contact: Huawei)	RAN1	R1-168346	noted		
R2-166004	LS to RAN2/3 on RAN1 progress on MC enhancements (R1-168037; contact: Huawei)	RAN1	R1-168037	noted		
R2-166005	LS on RAN1 agreements for NR initial access and mobility (R1-168214; contact: Ericsson)	RAN1	R1-168214	noted		
R2-166006	LS on introducing 1.2Gbps and 1.6Gbps UE categories in Rel-13 (R1-168377; contact: Huawei)	RAN1	R1-168377	noted		

RAN2 Tdoc	title (original Tdoc; contact)	source	original Tdoc	status	final LS answer	additional comments
R2-166007	LS on NB-IoT positioning (R1-168553 ; contact: Huawei)	RAN1	R1-168553	noted		
R2-166008	LS regarding agreement on paging for NB-IoT (R1-168554 ; contact: Qualcomm)	RAN1	R1-168554	noted		
R2-166009	LS for SRS Carrier-Based Switching (R1-168556 ; contact: Huawei)	RAN1	R1-168556	noted		
R2-166010	LS on PRS sequence generation per TP (R1-168557 ; contact: Huawei)	RAN1	R1-168557	noted		
R2-166011	LS on PRS-based Terrestrial Beacon System (TBS) (R1-168558 ; contact: Qualcomm)	RAN1	R1-168558	noted		
R2-166012	LS on Multiple TMGIs for support of small and variable MBMS areas (R3-162067; contact: LGE)	RAN3	R3-162067	available		
R2-166013	Reply LS to S2-163212 = R2-164640 on RAN impacts from enTV study of SA WG2 (R3-162068; contact: Qualcomm)	RAN3	R3-162068	noted		
R2-166014	LS on performance enhancements indicator for high speed scenarios (R4-166804; contact: Ericsson)	RAN4	R4-166804	noted		
R2-166015	LS on reducing quantization error of OTDOA (R4-166806; contact: Huawei)	RAN4	R4-166806	noted		
R2-166016	Reply LS on the feasibility of mobility enhancement solutions (R4-166817; contact: Ericsson)	RAN4	R4-166817	noted		
R2-166017	LS on Measurement gap enhancement (R4-167024; contact: Ericsson)	RAN4	R4-167024	noted		
R2-166018	LS for definition of SSTD measurement (R4-167153; contact: CATT)	RAN4	R4-167153	noted		
R2-166019	LS on on UCG parameters for eMTC (R4-167198; contact: Intel)	RAN4	R4-167198	noted		
R2-166020	Reply LS to R2-165967 on NR requirements (RP-161916 ; contact: ZTE)	RAN	RP-161916	noted		

RAN2 Tdoc	title (original Tdoc; contact)	source	original Tdoc	status	final LS answer	additional comments
R2-166021	Reply LS to R2-165773 on QoS requirements for V2X (S2-164913; contact: LGE)	SA2	S2-164913	available		
R2-166022	Response to LS S6-160914 on MBMS enhancements for MCS (S2-164937; contact: Motorola solution)	SA2	S2-164937	noted		
R2-166023	LS on Enhanced Coverage authorization impact on cell and PLMN selection procedures (S2-165214; contact: Qualcomm)	SA2	S2-165214	noted	R2-167294	
R2-166024	Further LS on CIoT NAS retransmission timers (S2-165438; contact: Vodafone)	SA2	S2-165438	noted		
R2-166025	LS to RAN2 regarding valid MBSFN subframes for eMTC (R1-168425 ; contact: Qualcomm)	RAN1	R1-168425	noted		
R2-166026	Status of Band 41 HPUE core specifications (R4-167112; contact: Sprint)	RAN4	R4-167112	noted		
R2-166027	Reply LS to C1-163890 = R2-164639 on Multiple bearer capability handling (S2-165196; contact: Intel)	SA2	S2-165196	noted		
R2-166028	LS on overload control for CP CIoT EPS optimization (S2-165431; contact: NEC)	SA2	S2-165431	noted	R2-167290	
R2-166029	Reply LS on SAND (S4-161121; contact: Intel)	SA4	S4-161121	noted		
R2-166030	Reply LS to R2-165972 on QoE reporting for streaming services (S4-161126; contact: Huawei)	SA4	S4-161126	noted	R2-167245	
R2-166031	LS on introducing a new special subframe configuration (R1-168559 ; contact: CMCC)	RAN1	R1-168559	noted		
R2-166032	LS on Updates on HS-SCCH DRx Feature in Cell Fach (R1-168030 ; contact: Qualcomm)	RAN1	R1-168030	noted		
R2-166033	LS regarding agreements for FeMBMS (R1-168200 ; contact: Qualcomm)	RAN1	R1-168200	noted		

RAN2 Tdoc	title (original Tdoc; contact)	source	original Tdoc	status	final LS answer	additional comments
R2-166034	LS on L1 parameters for sidelink-based V2V (R1-168202 ; contact: LGE)	RAN1	R1-168202	noted		
R2-166035	LS on RAN1 agreements for LTE-based V2X (R1-168026 ; contact: LGE)	RAN1	R1-168026	available		
R2-166036	LS on wider bandwidth operation for NR (R1-1610655; contact: NTT DOCOMO)	RAN1	R1-1610655	noted		
R2-166037	LS on power allocation for SC-PTM (R1-1610780; contact: Huawei)	RAN1	R1-1610780	noted		
R2-166038	LS on WLAN RSSI Measurement Report Mapping for Positioning (R4-168580; contact: Ericsson)	RAN4	R4-168580	noted		
R2-166039	LS on Category M1 UE and VoLTE (R5-167215; contact: Ericsson)	RAN5	R5-167215	noted	R2-167316	

postponed: LS answer was postponed to next RAN2 meeting (note: incoming LS will not be presented again at the next meeting and involved parties are requested to submit proposal for draft outgoing LS answer to next meeting).

Summary:

- In total: 37 LSs received for RAN2 #95bis (2 on UTRA, 35 on LTE, 0 on joint aspects): 34 of them were treated and .3 were not treated deu to lack of time.
- 1 resubmissions from RAN2 #95
- All 34 incoming LSs were noted except 3 LS was not treated due to lack of time and will be resubmitted to RAN2 #96.
- 9 of the xx incoming LSs were received during the RAN2 #95bis meeting:
- For 0 incoming LS an LS answer was **postponed**.

Annex D:

Outgoing liaison statements of TSG RAN WG2 #95bis

Only final outgoing LSs are listed here.

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
R2-167169	LS on Multi-carrier enhancements for UMTS (to: RAN4; cc: RAN1; contact: Ericsson)	RAN4	RAN1	Ericsson		Rel-14	UTRA_MCe-Core	LS was sent out on 11.10.2016
R2-167171	LS on TTI switching for MC enhancements (to: RAN1, RAN3; cc: -; contact: Huawei)	RAN1, RAN3	-	Huawei		Rel-14	UTRA_MCe-Core	LS was sent out on 11.10.2016
R2-167188	LS to RAN1 on V2V agreements (to: RAN1; cc: -; contact: LGE)	RAN1	-	LGE		Rel-14	LTE_SL_V2V-Core	LS was sent out on 12.10.2016
R2-167189	LS on DFN offset (to: RAN1; cc: -; contact: Huawei)	RAN1	-	Huawei		Rel-14	LTE_V2X-Core	LS was sent out on 12.10.2016
R2-167201	LS to CT1 on MO video cause value (to: CT1; cc: -; contact: Huawei)	CT1	-	Huawei		Rel-14	LTE_VoLTE_ViLTE_enh-Core	
R2-167204	LS on RAN2 agreements on FeMBMS (to: RAN1; cc: -; contact: Ericsson)	RAN1	-	Ericsson		Rel-14	MBMS_LTE_enh2-Core	LS was sent out on 12.10.2016
R2-167234	LS on Coverage enhancements of SC-PtM for FeMTC and eNB-IoT (to: RAN1; cc: RAN3; contact: Ericsson)	RAN1	RAN3	Ericsson		Rel-14	LTE-feMTC-Core, NB_IOTenh-Core	
R2-167235	LS on NB-IoT Rel-14 RACH and Paging on non-anchor carrier (to: RAN1; cc: -; contact: Ericsson)	RAN1	-	Ericsson		Rel-14	NB_IOTenh-Core	

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
R2-167245	Reply LS on QoE reporting for streaming services (to: SA4; cc: RAN3, SA5; contact: Huawei)	SA4	RAN3, SA5	Huawei	R2-166030 = S4-161126	Rel-14	UMTS_QMC_Streamin g-Core	
R2-167290	Reply LS on overload control for CP Clot EPS optimization (to: SA2, RAN3; cc: CT1; contact: NEC)	SA2, RAN3	CT1	NEC	R2-166028 = S2-165431	Rel-14	FS_CIoT_Ext	
R2-167291	Response LS on Multiple TMGIs for support of small and variable MBMS areas (to: RAN3; cc: SA2; contact: Nokia)	RAN3	SA2	Nokia		Rel-14	LTE_V2X-Core	
R2-167292	LS to SA4 on RAN-assisted codec adaptation solution (to: SA4; cc: RAN3; contact: Huawei)	SA4	RAN3	Huawei		Rel-14	LTE_VoLTE_ViLTE_en h-Core	
R2-167293	LS on S-TMSI in RAN paging (to: SA3; cc: RAN3, CT1; contact: Ericsson)	SA3	RAN3, CT1	Ericsson		Rel-14	LTE_LIGHT_CON-Core	
R2-167294	Response LS on Enhanced Coverage authorization impact on cell and PLMN selection procedures (to: SA2, CT1; cc: -; contact: Qualcomm)	SA2, CT1	-	Qualcomm	R2-166023 = S2-165214	Rel-14	FS_CIoT_Ext	
R2-167296	LS on Security aspects of RRC Connection Re-Establishment for NB-IoT (DoNAS) (to: SA3; cc: RAN3, CT1; contact: Vodafone)	SA3	RAN3, CT1	Vodafone		Rel-14	NB_IOTenh-Core	
R2-167301	LS on LS on periodic WLAN measurement reporting (to: RAN4; cc: -; contact: MediaTek)	RAN4	-	MediaTek		Rel-13	LTE_WLAN_radio-Core	

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
R2-167302	LS on supporting PHR for two-stage scheduling (to: RAN1; cc: -; contact: Huawei)	RAN1	-	Huawei		Rel-14	LTE_eLAA-Core	
R2-167306	LS on Estimated WLAN Throughput (to: IEEE 802.11; cc: -; contact: Qualcomm)	IEEE 802.11	-	Qualcomm		Rel-14	LTE_WLAN_aggr-Core	
R2-167307	LS on capabilities for 2-step scheduling for eLAA (to: RAN1; cc: -; contact: Ericsson)	RAN1	-	Ericsson		Rel-14	LTE_eLAA-Core	
R2-167308	Reply LS on performance enhancements indicator for high speed scenarios (to: RAN4; cc: -; contact: Ericsson)	RAN4	-	Ericsson	R2-166014 = R4-166804	Rel-14	LTE_high_speed-Core	
R2-167309	LS to RAN on Single receiver category 1 UE (to: RAN; cc: -; contact: Intel)	RAN	-	Intel		Rel-14	LTE_UE_cat_1RX-Core	
R2-167311	LS on the solution of TCP optimization (to: RAN3; cc: -; contact: Qualcomm)	RAN3	-	Qualcomm		Rel-14	FS_LTE_context	
R2-167312	LS on RAN2 agreements for mobility enhancement (to: RAN3; cc: RAN1, RAN4; contact: Intel)	RAN3	RAN1, RAN4	Intel		Rel-14	LTE_eMob-Core	
R2-167313	LS on RAN2 agreements for NR DL-based mobility and Cell definition (to: RAN1; cc: RAN3, RAN4; contact: Ericsson)	RAN1	RAN3, RAN4	Ericsson		Rel-14	FS_NR_newRAT	
R2-167314	LS on the progress and questions for the light connection (to: RAN3, CT1; cc: SA2; contact: Huawei)	RAN3, CT1	SA2	Huawei		Rel-14	LTE_LIGHT_CON-Core	

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
R2-167315	LS on mobility enhancements for NB-IoT (to: RAN3, CT1, SA2; cc: -; contact: Huawei))	RAN3, CT1, SA2	-	Huawei		Rel-14	NB_IOTenh-Core	
R2-167316	Response LS on Category M1 UE and VoLTE (to: RAN5; cc: RAN1, GSMA NG, GSMA RILTE; contact: Ericsson)	RAN5	RAN1, GSMA NG, GSMA RILTE	Ericsson	R2-166039 = R5-167215	Rel-13		
R2-167317	Response LS on Measurement gap enhancement (to: RAN4; cc: RAN1; contact: Ericsson)	RAN4	RAN1	Ericsson	R2-166017 = R4-167024	Rel-14	LTE_meas_gap_enh-Core	

Summary:

In total 28 outgoing LSs of RAN2 #95bis:
2 on UTRA, 26 on LTE, 0 on joint aspects

Annex E:

List of agreed CRs and in principle agreed draftCRs of RAN2 #95bis

List of agreed CRs

1 agreed RAN2 CR in RAN2#95 was mistakenly not submitted to RAN#73 for approval and hence was not included in the September specification. So the CRs are presented again to this meeting (as [R2-166847](#), and Rel-14 shadow in [R2-166857](#)) and were agreed again and will be submitted to RAN#74 for approval.

The following table includes two agreed CRs of RAN2 #95bis and they will be submitted directly to RAN#74:

RAN2 #93bis Tdoc	Title	Source	Spec	Spec Version#	CR#	rev	cat	Release	SI/WI
R2-166847	Correction to MAC RAR	CATT	36.321	13.3.0	0891	3	F	Rel-13	NB_IOT-Core
R2-166857	Correction to MAC RAR	CATT	36.321	14.0.0	0924	-	A	Rel-14	NB_IOT-Core

List of in principle agreed draftCRs

In total 104 in principle agreed draftCRs of RAN2 #95bis (including 49 which are implicitly in principle agreed, marked in **yellow**, since their cat.F CRs were in principle agreed) are requested to resubmitted as CRs to RAN2 #96 (incl. cat.A CRs) then these in principle agreed draftCR will be treated as in principle agreed CR in RAN2 #96.

The following table includes all in principle agreed CRs of RAN2 #95bis and they need to be submitted again via 3GU to RAN2#96 for final agreement:

RAN2 #93bis Tdoc	Title	Source	Spec	Spec Version#	CR#	rev	cat	Release	SI/WI
R2-166248	Corrections to NB-IoT SystemInformationBlockType2 handling	HTC Corporation	36.331	13.3.0	-	-	F	Rel-13	NB_IOT-Core
	Corrections to NB-IoT SystemInformationBlockType2 handling	HTC Corporation	36.331	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-166249	Correction on UE behavior in Paging procedure	HTC Corporation	36.331	13.3.0	-	-	F	Rel-13	LTE_extDRX-Core
	Correction on UE behavior in Paging procedure	HTC Corporation	36.331	14.0.0	-	-	A	Rel-14	LTE_extDRX-Core
R2-166295	Clarification on the RRC connection	HTC Corporation	36.331	13.3.0	-	-	F	Rel-13	TEI13

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RAN2 #93bis Tdoc	Title	Source	Spec	Spec Version#	CR#	rev	cat	Release	SI/WI
	resume procedure								
	Clarification on the RRC connection resume procedure	HTC Corporation	36.331	14.0.0	-	-	A	Rel-14	TEI13
R2-166307	Corrections on sidelink pre-configurations and default configurations	Huawei, HiSilicon	36.331	12.11.0	-	-	F	Rel-12	LTE_D2D_Prox-Core
	Corrections on sidelink pre-configurations and default configurations	Huawei, HiSilicon	36.331	13.3.0	-	-	A	Rel-13	LTE_D2D_Prox-Core
	Corrections on sidelink pre-configurations and default configurations	Huawei, HiSilicon	36.331	14.0.0	-	-	A	Rel-14	LTE_D2D_Prox-Core
R2-166311	Minor corrections for Rel-13 eD2D	Huawei, HiSilicon	36.331	13.3.0	-	-	F	Rel-13	LTE_eD2D_Prox-Core
	Minor corrections for Rel-13 eD2D	Huawei, HiSilicon	36.331	14.0.0	-	-	A	Rel-14	LTE_eD2D_Prox-Core
R2-166314	Clarification on uplink carrier frequency	Huawei	36.331	13.3.0	-	-	F	Rel-13	NB_IOT-Core
	Clarification on uplink carrier frequency	Huawei	36.331	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-166392	Clarification on AS-Config	HTC Corporation	36.331	13.3.0	-	-	F	Rel-13	LTE_MTCe2_L1-Core
	Clarification on AS-Config	HTC Corporation	36.331	14.0.0	-	-	A	Rel-14	LTE_MTCe2_L1-Core
R2-166407	DMRS scrambling sequence initialization parameter for MPDCCH	Qualcomm Incorporated	36.331	13.3.0	-	-	F	Rel-13	LTE_MTCe2_L1-Core
	DMRS scrambling sequence initialization parameter for MPDCCH	Qualcomm Incorporated	36.331	14.0.0	-	-	A	Rel-14	LTE_MTCe2_L1-Core
R2-166408	RSRP threshold when only CE level 0 is used	Qualcomm Incorporated	36.331	13.3.0	-	-	F	Rel-13	LTE_MTCe2_L1-Core
	RSRP threshold when only CE level 0 is used	Qualcomm Incorporated	36.331	14.0.0	-	-	A	Rel-14	LTE_MTCe2_L1-Core
R2-166409	Correction on fdd-DownlinkOrTddSubframeBitmapBR	Qualcomm Incorporated	36.331	13.3.0	-	-	F	Rel-13	LTE_MTCe2_L1-Core
	Correction on fdd-DownlinkOrTddSubframeBitmapBR	Qualcomm Incorporated	36.331	14.0.0	-	-	A	Rel-14	LTE_MTCe2_L1-Core

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RAN2 #93bis Tdoc	Title	Source	Spec	Spec Version#	CR#	rev	cat	Release	SI/WI
R2-166447	Correction on cross-carrier scheduling for eLAA	Huawei, HiSilicon	36.300	14.0.0	-	-	F	Rel-14	LTE_eLAA-Core
R2-166450	Corrections to LWA release	HTC Corporation	36.331	13.3.0	-	-	F	Rel-13	LTE_WLAN_radio-Core
	Corrections to LWA release	HTC Corporation	36.331	14.0.0	-	-	A	Rel-14	LTE_WLAN_radio-Core
R2-166508	Rapporteur correction for 25.321 MAC specification	Nokia	25.321	13.2.0	-	-	D	Rel-13	TEI13
	Rapporteur correction for 25.321 MAC specification	Nokia	25.321	14.0.0	-	-	A	Rel-14	TEI13
R2-166555	Editorial correction for NB-IoT	Ericsson	36.300	13.5.0	-	-	D	Rel-13	NB_IOT-Core
	Editorial correction for NB-IoT	Ericsson	36.300	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-166556	Editorial correction for NB-IoT	Ericsson, ZTE Corporation	36.331	13.3.0	-	-	D	Rel-13	NB_IOT-Core
	Editorial correction for NB-IoT	Ericsson, ZTE Corporation	36.331	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-166669	Correction on mac-ContentionResolutionTimer for eMTC	Huawei, HiSilicon	36.321	13.3.0	-	-	F	Rel-13	LTE_MTCe2_L1-Core
	Correction on mac-ContentionResolutionTimer for eMTC	Huawei, HiSilicon	36.321	14.0.0	-	-	A	Rel-14	LTE_MTCe2_L1-Core
R2-166679	Clarification on UE power class 2 indication	Nokia, Alcatel-Lucent Shanghai Bell	36.306	13.3.0	-	-	F	Rel-13	TEI13
	Clarification on UE power class 2 indication	Nokia, Alcatel-Lucent Shanghai Bell	36.306	14.0.0	-	-	A	Rel-14	TEI13
R2-166695	Further clarification for PDCCH order in NB-IoT	ZTE Corporation	36.321	13.3.0	-	-	F	Rel-13	NB_IOT-Core
	Further clarification for PDCCH order in NB-IoT	ZTE Corporation	36.321	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-166794	Type2 PHR for eLAA	Nokia, Alcatel-Lucent Shanghai Bell, HiSilicon, Huawei,	36.321	14.0.0	-	-	F	Rel-14	LTE_eLAA-Core

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RAN2 #93bis Tdoc	Title	Source	Spec	Spec Version#	CR#	rev	cat	Release	SI/WI
		Samsung							
R2-166941	Definition of cch-InterfMitigation- MaxNumCCs	Intel Corporation, Qualcomm	36.306	13.3.0	-	-	F	Rel-13	LTE_IM_DLCCH-Perf
	Definition of cch-InterfMitigation- MaxNumCCs	Intel Corporation, Qualcomm	36.306	14.0.0	-	-	A	Rel-14	LTE_IM_DLCCH-Perf
R2-166942	Clarification on Rel-13 CCH-IM UE capability	Intel Corporation, Qualcomm	36.331	13.3.0	-	-	F	Rel-13	LTE_IM_DLCCH-Perf
	Clarification on Rel-13 CCH-IM UE capability	Intel Corporation, Qualcomm	36.331	14.0.0	-	-	A	Rel-14	LTE_IM_DLCCH-Perf
R2-167160	Correction on dual band dual cell E-DCH capability	Huawei, HiSilicon	25.306	13.1.0	-	-	F	Rel-13	HSUPA_DB_MC-Core
	Correction on dual band dual cell E-DCH capability	Huawei, HiSilicon	25.306	14.0.0	-	-	A	Rel-14	HSUPA_DB_MC-Core
R2-167161	Correction on extension of frequency priorities	Huawei, HiSilicon	25.331	13.4.0	-	-	F	Rel-13	LTE_MC_load-Core
	Correction on extension of frequency priorities	Huawei, HiSilicon	25.331	14.0.0	-	-	A	Rel-14	LTE_MC_load-Core
R2-167172	Clarifications for seamless transition to CELL_FACH state functionality	Ericsson	25.331	13.4.0	-	-	F	Rel-13	RANimp-UplinkEnhState, UTRA_EDL_L23-Core
	Clarifications for seamless transition to CELL_FACH state functionality	Ericsson	25.331	14.0.0	-	-	A	Rel-14	RANimp-UplinkEnhState, UTRA_EDL_L23-Core
R2-167174	Correction on extended DRX in Idle mode	Huawei, HiSilicon	25.331	13.4.0	-	-	F	Rel-13	UTRA_SDATA_POWSAV- Core
	Correction on extended DRX in Idle mode	Huawei, HiSilicon	25.331	14.0.0	-	-	A	Rel-14	UTRA_SDATA_POWSAV- Core
R2-167177	Corrections on system information acquisition for Sidelink discovery	Huawei, HiSilicon	36.331	12.11.0	-	-	F	Rel-12	LTE_D2D_Prox-Core
R2-167183	Miscellaneous corrections for V2V in TS 36.321	Huawei, HiSilicon	36.321	14.0.0	-	-	F	Rel-14	LTE_SL_V2V-Core

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RAN2 #93bis Tdoc	Title	Source	Spec	Spec Version#	CR#	rev	cat	Release	SI/WI
R2-167185	Corrections on V2V in TS 36.331	Huawei, HiSilicon	36.331	14.0.0	-	-	F	Rel-14	LTE_SL_V2V-Core
R2-167220	Clarification to the security mode command procedure for NB-IoT	Ericsson LM	36.331	13.3.0	-	-	F	Rel-13	NB_IOT-Core
	Clarification to the security mode command procedure for NB-IoT	Ericsson LM	36.331	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-167221	Correction to TS36.321	CATT	36.321	13.3.0	-	-	F	Rel-13	NB_IOT-Core
	Correction to TS36.321	CATT	36.321	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-167222	Clarification on system information acquisition for NB-IoT	HTC Corporation	36.331	13.3.0	-	-	F	Rel-13	NB_IOT-Core
	Clarification on system information acquisition for NB-IoT	HTC Corporation	36.331	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-167223	Definition of valid anchor and non-anchor carrier combinations	QUALCOMM INCORPORATED	36.300	13.5.0	-	-	F	Rel-13	NB_IOT-Core
	Definition of valid anchor and non-anchor carrier combinations	QUALCOMM INCORPORATED	36.300	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-167224	Correction on field description of up-CIoT-EPS-Optimisation	NEC, Intel Corporation	36.331	13.3.0	-	-	F	Rel-13	NB_IOT-Core
	Correction on field description of up-CIoT-EPS-Optimisation	NEC, Intel Corporation	36.331	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-167225	Clarification on DRX	HTC Corporation	36.300	13.5.0	-	-	F	Rel-13	NB_IOT-Core
	Clarification on DRX	HTC Corporation	36.300	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-167226	Clarification on NB-IoT	HTC Corporation	36.321	13.3.0	-	-	F	Rel-13	NB_IOT-Core
	Clarification on NB-IoT	HTC Corporation	36.321	14.0.0	-	-	A	Rel-14	NB_IOT-Core
R2-167229	Correction to PDCCH period description	QUALCOMM INCORPORATED	36.321	13.3.0	-	-	F	Rel-13	NB_IOT-Core
	Correction to PDCCH period description	QUALCOMM INCORPORATED	36.321	14.0.0	-	-	A	Rel-14	NB_IOT-Core

Report of 3GPP TSG RAN WG2 #95bis, Kaohsiung, 10th – 14th October 2016

RAN2 #93bis Tdoc	Title	Source	Spec	Spec Version#	CR#	rev	cat	Release	SI/WI
R2-167244	Correction for traffic steering granularity for RAN assisted WLAN interworking	Ericsson	36.300	13.5.0	-	-	F	Rel-13	UTRA_LTE_WLAN_interw-Core
	Correction for traffic steering granularity for RAN assisted WLAN interworking	Ericsson	36.300	14.0.0	-	-	A	Rel-14	UTRA_LTE_WLAN_interw-Core
R2-167248	FDD&TDD diff for mbms-AsyncDC	Huawei, HiSilicon	36.331	12.11.0	-	-	F	Rel-12	LTE_SC_enh_dualC-Core
	FDD&TDD diff for mbms-AsyncDC	Huawei, HiSilicon	36.331	13.3.0	-	-	A	Rel-13	LTE_SC_enh_dualC-Core
	FDD&TDD diff for mbms-AsyncDC	Huawei, HiSilicon	36.331	14.0.0	-	-	A	Rel-14	LTE_SC_enh_dualC-Core
R2-167249	Configuration of DMTC for neighbour and serving cells in LAA carrier frequency	Intel Corporation	36.331	13.3.0	-	-	F	Rel-13	LTE_LAA-Core
	Configuration of DMTC for neighbour and serving cells in LAA carrier frequency	Intel Corporation	36.331	14.0.0	-	-	A	Rel-14	LTE_LAA-Core
R2-167250	Clarification on SC-PTM reception	HTC Corporation	36.321	13.3.0	-	-	F	Rel-13	LTE_SC_PT-M-Core
	Clarification on SC-PTM reception	HTC Corporation	36.321	14.0.0	-	-	A	Rel-14	LTE_SC_PT-M-Core
R2-167251	Correction on Downlink power allocation for SC-PTM	TD Tech, Huawei	36.331	13.3.0	-	-	F	Rel-13	LTE_SC_PT-M-Core
	Correction on Downlink power allocation for SC-PTM	TD Tech, Huawei	36.331	14.0.0	-	-	A	Rel-14	LTE_SC_PT-M-Core
R2-167254	Clarifications on LWA and LWIP	HTC Corporation	36.300	13.5.0	-	-	F	Rel-13	LTE_WLAN_radio-Core
	Clarifications on LWA and LWIP	HTC Corporation	36.300	14.0.0	-	-	A	Rel-14	LTE_WLAN_radio-Core
R2-167256	eDRX correction on MME sending Paging message to eNB	Nokia, Alcatel-Lucent Shanghai Bell	36.300	13.5.0	-	-	F	Rel-13	LTE_extDRX-Core
	eDRX correction on MME sending Paging message to eNB	Nokia, Alcatel-Lucent Shanghai Bell	36.300	14.0.0	-	-	A	Rel-14	LTE_extDRX-Core
R2-167257	Clarification regarding on CSI-RS resource configuration for FD-MIMO	Samsung Telecommunications	36.331	13.3.0	-	-	F	Rel-13	LTE_EBF_FDMIMO-Core
	Clarification regarding on CSI-RS resource configuration for FD-MIMO	Samsung Telecommunications	36.331	14.0.0	-	-	A	Rel-14	LTE_EBF_FDMIMO-Core

Report of 3GPP TSG RAN WG2 #95bis, Kaohsiung, 10th – 14th October 2016

RAN2 #93bis Tdoc	Title	Source	Spec	Spec Version#	CR#	rev	cat	Release	SI/WI
R2-167259	Clarification on CIoT	HTC Corporation	36.300	13.5.0	-	-	F	Rel-13	TEI13
	Clarification on CIoT	HTC Corporation	36.300	14.0.0	-	-	A	Rel-14	TEI13
R2-167261	Clarification on UE power class 2 indication	Nokia, Alcatel-Lucent Shanghai Bell	36.331	13.3.0	-	-	F	Rel-13	TEI13
	Clarification on UE power class 2 indication	Nokia, Alcatel-Lucent Shanghai Bell	36.331	14.0.0	-	-	A	Rel-14	TEI13
R2-167262	UL grant in Random Access Response from PCell for SCell	Nokia, Alcatel-Lucent Shanghai Bell, NTT DOCOMO, INC.	36.300	14.0.0	-	-	F	Rel-14	TEI14
R2-167263	Correction on LBT for eLAA	Huawei, HiSilicon	36.300	14.0.0	-	-	F	Rel-14	LTE_eLAA-Core
R2-167264	PDCCH-subframe definition for LAA	Ericsson	36.321	14.0.0	-	-	F	Rel-14	LTE_eLAA-Core
R2-167274	Running CR for 36.305 Further Indoor positioning enhancements	NextNav	36.305	13.0.0	-	-	B	Rel-14	UTRA_LTE_iPos_enh2-Core
R2-167281	Clearing of measurements upon reporting WLAN unavailability	Samsung Telecommunications	36.331	13.3.0	-	-	F	Rel-13	LTE_WLAN_radio-Core
	Clearing of measurements upon reporting WLAN unavailability	Samsung Telecommunications	36.331	14.0.0	-	-	A	Rel-14	LTE_WLAN_radio-Core
R2-167282	Barometric Pressure Uncertainty IEs	NextNav	36.355	14.0.0	-	-	F	Rel-14	TEI14
R2-167298	Clarification on UE category requirement	Intel Corporation	36.306	11.13.0	-	-	F	Rel-11	LTE_CA_enh-Core
	Clarification on UE category requirement	Intel Corporation	36.306	12.10.0	-	-	A	Rel-12	LTE_CA_enh-Core
	Clarification on UE category requirement	Intel Corporation	36.306	13.3.0	-	-	A	Rel-13	LTE_CA_enh-Core
	Clarification on UE category requirement	Intel Corporation	36.306	14.0.0	-	-	A	Rel-14	LTE_CA_enh-Core
R2-167299	Clarification on HARQ feedback on PSCell and PUCCH SCell	HTC Corporation	36.321	13.3.0	-	-	F	Rel-13	LTE_SC_enh_dualC-Core, LTE_CA_enh_b5C-Core
	Clarification on HARQ feedback on PSCell and PUCCH SCell	HTC Corporation	36.321	14.0.0	-	-	A	Rel-14	LTE_SC_enh_dualC-Core, LTE_CA_enh_b5C-Core

Report of 3GPP TSG RAN WG2 #95bis, Kaohsiung, 10th – 14th October 2016

RAN2 #93bis Tdoc	Title	Source	Spec	Spec Version#	CR#	rev	cat	Release	SI/WI
R2-167300	Correction to WLAN measurement configuration	MediaTek Inc., Intel, Qualcomm	36.331	13.3.0	-	-	F	Rel-13	LTE_WLAN_radio-Core
	Correction to WLAN measurement configuration	MediaTek Inc., Intel, Qualcomm	36.331	14.0.0	-	-	A	Rel-14	LTE_WLAN_radio-Core

Annex F: RAN WG2 meeting #95bis post processing

Email discussions/approvals

Rapporteur companies are requested to kick-off email discussions as soon as possible via the RAN2 email reflector. **Important:** In the beginning of the subject of each email the corresponding identifier [...] of the email discussion has to be used in order to allow sorting of the different email discussions.

Email discussions with finalisation by Thu 20.10.2016 midnight Pacific time, i.e. Fri 21.10.2016 9am CEST:

[95bis#01][LTE/eLWA] Stage 2 running CR (Intel)

Endorse running CR with agreements from this meeting.

Intended outcome: Endorsed running CR

Deadline: Thursday 20/10/2016

conclusion: Email discussion was kicked off by Umesh Phuyal (Intel)
on 18.10.2016.

Running 36.300 CR **R2-167318** was endorsed on 21.10.2016.

[95bis#02][LTE/eLWA] RRC running CR (Intel)

Endorse running CR with agreements from this meeting.

Intended outcome: Endorsed running CR

Deadline: Thursday 20/10/2016

conclusion: Email discussion was kicked off by Umesh Phuyal (Intel)
on 18.10.2016.

Running 36.331 CR **R2-167319** was endorsed on 21.10.2016.

[95bis#03][LTE/eLWA] PDCP running CR (Intel)

Endorse running CR with agreements from this meeting.

Intended outcome: Endorsed running CR

Deadline: Thursday 20/10/2016

conclusion: Email discussion was kicked off by Umesh Phuyal (Intel)
on 19.10.2016.

Running 36.323 CR **R2-167320** was endorsed on 21.10.2016.

[95bis#04][NR] TP on SCG split bearer (DOCOMO)

Intended outcome: Agreed TP to add to TR

Deadline: Thursday 20/10/2016

conclusion: Email discussion was kicked off by Toru Uchino (NTT DOCOMO)
on 18.10.2016.

pCR to TR 38.804 **R2-167321** was agreed on 24.10.2016.

[95bis#05][NR] User plane TP (DOCOMO)

Intended outcome: Agreed TP for TR

Deadline: Thursday 20/10/2016

conclusion: Email discussion was kicked off by Hideaki Takahashi (NTT DOCOMO)
on 17.10.2016.

pCR to TR 38.804 **R2-167322** was agreed on 22.10.2016.

[95bis#06][LTE/FeD2D] – Updated TR with agreed TPs (LG)

- Agree to TP capturing agreements from this meeting and agreed TPs

- Deadline: Thursday 20/10/2016

conclusion: Email discussion was kicked off by Jaewook Lee (LGEI)
on 17.10.2016.

TR 36.746 v0.2.1 **R2-167323** and v0.3.0 (clean version) **R2-167324** was agreed
on 22.10.2016.

Email discussions with finalisation by Thu 01.11.2016 midnight Pacific time, i.e. Fri 02.11.2016 9am CEST:

[95bis#07][LTE/eLAA] MAC impact of 2 step granting (Ericsson)

Address the questions in [R2-167197](#) and start to discuss a CR to be submitted to the next meeting.

Intended outcome: Email discussion report to the next meeting and potentially a CR to next meeting.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Mattias Bergström (Ericsson) on 18.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168362](#).

[95bis#08][LTE/SRS carrier switching] 36.331 CR (Huawei)

Progress CR to 36.331 based on expected LS from RAN1.

Intended outcome: CR to be submitted to next meeting

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Xiaodong Yang (Huawei) on 24.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168250](#).

[95bis#09][LTE/SRS carrier switching] 36.321 CR (Huawei)

Progress CR to 36.321 based on expected LS from RAN1.

Intended outcome: CR to be submitted to next meeting

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Xiaodong Yang (Huawei) on 24.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168251](#).

[95bis#10][LTE/Meas Gap enh] Per CC gap configuration (Intel)

To discuss all the options indicated in the RAN4 LS and aim to reach a conclusion which approach to adopt.

Also to look at configuration signalling to be used to configure the gaps per CC

Intended outcome: Email discussion report to next meeting

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Candy Yiu (Intel) on 18.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-167748](#).

[95bis#11][LTE/Meas gap enh] NCSG (Nokia)

Come to understanding whether the observation in the Nokia paper would be sufficient for the eNB to configure use of NCSG. If not sufficient then try to conclude what additional information might be required.

Also to look at configuration signalling to be used to configure the NCSG (e.g. if configured per CC)

Intended outcome: Email discussion report to the next meeting

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Jarkko T. Koskela (Nokia) on 21.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-167704](#).

[95bis#12][LTE/TEI14] State mismatch (DOCOMO)

Discuss potential options and determine the pros and cons so that decision can be made at the next meeting.

Intended outcome: Email discussion report to the next meeting.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Ryusuke Matsukawa (NTT DOCOMO) on 19.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168060](#).

[95bis#13][NR] TP on On demand SI (DOCOMO)

Intended outcome: Agreed TP for TR

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Hideaki Takahashi (NTT DOCOMO)

on 21.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168858](#).

[95bis#14][LTE/V2V] – CR on resource reservation problem – Huawei

- Agree and identify the problem to solve in RAN2 based on RAN1 progress and CRs.
- Agree on how to solve it and whether it should be solved in RAN2
- Intended outcome: Agreeable CR
- Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Zhenzhen Cao (Huawei)
on 21.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-167730](#).

[95bis#15][LTE/FeD2D] – Bearer modelling and adaptation layer - Huawei

- Discuss how bearers are modelled and whether multiple remote UEs can be multiplexed in the same Uu bearer.
- Discuss whether adaptation layer for PC5 and Uu is needed and what would be the required functionalities
- Outcome: Agreeable text proposal
- Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Nathan Tenny (Huawei)
on 15.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-167883](#).

[95bis#16][LTE/eVoLTE] Running stage-2 CR of eVoLTE (CMCC)

Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-2 CR.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Chen Zhuo (CMCC)
on 25.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168755](#).

[95bis#17][LTE/feMBMS] The content, structure and size of needed SI (Ericsson)

Discuss the content, structure and size of needed SI

Intended outcome: Report

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Helka-Liina Maattanen (Ericsson)
on 24.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168474](#).

[95bis#18][LTE/feMBMS] Running stage-2 CR of feMBMS (Ericsson)

Capture the agreements so far.

Intended outcome: Agreeable running stage-2 CR.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Helka-Liina Maattanen (Ericsson)
on 21.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168496](#).

[95bis#19][LTE/light connection] Running stage-2 CR of Light Connection (Intel)

Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-2 CR.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Marta M Tarradell (Intel)
on 28.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168429](#).

[95bis#20][LTE/light connection] Running stage-3 36.331 CRs for each modelling option of Light Connection (Intel)

Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-3 CRs.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Marta M Tarradell (Intel)
on 27.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168430](#).

[95bis#21][LTE/mobility enhancement] Open issues (ZTE)

Address T304 issue, TPC issue and the proposals from 6 to 10 in [R2-166610](#).

Intended outcome: Report.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Yumin Wu (ZTE)
on 21.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168184](#).

[95bis#22][LTE/Mobility enhancement] Running stage-3 36.331 CR (ZTE)

Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-3 CR.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Yumin Wu (ZTE)
on 20.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168182](#).

[95bis#23][LTE/Mobility enhancement] Running stage-3 MAC CR (ZTE)

Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-3 CR.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Yumin Wu (ZTE)
on 20.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168180](#).

[95bis#24][LTE/Mobility enhancement] Running stage-2 CR (Intel)

Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-2 CR.

Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Candy Yiu (Intel)
on 21.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-167747](#).

[95bis#25][LTE/NB-IoT] – RACH on non-anchor (CATT)

- Stage-3 oriented aspects how to implement, and identify remaining open issues for RACH on non-anchor
- Intended outcome: Email discussion report to next meeting
- Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Yuan Zhang (CATT)
on 26.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168156](#).

[95bis#26][LTE/NB-IoT] – Paging on non-anchor (Huawei)

- Stage-3 oriented aspects, how to implement, and identify remaining open issues for paging on non-anchor
- Intended outcome: Email discussion report to next meeting
- Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Chenli (Huawei)
on 24.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-167817](#).

[95bis#27][LTE/NB-IoT] – Reduced power class (Ericsson)

- To identify the issues to resolve and progress as far as possible
- Intended outcome: Email discussion report to next meeting
- Deadline: Tuesday 01/11/2016

conclusion: Email discussion was kicked off by Martin VAN DER ZEE (Ericsson)
on 21.10.2016.

Email discussion result is provided to RAN2 #96 in [R2-168323](#).

[95bis#28][LTE/NB-IoT] – 2 HARQ processes (Huawei)

- To identify the issues to resolve and progress as far as possible

- Intended outcome: Email discussion report to next meeting
- Deadline: Tuesday 01/11/2016
- conclusion: Email discussion was kicked off by Chenli (Huawei) on 25.10.2016.
Email discussion result is provided to RAN2 #96 in [R2-167822](#).

[95bis#29][LTE/NB-IoT/feMTC] – SC-PTM (Huawei)

- Progress on FFSes on configuration and scheduling
- Intended outcome: Email discussion report to next meeting
- Deadline: Tuesday 01/11/2016
- conclusion: Email discussion was kicked off by Chenli (Huawei) on 24.10.2016.
Email discussion result is provided to RAN2 #96 in [R2-167815](#).

[95bis#30][LTE/NB-IoT/feMTC] – Mobility enhancements for SC-PTM (CATT)

- Intended outcome: Email discussion report to next meeting
- Deadline: Tuesday 01/11/2016
- conclusion: Email discussion was kicked off by Yuan Zhang (CATT) on 25.10.2016.
Email discussion result is provided to RAN2 #96 in [R2-168157](#).

[95bis#31][LTE/NB-IoT/eMTC] Coverage authorisation (Ericsson)

- Conditional on receiving a response LS from SA2. To discuss the requirements from SA2 and to discuss potential solution to meet those requirements
- Intended outcome: Email discussion report to the next meeting
- Deadline: Tuesday 01/11/2016
- conclusion: Email discussion was kicked off by Martin VAN DER ZEE (Ericsson) on 31.10.2016.
Email discussion result is provided to RAN2 #96 in [R2-168321](#).

[95bis#32][UMTS/DTX/DRX Enhancements] – Qualcomm

- To progress the CR's to 20.300, 25.306, 25.308 and 25.331.
- Deadline: Tuesday 01/11/2016
- conclusion: Email discussion was kicked off by Aravindh Suriyamoorthy (Qualcomm) on 27.10.2016.
Email discussion results are provided to RAN2 #96 in [R2-167637](#), [R2-167638](#), [R2-167943](#) and [R2-167944](#).

[95bis#33][UMTS/HSPA<E joint operation] – Huawei

- To reach an agreeable TP on LTE impacts from UMTS side, and submit for discussion and approval during next meeting in main session, with an email discussion report highlighting the LTE impacts.
- Intended outcome: TP
- Deadline: Tuesday 01/11/2016
- conclusion: Email discussion was kicked off by Jun Chen (Huawei) on 20.10.2016.
Email discussion results are provided to RAN2 #96 in [R2-167985](#) and [R2-167986](#).

Annex G:

LTE Breakout session: feD2D, V2X, V2V, LATRED

On Monday and Thursday of RAN2 #95bis, in parallel to the main LTE session, an LTE Breakout session on feD2D, V2X, V2V and LATRED session was chaired by RAN2 vice-chairman Diana Pani (Interdigital) addressing:

This is the report from breakout sessions covering the following Items:

- 7.5 LTE: Rel-13: WI: ProSe enhancements
- 8.2 LTE: Rel-14: WI: Support for V2V services based on LTE sidelink
- 8.4 LTE: Rel-14: SI: Further Enhancements to LTE Device to Device, UE to Network Relays for IoT and Wearables
- 8.8 LTE: Rel-14: WI: L2 latency reduction techniques for LTE

The corresponding report of this session [R2-167240](#) was presented and approved on Friday and the contents is provided in this Annex G for convenience reasons.

7.5 WI: ProSe enhancements

(LTE_eD2D_Prox-Core, leading WG: RAN2, REL-13; started: Dec. 14, closed: Mar. 16, WID: [RP-150441](#))

WI complete from RAN2 perspective

Documents in this agenda item will be handled in the LTE Break Out session

- [R2-166310](#) Corrections on reception of MBMS Huawei, HiSilicon draftCR 36.304 13.3.0- - F
Rel-13 LTE_eD2D_Prox-Core
- Qualcomm thinks that the relaying is done in L3 and it is not AS behaviour. If we want to capture we can specify it in the SL chapter as L3 behaviour. Huawei thinks that we should specify it in the AS.
 - Ericsson feels that this is like an addition of a feature and we didn't discuss this at length in Rel-13
 - LG agrees with Qualcomm.
- => The CR is postponed

- [R2-166311](#) Minor corrections for Rel-13 eD2D Huawei, HiSilicon
draftCR 36.331 13.3.0- - F Rel-13 LTE_eD2D_Prox-Core
- => The CR is in principle agreed

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](#))

Time budget: 0 TU

This agenda item is for correction CRs to the closed WI

Documents in this agenda item will be handled in the LTE Break Out session

8.2.1 Stage 2

- [R2-166223](#) Corrections on V2V descriptions in TS 36.300 Huawei, HiSilicon draftCR 36.300 14.0.0-
- F Rel-14 LTE_SL_V2V-Core
- => Not treated
- [R2-166549](#) Miscellaneous corrections on V2V ZTE Corporation draftCR 36.300 14.0.0- - F
Rel-14 LTE_SL_V2V-Core
- => Not treated

[R2-167011](#) Addition of UE geographical information reporting LG Electronics Inc. draftCR 36.300
 14.0.0- - F Rel-14 LTE_SL_V2V-Core
 => Moved from 8.2.3
 => Not treated

8.2.2 User plane

[R2-166219](#) Miscellaneous corrections for V2V in TS 36.321 Huawei, HiSilicon draftCR 36.321
 14.0.0- - F Rel-14 LTE_SL_V2V-Core
 - Ericsson and Qualcomm thinks that we should change SL-D-RNTI to SL-V-RNTI Sidelink V2X RNTI
 => Change variable to SL-V-RNTI
 => Send LS to RAN1 with all agreements impacting the RAN1 CRs.
 => Wait for the discussion on resource reservation.
 - Ericsson thinks that the problem of buffer status reporting goes beyond just adding the SL-RNTI. Huawei thinks that the change is independent of whether we have simultaneous BSR reporting.
 => FFS if we have separate BSR reporting for V2V and ProSe
 => Changes in 5.14.1.4 are acceptable
 => We will have a single CR with miscellaneous changes and independent CRs for special issues
 => The changes related to SL-V-RNTI are agreed and merged in [R2-167183](#)

[R2-166220](#) Corrections on SCI transmission Huawei, HiSilicon draftCR 36.321 14.0.0- - F
 Rel-14 LTE_SL_V2V-Core
 - Ericsson agrees with the intention but maybe it would be easier to handle if the retransmissions are included in the selected grant.
 - Intel, Panasonic thought that the grant includes both the initial and retransmission resources.
 => Clarify that the retransmission opportunity are part of the configured grant
 => The CR is postponed

[R2-166221](#) Corrections on MCS selection for V2X sidelink communication Huawei, HiSilicon draftCR 36.321 14.0.0- - F Rel-14 LTE_SL_V2V-Core
 - Ericsson thinks that we should remove “for V2X sidelink communication in UE autonomous”. LG is concerned about legacy.
 - Nokia Net asks what happens when the UE switches to exception pool. Huawei thinks that the UE will switch to UE autonomous pool.
 => The CR is agreeable and merged in [R2-167183](#)

[R2-166550](#) Correction on TS 36.321 for V2V ZTE Corporation draftCR 36.321 14.0.0- - F
 Rel-14 LTE_SL_V2V-Core
 - Ericsson thinks that for legacy we have use TB so we should keep the same
 - InterDigital, Panasonic, and Intel think we should keep MAC.
 => First is agreeable
 => No need for second change
 => Last change should be updated to for “one” more transmission opportunity
 => the CR will be merged in [R2-167183](#)

[R2-166708](#) Correction to Resource Selection for V2X Sidelink Communication Qualcomm Incorporated draftCR 36.321 14.0.0- - F Rel-14 LTE_SL_V2V-Core
 - LG doesn't see this changes are essential and there would be RAN1 impacts. Qualcomm explains that this is aligning with RAN1 specs.
 - Ericsson agrees with the intention but thinks that the changes are a bit too much. But some clarification for the first change may be needed
 - LG wonders the second change is already clear from RAN1 specification. Huawei agrees with the intention of the change. RAN1 didn't consider the random selection. Intel would like to have more time to check.
 => The third change is acceptable and will be merged next meeting in one CR capturing all agreements related to resource reservation.
 => The CR is postponed

- [R2-166218](#) Discussion on the number of resources reserved for mode 4 Huawei, HiSilicon discussion
 => *For multi-transmission resource reservation, the UE reserves transmission opportunities equal to the number of SL_RESOURCE_RESELECTION_COUNTER.*
 - Ericsson agrees
 => *SL_RESOURCE_RESELECTION_COUNTER is decremented after each transmission opportunity if case of no retransmission and after each retransmission opportunity.*
 - Ericsson agrees.
 - LG doesn't agree that the change is needed. Qualcomm also doesn't think this is needed. There are two counters that are maintained and one is maintained in RAN1 specs.
 - Intel sees the problem identified and thinks that RAN2 should handle it. InterDigital and ZTE agree
 => Noted

☒ **[95bis#14][LTE/V2V] – CR on resource reservation problem – Huawei**

- Agree and identify the problem to solve in RAN2 based on RAN1 progress and CRs.
- Agree on how to solve it and whether it should be solved in RAN2
- Propose agreeable CR
- Deadline: 01/11/2016

- [R2-166217](#) Corrections on the number of resources reserved for mode 4 Huawei, HiSilicon draftCR
 36.321 14.0.0- - F Rel-14 LTE_SL_V2V-Core
 => Not treated

- [R2-166227](#) Discussion on keeping resource Huawei, HiSilicon discussion
 - Qualcomm agrees with the intention but thinks RAN1 should handle it.
 - Ericsson, Oppo, Panasonic, Intel, Interdigital, ZTE supports. Interdigital thinks that this is actually aligning the behaviour with the RAN1 spec.
 => RAN2 agrees that the UE makes the decision of whether to keep the resource or not before transmitting the last MAC PDU of a multi-transmission grant. If the UE decides to keep the resource, the reservation field in SA should be set to a non-zero value.
 => Include this in RAN1 LS
 => Noted

- [R2-166306](#) Sensing based UE autonomous resource selection Huawei, HiSilicon discussion
 => Moved from 8.13.4
Proposal 1: A multi-transmission grant is linked to a sidelink logical channel. If the grant cannot accommodate a RLC SDU of the linked logical channel by using the maximum allowed MCS and the MAC entity selects not to segment the RLC SDU, the UE can reselect a new multi-transmission grant.
 - Panasonic agrees but is not sure if we are limiting to one logical channel. LG and Ericsson agree on this linkage.
 - Qualcomm asks what happens if the number of logical channels is larger than the reservation process numbers. Ericsson thinks that this would be to one or more.
 - Intel asks "what is the problem if we don't link it". LG thinks that we have two different issues, one is on how to determine the periodicity and second issue on which logical channels can use the resources.
 - Panasonic would like to prevent the UE from selecting a one-shot transmission and the linking is one way.
 => FFS if there is a linkage between a reservation process and one or more logical channel.
Proposal 2: If the grant cannot accommodate a RLC SDU of the linked logical channel by using the maximum allowed MCS and the MAC entity selects to segment the RLC SDU, the UE can select another grant. It is up to UE implementation whether to select a multi-transmission grant or a one-shot grant.
 - Huawei would like to specify this
 => Noted

- [R2-166643](#) Radio resource selection behaviour for autonomous resource allocation mode PANASONIC R&D Center Germany discussion
Proposal3: a UE shall be only allowed to select resources for a one-shot transmission (i.e. create a configured sidelink grant corresponding to transmission(s) of a single MAC PDU) when data is available in STCH(s), if UE has not already reserved radio resources for that

- data in the STCH(s) (i.e. UE has no configured sidelink grant corresponding to transmissions of multiple MAC PDUs which is associated with data of the same STCH(s))*
- Ericsson supports this proposal. InterDigital wonders how we handle the case that the size of the reservation is not enough for the new data. Panasonic thinks that it can be handled by the existing spec on RLC SDU segmentation.
 - LG thinks that the UE should also consider the delay requirement
- Proposal4: a UE shall be only allowed to make a resource reservation (i.e. create a configured sidelink grant corresponding to transmissions of multiple MAC PDUs) when data is available in STCH(s), if UE has not already a resource reservation process for transmission of this data (i.e. UE has no configured sidelink grant corresponding to transmissions of multiple MAC PDUs which is associated with data of the same STCH(s))*
- => Noted

[R2-166970](#) MAC Open Issues Ericsson discussion
Proposal 1 No need to enhance SL-BSR procedures for sidelink V2V operations.
 => No need to enhance SL-BSR procedure
Proposal 4 Introduce 20ms and 50ms resource reservation period
 - LG and QC are supportive
 => Introduce a configurable resource reservation period, other than 100ms. The values are FFS. This will be included in the V2V CRs for 36.331 and 36.321. Qualcomm will write the CRs. FFS if there is a link between the resource reservation period and booking process.
 => Include this in the RAN1 LS
 => Noted

[R2-166741](#) Support for Low Periodicity for V2X Sidelink Communication Qualcomm Incorporated discussion
 => Moved from 8.13.4
 => Not treated

[R2-167030](#) Smaller periodicity on PC5 based V2V LG Electronics Inc. discussion Late
 => Moved from 8.13.4
 => Not treated

[R2-166259](#) Further consideration for resource selection Intel Corporation discussion
 Late
 => Withdrawn by MCC after the meeting

[R2-167028](#) Corrections to resource allocation in Sidelink Mode 4 LG Electronics Inc. discussion
 Late
 => Not treated

[R2-167029](#) V2V corrections LG Electronics Inc. draftCR 36.321 14.0.0- - F Rel-14
 LTE_SL_V2V-Core
 Late
 => Not treated

[R2-166222](#) Corrections on V2V in TS 36.323 Huawei, HiSilicon draftCR 36.323 14.0.0- - F
 Rel-14 LTE_SL_V2V-Core
 => Not treated

[R2-167184](#) (Draft) LS to RAN1 on V2V agreements LGLS out to: RAN1 from: RAN2 Rel-14
 LTE_SL_V2V-Core
 => Add "0" to DFN
 => The LS is approved in [R2-167188](#) with the change above.

8.2.3 Control plane

[R2-166224](#) Corrections on V2V in TS 36.331 Huawei, HiSilicon draftCR 36.331 14.0.0- - F
 Rel-14 LTE_SL_V2V-Core
 => Update the field description to follow the normal way "E-UTRAN configures...."
 - LG is concerned that for pre-configuration this doesn't apply. Qualcomm thinks that maybe we can capture this separately.

=> The Pre-config IE field description will be updated

=> The CR is revised in [R2-167185](#)

[R2-167185](#) Corrections on V2V in TS 36.331 Huawei, HiSilicon draftCR 36.331 14.0.0- - F
Rel-14 LTE_SL_V2V-Core
[CB]

[R2-166225](#) Corrections on V2V descriptions in TS 36.304 Huawei, HiSilicon draftCR 36.304 14.0.0-
- F Rel-14 LTE_SL_V2V-Core

=> not treated

[R2-166546](#) Correction on TS36.331 for V2V ZTE Corporation draftCR 36.331 14.0.0- - F
Rel-14 LTE_SL_V2V-Core

- On section 5.10.2.2 Nokia Net doesn't think it is critical to change the order. Interdigital doesn't think we need to change the order.

=> First change is not needed

- On Section 5.10.7.4 InterDigital would have a preference to keep as is, but if we keep it we should add sidelink to both.

=> Add definition of sidelink operation that it includes sidelink communication, V2X sidelink communication, sidelink discovery and delete " (communication or discovery). The rapporteur will review the 36.331 for all instances of sidelink operation.

=> Changes in 5.10.y.1 are agreeable

=> Changes in 6.3.8 are agreeable

- Huawei doesn't think the changes for *SL-OffsetIndicator* are not needed. ZTE indicates that RAN1 agreed to add this periodicity periodicity. Huawei indicates that they changed the periodicity but didn't change the offset.

=> The offset should be changed to 160. A new Rel-14 IE is introduced in the synchronization configuration. Inform RAN1 about the agreement.

=> Changes to *SL-V2X-ConfigDedicated* are agreeable

=> The agreeable changes will be merged in [R2-167185](#)

[R2-167013](#) Correction on V2V feature LG Electronics Inc. draftCR 36.331 14.0.0- - F Rel-14
LTE_SL_V2V-Core

=> Not treated

[R2-166658](#) V2X remaining issues related to Tx resource selection and pool usage Samsung
Telecommunications discussion

- Ericsson and LG thinks that we asked RAN1 for input and we should wait for their response before adding more use cases. Qualcomm thinks that we should still discuss this.
- Ericsson thinks that we already discussed cell selection/reselection and decided to leave it UE implementation. Intel indicates that when we made the decision we didn't consider the sensing. LG thinks we should focus on the two main cases, sensing result is available and if sensing result is not available and we don't have to specify all the use cases. Samsung thinks that we should limit this to the exceptional pool.
- Ericsson asks if this would mean that different exceptional pools would be used.
- LG thinks that exceptional pool should be used only for random selection and if sensing results are available it can use other pools.

=> Noted

[R2-166860](#) Considerations on pre-sensing on exceptional resource pool ZTE Corporation discussion

=> Not treated

[R2-167008](#) Exceptional pool handling in RRCLG Electronics Inc. discussion

=> Not treated

[R2-166554](#) Clarification on the usage of exceptional pool ZTE Corporation draftCR 36.331 14.0.0-
- F Rel-14 LTE_SL_V2V-Core

=> Not treated

[R2-166657](#) V2X corrections regarding Tx resource selection and pool usage Samsung
Telecommunications draftCR 36.331 14.0.0- - F Rel-14 LTE_SL_V2V-Core
Late

=> Not treated

Not treated

[R2-166968](#) UE Location Reporting Ericsson discussion

[R2-167009](#) Geo-information reporting LG Electronics Inc. discussion

[R2-166180](#) UE location Report CATT discussion

=> Moved from 8.13.4

[R2-166257](#) Further consideration for periodical geo-location reporting Intel Corporation discussion

=> Moved from 8.13.4

UE capability

Not treated

[R2-167010](#) UE capability for V2X sidelink communication LG Electronics Inc. discussion

=> Revised in [R2-167154](#)

[R2-167154](#) UE capability for V2X sidelink communication LG Electronics Inc. discussion

[R2-167012](#) Addition of UE capability for V2X sidelink communication in 36.306 LG Electronics Inc.
draftCR 36.306 14.0.0- - F Rel-14 LTE_SL_V2V-Core

=> Revised in [R2-167155](#)

[R2-167155](#) Addition of UE capability for V2X sidelink communication in 36.306 LG Electronics Inc.
draftCR 36.306 14.0.0- - F Rel-14 LTE_SL_V2V-Core

CR 36.302

Not treated

[R2-166226](#) Corrections on measurements provided by the physical layer Huawei, HiSilicon draftCR
36.302 14.0.0- - F Rel-14 LTE_SL_V2V-Core

=> Moved from 8.2.1

[R2-166553](#) Correction on TS 36.302 for V2V ZTE Corporation draftCR 36.302 14.0.0- - F
Rel-14 LTE_SL_V2V-Core

8.4 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-14; started: Mar. 16; target: Jun. 17; SID: [RP-161839](#))

Time budget 1TU

Documents in this agenda item will be handled in the LTE Break Out session

8.4.1 Organisational

Including incoming LSs, running TR, etc

Including output from email discussion [95#33][LTE/FeD2D] – Update TR 36.746 - LG

[R2-167016](#) Update of TR 36.746 LG Electronics Inc. draft TR 36.746 0.1.1 result of email discussion
[95#33] Rel-14 FS_feD2D_IoT_relay_wearable

=> Agreed

=> The clean version TR V0.2.0 will be provided in [R2-167180](#)

8.4.2 UE-to-Network Relay enhancements

8.4.2.1 Common relay architecture aspects

Connectivity scenarios

Relaying options for UP/CP

Including output from email discussion [95#34][LTE/FeD2D] – Capture requirements – Ericsson

Including output from email discussion [95#35][LTE/FeD2D] – Scenarios and RRC states - Huawei

- [R2-166730](#) Text proposal to TR 36.746 from e-mail discussion 95#34 Ericsson (Rapporteur) pCR 36.746 Related to e-mail discussion [95#34]. Rel-14 FS_feD2D_IoT_relay_wearable
- Intel is concerned with the second paragraph, any negative impact is not possible for the relay UE to not have any negative impact.
 - => In section 4.3 second paragraph delete “any” and replace shall with “should”
 - Intel asks if it is possible to reduce the complexity of the remote UE when compared with Rel-13. ZTE has the same concerns and thinks it is sufficient to just state that we should reduce complexity. Oppo agrees. Qualcomm explains that at least for the unidirectional case the complexity will be reduced.
 - LG indicates that there are two points: 1) have a low complexity UE and 2) the complexity of the UE should be taken into account in the analysis
 - Nokia also shares the concerns
 - => in Section 4.4 change first paragraph to “As a guideline, the device complexity of the Evolved ProSe Remote UE should be taken into account when analysing the solutions. Delete any and replace “shall” with “should”
 - Section 4.6 Nokia thinks that we should add something related to QoS. Huawei agrees. Intel prefers original sentence as there is concerns on the non-3GPP case. Ericsson thinks that we can add something on QoS after the discussion on the QoS papers.
 - Sequans would like to add more traffic types should be added, like batched and periodic. Panasonic wonders if there is any companies trying to exclude traffic types.
 - => FFS how QoS aspects will be captured in the requirements
 - Section 4.7, Oppo asks if Rel-12 should also be included. Ericsson explains that there will be Rel-12 UEs on the systems so we have to take them into account.
 - Section 4.8, Sony asks if this is for LTE UEs only. Huawei thinks that for the non-3GPP we cannot say that service continue will be required.
 - => In section 4.8 we will capture in the editor’s notes that capturing of non-3GPP access is FFS
 - => The TP will be updated and revised in [R2-167181](#)

- [R2-167181](#) Text proposal to TR 36.746 from e-mail discussion 95#34 Ericsson (Rapporteur) pCR 36.746 Related to e-mail discussion [95#34]. Rel-14 FS_feD2D_IoT_relay_wearable [CBF]

- [R2-166913](#) Summary of email discussion: [95#35][FeD2D] Scenarios and RRC states Huawei discussion result of email discussion [95#35] Rel-14 FS_feD2D_IoT_relay_wearable Late
- Ericsson and Intel think that there are additional scenarios to consider
 - Proposal: In scenario 2, the network can initiate establishing a connection only if it has prior knowledge of the relationship between the WD and relay UE.*
 - o The nature of this “prior knowledge” needs to be defined.
 - o It can be considered if there should be further limitations on the network initiated case.
 - Nokia Net is not sure that there is a need for a “prior knowledge”. Huawei indicates that companies were concerned with the case that the network didn’t know and would be complicated to find the UE. Nokia Net thinks that the network can page the remote UE over Uu. Huawei thinks that in that case the network will try to page it, it won’t reach the remote UE and then it can try to page the UE via the relay.
 - Proposal: In scenario 3, either the remote UE or the network can initiate establishing a connection between the remote UE and the relay UE.*
 - Sequans thinks that the “prior knowledge” from the network can also be used here. Panasonic wonders how the network has prior knowledge. Huawei indicates that the network can page the UE directly to go and find a relay. Intel supports Sequans.
 - ZTE wonders how the word “paired” and “connected” are used. Huawei explains they are using them as synonyms.
 - Proposal: The relay UE may be in RRC_IDLE while paired with a remote UE, and in this case the remote UE is also in RRC_IDLE.*
 - Panasonic wonders if this means that the network needs to send the remote UE to idle mode as well.
 - Intel and LG think that the pairing is independent from the RRC connection.

- LG asks what is meant by RRC IDLE. Huawei explains that it is like today, in idle it doesn't have a context and in RRC connected the eNB has a context. Coolpad thinks we should define the UE behaviours in these states.
- Ericsson thinks that we should also define some states between the UE

=> The TP is revised in [R2-167182](#)

[R2-167182](#)

TP on Scenarios and RRC states Huawei discussion result of email
discussion [95#35] Rel-14 FS_feD2D_IoT_relay_wearable
[CB]

Agreements:

- Agree to the set of scenarios and add in Editor's note that additional scenarios can be considered
- In scenario 2, the remote UE can initiate establishing a "connection" to the relay.
- In Scenario 2, the network can initiate establishing a connection
- Make "FFS if the network needs to have "prior knowledge" of the relationship between the remote UE and the relay UE". Add Editor's note – the nature of "prior knowledge" needs to be considered
- In scenario 3, either the remote UE or the network can initiate establishing a "connection" between the remote UE and the relay UE. Add FFS if the network can use "prior knowledge" of the relationship between the remote UE and the relay UE
- The remote UE doesn't have to be in RRC CONNECTED while "paired" with a relay UE.
- The relay UE may be in RRC_IDLE while "paired" with a remote UE, and in this case the remote UE is not in RRC CONNECTED. FFS if the remote UE can still be in connected mode.
- RRC Connected means that the eNB has a context. The UE behaviour in these states is FFS.

Userplane

[R2-166188](#)

Discussion on The Protocol Architecture of Layer 2 UE-to-Network Relay Guangdong OPPO Mobile Telecom. Discussion

- Sony asks why having the RLC in the eNB is an advantage. Oppo thinks that because it gives end to end reliability
- Nokia asks what PC5 protocol refers to. Oppo indicates that it refers to the protocol stack specified in this release.

[R2-166915](#)

Layer 2 architecture for UE-to-Network Relay Huawei, HiSilicon discussion Late

- Ericsson asks if we need to contact SA3 about the proposal 4. Huawei doesn't think it is necessary to notify SA3 as there wouldn't be any specification impact.

Discussion on [R2-166188](#) and [R2-166915](#)

- Alternative 1 – relay over MAC
- Alternative 2 - relay over RLC
- Oppo thinks that Alternative 1 is better
- Sony and Huawei don't see having end-to-end RLC as a benefit and think alternative 2 is better.
- Intel, Ericsson, Panasonic, QC, LG, ZTE, coolpad have a preference for alternative 2

Discussion on adaptation layer

- Coolpad wonders if the adaptation layer is only for non-3GPP access. Huawei thinks that it may still be necessary to have some adaptation layer for PC5 for multiplexing different bearers. Oppo asks why there is adaptation layer for Uu as well. Huawei explains that the eNB needs to know which remote UEs sent the data for de-multiplexing purposes. Intel is not sure why that is needed as we have the RLC LCID for de-multiplexing. LG thinks that it is because we need to differentiate between different UEs.
- ZTE also doesn't see a need for an adaptation layer PC5. Huawei explains that it is because we may have multiple remote UEs mapped to same Uu DRBs.

Agreements:

- Layer 2 relaying over RLC is agreed. FFS whether an adaptation layer is needed for PC5 and Uu and for non-3GPP access.

☒ **[95bis#15][LTE/FeD2D] – Bearer modelling and adaptation layer - Huawei**

- Discuss how bearers are modelled and whether multiple remote UEs can be multiplexed in the same Uu bearer.
- Discuss whether adaptation layer for PC5 and Uu is needed and what would be the required functionalities
- Outcome: agreeable text proposal
- Deadline: 01/11/2016

☒ **[95bis#06][LTE/FeD2D] – Updated TR with agreed TPs**

- Agree to TP capturing agreements from this meeting and agreed TPs
- Deadline: Thursday 20/10/2016

[CB]

Not treated

- [R2-166720](#) Relay RLC Operation Sony discussion
[R2-166253](#) Discussion on Layer 2 relaying options Intel Corporation discussion
[R2-166731](#) User plane architecture Ericsson discussion
[R2-166815](#) Discussion on layer 2 ProSe UE-to-network relay for FeD2D ZTE Corporation discussion
[R2-166831](#) Discussion on L2 relay architecture for FeD2D Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-167018](#) Architecture for FeD2D LG Electronics Inc. discussion
=> Moved from 8.4.2.3

Control Plane

Not treated

- [R2-166725](#) Control plane architecture Ericsson discussion
[R2-166746](#) Pairing, RRC states and Control Plane relaying Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166590](#) " Discussion on Control Plane Architecture for Evolved ProSe UE-to-NW relay" Shenzhen Coolpad Technologies discussion
[R2-166665](#) Relay Option for the evolved ProSe UE-to-Network Relay LG Electronics Inc. discussion
[R2-166592](#) Discussion on Potential Issues of Evolved ProSe Remote UEs in RRC_IDLE State Shenzhen Coolpad Technologies discussion
[R2-166726](#) Control plane states Ericsson discussion
[R2-166802](#) Considerations on the evolved UE-to-Network Relay connectivity scenarios ZTE Corporation discussion
[R2-166871](#) Connectivity Scenarios for Wearables and IoT Devices InterDigital Communications discussion
[R2-166914](#) Procedures for remote or relay UE in idle mode Huawei, HiSilicon discussion Late [YJ:] Status for above 9 Tdocs ???

Additional scenarios

- [R2-166728](#) Relaying Scenarios with multiple UEs Ericsson discussion
=> Not treated

Other

Not treated

- [R2-166916](#) Principles of traffic management for wearable devices Huawei, HiSilicon discussion Late
[R2-167017](#) Mobility aspect of remote UE LG Electronics Inc. discussion
[R2-166722](#) CIoT signaling optimisation reuse for Relay Sony discussion

[R2-166723](#) Relay and Remote device physical layer capabilities Sony discussion

8.4.2.2 Non-3GPP related aspects

Aspects specific to non-3GPP related scenarios (improvements to BT or WiFi are out of scope of this SI)

[R2-166404](#) Support non-3GPP only access capability for low-cost wearables III discussion
=> Not treated

8.4.2.3 Other

Mobility, authorization, connection setup, service continuity, etc

Connection establishment/setup

Not treated

[R2-166292](#) Relay discovery and connection setup procedures on LTE Sidelink Huawei, HiSilicon discussion

[R2-166797](#) Connection establishment for UE-to-NW relaying Nokia, Alcatel-Lucent Shanghai Bell discussion

[R2-166262](#) Considerations to support CP via relaying in FeD2D Intel Corporation discussion

[R2-166624](#) Discussion on connection setup for FeD2D ASUSTEK COMPUTER (SHANGHAI) discussion

[R2-166792](#) Discussion on connection setup procedure ZTE Corporation discussion

Service continuity

Not treated

[R2-166263](#) Scenarios for Service continuity in FeD2D Intel Corporation discussion

[R2-166271](#) Text proposal for service continuity scenarios in FeD2D Intel Corporation discussion

[R2-166394](#) Discussion on service continuity scenarios KDDI Corporation other

[R2-166729](#) Service Continuity and Mobility Ericsson discussion

Path selection

Not treated

[R2-166254](#) Path selection criteria Intel Corporation discussion

[R2-166256](#) Introduction of paired mobility Intel Corporation discussion

[R2-166663](#) Path selection and switch LG Electronics Inc. discussion

[R2-166796](#) UE mobility aspect in the evolved UE-to-Network Relay architecture ZTE Corporation discussion

8.4.3 LTE sidelink enhancements

8.4.3.1 Evaluation assumptions

RAN2 specific evaluation assumptions and traffic modelling

No contributions received.

8.4.3.2 Other

Other RAN2 enhancements related to QoS, link efficiency, cost and power saving. As per RAN2 agreements the primary objective should be to address power efficiency for the wearable device (this is applicable to all UE categories).

Not treated

[R2-166293](#) QoS Aspects for the UE-to-NW Relay over Sidelink Huawei, HiSilicon discussion

[R2-166294](#) Draft LS on QoS support of UE-to-Network Relay over LTE sidelink Huawei, HiSilicon LS out

[R2-166798](#) Some considerations on the power efficiency of R14 FeD2D ZTE Corporation discussion

R2-166255	Introduction of DRX over PC5 Intel Corporation discussion
R2-166264	QoS considerations in FeD2D Intel Corporation discussion
R2-166354	System Information Relaying Via Side-link SHARP Corporation other
R2-166727	Quality of Service for the Relay solution Ericsson discussion

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](#))

Time budget 0TU

This agenda item is for correction CRs to the closed WI

Endorsed Running CR on RAN2#95 for 36.321: [R2-165346](#)

Endorsed Running CR on RAN2#95 for 36.331: [R2-165763](#)

Documents in this agenda item will be handled in the LTE Break Out session

- [R2-166751](#) RV setting in SPS with skip UL Ericsson discussion
Moved from 8.22 to 8.8
For SkipUplinkTxSPS, if configured, non-adaptive retransmissions are done based on a fixed configurable redundancy version
- ZTE thinks that the best performance is achieved by setting the RV to 0. Ericsson thinks that if it is configurable it would be RV 0. ZTE, Samsung, Nokia Net and LG would like to have it always set to 0
 - Intel doesn't think that it should always be set zero.
 - Qualcomm thinks that it should be configurable. Samsung doesn't see the benefit of making it configurable, some benefits should be shown. Qualcomm explains that we are basically removing the option and benefit of using different redundancy version just to reduce eNB complexity.
 - Ericsson thinks that for the eNB this is quite complex and beneficial.
- => FFS if non-adaptive retransmissions with RV set to 0 is configurable
- [R2-166753](#) RV setting in SPS with skip UL Ericsson draftCR 36.321 14.0.0- - B Rel-14
 LTE_LATRED_L2-Core
Moved from 8.22 to 8.8
 => Not Treated
- [R2-166766](#) RV setting in SPS with skip UL Ericsson draftCR 36.331 14.0.0- - B Rel-14
 LTE_LATRED_L2-Core
Moved from 8.22 to 8.8
 => Not treated
- [R2-166767](#) SkipUplinkTxSPS correction to enable adaptive retransmissions Ericsson discussion
Proposal 1 For SkipUplinkTxSPS, adaptive retransmission UE behaviour when HARQ buffer is empty needs to be clarified.
- LG asks in which case the eNB provides an UL grant if nothing is received. Ericsson indicates that this would be in case of DTX error. LG thinks that if the UE receives the grant it will treat it as a new transmission.
 - Nokia Net thinks that the decoding will still fail anyways as the network will combine with the first received data.
 - Ericsson thinks that this is suboptimal.
 - LG thinks that it is clear, if the UE receives a grant it will generate a new transmission.
 - Samsung thinks that UE behaviour is not necessarily clear.
 - Nokia thinks that in legacy if the grant has RV different than zero the UE ignores the grant and if it RV zero is will trigger new transmission.
- Proposal 2 For SkipUplinkTxSPS, adaptive retransmissions are not skipped. In case the HARQ buffer is empty when the adaptive retransmission grant is received, new data (or padding) is transmitted.*
- Proposal 3 For SkipUplinkTxSPS, the transmission uses the RV provided within the adaptive retransmission grant following legacy behaviour.*
- => Noted

[R2-166768](#) SkipUplinkTxSPS correction to enable adaptive retransmissions Ericsson draftCR 36.321
14.0.0- - Rel-14 LTE_LATRED_L2-Core
=> Not treated

UE capability

[R2-166267](#) UE capabilities for latency reduction Intel Corporation discussion

Proposal 3.A UE supporting latency reduction in TDD shall support short SPS interval for TDD, does not round the intervals less than 10ms down to the nearest integer which is multiple of 10 sub-frames, support skipping of the SPS UL occasion which falls on the special subframe or downlink subframe and allow and prioritize non-adaptive HARQ retransmission on the SPS resources.

- Nokia Net thinks that we should have a separate bits for shorter SPS for TDD and FDD. Ericsson thinks that one bit should be fine. Samsung thinks that from IoT perspective it may be better to split.

Proposal 4.A UE supporting short SPS interval (in FDD or TDD) shall support UL SPS grant skipping.

=> Noted

[R2-166621](#) UE capability for latency reduction Nokia, Alcatel-Lucent Shanghai Bell discussion

Agreements:

- A UE supporting short SPS interval shall support allowing and prioritizing non-adaptive HARQ retransmissions on the SPS resources. No need for separate capability
- A UE supporting UL SPS grant skipping shall support SPS confirmation MAC CE for activation/reactivation/deactivation feedback and ignoring SPS implicit release. No need for separate capability
- Separate capability bits for shorter SPS for TDD and FDD will be introduced
- A UE supporting shorter SPS interval for TDD does not round the intervals less than 10ms down to the nearest integer which is multiple of 10 sub-frames, support skipping of the SPS UL occasion which falls on the special subframe or downlink subframe and allow and prioritize non-adaptive HARQ retransmission on the SPS resources.
- A UE supporting short SPS interval (in FDD or TDD) shall support UL SPS grant skipping.

Not treated

[R2-166623](#) 36.306 CR on UE capabilities for Latency Reduction Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.306 14.0.0- - Rel-14 LTE_LATRED_L2-Core

[R2-166626](#) 36.331 CR on UE capabilities for Latency Reduction Nokia, Alcatel-Lucent Shanghai Bell draftCR 36.331 14.0.0- - Rel-14 LTE_LATRED_L2-Core

[R2-166789](#) Capability for skipped padding and short SPS interval Ericsson draftCR 36.306 14.0.0- - Rel-14 LTE_LATRED_L2-Core

[R2-166790](#) Capability for skipped padding and short SPS interval Ericsson draftCR 36.331 14.0.0- - Rel-14 LTE_LATRED_L2-Core

[R2-166805](#) Discussion on UE capabilities on L2 latency reduction techniques Huawei, HiSilicon discussion

[R2-166806](#) UE capabilities on L2 latency reduction techniques Huawei, HiSilicon draftCR 36.331 13.3.0- - C Rel-14 LTE_LATRED_L2-Core

[R2-166807](#) UE capabilities on L2 latency reduction techniques Huawei, HiSilicon draftCR 36.306 13.3.0- - C Rel-14 LTE_LATRED_L2-Core

[R2-166943](#) UE capabilities for latency reduction Intel Corporation draftCR 36.331 14.0.0- - B Rel-14 LTE_LATRED_L2-Core

[R2-166944](#) UE capabilities for latency reduction Intel Corporation draftCR 36.306 14.0.0- - B Rel-14 LTE_LATRED_L2-Core

Withdrawn:

[R2-166791](#) Capability for skipped padding and short SPS interval Ericsson draftCR 36.331 14.0.0- - Rel-14 LTE_LATRED_L2-Core

8.13 WI: LTE-based V2X Services

(LTE_V2X-Core, leading WG: RAN1; REL-14; started: June 16; target: Mar. 17; WID: **RP-161894**)

Time budget: 2TU

Documents in this agenda item will be handled in the LTE Break Out session

Incoming LS:

[R2-166034](#) LS on L1 parameters for sidelink-based V2V (**R1-168202**; contact: LGE) RAN1 LS in
to: RAN2 Rel-14 LTE_SL_V2V-Core
=> Noted

8.13.1 SC-PTM/MBMSFN enhancements

Shorter modification/repetition periods.

Additional enhancements related to DL transmissions in small areas based on geographical areas – to be discussed if/after input from SA2/RAN3 has been received.

Multiple TMGIs

[R2-166173](#) Impact of Multiple TMGI CATT discussion

Proposal 1: For MBSFN case, UE can receive multiple MBMS sessions with different TMGIs without any standard impact.

- ZTE asks if we should analyse both options
- Huawei wonders how we define a session, it seems that a session is linked to transmission of one UE. Huawei thinks that a session is a transmission of multiple UEs.
- LG thinks that we should look at more than just standards specifications, latency, overhead, etc. CATT explains that latency is considered in this paper.

=> Noted

[R2-166750](#) MBMS Session Reception for V2X Nokia, Alcatel-Lucent Shanghai Bell discussion

- ZTE thinks that as per Rel-9 the UE is already required to receive multiple areas. Nokia Net indicates that it is already supported but not required in the UE.
- LG is concerned with the system impact of option 4 and more resources will be consumed in NW and from UE side there will be power consumption impact.
- Ericsson supports the possibility of having Option 4.
- Huawei thinks that we would need to find a UE requirement as the network doesn't know the UE capability. Nokia Net wonders if this means that we should introduce a UE capability, which may not be feasible in IDLE.
- Intel agrees with LG
- Mediatek wonders if we should investigate further enhancements. Intel explains that we already did a delay analysis. LG thinks that we don't have much time to analyse in RAN2 and we addressed several aspects in the SI.
- Ericsson thinks that we should analyze any further. The current specifications already support option 4 and we know what are the pros and cons.
- ZTE thinks that option 2 has some system impacts, the UE can lose packets. CATT thinks that we should tell RAN3 that we will only chose Option 4. LG indicates that there are implementation ways of handling this.
- Mediatek thinks that high pedestrian UE scenarios was missing in the study item and it was not studied.

=> Send LS to RAN3 indicating that from standards perspective both Option 2 and Option 4 are already supported. Currently in the UE is not required to monitor more than one MBSFN area, but is able to.

=> Noted

Agreements:

- From RAN2 standards perspective Option 2 and Option 4 are feasible and can be supported

[R2-167186](#) (Draft) Response LS to RAN3 Nokia, Alcatel-Lucent Shanghai Bell LS out
to: RAN3 from RAN2

[CB]

Not treated

[R2-166982](#) V2X Message Broadcasting Ericsson discussion

[R2-166174](#) Draft LS Response on Multiple TMGIs for support of small and variable MBMS areas CATT LS out

[R2-166980](#) LS Reply on Multiple TMGIs for support of small and variable MBMS areas Ericsson LS out

[R2-167034](#) draft response LS to RAN3 on Multiple TMGIs for support of small and variable MBMS areas LG Electronics Inc. LS out Late

[R2-166297](#) Inter-PLMN operation for Uu-based V2X Huawei, HiSilicon discussion

[R2-166465](#) SC-PTM Enhancements for LTE V2X MediaTek Inc. discussion

[R2-166618](#) Evaluation of supporting small and variable MBMS areas ZTE Corporation discussion
=> Moved from 8.13.4

[R2-166622](#) [Draft] Reply LS on Multiple TMGIs for support of small and variable MBMS areas ZTE Corporation LS out
=> Moved from 8.13.4

Latency aspects

[R2-166983](#) On MBMS Latency Ericsson discussion

Proposal 1 Set the new MCH scheduling period values to {1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024} frames.

Proposal 2 Set the new MCCH repetition period values to {1, 2, 4, 8, 16, 32, 64, 128, 256} frames.

Proposal 3 Set the new MCCH modification period values to {1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024} frames.

- LG would like to have a smaller value for the MCCH repetition value, 1, to reduce latency. Huawei thinks that we should also add it for SC-PTM
- Nokia is concerned that scheduling value of 1 may cause signalling overhead. LG thinks there is tradeoffs.

=> Noted

Agreements:

- Set the new MCH scheduling period values to {1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024} frames.
- Set the new MCCH repetition period values to {1, 2, 4, 8, 16, 32, 64, 128, 256} frames.
- Set the new MCCH modification period values to {1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024} frames
- SC-PTM values will also be aligned

[R2-167033](#) MBMS enhancement for V2X LG Electronics Inc. discussion Late

=> Not treated

8.13.2 SPS enhancements

Including output from email discussion [95#32][LTE/V2V] – SPS – Ericsson

[R2-166975](#) Report from [95#32][LTE/V2V] SPS Ericsson discussion result of email discussion [95#32] Rel-14 LTE_V2X-Core

Proposal 1 RAN2 assumption is that up to 8 SPS configurations can be supported. However, this assumption can be revisited depending on the outcome of RAN1 discussion on DCI format design.

Proposal 2 The number of active SPS configurations at any point in time can be up to the number of configured SPS configurations

- Intel thinks that we already agreed to only have 2. Qualcomm indicates that this is for Mode 3 and 2 were for booking processes for mode 4. Intel doesn't see why we would have different numbers for Mode 4 and mode 3. Oppo explains that we agreed to 2 for mode 4 as the UE was deciding on its own, but mode 3 the eNB controls it. Huawei thinks that even for mode 4 was not sufficient.

- Qualcomm, Nokia, Panasonic, Ericsson agrees with Oppo, in mode 4 we want to limit UE overbooking processes.

Proposal 3 Each SPS configuration may be associated to one or more traffic types.

- Nokia and Samsung wonders what is the reason behind this associations. Huawei explain that we would report when an SPS periodicity changes and it will not be clear which logical channel changed, so this association will be necessary. LG thinks that the SPS is aligned with a specific traffic pattern.
- Intel shares the view with Nokia and Samsung. In LTE we can handle UE packet arrival by implementation, the UE waits for SPS occasion. Panasonic thinks that LTE is not optimal and there is no UE complexity, LAA already allows linking logical channels to a grant. Ericsson agrees with Panasonic.
- Nokia Net is concerned that this will introduce additional complexity, like when a different packet arrives.
- Ericsson thinks that the UE can still use the grant but it will prioritize the logical channels linked to the SPS configuration.
- LG thinks that for SPS configuration reporting the association is necessary to differentiate which LCID changed but for LCP we shouldn't change and all LC ID can use the SPS as per absolute priority.
- Intel thinks that if we make the assumption that LCP will not change, association may be acceptable, but there may still be implementation impact.

On the issue of LCP

- Panasonic thinks that if we don't change LCP there is no reason for linkage. Huawei thinks that even without changes to LCP association can still be useful so the UE knows which SPS to be reconfigured. Panasonic thinks that the UE can use the different SPS index.
- Intel thinks that higher priority data should always be changed and that principle should not be changed. Panasonic thinks that they may not be efficient. Intel wonders why we would use different LCP for mode 3 and mode 4.
- Samsung thinks that LCP shouldn't be changed and we would be changed priority given from higher layers. Panasonic thinks that the UE will take all different traffic types into account when requesting SPSs. Ericsson thinks that we need to know how the SPS is being used. Huawei thinks we should change LCP

=> FFS if LCP will be changed

Association of SPS and something (e.g. LCID or PPPP)

8.5 and 2.5?

- Nokia Net is not too happy but if we agree it should be PPPP

On PPPP and LCID

- PPPP 5 and LCID 9
- Huawei thinks that PPPP will not work for Uu. Ericsson thinks that different UEs will map different PPPPs to LCID. Panasonic thinks that the same PPPP can be associated with multiple LCIDs and the network doesn't know which one. Intel thinks we should use the same principle for both cases. Ericsson explains that today the network relies on PPPP rather than LCID for BSR. Samsung wonders how this work and how the network links the LCID with the BSR. Ericsson explains that the network should know the PPPP information but the mapping is left up to implantation. Further even in the SA we include PPPP. QC agrees.
- Huawei and Panasonic think that there is no association between PPPP and periodicity and timing of traffic. Ericsson thinks that for traffic that have different periodicity the same SPS configuration can be associated to the same PPPP. ITL thinks that PPPP can work.
- LG thinks that one concern is that the eNB doesn't have the knowledge of PPPP so maybe we can include both PPPP and LCID.
- Intel and Samsung think we should have a full picture before we make a decisions and how each information is used.

=> Noted

Agreements:

1. RAN2 assumption is that up to 8 SPS configurations per UE are sufficient. The exact number depends on RAN1's agreements.
2. All configured SPSs can be active at the same time.
3. *FFS if LCP changes are needed for Uu and PC5*
4. Working assumption: Some form of association between the SPS configuration and something (PPPP or LCID) is needed for reporting and configurations purposes.

For Uu LCID is used. For PC5 FFS if LCID and/or PPPP and how this information is used and needed for.

Not treated

- [R2-166299](#) Enhancements of Uplink SPS for Uu-based V2X Huawei, HiSilicon discussion
- [R2-166175](#) Discussion on V2X SPSCATT discussion
- [R2-166189](#) Discussion on Details of V2X SPS EnhancementsGuangdong OPPO Mobile Telecom. discussion
- [R2-166300](#) Further Discussion of SPS over SidelinkHuawei, HiSilicon discussion
- [R2-166431](#) Reporting issues on SL SPS Innovative Technology Lab Co. discussion
- [R2-166471](#) Discussion on Sidelink SPS configuration and UE assistant information Potevio discussion
- [R2-166616](#) Discussion on SPS related issuesZTE Corporation discussion
- [R2-166721](#) Details of DCI and SPS Configuration Qualcomm Incorporated discussion
- [R2-166872](#) Details on SPS for V2X InterDigital Communications discussion
- [R2-166964](#) Configuration of UE Assistance InformationEricsson discussion
- [R2-166976](#) Sidelink SPS ConfigurationEricsson discussion
- [R2-166977](#) SPS Protocol for Uu Ericsson discussion
- [R2-167031](#) SPS and UE assistant information for V2X LG Electronics Inc.discussion Late
- draftCRs:*
- [R2-166961](#) Introducing Sidelink SPS in MAC Ericsson draftCR 36.321 14.0.0- - B Rel-14
LTE_V2X-Core
- [R2-166962](#) Introducing Sidelink SPS in RRC Ericsson draftCR 36.331 14.0.0- - B Rel-14
LTE_V2X-Core

8.13.3 V2P services

Specific aspects to V2P (e.g. resource selection) and power aspects

Not treated

- [R2-166261](#) Resource pool management Intel Corporation discussion
- [R2-166733](#) V2P Services over PC5 Qualcomm Incorporated discussion
- [R2-166190](#) Discussion on V2P Guangdong OPPO Mobile Telecom. discussion
- [R2-166752](#) Efficient V2P/P2V activation Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166176](#) Discussion on P2V service CATT discussion
- [R2-166298](#) Discussion on P2X Sidelink Communication Huawei, HiSilicon discussion
- [R2-166489](#) Discussion on power saving for V2P communicationsFujitsu discussion
- [R2-166594](#) Discussion on power saving for P-UE Shenzhen Coolpad Technologies discussion
- [R2-166609](#) Discussion on V2P aspectsZTE Corporation discussion
- [R2-166861](#) Consideration of the P2V transmission scheme Kyocera discussion
- [R2-166967](#) Discussion on Sidelink Operations for Pedestrian Ericsson discussion
- [R2-167032](#) Support for V2P service LG Electronics Inc.discussion Late

8.13.4 Other

QoS, Inter-PLMN and others

DFN offset and Synchronization

- [R2-166979](#) DFN Offset for V2V Ericsson discussion
- Proposal 1 The DFN offset is configured within the cell per resource pool.*
- CATT suggests that we configure all UEs on PC5 with GNSS. Ericsson thinks this is possible but RAN1 agreed to allow different types of configuration.
 - Qualcomm agrees with Ericsson.
 - Nokia Net thinks we should list all the cases.
 - Huawei is concerned with the case that different eNBs will set diferent DFN offset.
 - Samsung wonders whether RAN1 has agreed to have multiple DFN offset for the same cell.

- CATT thinks that there is a scenario for out-of-coverage UE that DFN offset doesn't work. Intel understand that DFN offset purpose is to align it with GNSS timing. LG explains it is the opposite. Nokia Net thinks that if the eNB adjust the timing with GNSS.
- => Working assumption: DFN offset is configured per cell, pending RAN1 confirmation that there is no problem with the out-of-coverage scenario.
- => LS to RAN1 – RAN2 has discussed the DFN offset issue and made a working assumption that DFN offset can be configured per cell if needed, but identified that it might have an impact to the scenario where UEs out-of-coverage communicating with in-coverage UEs. RAN2 would like to ask RAN1 if they have any concerns with this scenario.

[R2-167187](#)

(Draft) LS to RAN1 on DFN offset Huawei LS out

- Intel thinks that we should briefly add "In out-of-coverage the UE will use GNSS timing and the in-coverage UE will use different timing".

=> The following text is agreed:

RAN2 has discussed the implementation of DFN offset value and made a working assumption that DFN offset can be configured per cell when needed, but identified that it might have an impact to the scenario where UEs out-of-coverage communicate with in-coverage UE, where the UEs may end up using different timings. RAN2 would like to ask RAN1 if they have any concerns with this scenario.

=> LS is approved in [R2-167189](#) with the text above

Not treated

[R2-166177](#)

Consideration on DFN Offset CATT discussion

[R2-166305](#)

Further Analysis for Sidelink Synchronization Issues Huawei, HiSilicon discussion

- Ericsson thinks that we should wait for RAN1. Intel thinks this is a RAN2 issue.
- => Noted

draftCR:

[R2-166963](#)

Introducing the DFN Offset Ericsson draftCR 36.331 14.0.0- - B Rel-14
LTE_V2X-Core

=> Not treated

Inter-PLMN/multi-carrier

Not treated

[R2-166178](#)

Inter-PLMN Operation for Uu-based V2X CATT discussion

[R2-166304](#)

Support Multi-carrier Multi-PLMN Operations for PC5 Based V2X Huawei, HiSilicon discussion

[R2-166260](#)

Support of multiple carriers/PLMNs Intel Corporation discussion

[R2-166181](#)

Multi-carrier Operation on PC5 CATT discussion

[R2-166182](#)

Consideration on Cross-carrier Configuration CATT discussion

[R2-166183](#)

V2X dedicated carrier CATT discussion

[R2-166258](#)

Further consideration for inter-F V2X communication Intel Corporation discussion
Late

[R2-166303](#)

Further Analysis of Inter-carrier Operation on PC5 based V2X Huawei, HiSilicon discussion

[R2-166463](#)

Support of inter-PLMN operation for V2X Samsung Electronics Co., Ltd discussion

[R2-166607](#)

Discussion on cross carrier scheduling ZTE Corporation discussion

[R2-166613](#)

Inter-PLMN operation for V2X ZTE Corporation discussion

[R2-166724](#)

Inter-PLMN V2X Communication Qualcomm Incorporated discussion

[R2-166844](#)

Inter-PLMN V2X aspects Nokia, Alcatel-Lucent Shanghai Bell discussion

Resubmission of [R2-165428](#) from RAN2#95

[R2-166966](#)

Discussion on PC5 Multiple Carrier Ericsson discussion

[R2-166969](#)

LS on V2x Sidelink Cross-Carrier Configuration Ericsson LS out

[R2-166973](#)

On V2x Sidelink Cross-Carrier Configuration Ericsson discussion

[R2-166981](#)

Inter-PLMN Operations for V2V Ericsson discussion

[R2-167014](#)

Support of inter-PLMN for PC5 and Uu LG Electronics Inc. discussion

Congestion

Not treated

[R2-166744](#)

Congestion Control in V2X Qualcomm Incorporated discussion

[R2-166965](#)

Congestion Control for Sidelink-based V2X Ericsson discussion

- [R2-166179](#) CBR Report CATT discussion
[R2-166296](#) Congestion Control for PC5-based V2X Huawei, HiSilicon discussion

Path selection

Not treated

- [R2-166599](#) Discussion on Necessity to Indicate Whether PC5 or Uu is Allowed for V2V Messages Transport within Network Coverage Shenzhen Coolpad Technologies discussion
[R2-166184](#) Discussion of PC5/Uu Path Configuration CATT discussion
[R2-166301](#) Interface Selection between PC5 and Uu Huawei, HiSilicon discussion
[R2-166605](#) Discussion on the necessity of V2X path configuration signalling ZTE Corporation discussion
[R2-166971](#) On Path Configuration Ericsson discussion
[R2-166490](#) Discussion on service continuity in V2X communications Fujitsu discussion
[YJ:] Status for above 6 Tdocs ???

QoS

Not treated

- [R2-166302](#) Support of QoS for PC5-based V2X transport Huawei, HiSilicon discussion
[R2-166736](#) QoS for V2X Communication over PC5 Qualcomm Incorporated discussion
[R2-166974](#) QoS for PC5-based V2X Ericsson discussion

Co-existence

- [R2-166464](#) Coexistence of Uu and PC5 operation Samsung Electronics Co., Ltd discussion
RAN2 should consider transmission gap to allow UE prioritize lower priority V2V messages over uplink transmission, and the values of gapPeriod.
 - Qualcomm has concluded in their paper that using the gap mechanism is not feasible. Ericsson would like to understand the difference between gaps and SPS. The eNB knows when the UE is performing transmissions.
 - Intel thinks that this discussion is linked with how to do perform the inter-frequency transmission. LG thinks that if we don't have a gap then we would have to take into consideration the power control mechanism.
 - Mediatek wonders about the scenario and the need for the dynamic switching.
 - Qualcomm thinks that for prioritization we need to discuss and it is just no gaps.
 - Intel thinks that we need to discuss prioritization especially for Mode 4.
 - Ericsson thinks we should reuse as much as possible Rel-12/Rel-13*Is it possible for the UE to have more than one receiver chain for PC5?*
 - Ericsson thinks that this depends on the scenarios and we shouldn't mandate a dedicated receiver chain per carrier.
 - Ericsson thinks that the number of chains should be at least equal to the number of ITS dedicated carriers for safety services.
 - Nokia Net thinks that there is an impact by Inter-PLMN operation.
 - Huawei thinks that a dedicate carrier can be used for safety and non-safety service.
=> Noted

Agreements:

- o *Working assumption:* For sidelink V2V, we assume that the number of receiver chains is at least equal to number of ITS dedicated carriers (FFS if this is for safety only carriers or for all dedicated carriers) in addition to the receiver chain required for Uu.
- o FFS how Uu V2X communication is handled for inter-PLMN/frequency
- o RAN2 agrees that there is no need for gap
- o FFS on handling prioritization between PC5 and Uu for transmission. Comparison or need to modify can be based the Rel-12/13 solution.

Not treated

- [R2-167015](#) Coexistence of transmission of sidelink V2X and Uu LG Electronics Inc. discussion

[R2-166972](#) On the Need of Sidelink Gaps for V2V Ericsson discussion

[R2-166978](#) Enhancements to V2V Pool Design Ericsson discussion

[R2-166466](#) On suitability of Uu transport and PC5 transport for V2X Solutions MediaTek Inc. discussion
=> moved from 8.13.1

Agreed outgoing LS

Comeback on Friday

[R2-167181](#) Text proposal to TR 36.746 from e-mail discussion 95#34 Ericsson (Rapporteur) pCR
36.746 Rel-14 FS_feD2D_IoT_relay_wearable

[R2-167182](#) TP on Scenarios and RRC states Huawei discussion result of email discussion [95#35]
Rel-14 FS_feD2D_IoT_relay_wearable

[R2-167183](#) Miscellaneous corrections for V2V in TS 36.321 Huawei, HiSilicon draftCR 36.321
14.0.0- - F Rel-14 LTE_SL_V2V-Core

[R2-167184](#) LS to RAN1 on V2V agreements (to: RAN1; cc: -; contact: LGE) LGE LS out Rel-14
LTE_SL_V2V-Core

[R2-167185](#) Corrections on V2V in TS 36.331 Huawei, HiSilicon draftCR 36.331 14.0.0- - F
Rel-14 LTE_SL_V2V-Core

[R2-167186](#) [Draft] Response LS to RAN3 on MBMS Session Reception for V2X Nokia, Alcatel-Lucent
Shanghai Bell LS out Rel-14 LTE_V2X-Core

[R2-167187](#) [Draft] LS to RAN1 on DFN offset (to: RAN1; cc: -; contact: Huyawei) Huawei LS out Rel-
14 LTE_V2X-Core

E-mail discussion for the meeting

☒ [LTE/V2V] – CR on resource reservation problem – Huawei

- Agree and identify the problem to solve in RAN2 based on RAN1 progress and CRs.
- Agree on how to solve it and whether it should be solved in RAN2
- Propose agreeable CR
- Deadline: Tuesday 01/11/2016

☒ [LTE/FeD2D] – Bearer modelling and adaptation layer - Huawei

- Discuss how bearers are modelled and whether multiple remote UEs can be multiplexed in the same Uu bearer.
- Discuss whether adaptation layer for PC5 and Uu is needed and what would be the required functionalities
- Outcome: agreeable text proposal
- Deadline: Tuesday 01/11/2016

☒ [LTE/FeD2D] – Updated TR with agreed TPs

- Agree to TP capturing agreements from this meeting and agreed TPs
- Deadline: Thursday 20/10/2016

Summary of Agreements from RAN2#95bis

Agreements on Wearables

- Agree to the set of scenarios and add in Editor's note that additional scenarios can be considered
- In scenario 2, the remote UE can initiate establishing a "connection" to the relay.
- In Scenario 2, the network can initiate establishing a connection
- Make "FFS if the network needs to have "prior knowledge" of the relationship between the remote UE and the relay UE". Add Editor's note – the nature of "prior knowledge" needs to be considered
- In scenario 3, either the remote UE or the network can initiate establishing a "connection" between the remote UE and the relay UE. Add FFS if the network can use "prior knowledge" of the relationship between the remote UE and the relay UE

- The remote UE doesn't have to be in RRC CONNECTED while "paired" with a relay UE.
- The relay UE may be in RRC_IDLE while "paired" with a remote UE, and in this case the remote UE is not in RRC CONNECTED. FFS if the remote UE can still be in connected mode.
- *RRC Connected means that the eNB has a context. The UE behaviour in these states is FFS.*

User plane:

- Layer 2 relaying over RLC is agreed. FFS whether an adaptation layer is needed for PC5 and Uu and for non-3GPP access.

Latency reduction WI Agreements

Capabilities

- A UE supporting short SPS interval shall support allowing and prioritizing non-adaptive HARQ retransmissions on the SPS resources. No need for separate capability
- A UE supporting UL SPS grant skipping shall support SPS confirmation MAC CE for activation/reactivation/deactivation feedback and ignoring SPS implicit release. No need for separate capability
- Separate capability bits for shorter SPS for TDD and FDD will be introduced
- A UE supporting shorter SPS interval for TDD does not round the intervals less than 10ms down to the nearest integer which is multiple of 10 sub-frames, support skipping of the SPS UL occasion which falls on the special subframe or downlink subframe and allow and prioritize non-adaptive HARQ retransmission on the SPS resources.
- A UE supporting short SPS interval (in FDD or TDD) shall support UL SPS grant skipping.

V2X SI Agreements

Multicast enhancements

- Response to RAN3 LS: From RAN2 standards perspective Option 2 and Option 4 are feasible and can be supported
- Set the new MCH scheduling period values to {1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024} frames.
- Set the new MCCH repetition period values to {1, 2, 4, 8, 16, 32, 64, 128, 256} frames.
- Set the new MCCH modification period values to {1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024} frames

SPS Enhancements

1. RAN2 assumption is that up to 8 SPS configurations per UE are sufficient. The exact number depends on RAN1's agreements.
2. All configured SPSs can be active at the same time.
3. *FFS if LCP changes are needed for Uu and PC5*
4. Working assumption: Some form of association between the SPS configuration and something (PPPP or LCID) is needed for reporting and configurations purposes. For Uu LCID is used. For PC5 FFS if LCID and/or PPPP and how this information is used and needed for.

DFN offset

Working assumption: DFN offset is configured per cell, pending RAN1 confirmation that there is no problem with the out-of-coverage scenario.

Co-existence and inter-PLMN/frequency

- *Working assumption*: For sidelink V2V, we assume that the number of receiver chains is at least equal to number of ITS dedicated carriers (FFS if this is for safety only carriers or for all dedicated carriers) in addition to the receiver chain required for Uu.
- FFS how Uu V2X communication is handled for inter-PLMN/frequency
- RAN2 agrees that there is no need for gap
- FFS on handling prioritization between PC5 and Uu for transmission. Comparison or need to modify can be based the Rel-12/13 solution.

Summary of Agreements from RAN2#95bis

Agreements on Wearables

- RAN2 will initially focus on bidirectional relay design, but should consider impact of the design in unidirectional
- RAN2 should study relay design support for both CP and UP
- Coverage scenarios to be captured and discussed over email

Latency reduction WI Agreements

- Completed all stage 3 issues and endorsed initial stage 3 CRs.
- We will rely on legacy behaviour and non-adaptive retransmissions can continue on non-SPS resources and eNB can take non-adaptive retransmissions into account
- Non-adaptive retransmissions will be prioritized over MAC CE for SPS
- Adaptive retransmissions have higher priority.
- Allowed SPS periodicities: 1ms, 2ms, 3ms, 4ms, 5ms
- Pending RAN1 confirmation, fixed RV is done when uplink skipping for SPS is configured and applicable to all related non-adaptive retransmissions. For dynamic grant skipping legacy RV behaviour applies.
- For UL skipping, the UE configured with periodic BSR only transmit when the UE buffer is non-empty
- Periodic PHR is not skipped
- SPS Confirmation MAC CE can be sent on an UL grant. In case there are both of UL grant and SPS grant on the same subframe, the UL grant is prioritized over the SPS grant
- UL skipping and short SPS are independently configured. If short periodicity, below 10ms is configured, UL skipping should always be configured.

V2X SI Agreements

- Only 0.25 TUs spent on V2X with focus on SC-PTM and MBMS enhancements
- Issues such SPS and QoS were discussed together with V2V
 - o Assumption is that V2V SPS related agreements will also be used for V2X
- Shorter MCCH period, shorter modification period and shorter MCH scheduling period will be added. The number of values added and actual values are FFS.

V2V SI Agreements

Geo-location aspects

The zones will be calculated according to the following modulo operation is used.

$$\begin{aligned} x' &= \text{Floor}(x / L) \text{ Mod } N_x; \\ y' &= \text{Floor}(y / W) \text{ Mod } N_y; \\ \text{Zone_id} &= y' * N_x + x', \end{aligned}$$

where the values of x, y in the above equations can be respectively specified as the longitude and latitude of the UE's location in the specification.

- Following parameters are required for zoning:
 - o Length of each zone (L)
 - o Width of each zone (W)
 - o Number of zone in length (Nx)
 - o Number of zone in width (Ny)
- Zoning mechanism and parameters are same for in-coverage and out of coverage, with only difference of parameters provided by eNB or pre-configured
- No need to report calculated zone ID, as complete location information reporting is already agreed in RAN2
- Location reporting triggers are based on periodic reporting. For the reporting interval, the current value ranges used for periodical measurement reporting from 120ms to 1 hour can be used.
- FFS on all related RRC parameters
- RRC messaging, *MeasurementReport*, will be used for location reporting. *The existing IE LocationInfo will be used.*
- Sensing will be performed for the pools associated to zones.

- The values for length of each zone (L) include: 5m, 10m, 20m, 50m, 100m, 200m, 500m.
- The values for width of each zone (W) include: 5m, 10m, 20m, 50m, 100m, 200m, 500m.
- FFS if some restrictions of L and W combination - should be captured in the RRC CR
- The number zones in length (Nx) includes: 1, 2, 3, 4.
- The number of zones in width (Ny) includes: 1, 2, 3, 4.
- the values of x0 and y0 are set to 0 and correspond to geographical coordinates.
- The maximum number of Tx pools/zones allowed is 8.
- The maximum number of Rx pools is 16.

Path switch

- AS informs upper layer of the path configuration. From RAN2 point of view, path switching is done by UE upper layer and there is no need to specify AS layer information to upper layer for the sake of path switching.

Mobility

- The RRC specification will include the exceptional pools in SIB21 (for the non-handover case).
- Pre-sensing on the exceptional pool is used for exceptional pool provided by serving cell (e.g. idle-to-connected, RLF cases, RRC reconfig).
- For handover case, an "exceptional" pool is provided by the target cell. The UE uses random selection on this pool.
- Send LS to RAN1 to inform them and asking if they have any real concern.

QoS

- RAN2 doesn't expect V2X PC5 resources to be shared with other non-V2X applications.
- For mode 1, RAN2 agrees that PPPP and other QoS parameters provided by higher layers will be used.
- For mode 2, RAN2 assumes that only PPPP can be used to ensure QoS for PC5 V2V.
- Send LS to SA2:
 - o List agreements/assumptions
 - o Point out that in mode 2 (with some background on mode 2) it may not be possible to respect some of QoS parameters other than PPPP (e.g. AMBR).
 - o Ask whether mode 2 was explicitly excluded

SPS

- Multiple SPS can be activated simultaneously
- UE assistance triggers are left to UE implementation. The network should be able to configure UE assistance information.
- The UE assistant information includes a set of preferred expected SPS interval, timing offset with respect subframe0 of the SFN0 (frame and subframe number). FFS if per logical channel.

UE assistance:

- The UE Assistance Information is allowed to be reported if change in estimated periodicity of packet arrival occurs
- The UE Assistance Information is allowed to be reported if change in estimated offset of packet arrival occurs
- The UE assistance information is configured by the eNB
- The UE Assistance Info can be reported both in case SPS is configured or not
- UE Assistance Info per SPS existing or suggested configuration(s). Details of configurations are FFS.
- UE Assistance information reporting is configured by the eNB at least for PC5 V2X.
- Additional Content of UE
 - o If configured by the eNB, SPS index of the SPS configuration

Layer 2 protocol

- PC5-U will be used as the protocol stack for PC5-based V2V
- Introduce a new PDCP SDU type "non-IP" in PDCP header for PC5-based V2V
- Only RLC UM mode is supported for PC5-based V2V
- STCH for sidelink communication can be reused by PC5-based V2V.
- Non-V2X (e.g. PS) data cannot be multiplexed with V2V transmissions and transmitted on V2V PC5 sidelink channels.
- Reuse the Source ID, Destination ID and LCID to identify the logical channel for PC5-based V2V

- PC5-based V2V will reuse the MAC header of sidelink communication. MAC header is extended to 24bits to include the full destination ID. New MAC PDU with new version will be introduced.
- Priority in SCI corresponds to the PPPP of highest priority data in the MAC PDU.

MAC related aspects

- Maximum number of resource booking process is 2 and it will be fixed in the specification. The UE is allowed to use one shot transmission if two processes are not sufficient. FFS if mechanisms to restrict UEs from over booking are needed. FFS how the UE selects type of booking and transmission.
- The UE should comply with SC FDM requirement and these are independent processes

RRC related aspects

- When requesting sidelink resources, the UE should inform the eNB that it is interested in V2X in *SidelinkUEInformation*
- Legacy mechanism should be used for reception purposes. If the UE is configured by higher layers to receive V2X communication and PC5 resources are provided the UE receives on those configured resources. If Uu is configured and PC5 is configured the UE should monitor on both.
- Introduce SPS periodicity values 50ms, 100ms, 200ms, 300ms, 400ms, 500ms, 600ms, 700ms, 800ms, 900ms and 1000ms for V2V UL/SL SPS
- One pool per zone is configured and no resource pool per priority is needed. FFS on maximum number of pools/zones allowed to be configured.
- Zone concept is not applied to exceptional sidelink transmission pools
- Working assumption: The UE should not operate sidelink vehicle communication when in limited service state
- The UE may operate sidelink vehicle communication when fulfilling the conditions for sidelink communication operation not related to limited service state
- As a baseline SIB21 resources transmission can follow Rel-13 rules
- For synchronization, commSyncConfig-r12 IE can be reused and a new IE indicating the synchronization reference (eNB, UE, GNSS)
- The UE follows pre-configuration of synchronization parameters in case there is no cell in the V2V carrier and no configuration from serving cell is received. In case the eNB configures the eNB timing as synchronization type to the UE for the V2V carrier, the synchronization configuration (i.e., SL-SyncConfigNFreq-r13) is configured by the eNB for the V2V carrier. The UE should follow PCell(RRC_CONNECTED) /serving cell (RRC_IDLE) for synchronization and DL measurement
- DFN calculation

=> The following formula for DFN calculation from GNSS is used:

$$DFN = \lfloor 0.1 \times (T_{current} - T_{ref}) \rfloor \bmod 1024$$

$$SubframeNumber = \lfloor (T_{current} - T_{ref}) \rfloor \bmod 10$$

=> The reference UTC time (Tref) in the above formula is suggested to 00:00:00 on Gregorian calendar date 1 January, 1900 (midnight between Thursday, December 31, 1899 and Friday, January 1, 1900).

=> Include offset [0, 1 ms] with the granularity of 1 us.

Annex H:

LTE Breakout session: VoLTE, Light conn, Mobility enh, eMBMS, Context aware

On RAN2 #95bis, in parallel to the main LTE session, an LTE breakout session on VoLTE, Light conn, Mobility enh., eMBMS and Context aware was chaired by RAN2 vice-chairman Hu Nan (CMCC) addressing:

This is the report from breakout sessions covering the following Items:

- 8.6 LTE: Rel-14: WI: Further mobility enhancements in LTE
- 8.9 LTE: Rel-14: WI: Signalling reduction to enable light connection for LTE
- 8.10 LTE: Rel-14: WI: eMBMS enhancements for LTE
- 8.18 WI: Voice and Video enhancement for LTE
- 8.16 SI: Study on Context Aware Service Delivery in RAN for LTE

The corresponding report of this session [R2-167241](#) was presented and approved on Fri in the joint session and the contents is provided in this Annex H for convenience reasons.

8.18 WI: Voice and Video enhancement for LTE

(LTE_VoLTE_ViLTE_enh-Core; leading WG: RAN2; REL-14; started: Sep. 16; target: Mar. 17: WID: [RP-161856](#))

Time budget 1TU

8.18.1 Codec mode/rate selection and adaptation

[R2-167082](#) RAN assisted codec rate selection and adaptation Ericsson discussion

=> Noted

[R2-166759](#) The details on the codec adaptation solution Huawei, HiSilicon discussion

=> Noted

P2:

- Huawei, ZTE, Samsung, OPPO and LG prefer to use RRC signalling.
- Moto, Ericsson, Intel, Apple and Qualcomm would like to use MAC CE.
- Ericsson think we should take into account the coverage issue. Intel don't think there is much complexity on MAC CE.

- ✍ => CBF: Draft an LS in [R2-167200](#) to SA4 to capture the RAN-based codec adaptation mechanism as one signaled changes into the TS 26.114. (Huawei)
- => Including that the indication from the eNB should be given by a recommended DL and UL bit rate in kbps of physical layer.
- => Include the meaning of bit rate from RAN2 perspective in the LS.

- ✍ => **CBF:** Offline discussion on:
 - ✉ **[95bis#16][LTE/eVoLTE] The method to convey codec adaptation information**
- Intended outcome: The results of comparison results between RRC signalling and MAC CE.*

Deadline:

The following papers in this section are not treated.

[R2-166760](#) LS to SA4 on RAN-based codec adaptation solution Huawei, HiSilicon LS out

[R2-166582](#) RAN-based rate adaptation mechanism for VoLTE Intel Corporation discussion

[R2-166757](#) UE assistance information for codec adaptation Huawei, HiSilicon discussion

[R2-166859](#) Details of RAN-assisted codec rate adaptation Kyocera discussion

[R2-167083](#) Initial codec rate selection Ericsson discussion

[R2-166186](#) Discussion on RAN bit rate recommendation procedure Guangdong OPPO Mobile Telecom. Discussion

8.18.2 VoLTE/ViLTE signalling optimization

- [R2-166755](#) Clarification of MO video cause value Huawei, HiSilicon draftCR 36.331 14.0.0- - F
Rel-14 LTE_VoLTE_ViLTE_enh-Core
- Huawei think if operators want to make the feature configurable, additional signalling should in introduced to configure it.
=> Postponed
=> The CR should be considered as the baseline.
- [R2-166758](#) LS to CT1 on MO video cause value Huawei, HiSilicon LS out
=> Whether the bit indication is SIB2 should be reused is FFS
=> Approved in [R2-167201](#).
- [R2-166670](#) Common establishment cause value for VoLTE/ViLTE call Nokia, Alcatel-Lucent Shanghai Bell discussion
=> Not treated
- [R2-167085](#) DRAFT LS on VoLTE-ViLTE signaling prioritization Ericsson LS out
=> Not treated
- [R2-167150](#) Introducing signalling prioritization for VoLTE-ViLTE Ericsson draftCR 36.331 14.0.0- -
B replacement of [R2-167084](#) Rel-14 LTE_VoLTE_ViLTE_enh-Core
=> Not treated
- Withdrawn:**
[R2-167084](#) Introducing signalling prioritization for VoLTE-ViLTE Ericsson CR 36.331 14.0.02354 -
B Rel-14 LTE_VoLTE_ViLTE_enh-Core

8.18.3. VoLTE quality/coverage enhancements

- [R2-167076](#) UE Indication of Shortened C-DRX Cycle for VoLTE Qualcomm Inc. discussion
=> Noted
- [R2-166756](#) Consideration on delay budget reporting Huawei, HiSilicon discussion
=> Noted
- [R2-166400](#) Discussion on eVoLTE Coverage Enhancements Huawei, HiSilicon discussion
=> Not treated
- [R2-167086](#) Air interface delay budget Ericsson discussion
=> Not treated
- ☒ **[95bis#16][LTE/eVoLTE] Running stage-2 CR of eVoLTE (CMCC)**
=> Capture the agreements from this meeting.
Intended outcome: Agreeable running stage-2 CR.
Deadline: Tuesday 01/11/2016

8.10 WI: eMBMS enhancements for LTE

(MBMS_LTE_enh2-Core; leading WG: RAN1; REL-14; started: Mar. 16; target: Mar. 17; WID: [RP-161297](#))

Time budget: 1TU

Documents in this agenda item will be handled in the LTE Break Out session

Incoming LS:

- [R2-166013](#) Reply LS to S2-163212 = [R2-164640](#) on RAN impacts from enTV study of SA WG2 (R3-162068; contact: Qualcomm) RAN3 LS in cc: RAN2Rel-14 FS_AE_enTV
Moved from 3.2 to 8.10
=> Noted
- [R2-166033](#) LS regarding agreements for FeMBMS ([R1-168200](#); contact: Qualcomm) RAN1 LS in to: RAN2 Rel-14 MBMS_LTE_enh2-Core
=> Noted

8.10.1 MBSFN subframe enhancements

Including use of subframes 0, 4, 5, 9 (FS1) and 0, 1, 5, 6 (FS2) for MBSFN, and configuring MBSFN subframes without a unicast control region and cell-specific reference signals.

- [R2-166737](#) System Information and notifications on FeMBMS carrier Nokia, Alcatel-Lucent Shanghai Bell discussion

Agreements:

For at least the objective a), b) and c) in the WID:

1: The needed information for MBSFN carrier inside SIB1, SIB2 and SIB13 should be provided on FeMBMS carrier

2: It should be possible to deliver SIB15 and SIB16 on FeMBMS carrier.

FFS: It should be possible to deliver SIB10, SIB11 and SIB12 on FeMBMS carrier.

[R2-166935](#)

Broadcasting system information on FeMBMS carrier Ericsson discussion

- Huawei think how to deliver the information is RAN1 issue.

Agreements:

1 Two possible solutions from RAN2 perspective:

a) SI needed on FeMBMS is broadcasted at least on same subframes as MIB

b) SI needed on FeMBMS is broadcasted on different subframes as MIB

Solution a) is more efficient from RAN2 perspective.

The decision should be made according to the size of SI. The feasibility should be asked to RAN1.

2 Define new message class and message structure for FeMBMS in TS36.331 to be able to send SI efficiently on FeMBMS carrier if necessary

3 RAN2 target common design for MCCH and SI modification notification indication.

[R2-166402](#)

MBMS Assistant Scheme for MBSFN Expansion Huawei, HiSilicon discussion

=> Noted

Agreements:

1: SIB15 can also provide indication to differentiate the FeMBMS and legacy MBMS carrier.

FFS: the frame offset and sub-frame offset between normal cell and MBMS cell could be included in assistance information.

[R2-166937](#)

Cell reselection for idle mode UE Ericsson discussion

=> RAN2 to agree that cell reselection priority handling works with FeMBMS carrier similar to downlink only carrier where MBMS service is provided.

[R2-167055](#)

Consideration on camping on FeMBMS carrier LG Electronics Inc. discussion

=> Confirm that UEs (including UEs capable of FeMBMS) shall not camp on FeMBMS cell.

[R2-166936](#)

FeMBMS System Information Ericsson discussion

=> Not treated

[R2-167138](#)

Clarifications of RAN2 Agreements on FeMBMS Qualcomm Incorporated discussion

=> Not treated

[R2-167139](#)

System Information for FeMBMS Qualcomm Incorporated discussion

=> Not treated

8.10.2 MBSFN dedicated carrier

[R2-166403](#) Discussion on Standalone MBMS Cell Huawei, HiSilicon discussion
=> Not treated

[R2-166472](#) SI and MCCH change notification reception Samsung Electronics Co., Ltd discussion
=> Not treated

8.10.3 Multicarrier MBMS operation

[R2-166938](#) Asynchronous multi-carrier MBMS reception Ericsson discussion
=> Noted

8.10.4 MBMS reception without authentication

[R2-166795](#) Authentication in eMBMS Ericsson discussion
=> Not treated

8.10.5 Other

No contributions received.

- ✉ **CB ASAP:** Draft LS in [R2-167202](#) to RAN1 to inform our agreements and progress from this meeting. (Ericsson)
- [R2-167202](#) **DRAFT** LS on RAN2 agreements on FeMBMS Ericsson
=> Approved in [R2-167204](#)
- ☒ **[95bis#17][LTE/feMBMS] The content, structure and size of needed SI (Ericsson)**
=> Discuss the content, structure and size of needed SI
Intended outcome: Report
Deadline: Tuesday 01/11/2016
- ☒ **[95bis#18][LTE/feMBMS] Running stage-2 CR of feMBMS (Ericsson)**
=> Capture the agreements so far.
Intended outcome: Agreeable running stage-2 CR.
Deadline: Tuesday 01/11/2016

8.9 WI: Signalling reduction to enable light connection for LTE

(LTE_LIGHT_CON-Core; leading WG: RAN2; REL-14; started: Mar. 16; target: Mar. 17; WID: [RP-160937](#))

Time budget 1.5TU

For this meeting, agenda item 8.9.4 will be treated before 8.9.2 and 8.9.3.

Documents in this agenda item will be handled in the LTE Break Out session

8.9.1 Organisational

Including incoming LSs, running CRs, etc

Including output from email discussion [95#38][LTE/Light Con] Running stage 2 CR of light connection (Huawei)

[R2-166627](#) Stage2 Running CR of light connection Huawei, HiSilicon draftCR 36.300 14.0.0- - B
result of email discussion [95#38] Rel-14 LTE_LIGHT_CON-Core
=> Not treated

8.9.2 Signalling reduction

Including contributions relating to objectives on signalling reduction at mobility (e.g. UE centric mobility), and S1 signalling reduction at mobility and state transitions, as well as further details of UE light connected considering RAN2#94 agreements.

[R2-166952](#) RRC Suspend/Resume for Light Connection Ericsson discussion

=> Noted

[R2-166687](#) Light Connection signaling and UE's modeling Intel Corporation discussion

=> Noted

[R2-166628](#) Open issues for Light Connection Huawei, HiSilicon discussion

=> Noted

- The above 3 papers are treated together

- LG wants to know the reason why we need to mismatch the ECM states between network and eNB. Qualcomm, Samsung, MTK and LG prefer to treat UE as in ECM_CONNECTED.

- Vodafone prefer not to introduce access control mechanism for UE in light connection. Verizon would like to introduce.

=> *We should send LS to CT1 and RAN3 and CC SA2 about our agreements and FFS things to ask their preference on the modelling and???*

=> Ask CT1 solution for the mismatch problem between MME and UE on the ECM state of UE. Details can be discussed later.

=> Ask RAN3 to make UE IMSI mode X be visible by eNB when the UE is in ECM_CONNECTED from MME point of view (cc SA2).

=> Not introduce new RRC state.

✍ => **CBF:** Draft LS in [R2-167205](#) to CT1, RAN3 and cc SA2 including the agreements from this meeting and including the questions above. (Huawei). Details can be discussed offline. CF on Friday.

✍ => **CBF:** Draft LS in [R2-167206](#) to SA3 to ask whether STMSI can be used in RRC message without the knowledge of CN. (Ericsson).

Agreements

Modelling A Lightly connected UEs are in RRC_CONNECTED with light connection indication and ECM_CONNECTED.

Modelling B: Lightly connected UEs are in RRC_IDLE with light connection indication and ECM_IDLE.

- 0 UE should be configured into lightly connection by dedicated RRC signalling (i.e. RRC reconfiguration or RRC release). From MME point of view, lightly connected UE is in ECM_CONNECTED.
1. When a UE exits from light connection into RRC_CONNECTED, UE should perform RAN level access control mechanism. For modelling A, SSAC is applicable. All the existing mechanisms of access control are applied for modelling B.
2. The network should be able to reject access via a certain RRC cause sent via msg.3. For modelling B. The RRC cause is RRC resume cause.
- 2.1 For modelling B: the UE's NAS provides to UE's AS the call type and the RRC Resume Cause (similar to legacy when resuming/establishing the connection).
- 2.2 The RRC cause comes from AS layer for modelling A.
3. The lightly connected UEs enter into legacy behavior in RRC connected via RRC procedure including three messages (i.e. request, response and complete). For Modelling A, the procedure should be RRC resume or reestablishment procedure. For Modelling B, the procedure should be RRC resume.
- 4.1 At least for modelling B, if RRC resume procedure is used by lightly connected UEs, eNB should be allowed to trigger the fallback procedure to establish the RRC connection upon RRC connection setup.
- 4.2. For modelling A, if RRC resume procedure is used by lightly connected UEs, eNB should be allowed to trigger the fallback procedure to establish the RRC connection upon RRC connection setup. But the feasibility should be considered in CT1.
- 4.3 For modelling A, if RRC reestablishment procedure is used by lightly connected UEs, legacy NAS recovery procedure will be triggered in the failure case.
- 5 To define a new optional radio capability within the UE-EUTRA-Capability IE for the UE to indicate its support of Rel-14 Light Connection operation.

FFS: UE should know whether a UE lightly connected function is supported or not in the cell.

FFS: The UE's NAS layer is aware when the UE is in light connection.

- [R2-166693](#) Lightly connected and RAN configured DRX cycle Intel Corporation draftCR 36.331
14.0.0- - B Rel-14 LTE_LIGHT_CON-Core
=> Not treated
- [R2-166694](#) RAN configured DRX cycle Intel Corporation draftCR 36.304 14.0.0- - B Rel-14
LTE_LIGHT_CON-Core
=> Not treated

The following papers in this section are not treated.

- [R2-166062](#) Further considerations for the LTE light connection mode Samsung discussion
- [R2-166095](#) RRC Signaling for Light Connection MediaTek Inc. discussion
- [R2-166228](#) Operation of light connection Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166499](#) Mobility issue for lightly connected UE ITRI discussion
- [R2-166602](#) Consideration on S-TMSI and IMSI at the eNB ZTE Corporation discussion
- [R2-166629](#) Signalling and Procedures for states transition and PAU Huawei, HiSilicon discussion
- [R2-166858](#) UE behaviour and signalling for Light Connection Kyocera discussion
- [R2-167035](#) A CS fall back in lightweight connection LG Electronics Inc. discussion
- [R2-167036](#) Use of RRC Connection Re-establishment procedure for a lightweight connected UE LG Electronics Inc. discussion
- [R2-167038](#) Use of RRC Connection Reconfiguration procedure for a UE to enter to lightweight connection LG Electronics Inc. discussion
- [R2-167146](#) Signalling impact analysis of RAN based paging NTT DOCOMO INC. discussion Late

8.9.3 Context storage/retrieval across eNBs

This aspect of the WI is led by RAN3 but RAN2 impacting aspects may be discussed here.

The papers in this section are not treated.

- [R2-166064](#) Analysis of the paging area change scenario with no X2 interface Samsung discussion
- [R2-166630](#) RAN2 impact of Context fetch in light connection Huawei, HiSilicon discussion
- [R2-166063](#) Signalling procedures for the LTE light connection mode Samsung discussion
- [R2-166213](#) Paging in Extended DRX for Light Connection CATT discussion
- [R2-166690](#) RAN-initiated paging and DRX cycle Intel Corporation discussion
- [R2-166951](#) Tracking Areas in Light Connection Ericsson discussion
- [R2-166953](#) Common and specific building blocks for light connected UEs Ericsson discussion

8.9.4 Paging enhancements

Details of RAN initiated paging design, e.g., DRX, paging ID

Including output from email discussion [95#31][LTE/Light connection] Progress FFS (Intel)

- [R2-166688](#) Email discussion report on [95#31][LTE/Light connection] Progress FFS Intel Corporation discussion result of email discussion [95#31] Rel-14 LTE_LIGHT_CON-Core Late

Agreements

- 1 For the RAN-initiated paging occasion calculation, the preferred UE ID is "IMSI mod x" design (similar to legacy paging calculation), as per option d) in [R2-166688](#).
- 2 The RRC RAN-initiated paging message is defined reusing (with extensions if necessary) legacy RRC paging message, as per option a) in [R2-166688](#).



CBF: Decide whether to continue the email discussion about the left issues.

☒ **[95bis#18][LTE/light connection] Running stage-2 CR of Light Connection (Intel)**

=> Capture the agreements from this meeting.
Intended outcome: Agreeable running stage-2 CR.
Deadline: Tuesday 01/11/2016

- ☒ **[95bis#19][LTE/light connection] Running stage-3 36.331 CRs for each modelling option of Light Connection (Intel)**

=> Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-3 CR.

Deadline: Tuesday 01/11/2016

The following papers in this section are not treated.

- [R2-166689](#) RAN-based Paging Area for light connection Intel Corporation discussion
[R2-166229](#) Reselections and Paging in Light Connection Nokia, Alcatel-Lucent Shanghai Bell discussion
[R2-166423](#) Open issues for light connection Qualcomm Incorporated discussion
[R2-166500](#) Discussion on paging area update failure for lighted connected UE ITRI discussion
[R2-166631](#) On RAN initiated paging Huawei, HiSilicon discussion
[R2-166732](#) UE specific Paging area definition Sony discussion
[R2-166950](#) Paging in Light Connection Ericsson discussion
[R2-167120](#) Considerations of paging area configuration on the LTE lightweight connection LG Electronics Inc. discussion
[R2-167121](#) The state of UE and UE ID in lightweight connection LG Electronics Inc. discussion

8.9.5 Other

- [R2-166502](#) General features for a lightly connected UE ITRI discussion
=> Not treated

8.16 SI: Study on Context Aware Service Delivery in RAN for LTE

(FS_LTE_context; leading WG: RAN3; REL-14; started: Mar 16; target: Dec. 16; WID: [RP-160633](#))

Time budget: 0.5TU

Documents in this agenda item will be handled in the LTE Break Out session

Incoming LS:

- [R2-166029](#) Reply LS on SAND (S4-161121; contact: Intel) SA4 LS in
cc: RAN2 Rel-14 FS_LTE_context
=> Noted.
- [R2-166583](#) Impact analysis of critical data discard on UL Video transmission Intel Corporation discussion
- Ericsson wonders the current principle will be break.
- OPPO wonder how eNB know the information on whether the data is critical or not.
=> RAN2 confirm the problem where PDCP discards critical UL data. FFS: the RAN-level solutions could be discussed further in work item phase.
- [R2-166579](#) Solution to long backhaul latency issue Qualcomm Incorporated, CMCC discussion
36.933 1.0.0

=> Enhancing the current protocol to mark PDCP data packet to assist network perform selective acceleration is feasible from signalling point of view. The detailed solution is not discussed.
- [R2-166600](#) Discussion on the solution of TCP optimization Huawei, HiSilicon, Qualcomm Incorporated, CMCC discussion
=> Noted
- ✍ => **CBF:** Draft LS in [R2-167207](#) to inform RAN3 our agreements from this meeting. If necessary, choose the related contribution as reference (Qualcomm)
- [R2-166585](#) TP for service information acquisition by E-UTRAN and UE assisted local cache Qualcomm Incorporated, CMCC pCR 36.933 1.0.0
=> Not treated
- [R2-166601](#) TP for the solution of TCP optimization Huawei, HiSilicon, Qualcomm Incorporated, CMCC pCR 36.933 1.0.0
=> Not treated

- [R2-166597](#) Discussion on the solution on video optimization Huawei, HiSilicon, Qualcomm Incorporated, CMCC discussion
=> Not treated
- [R2-166598](#) TP for the solution on video optimization Huawei, HiSilicon, Qualcomm Incorporated, CMCC
pCR 36.933 1.0.0
=> Not treated
- [R2-166571](#) Throughput prediction and network assisted DASH Qualcomm Incorporated discussion
=> Not treated
- [R2-166574](#) Radio-aware TCP optimization Qualcomm Incorporated, CMCC, Huawei discussion
=> Not treated
- [R2-166576](#) TP for Radio-aware TCP optimization Qualcomm Incorporated, CMCC, Huawei pCR
36.933 1.0.0
=> Not treated
- [R2-166642](#) Considerations on CASD issues Nokia, Alcatel-Lucent Shanghai Bell discussion
=> Not treated

8.6 WI: Further mobility enhancements in LTE

(LTE_eMob-Core; leading WG: RAN2; REL-14; started: Mar. 16; target: Dec. 16; WID: [RP-160921](#))

Time budget 1TU

Documents in this agenda item will be handled in the LTE Break Out session

8.6.1 Organisational

Including incoming LSs, running CRs, etc

Including output from email discussion [95#36][LTE/eMob] Running stage 2 CR of introducing eMob (Intel)

Including output from email discussion [95#37][LTE/eMob] Running stage 3 CR of introducing eMob (ZTE)

Incoming LS:

- [R2-166016](#) Reply LS on the feasibility of mobility enhancement solutions (R4-166817; contact: Ericsson)
RAN4 LS in to: RAN2 Rel-14 LTE_eMob-Core
=> Noted
- ZTE think the reply LS seems no impact on our agreements so far except the initial UL transmission. But the impact is acceptable. Intel agree.
- [R2-166250](#) Introduction of RACH-less and Make Before Break for handover and SCG change Intel Corporation draftCR 36.300 14.0.0- - result of email discussion [95#36] Rel-14
LTE_eMob-Core
=> Update the running CR accordingly from this meeting progress.
=> Postponed
- [R2-166606](#) Introduction of mobility enhancement solutions ZTE Corporation draftCR 36.331 14.0.0-
- result of email discussion [95#37] Rel-14 LTE_eMob-Core
=> Update the running CR accordingly from this meeting progress.

=> Postponed

[R2-166577](#) Remaining Issues on Running Stage 2 CR ETRI discussion

=> Not treated

[R2-166696](#) Remaining Issues on Running Stage 3 CR ETRI discussion

=> Not treated

8.6.2 RACH-less handover

[R2-166251](#) UL grant for RACH-less handover Intel Corporation discussion

=> Noted

[R2-167135](#) Uplink Grant for RACH-less Handover Qualcomm Incorporated discussion

- Samsung prefer not to change agreement of last meeting.
- Nokia wonders how target eNB know when to trigger PDCCH with UL grant.

=> If UE doesn't get the UL grant from RRC signalling from source eNB, UE should monitor the PDCCH of target eNB for getting UL grant.

=> In the running CR discussion, to figure out the condition for UL grant starting offset and scheduling interval such that the grant occasions across all frames shall be same.

Agreements:

- 1 The UE should release the UL grant indicated by RRC when T304 stops. The trigger condition to stop T304 should be identified via email discussion.
- 2 Agree to the existing scheduling intervals in the running CR.

=> If the initial PUSCH power offset is not sufficient, may consider to introduce TPC in RRC UL grant similar to RACH Response UL grant. Whether initial PUSCH power offset is sufficient can be discussed in email discussion.

[R2-166473](#) Further considerations on the RACH-less handover for the LTE mobility enhancements Samsung discussion

=> Noted

[R2-166395](#) Remaining Issues on RACH-less handover Huawei, HiSilicon discussion

=> Not treated

[R2-166604](#) Introduction of mobility enhancement solutions ZTE Corporation draft CR 36.321 14.0.0-
- Rel-14 LTE_eMob-Core

=> Not treated

[R2-167106](#) Initial UL Power Control for RACH-less HO LG Electronics France discussion

=> Not treated

[R2-167108](#) The way to obtain UL grant and TA information for RACH-less HO LG Electronics France discussion

=> Not treated

8.6.3 Make before break handover

[R2-166673](#) Definition and setting of makeBeforeBreak field Ericsson discussion

- ZTE prefer to keep source eNB transparent.

=> Noted

Agreements:

- 1 Source eNB makes the decision to apply Make before break handover.
- 2 The source eNB indicates make-before-break handover in the Handover Request message.
- 3 The target eNB includes makeBeforeBreak indication in mobilityControlInfo.

[R2-166614](#) Signaling procedure clarification of make-before-break solution ZTE Corporation discussion

=> Noted

[R2-166252](#) Remaining issues for Make Before Break Intel Corporation discussion

- => From RAN2 point of view, to introduce X2 signalling for target to indicate to source eNB that the UE has completed handover successfully is recommended. RAN3 should make the final decision.
- ✍ => **CB:** Draft LS in [R2-167208](#) to RAN3 and cc RAN1/RAN4 to inform our agreements from this meeting. (Intel)
- => The UE should stop T310 when the UE receive HO command when make before break is configured (same as current LTE procedure).
- => UE should not declare RLF on source eNB link when make before break handover applied.
- => [R2-167208](#) will be updated to [R2-167209](#).

The following papers in this section are not treated.

- [R2-166608](#) RLF analysis on make before break solution ZTE Corporation discussion
- [R2-166396](#) Remaining Issues on Make-before-break Handover Huawei, HiSilicon discussion
- [R2-166474](#) Further considerations on solutions for maintaining a connection to the source eNB Samsung discussion
- [R2-166509](#) Consideration on handover failure China Telecom Corporation Ltd. discussion
- [R2-166580](#) Further Discussion on Reliability Issue of UE Indication ETRI discussion
- [R2-167133](#) Discussion on Make-Before-Break Handover Qualcomm Incorporated discussion
- Withdrawn:**
- [R2-166578](#) RLF Issues on Make-Before-Break solution ETRI discussion

8.6.4 Other

The papers in this section are not treated.

- [R2-166397](#) UE Capabilities for Mobility Enhancements Huawei, HiSilicon, ZTE discussion
- [R2-166398](#) UE Capability in 36.306 Huawei, HiSilicon, ZTE draftCR 36.306 14.0.0- - B Rel-14 LTE_eMob-Core
- [R2-166399](#) UE Capability in 36.331 Huawei, HiSilicon, ZTE draftCR 36.331 14.0.0- - B Rel-14 LTE_eMob-Core
- [R2-166749](#) Few clarifications on Further mobility enhancements in LTE Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-167156](#) On co-existence of the RACH-less and make-before-break solutions Samsung discussion
- [R2-166610](#) Stage-3 issues of Solution 1 ZTE Corporation discussion

☒ **[95bis#21][LTE/mobility enhancement] Open issues (ZTE)**

- => Address T304 issue, TPC issue and the proposals from 6 to 10 in [R2-166610](#).
Intended outcome: Report.
Deadline: Tuesday 01/11/2016

☒ **[95bis#22][LTE/Mobility enhancement] Running stage-3 36.331 CR (ZTE)**

- => Capture the agreements from this meeting.
Intended outcome: Agreeable running stage-3 CR.
Deadline: Tuesday 01/11/2016

☒ **[95bis#23][LTE/Mobility enhancement] Running stage-3 MAC CR (ZTE)**

- => Capture the agreements from this meeting.
Intended outcome: Agreeable running stage-3 CR.
Deadline: Tuesday 01/11/2016

☒ **[95bis#24][LTE/Mobility enhancement] Running stage-2 CR (Intel)**

- => Capture the agreements from this meeting.
Intended outcome: Agreeable running stage-2 CR.
Deadline: Tuesday 01/11/2016

Summary of the LTE Break-Out session (eVoLTE, Light conn, Mobility enh, eMBMS)

Agreed CRs

None

Agreed LS out:

eVoLTE:

[R2-167201](#) LS to CT1 on MO video cause value Huawei, HiSilicon LS out

feMBMS:

LS in [R2-167202](#) to RAN1 to inform our agreements and progress from this meeting.

Comeback on Friday

eVoLTE

- ⇒ CBF: Draft an LS in [R2-167200](#) to SA4 to capture the RAN-based codec adaptation mechanism as one signaled changes into the TS 26.114. (Huawei)
- ⇒ Including that the indication from the eNB should be given by a recommended DL and UL bit rate in kbps of physical layer.
- ⇒ Include the meaning of bit rate from RAN2 perspective in the LS.
- ⇒ CBF: Offline discussion on:
 - ☒ **[95bis#16][LTE/eVoLTE] The method to convey codec adaptation information**
Intended outcome: The results of comparison results between RRC signalling and MAC CE.
Deadline:

Light Connection

- ⇒ CB: Draft LS in [R2-167205](#) to CT1, RAN3 and cc SA2 including the agreements from this meeting and including the questions above. (Huawei). Details can be discussed offline. CF on Friday.
- ⇒ CB: Draft LS in [R2-167206](#) to ask SA3 to ask whether STMSI can be used in RRC message without the knowledge of CN. (Ericsson) CF on Friday.
- ⇒ CBF: Decide whether to continue the email discussion about the left issues.

Context aware

- ⇒ CBF: Draft LS in [R2-167207](#) to inform RAN3 our agreements from this meeting. If necessary, choose the related contribution as reference (Qualcomm)

Mobility enhancements

- ⇒ CB: Draft LS in [R2-167208](#) to RAN3 and cc RAN1/RAN4 to inform our agreements from this meeting. (Intel)
- ⇒ [R2-167208](#) will be updated to [R2-167209](#).

Email Discussion

eVoLTE:

- ☒ **[95bis#16][LTE/eVoLTE] Running stage-2 CR of eVoLTE (CMCC)**
- ⇒ Capture the agreements from this meeting.
Intended outcome: Agreeable running stage-2 CR.
Deadline: Tuesday 01/11/2016

feMBMS:

☒ **[95bis#17][LTE/feMBMS] The content, structure and size of needed SI (Ericsson)**

=> Discuss the content, structure and size of needed SI

Intended outcome: Report

Deadline: Tuesday 01/11/2016

☒ **[95bis#18][LTE/feMBMS] Running stage-2 CR of feMBMS (Ericsson)**

=> Capture the agreements so far.

Intended outcome: Agreeable running stage-2 CR.

Deadline: Tuesday 01/11/2016

Light Connection:

☒ **[95bis#19][LTE/light connection] Running stage-2 CR of Light Connection (Intel)**

=> Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-2 CR.

Deadline: Tuesday 01/11/2016

☒ **[95bis#20][LTE/light connection] Running stage-3 36.331 CRs for each modelling option of Light Connection (Intel)**

=> Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-3 CRs.

Deadline: Tuesday 01/11/2016

Mobility enhancement

☒ **[95bis#21][LTE/mobility enhancement] Open issues (ZTE)**

=> Address T304 issue, TPC issue and the proposals from 6 to 10 in [R2-166610](#).

Intended outcome: Report.

Deadline: Tuesday 01/11/2016

☒ **[95bis#22][LTE/Mobility enhancement] Running stage-3 36.331 CR (ZTE)**

=> Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-3 CR.

Deadline: Tuesday 01/11/2016

☒ **[95bis#23][LTE/Mobility enhancement] Running stage-3 MAC CR (ZTE)**

=> Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-3 CR.

Deadline: Tuesday 01/11/2016

☒ **[95bis#24][LTE/Mobility enhancement] Running stage-2 CR (Intel)**

=> Capture the agreements from this meeting.

Intended outcome: Agreeable running stage-2 CR.

Deadline: Tuesday 01/11/2016

Agreements

eVoLTE:

Coming soon...

feMBMS:

Agreements:

For at least the objective a), b) and c) in the WID:

1: The needed information for MBSFN carrier inside SIB1, SIB2 and SIB13 should be provided on feMBMS carrier

2: It should be possible to deliver SIB15 and SIB16 on feMBMS carrier.

FFS: It should be possible to deliver SIB10, SIB11 and SIB12 on feMBMS carrier.

Agreements:

- 1 Two possible solutions from RAN2 perspective:
 - a) SI needed on FeMBMS is broadcasted at least on same subframes as MIB
 - b) SI needed on FeMBMS is broadcasted on different subframes as MIB

Solution a) is more efficient from RAN2 perspective.

The decision should be made according to the size of SI. The feasibility should be asked to RAN1.
- 2 Define new message class and message structure for FeMBMS in TS36.331 to be able to send SI efficiently on FeMBMS carrier if necessary
- 3 RAN2 target common design for MCCH and SI modification notification indication.

Agreements:

- 1: SIB15 can also provide indication to differentiate the feMBMS and legacy MBMS carrier.
- FFS: the frame offset and sub-frame offset between normal cell and MBMS cell could be included in assistance information.

- => RAN2 to agree that cell reselection priority handling works with FeMBMS carrier similar to downlink only carrier where MBMS service is provided.
- => Confirm that UEs (including UEs capable of FeMBMS) shall not camp on FeMBMS cell.

Light Connection:

- => Not introduce new RRC state.

Agreements

- Modelling A Lightly connected UEs are in RRC_CONNECTED with light connection indication and ECM_CONNECTED.
- Modelling B: Lightly connected UEs are in RRC_IDLE with light connection indication and ECM_IDLE.
- 0 UE should be configured into lightly connection by dedicated RRC signalling (i.e. RRC reconfiguration or RRC release). From MME point of view, lightly connected UE is in ECM_CONNECTED.
 1. When a UE exits from light connection into RRC_CONNECTED, UE should perform RAN level access control mechanism. For modelling A, SSAC is applicable. All the existing mechanisms of access control are applied for modelling B.
 2. The network should be able to reject access via a certain RRC cause sent via msg.3. For modelling B. The RRC cause is RRC resume cause.
 - 2.1 For modelling B: the UE's NAS provides to UE's AS the call type and the RRC Resume Cause (similar to legacy when resuming/establishing the connection).
 - 2.2 The RRC cause comes from AS layer for modelling A.
 3. The lightly connected UEs enter into legacy behavior in RRC connected via RRC procedure including three messages (i.e. request, response and complete). For Modelling A, the procedure should be RRC resume or reestablishment procedure. For Modelling B, the procedure should be RRC resume.

- 4.1 At least for modelling B, if RRC resume procedure is used by lightly connected UEs, eNB should be allowed to trigger the fallback procedure to establish the RRC connection upon RRC connection setup.
 - 4.2 For modelling A, if RRC resume procedure is used by lightly connected UEs, eNB should be allowed to trigger the fallback procedure to establish the RRC connection upon RRC connection setup. But the feasibility should be considered in CT1.
 - 4.3 For modelling A, if RRC reestablishment procedure is used by lightly connected UEs, legacy NAS recovery procedure will be triggered in the failure case.
 - 5 To define a new optional radio capability within the UE-EUTRA-Capability IE for the UE to indicate its support of Rel-14 Light Connection operation.
- FFS: UE should know whether a UE lightly connected function is supported or not in the cell.
FFS: The UE's NAS layer is aware when the UE is in light connection.

Agreements

- 1 For the RAN-initiated paging occasion calculation, the preferred UE ID is "IMSI mod x" design (similar to legacy paging calculation), as per option d) in [R2-166688](#).
- 2 The RRC RAN-initiated paging message is defined reusing (with extensions if necessary) legacy RRC paging message, as per option a) in [R2-166688](#).

Context Aware:

- => RAN2 confirm the problem where PDCP discards critical UL data. FFS: the RAN-level solutions could be discussed further in work item phase.
- => Enhancing the current protocol to mark PDCP data packet to assist network perform selective acceleration is feasible from signalling point of view. The detailed solution is not discussed.

Mobility enhancement:

- => If UE doesn't get the UL grant from RRC signalling from source eNB, UE should monitor the PDCCH of target eNB for getting UL grant.

Agreements:

- 1 The UE should release the UL grant indicated by RRC when T304 stops. The trigger condition to stop T304 should be identified via email discussion.
- 2 Agree to the existing scheduling intervals in the running CR.

- => If the initial PUSCH power offset is not sufficient, may consider to introduce TPC in RRC UL grant similar to RACH Response UL grant. Whether initial PUSCH power offset is sufficient can be discussed in email discussion.

Agreements:

- 1 Source eNB makes the decision to apply Make before break handover.
- 2 The source eNB indicates make-before-break handover in the Handover Request message.
- 3 The target eNB includes makeBeforeBreak indication in mobilityControlInfo.

- => From RAN2 point of view, to introduce X2 signalling for target to indicate to source eNB that the UE has completed handover successfully is recommended. RAN3 should make the final decision.
- => The UE should stop T310 when the UE receive HO command when make before break is configured (same as current LTE procedure).

=> UE should not declare RLF on source eNB link when make before break handover applied.

Annex I: LTE Breakout session on IoT

On RAN2 #95bis, in parallel to the main LTE session, an LTE Breakout session on IoT was chaired by session chairman Johan Johansson (MediaTek) addressing:

This is the report from breakout sessions covering the following Items:

- 7.14 LTE: Rel-13: WI: Narrowband IOT
- 8.11 WI: Enhancements of NB-IoT
- 8.12 WI: Further Enhanced MTC

The corresponding report of this session [R2-167242](#) was presented and approved on Fri in the joint session and the contents is provided in this Annex I for convenience reasons.

7.14 WI: Narrowband IOT

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

Time budget: N/A

Documents in this agenda item will be handled in the NB-IoT Break Out session

7.14.1 Control Plane

Including output from email discussion [95#39][NB-IoT] RRC processing delays.(Neul)

36.300

- [R2-166555](#) Editorial correction for NB-IoT Ericsson draftCR 36.300 13.5.0- - D Rel-13
NB_IOT-Core
- Could merge if we need more corrections to 36.300
- ⇒ **Agreed in principle**

Processing Delays

- [R2-166315](#) Summary of [95#39][NB-IoT] NB-IoT RRC Processing Delays EMail Discussion Huawei, HiSilicon, Neul Ltd. report related to email discussion [95#39] Rel-13 NB_IOT-Core
- We need to discuss the values
- ⇒ **We define processing delay as for LTE**

- [R2-166559](#) Processing delay requirements for RRC procedures Ericsson discussion
- ⇒ **Noted**

- [R2-166705](#) NB-IoT RRC Processing Delays Neul Limited discussion
- Neul proposes to round the values up to be safe.
 - Ericsson think that 12ms is pessimistic and would like to round the values down.
 - QC and Mediatek are fine with the proposed values.
 - CATT would like to increase the values further, e.g. from 42 to 50.
 - Neul have a question on the N. it starts at the time of the reception, but for NB-IoT it should be interpreted as the end of the transmission. Neul wonders if this should be clarified.
 - Sequans think this is the same also for Cat M
 - Ericsson think this is obvious.
 - Sony think that RRC processing delays are not the bottleneck
- ⇒ **N start after the last subframe of the PDSCH transmission.**

⇒ **The proposed values, rounded up to nearest x5 are agreed.**

- [R2-166558](#) Acknowledgement delay of RRCConnectionRelease message in NB-IoT Ericsson discussion
- Ericsson have concerns on possible state mismatch.
 - Ericsson assumes there usually a poll and want to clarify that “successfully acknowledged” = successful transmission of RLC status report.
 - HTC think this is not needed. LG agrees and think the detailed impl is up to the UE. Neul think this should not be clarified.
 - Neul think that layer interaction is not reasonable, and think that it is not reasonable to wait e.g. for 60s. Neul think the UE doesn't need to send ack. Ericsson comments that the layer interaction is optional.
 - Qualcomm agree that 60s is not acceptable. 10s would be more reasonable. Intel agrees that 60s is too long.
 - Intel think that the mismatch due to this would only be for a short time.
 - Nokia agrees that the time value should be discussed, maybe 60s is too long.
 - After offline: Ericsson proposed 10s offline and no concerns were raised. Agreement is updated to reflect this.
- ⇒ **We keep the current TS text, but we have a different timer value for NB-IoT, which is 10 seconds.**

- [R2-166557](#) Acknowledgement delay of RRCConnectionRelease message in NB-IoT Ericsson draftCR
36.331 13.3.0- - F Rel-13 NB_IOT-Core

Above doc was not Treated

General

- [R2-166248](#) Corrections to NB-IoT SystemInformationBlockType2 handling HTC Corporation draftCR
36.331 13.3.0- - F Rel-13 NB_IOT-Core
- QC think that the text reads strangely referring to reception of SIB in connected mode. Neul think the correction is correct and that the UE reads SIB in connected at reestablishment.
 - Ericsson are ok with the proposed changes, but Ericsson think that procedure text might need to be added also for other information elements.

⇒ **Can discuss additions offline**

⇒ **Agreed in principle**

- [R2-166290](#) Clarification to the security mode command procedure for NB-IoT Ericsson LM draftCR
36.331 13.3.0- - F Rel-13 NB_IOT-Core
- Nokia think that for NB-IoT, only SRB1bis can be established. Neul point out that to establish security SRB1 is also established. The case when only SRB1bis is established is only for the case of the CP solution, and then security is not established.
 - The text need to be moved 1 letter. Can check the detail wording offline
- Revised in [R2-167220](#).

- [R2-167220](#) Clarification to the security mode command procedure for NB-IoT Ericsson LM draftCR
36.331 13.3.0- - F Rel-13 NB_IOT-Core
- Consider softening the consequences if not approved

⇒ **Agreed in principle**

- [R2-166314](#) Clarification on uplink carrier frequency Huawei draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core
- Ericsson think the intention is ok. Q why this was not conditional. Neul think that if we had done it from beginning we would have specified it as conditional.
 - Ericsson think that the UL maybe above or below the DL in freq and wonders if this is captured. Neul think this is in 36.101.

⇒ **Agreed in principle**

- [R2-166387](#) Clarification on system information acquisition for NB-IoT HTC Corporation draftCR
36.331 13.3.0- - F Rel-13 NB_IOT-Core
- Neul think that last change is ok but see no reason for the other changes.
⇒ **Agree to the last change only**

Revised in [R2-167222](#)

- [R2-167222](#) Clarification on system information acquisition for NB-IoT HTC Corporation draftCR
36.331 13.3.0- - F Rel-13 NB_IOT-Core
⇒ **Agreed in principle**

- [R2-166523](#) PDCP COUNT with RRCConnectionResume Nokia, Alcatel-Lucent Shanghai Bell draftCR
36.331 13.3.0- - F Rel-13 NB_IOT-Core
- Nokia point out that the change is applicable to CIOT as well.
- ZTE think this is already clear, in the security section it says that COUNT will be reset. QC has the same view and think that count shall be reset to zero. Ericsson think this is captured both in RRC and in PDCP, and that the ordering in RRC ensures this works.
- Mediatek wonders if we should have different behaviours for CIOT and NB-IoT. Nokia think not.
- Can check offline and if there are problems we can come back
⇒ **Not pursued**

- [R2-166556](#) Editorial correction for NB-IoT Ericsson, ZTE Corporation draftCR 36.331 13.3.0- - D
Rel-13 NB_IOT-Core
- The text is ok.
⇒ **Agreed in principle**

- [R2-166719](#) Correction to PDCCH period description QUALCOMM INCORPORATED draftCR 36.321
13.3.0- - F Rel-13 NB_IOT-Core
- Huawei think that the duration between PDCCH occasions may vary and depends on valid subframes and think the current text is correct. LG agrees.
- Mediatek think this was discussed in the past, and the current text is the result.
- Ericsson think that the proposal from QC is correct.
- Neul think the pp-timers are counters rather than timers. QC think that is this case it should be defined as a counter.
- Huawei also think we discussed this in the past
Discuss offline (Qualcomm), revision in [R2-167229](#)

- [R2-167229](#) Correction to PDCCH period description QUALCOMM INCORPORATED draftCR 36.321
13.3.0- - F Rel-13 NB_IOT-Core
- Chair point out that we DO NOT WANT TO CHANGE this later than this Quarter. Please CHECK.
- Neul think that maybe additional clarifications on PDCCH subframe will be needed to make this clear for NB-IoT.
⇒ **Agreed in principle**

- [R2-166846](#) Valid anchor/non-anchor carrier combinations QUALCOMM INCORPORATED discussion
- Neul agrees that the table is correct, but think that “inband” or “guardband” are not specified, and think that in RRC it is clear already as this is specified by conditions. Neul think this doesn't need to be further specified. RRC is already clear and should not refer to 36.300.
- QC agree this is a clarification rather than a correction.
⇒ **Agree to add clarification in 36.300**

- [R2-166850](#) Definition of valid anchor and non-anchor carrier combinations QUALCOMM INCORPORATED draftCR 36.300 13.5.0- - F Rel-13 NB_IOT-Core
- Cover sheet need to be updated. This is just a clarification.
Revised in [R2-167223](#)

[R2-167223](#) Definition of valid anchor and non-anchor carrier combinations QUALCOMM INCORPORATED draftCR 36.300 13.5.0- - F Rel-13 NB_IOT-Core
- Cover sheet need to be updated. This is just a clarification.

⇒ **Agreed in principle**

[R2-166863](#) Reference to valid non-anchor carrier configuration QUALCOMM INCORPORATED draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core

⇒ **Not pursued**

[R2-167096](#) Correction on field description of up-CIoT-EPS-Optimisation NEC, Intel Corporation draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core
- Neul think this is ok but would like to add “as indicated by the upper layers”. NEC would be fon to do this but to be consistent we should add this also for RRC connection complete.
- Chair think that we should be consistent also with respect to “as indicated by the upper layers”.
- Report Friday that this change is applicable also to CIOT in general.

Revised in [R2-167224](#), comeback Friday

Withdrawn:

[R2-166288](#) Clarification to the security mode command procedure for NB-IoT Ericsson LM CR 36.331 13.3.02350 - F Rel-13 NB_IOT-Core

[R2-166707](#) Correction to PDCCH period description QUALCOMM INCORPORATED CR 36.321 13.3.00927 - F Rel-13 NB_IOT-Core

7.14.2 User Plane

[R2-166457](#) Clarification on DRX HTC Corporation draftCR 36.300 13.5.0- - F Rel-13 NB_IOT-Core
- Ericsson think that for inactivity timer expiry the description should say that the UE enters the long DRX cycle.
- LG think that all DRX behaviours should not be specified in Stage-2 and are fine with the last change. LG proposes to make the whole description only valid for LTE (not NB-IoT). HTC wuld be ok with this, but think that one more change is needed then.

⇒ **We make the whole paragraph non-applicable to NB-IoT.**

Revised in [R2-167225](#)

[R2-167225](#) Clarification on DRX HTC Corporation draftCR 36.300 13.5.0- - F Rel-13 NB_IOT-Core

⇒ **Agreed in principle**

[R2-166209](#) Correction to TS36.321 CATT draftCR 36.321 13.3.0- - F Rel-13 NB_IOT-Core
- Huawei think the intention is just clarification. CATT think there is no text to understand how to interpret the PDCCH order.
- Ericsson think the current text is clear. LG think that if PDCCH order indicates repetitions the current text is ok. CATT think that the indication is for coverage level.
- CATT still think that it is not clear how to use this number based on the current text.
- CAN check offline, update and come back.

Revised in [R2-167221](#)

[R2-167221](#) Correction to TS36.321 CATT draftCR 36.321 13.3.0- - F Rel-13 NB_IOT-Core
- Huawei would like also more change, to clarify what is enhanced coverage level for NB-IoT
- Chair think that for NB-IoT “coverage level” is something that is only used in MAC.
- Can think about this for next meeting.

⇒ **Agreed in principle**

- [R2-166274](#) Clarification on NB-IoT HTC Corporation draftCR 36.321 13.3.0- - F Rel-13 NB_IOT-Core
- LG think that if NB-IoT is described in the table, more changes are needed, and suggest instead to make the table completely not applicable to NB-IoT. LG think that for LTE there is a reason to have the table because there are possible ambiguities, but for NB-IoT it is not unclear. Huawei agrees.
 - Ericsson support the proposed change. Samsung agrees but think that the NOTE brings confusion.

⇒ **We make the table not applicable for NB-IoT.**

Revision in [R2-167226](#)

- [R2-167226](#) Clarification on NB-IoT HTC Corporation draftCR 36.321 13.3.0- - F Rel-13 NB_IOT-Core

⇒ **Agreed in principle**

- [R2-166695](#) Further clarification for PDCCH order in NB-IoT ZTE Corporation draftCR 36.321 13.3.0- - F Rel-13 NB_IOT-Core
- LG supports this.
 - Ericsson think that in Rel-13 for contention RACH, eNB always uses 000000, and that the current text is ok. IF there are problems with other values, the eNB need to sort out the contention problem. Ericsson think that if there is a collision, this can be detected and the eNB will then issue another PDCCH order.
 - ZTE think we should correct this.
 - LG think that PDCCH order also with explicit preamble is for contention base RACH. Huawei agrees. Nokia wonders why eNB would allocate a preamble if this is not contention free.
 - Ericsson think that also in Rel-13 we should support the non-contention behaviour in the UE, regardless if the actual resource is contention free or not.
 - LG think it need to be clear what the UE shall do.
 - ZTE think that non-zero values shall be usable in Rel-13.
 - Neul think it is clear that we cannot have the UE support the contention-free behaviour in rel-13.
 - Chair think the ZTE correction is an inconsistency clarification that is aligned with previous agreements.

⇒ **Agreed in principle**

- [R2-166289](#) Clarification to the Random Access Procedure for NB-IoT Ericsson LM draftCR 36.321 13.3.0- - F Rel-13 NB_IOT-Core
- 1st change should be removed
 - Neul think the second change is maybe not needed either, as similar statements are in the contention resolution section
 - Discuss offline whether 2nd clarification is needed.
 - After Offline Ericsson reports that the 2nd change is not needed either

⇒ **noted**

PDCH

- [R2-166361](#) Issue on mismatched procedures for indication to PDCH ZTE Corporation draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core
- LG, Huawei, QC and CATT think that the old text is equivalent to the changed one, and a change is not needed. Intel agrees.

⇒ **R2 confirms that the intended behaviour is correct.**

⇒ **Not pursued**

CRs from previous meeting

[R2-166847](#) Correction to MAC RAR CATT CR 36.321 13.3.00891 3 F Rel-13 NB_IOT-Core
[R2-165828](#)

NOTE: This CR was agreed in RAN2#95 but was mistakenly not submitted to RAN#73 and hence resubmitted as a CR to agree again in RAN2#95bis for approval in Dec.16

⇒ **Agreed**

[R2-166857](#) Correction to MAC RAR CATT CR 36.321 14.0.00924 - A Rel-14 NB_IOT-Core

NOTE: This CR was agreed in RAN2#95 but was mistakenly not submitted to RAN#73 and hence resubmitted as a CR to agree again in RAN2#95bis for approval in Dec.16
moved from 8.11.4 to 7.14.2

⇒ **Agreed**

Withdrawn:

[R2-166277](#) Clarification to the Random Access Procedure for NB-IoT Ericsson CR 36.321 13.3.0
 0925 - F Rel-13 NB_IOT-Core

[R2-166356](#) Correction to NB-IoT Stage 2 description Ericsson LM draftCR 36.300 13.5.0- - F
 Rel-13 NB_IOT-Core

[R2-166458](#) Correction to MAC RAR CATT draftCR 36.321 13.3.0- - Rel-13 NB_IOT-Core

8.11 WI: Enhancements of NB-IoT

(NB_IoTenh-Core; leading WG: RAN1; REL-14; started: June 16; target: Mar. 17; WID: [RP-161901](#))

Time budget: 1.5TU

Documents in this agenda item will be handled in the LTE Break Out session

[R2-166007](#) LS on NB-IoT positioning ([R1-168553](#); contact: Huawei) RAN1 LS in
to: RAN2 Rel-14 NB_IoTenh-Core
⇒ **noted**

[R2-166008](#) LS regarding agreement on paging for NB-IoT ([R1-168554](#); contact: Qualcomm) RAN1 LS in
to: RAN2 Rel-14 NB_IoTenh-Core
⇒ **noted**

[R2-166027](#) Reply LS to C1-163890 = [R2-164639](#) on Multiple bearer capability handling (S2-165196;
contact: Intel) SA2 LS in cc: RAN2 Rel-13 Clot
⇒ **noted**

8.11.2 Non-anchor PRB enhancements

Including output from email discussion [95#40][eNB-IoTenh] RACH on non-anchor carrier (CATT)

ncluding output from email discussion [95#41][eNB-IoTenh] Paging open issues, (Ericsson)

RACH

[R2-166210](#) Summary of email discussion [94#40] [eNB-IoTenh] RACH on non-anchor carrier CATT
discussion result of email discussion [95#40] Rel-14 NB_IoTenh-Core

P2:

- LG think Option 1 seems simpler. Nokia agrees
- Intel prefers option 2.

P3:

- Nokia wonders if there is a reason to exclude dedicated signalling. Huawei think dedicated signalling might not be applicable to the CP solution, and multiple methods in general gives complexity.

P4

- Huawei think P4 is not clear. Huawei wonders why we need this flexibility.

P5

- Intel think UE should measure on the paging carrier. Intel think it is easy to do compensation adding offset to NRS measurements.
- CATT think the switching between carriers is not a problem.
- ZTE think we should first decide the camping mechanism.

P7

- ZTE and Sony think that random draw is difficult to test. LG think that for random access this is ok.

P10

- Chair wonders if UE would change CE level after X ..
- LG think the UE does reselection after X ..
- Inter wonders why we need this if we have backoff.
- Ericsson think that X is between 1 and max attempts in a coverage level.
- Huawei wonders if there is impact on power ramping. Ericsson think this is FFS.
- Gemalto think this means that we now do power ramping across multiple carriers.
- Huawei think this brings complexity.
- Sequans think we should do resource selection at every attempt

⇒ **Common RACH configurations on all carriers.**

⇒ **One of the following two options should be used for non-anchor carrier NPRACH configuration.**

Option1. The NPRACH resource configurations for different non-anchor carriers are independent.

Option2. Part of the NPRACH resource configurations for different non-anchor carriers are common and sent in common NPRACH configuration, different configurations for each carrier are sent independently.

- ⇒ UL carrier and DL carrier is configured by signalling, such as SIB2.
- ⇒ Different (multiple) NPRACH resource (UL non-anchor carrier) might be associated with one DL carrier, and potentially with the same CSS_RA resource (still one NPRACH resource only refer to one DL carrier and one CSS_RA resource).
- ⇒ Anchor carrier RSRP should be used for NPRACH selection.
- ⇒ Anchor carrier and non-anchor carrier(s) should be used for carrier selection in case of RRC_IDLE and RRC_CONNECTED.
- ⇒ UE should determine its coverage enhancement level and select NPRACH resource in available NPRACH resources for that coverage level in case of RRC_IDLE.
- ⇒ UE selects NPRACH resource based on a randomization function. It is FFS whether UE should select NPRACH resource based on random draw or based on a pseudo-random function based on UE_ID in case of RRC_IDLE.
- ⇒ It is FFS whether load balancing / uneven probability between carriers is used.
- ⇒ NPRACH resource selection in CONNECTED is that same as in IDLE except for PDCCH order.
- ⇒ RAN2 assumes that for access procedure initiated by PDCCH order, carrier, preamble/subcarrier index and the NPRACH repetition level are explicitly indicated in the DCI format. Confirm with RAN1.
- ⇒ Specific mechanism for carrier selection should not be applied in case of mo-ExceptionData.
- ⇒ It is FFS if the UE performs NPRACH selection when UE fails to access on current carrier for every re-attempts in the same CE level, or only when the UE need to change CE level.

- ☒ [95bis#25][LTE/NB-IoT] Stage-3 oriented email discussion, how to implement, identify remaining open issues for RACH on non-anchor (CATT)

Comeback DRAFT LS to RAN1 in [R2-167228](#) RACH and PAGING on non-anchor carrier (Ericsson).

- We include general information and specific question above

[R2-167228](#) DRAFT LS on NB-IoT Rel-14 RACH and Paging on non-anchor carrier Ericsson LSout

- ⇒ **Date of the next meeting need to be corrected**
- ⇒ **With this update the LS is approved unseen (final version in [R2-167235](#))**

[R2-167235](#) LS on NB-IoT Rel-14 RACH and Paging on non-anchor carrier RAN2 LSout

- ⇒ **Approved (unseen)**

[R2-166681](#) Random Access in non-anchor carrier Intel Corporation discussion

[R2-166280](#) Random access on non-anchor carrier Ericsson other

[R2-166323](#) NPRACH on Non-anchor NB-IoT Carrier Huawei, HiSilicon, Neul Ltd. Discussion

[R2-166074](#) Further consideration on multi-carrier PRACH in NB-IoT ZTE Corporation discussion

[R2-166405](#) Random access for eNB-IoT SHARP Corporation discussion

[R2-166492](#) Transmission of NPRACH on a non-anchor NB-IoT PRBFujitsu discussion

[R2-167103](#) NPRACH on a non-anchor carrier Sequans Communications discussion

[R2-166281](#) Non-anchor NPRACH resource configuration Ericsson other

Above 8 documents not treated

RACH with Backoff

[R2-167048](#) Carrier reselection under backoff mechanism LG Electronics Inc. discussion
Above document not treated

Paging

[R2-166278](#) Summary of email discussion [95#41][eNB-IoTenh] Paging open issues Ericsson other
result of email discussion [95#41] Rel-14 NB_IoTenh-Core

P3

- Chair think that nb relates to paging capacity and that if it is different, UE need to select acc to capacity.
- Sequans prefers to have this configured per carrier. ZTE agrees.
- Mediatek could support having different nb for the anchor carrier.
- Nokia think that R1 is discussing this, and maybe we should wait.
- Huawei think this should be common, and this would simplify things. LG agrees. Intel agrees. Ericsson think this should be common but even if per carrier this wouldn't need to impact the selection.
- Sequans think that low power DLs need more repetitions which set the limit for how sparse we can configure POs.

P4

- QC prefer c
- Nokia think b is not sufficient.
- Huawei think option b is enough. LG agrees, LG think that the weighting is a complex function.
- Ericsson think we should go for d

P6

- Vodafone think that the use case is not clear.
- Chair think that MME need to store this configuration.
- Sequans think that indeed this can be sent to MME and provided to the eNB at paging.
- Qualcomm think this may be problematic as the paging carriers may be different in different cells. Nokia think we need then also to discuss for how long the UE need to store this.
- Sequans and Ericsson supports this.

P7

- Ericsson think that the reason for this is the power boosting where not all carriers can be power boosted.
- Huawei think that if the UE is stationary and with small DRX cycle, the problem may exist but for no other cases. QC don't support this proposal.
- Spreadtrum think that if there a co-channel issues for static UEs it could be beneficial to have the possibility to change paging resources. The solution may be that UE report the problem to the network.
- LG hasn't found any good solution to this problem.
- CATT and Sony think that the network could powerboost different carriers at different point in time and that would resolve the situation. Gemalto think that for guardband deployments power boosting may not be possible, but don't anyway think this is a major problem. Mediatek think we don't have time for this.

- ⇒ **The DRX cycle (defaultPagingCycle) is common for all carriers configured for paging.**
- ⇒ **The number of NPDCCH repetitions (npdcch-NumRepetitionPaging) is configured per carrier.**
- ⇒ **Nb is common for all paging carriers.**
- ⇒ **Uneven paging load distribution between anchor and non-anchor carriers is supported. Weighted distribution between all carriers (Option d)**
- ⇒ **CE level based carrier selection (i.e. where the UE selects paging carrier based on its current CE level) is not supported.**

- ☒ **[95bis#26][LTE/NB-IoT] Stage-3 oriented email discussion, how to implement, identify remaining open issues for paging on non-anchor (Huawei)**

[R2-166212](#) Paging Enhancements for NB-IoTCATT discussion
[R2-166279](#) Non-anchor carrier Paging in NB-IoT Ericsson other
[R2-166324](#) Paging on Non-anchor NB-IoT Carrier Huawei, HiSilicon, Neul Ltd. Discussion
[R2-166075](#) Further consideration on multi-carrier paging in NB-IoT ZTE Corporation discussion
[R2-166437](#) Discussion on paging in eNB-IoT SHARP Corporation discussion
[R2-166682](#) Considerations of idle mode paging on non-anchor NB-IoT Intel Corporation discussion
[R2-166699](#) Paging on non-anchor carrier enhancements QUALCOMM INCORPORATED discussion
[R2-167100](#) Paging on a non-anchor carrier Sequans Communications discussion
[R2-167101](#) Support for CE level differentiated paging Sequans Communications discussion
[R2-166933](#) Non-anchor paging configuration Ericsson LM other
Above 10 documents not treated

Other

[R2-167126](#) Indication for supporting non-anchor PRB in NB-IoT LG Electronics Inc. discussion
Above documents not treated

Withdrawn:

[R2-166406](#) Paging for eNB-IoT SHARP Corporation discussion

8.11.3 Mobility enhancements

Including output from email discussion [95#42][eNB-IoTenh] Mobility Enhancements

[R2-166587](#) Report of email discussion [95#42][eNB-IoTenh] Mobility Enhancements Nokia report result of email discussion [95#42] Rel-14 NB_IoTenh-Core
P1:
- Sony wonders why we need handover in NB-IoT. Nokia indicates that P1 was only for measurements and does not involve handover or
P3:
- Sony think that current behaviour is that RLF is triggered, and that this could be sufficient,
- Nokia think that this is about smooth mobility.
- Huawei think it is beneficial to change cell before it gets too bad.
- Chair think the main problem is data loss. Intel agrees with this.
- Ericsson has concerns about this.
- Nokia has concerns that UEs will be in connected mode on the non-best cell.
- Docomo wonders if Idle mode cell reselection is reused or not, e.g. a different configuration in connected mode.
- ZTE think that measurements in connected mode is problematic and think that enhanced RLF is better.
- Sony think it is not clear that cell reselection was supported by a majority.
- LG think that RLF is not the way to go, especially not enhancements to RLF.
P6
- Ericsson has security concerns. Ericsson think we need to ask SA3. Nokia agrees. Nokia think there are a couple of options on the table for the treatment of security.
P7
- Docomo think that it is likely that data forwarding will not work.
- Ericsson think we cannot have this without context fetch, and think this will open the discussion on identities.
- Nokia think that if we have re-establishment then we have loss-less behaviour.
- Intel wonders what is the complexity of this, context fetch is already supported.
- LG think that if it comes for free, lossless mobility can be supported.
- Ericsson think we should not have any X2 solution.

⇒ **Mobility is triggered by RLF**

⇒ **RLF triggers RRC Connection Re-establishment**

- ⇒ **No additional mechanism is introduced to avoid NAS recovery for the CIOT UP solution**
- ⇒ **Introduce RRC Connection Re-establishment procedure for the CIOT CP solution.**
- ⇒ **We will ask SA3 to verify that this is acceptable from security point of view. FFS exactly what to ask.**
- ⇒ **FFS: Lossless mobility by retransmissions in the target cell (and forwarding data via X2 is supported). FFS whether any enhancements are needed.**

Offline discussion resulted in ways forward:

[R2-167230](#) Way forward on Fast RLF Huawei
Proposal 1: Use Fast RLF as today:
Proposal 2: New type of Fast RLF

- Nokia see no reason to optimize this case. The UE is on non-best cell for very long, and the RLF timers just prolongs this a little.
- Ericsson think that the first proposal goes in the direction of cell reselection, and there are concerns about this. Ericsson also have concerns on measurement Gap handling.
- Vodafone point out that the use case is not a short transmission, but a longer transmission, e.g. a file Download.
- Vodafone think the proposal 2 has less impact than proposal 1 but still provides optimization that is wanted.
- Gemalto don't want measurement gaps, and gemalto wonders if we can just set T310 short.
- On Proposal 2, Nokia wonders how measurement gaps can be avoided? Huawei explains that the Data tx / rx will stop.
- ZTE don't like this. Sierra wireless too. LG too.

⇒ **Noted**

[R2-167231](#) Way forward for lossless mobility Huawei
Solution:

- In the new cell, Network (re)transmits DL packets that were not delivered in the old cell, the UE (re) transmits packets in the UL
- ALT1: NAS performs retransmission (similar to NAS handling at handover)
 - o RRC Reestablishment with context fetch
 - o MME performs retransmissions in the DL
 - eNB -> MME S1AP NAS NON DELIVERY INDICATION
 - o UE NAS performs retransmission in the UL, triggered by Non-delivery indication from AS to NAS.
- ALT2: AS performs retransmission (similar to UP handling current handover)
 - o RRC Reestablishment with context fetch
 - o eNB prioritizes X2-forwarded PDUs in the DL
 - o UE retransmits in the UL.
- Nokia has some sympathy for this, but don't see a R2 impact, and think that we should inform RAN3 and CT1.
- Ericsson wonder if we shall discuss data-forwarding or lossless.
- Qualcomm point out that we don't have PDCP for the CP solution in Rel13.
- Sony wonders if there is interoperability problems, do the UE need to know? Huawei think that a R14 UE could retransmit in the UL regardless if the eNB has this capability or not, and in the DL there will not be a retransmission. Sony wonders for how long the UE will wait for DL packets.
- Vodafone would suggest that we go for ALT1. LG agrees with Vodafone. LG think that for Alt2 we might need to consider reordering. Intel think that reordering can be done in the MME for Alt 1. Intel also support ALT1.
- ZTE think we should consider both alternatives, and that RAN2 should do this.
- Nokia think so far we only discussed in RAN2, and propose we decide later.

⇒ **We go for ALT1**

⇒ **Send LS to RAN3, CT1, SA3**

- [R2-167232](#) Draft LS on mobility enhancements for NB-IoT Huawei LS out to: R3, CT1
- Change to “NAS data transport”
 - Add UL retransmission triggered by AS.
 - Separate R3 and CT1 impact.
 - Ericsson think we should mention something on security. Ericsson think it is not clear that we need context fetch. Chair think that in this case reestablishment fails.

⇒ **Remove part about ALT2, Change to “NAS data transport”, Add UL retransmission triggered by AS, Clarify separately expected R3 and CT1 impact.**

Revised in [R2-167237](#) (Huawei) Comeback Friday

- [R2-167236](#) DRAFT Security aspects of RRC Connection Re-Establishment for NB-IoT (DoNAS) Vodafone LSout
- The LS should say “retransmission by MME and UE NAS” instead of Data forwarding.
 - In the action change to SA3.
 - We should say that there is no “short MAC-I”.

⇒ **Take comments into account**

Revised in [R2-167238](#) (Vodafone) Comeback Friday

General

- [R2-166698](#) Security considerations for Mobility enhancement of NB-IoT CP solution Vodafone GmbH discussion
- [R2-166536](#) Mobility enhancement for NB-IoT CP solution Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-167102](#) Considerations on connected mode mobility LG Electronics France discussion
- [R2-166325](#) Mobility enhancements in connected mode Huawei, HiSilicon, Neul Ltd. Discussion
- [R2-166072](#) Re-establishment for NB-IoT CP solution ZTE Corporation discussion
- [R2-166683](#) Connected mode mobility for NB-IOT UE using CP CIoT EPS optimisation Intel Corporation discussion
- [R2-167107](#) Support of RRC Connection Re-establishment for CP solution LG Electronics France discussion
- [R2-166568](#) Mobility enhancements NB-IoT Ericsson discussion
- [R2-166131](#) Measurement considerations for NB-IoT Gemalto N.V. discussion
- [R2-166215](#) Consideration on Mobility Enhancement CATT discussion

Above 10 documents not treated

UP CIoT optimization

- [R2-166073](#) Mobility enhancement for NB-IoT UP solution ZTE Corporation discussion
- [R2-166534](#) Mobility enhancement for NB-IoT UP solution Nokia, Alcatel-Lucent Shanghai Bell discussion
- [R2-166684](#) Connected mode mobility for NB-IOT UE using UP CIoT EPS optimisation Intel Corporation discussion

Above 3 documents not treated

Re-direction / Load balancing

- [R2-166130](#) Mobility considerations for NB-IoT Gemalto N.V. discussion
- Sony assumes this is inter-frequency, and sony think that S-intersearch will make the UE stick to the assigned frequency.
 - Ericsson think a frequency offset could be useful.
 - Nokia think this is not needed now when we have the multi-carrier support.
 - Vodafone don't think redirection is useful at all.

- Nokia think this isn't part of the WI. LG agrees. Nokia wonders if this is related to anchor/non-anchor.
- Chair think that only anchor carriers apply in IDLE mobility
- Sony think that we also need to decide to stop, and point out that UE will not be on the best carrier.

⇒ **Noted**

[R2-166326](#) Load balancing enhancement Huawei, HiSilicon, Neul Ltd. Discussion
Above document not treated

8.11.4 Other

UE power class

[R2-166076](#) Consideration on new UE power class ZTE Corporation discussion
[R2-166566](#) Further reduced power class in NB-IoT Ericsson discussion
Above 2 documents not treated

- ☒ **[95bis#27][LTE/NB-IoT] Email discussion on reduced power class to identify the issues to resolve and progress as far as possible (Ericsson)**

2 HARQ

[R2-166327](#) Support 2 HARQ Processes in NB-IoT Huawei, HiSilicon, Neul Ltd. Discussion
Above document not treated

- ☒ **[95bis#28][LTE/NB-IoT] Email discussion on 2 HARQ processes to identify the issues to resolve and progress as far as possible (Huawei)**

Withdrawn:

[R2-166595](#) Multiple HARQ processes MediaTek Inc. discussion Late

Enhanced Coverage Authorization

[R2-166329](#) Enhanced Coverage Authorisation Huawei, HiSilicon, Neul Ltd. discussion
This paper is related to LS [R2-166023](#) from SA2. And it will also be submitted in 8.12.3.
[R2-166564](#) Authorization of use of Coverage Enhancements Ericsson discussion

DISCUSSION for the two documents above

- Vodafone wonders what would be the use case for NB-IoT for Coverage Authorization. Ericsson think this is a general feature related to that CE is expensive and applicable also to NB-IoT. Vodafone can understand this feature for smart-phones, but think that the good coverage is not an add-on subscription feature for NB-IoT. QC agrees. Neul think that for multi-RAT UE with NB-IoT capability, the only need is to have allowed/notallowed indication.
- Ericsson think this is useful also for NB-IoT.
- Chair think that this means that it is ok if we have different replies for LTE and NB-IoT.
- Gemalto point out that due to inaccuracy of UE measurements the UE could believe he is in service in Idle, but not receive the service anyway.
- Vodafone think that RLF is impacted
- Ericsson think that IDLE do not need to be impacted.
- Chair think that we must maintain principles about service etc, and that e.g. "no suitable cell" can trigger cell selection, which may result in completely other result than cell reselection.
- QC and Huawei think that we need support in IDLE, and this is clear from SA2.
- Gemalto wonders why a multiRAT device would stay in a situation without service.
- Ericsson point out that CE auth maybe doesn't work well with stationary UEs.

- Docomo wonders if the UE can get stuck at attach. Ericsson think that the authorization would not apply to signalling.
- QC think that a UE may forget about subscription when power-cycled as this is signalled. This is a possibility to get out of “stuck” situations
- Gemalto wonders what happens at mobility.

Offline comments Wednesday:

- Nokia and Huawei think we need a work item to do the actual work as there seems to be decisions to be made (some study) and there seems to be significant amount of work.
- Huawei think also that the WI need to be NB-IoT/LTE-common.
- Intel think that if this is just access control and suitability it is small and easy.
- Chair think it is not clear what is required.

Impact of Authorization of CE, assumptions of RAN2

- ⇒ **Applicable in and at transition to CONNECTED.**
- ⇒ **Impact to/applicability to Idle is FFS.**
- ⇒ **FFS if IDLE would manage CE by new suitability threshold**
- ⇒ **FFS if applicable to signalling or if we would need specific mechanism to get out of “stuck” situations.**
- ⇒ **FFS if the Authorized Coverage levels in LTE could be mapped to normal cov, CE mode A, B**
- ⇒ **FFS what is an authorized coverage level for NB-IoT, as for NB-IoT we only have repetition levels that can be different for different cells.**
- ⇒ **FFS if impact to CONNECTED mobility.**

Enhanced coverage authorization

- [R2-167243](#) Draft Response LS on Enhanced Coverage authorization impact on cell and PLMN selection procedures Qualcomm LSout
- Vodafone wonders if it is correct to talk about RLF and handover failure.
 - Ericsson think case 4 don't need to be mentioned. Huawei want to include case 4.
 - Ericsson wonders if we could have an email discussion on the topic. Huawei point out that SA2 will meet next week, and Huawei are fine to continue work if get a further LS from SA2 that tells us to do this. QC supports the Huawei view. Nokia think we should wait until we have this added to a WI.
- ⇒ **Edited online in comeback session, can continue offline.**

Revised in [R2-167233](#) (CB Friday)

Positioning

- [R2-166569](#) Positioning enhancements for NB-IoT Ericsson discussion
- [R2-166330](#) Positioning consideration in NB-IoT Huawei, HiSilicon, Neul Ltd. Discussion
- Above 2 documents not treated

Inter-RAT Idle Mode Mobility

- [R2-166567](#) Inter-RAT idle mode mobility in NB-IoT Ericsson discussion
- Above documents not treated

Release Assistance

- [R2-166563](#) Release Assistance Indication Ericsson discussion
- [R2-166561](#) Release Assistance Indication Ericsson draftCR 36.331 14.0.0- - B Rel-14
NB_IoTEnh-Core
- [R2-166562](#) Release Assistance Indication Ericsson draftCR 36.321 14.0.0- - B Rel-14
NB_IoTEnh-Core

Above 3 documents not treated

RLC UM

Following 5 tdocs moved here from 8.11.1

[R2-167093](#) Introducing RLC UM for NB-IoT Ericsson discussion

draftCRs:

[R2-167151](#) Introducing RLC UM for NB-IoT Ericsson draftCR 36.300 14.0.0- - B replacement of
[R2-167094](#) Rel-14 NB_IOTenh-Core

[R2-167152](#) Introducing RLC UM for NB-IoT Ericsson draftCR 36.322 13.2.0- - B replacement of
[R2-167095](#) Rel-14 NB_IOTenh-Core

Above 3 documents not treated

Withdrawn:

[R2-167094](#) Introducing RLC UM for NB-IoT Ericsson CR 36.300 14.0.00916 - B Rel-14
NB_IOTenh-Core

[R2-167095](#) Introducing RLC UM for NB-IoT Ericsson CR 36.322 13.2.00123 - B Rel-14
NB_IOTenh-Core

Withdrawn:

[R2-166570](#) Processing delay requirements for RRC procedures Ericsson discussion

8.12 WI: Further Enhanced MTC for LTE

(LTE-feMTC-Core, leading WG: RAN1; REL-14; started: June 16; target: Mar. 17; WID: [RP-161464](#))

Time budget: 1TU

Documents in this agenda item will be handled in the LTE Break Out session

8.11.1 Multicast and 8.12.1 Multicast

Including output from email discussion [95#43][LTE/feMTC/NB-IOTenh] SC-PTM feedback mechanism (Huawei).
Documents in ~~grey overstrike~~ were submitted for 8.12.1, others for 8.11.1

General

[R2-167087](#) Architectural considerations of SC-PtM for eNB-IoT and FeMTC Ericsson discussion

[R2-166747](#) Multicast Support for eNB-IOT Sony discussion

[R2-166748](#) Multicast Support for feMTC Sony discussion

[R2-166845](#) Commonality and backward compatibility for multicast enhancements Kyocera discussion

Above 4 documents not treated

CE General

[R2-167089](#) Coverage enhancements of SC-PtM for FeMTC and eNB-IoT Ericsson discussion

P1

- Not clear why we need CE levels for SC-PTM
- Ericsson think that the UE need to understand whether he is expected to be able to receive a certain service. LG think that the UE need to understand this.

P4

- LG think that from architecture point of view this is important and that eNB decides repetition and MCS selection.
- Huawei wonders if eNB can determine the repetition of multicast service.

P5

- Huawei think that there may be assistance information to determine the coverage level for a certain service.

⇒ **R2 expect that RAN1 specifies physical layer coverage enhancement methods e.g. repetitions, power boosting etc**

⇒ **FFS if we have CE levels definition for SC-PTM**

⇒ **UE need to know whether to attempt to receive a SC-PTM transmission or not, based on the UE radio conditions vs. the expected coverage of the SC-PTM transmission. FFS if the UE can do this based on knowing MCS and repetitions**

⇒ **Different multicast services may have different coverage enhancement levels, which should be configurable depending on the need for a particular coverage enhancement for that service.**

⇒ **The number of L1-combinable repetitions for multicast service is decided together with MCS selection in the eNB.**

⇒ **We send a LS to R1 and R3? on SC-PTM (Ericsson)**

- Intel want clarify “The number of combinable repetitions for multicast service is decided together with MCS selection in the eNB”.

⇒ **We update the agreement above adding “L1”**

[R2-167227](#) Draft LS on coverage enhancement in SC-PTM for FeMTC and eNB-IoT Ericsson LSout

⇒ **LS need to be updated to take into account the updated agreement above.**

⇒ **Approved unseen (final version in [R2-167234](#)).**

[R2-167234](#) LS on coverage enhancement in SC-PTM for FeMTC and eNB-IoT RAN2 LSout
⇒ **Approved (unseen)**

CE feedback and transmission reliability

[R2-166316](#) Summary of email discussion [95#43][LTE/feMTC/NB-IOTenh] SC-PTM feedback mechanism (Huawei) Huawei, HiSilicon, Neul Ltd. report result of email discussion [95#43] Rel-14 NB_IOTenh-Core

- Huawei explains that there are several solutions
- Chair suggest we focus on Proposals 4. P4, 4a, 4b
- Chair think the problem is about a trade-off between resource consumption and reliability.
- LG think that power consumption is important, but that we have sufficient means without feedback.
- Huawei has looked at all solutions, and think that reliability is essential. Otherwise many UEs may need to receive by unicast. Intel don't think we need to agree to a new solution.
- Ericsson think there are other mechanisms than feedback. Sony agrees.
- Huawei want to send a LS to R1 and SA4 and point out the problem of reliability. Sony think there are already ways.

⇒ **In Rel-14 we will not have a solution with feedback.**

[R2-167092](#) Transmission feedback and redundancy for SC-PtM Ericsson discussion
[R2-166852](#) SC-PTM feedback scheme for link adaptation and retransmission Kyocera discussion
[R2-166129](#) Discussion on transmission reliability of SC-PTM ZTE Corporation discussion
[R2-166320](#) Transmission Reliability of Multi-cast in NB-IoTHuawei, HiSilicon, Neul Ltd. Discussion
[R2-166413](#) High reliability for SC-PTM in FeMTC Huawei, HiSilicon discussion

Above 5 documents not treated

CE level Control

[R2-167056](#) CE level reporting for SC-PTM reception LG Electronics Inc. discussion P1

- Intel see this as an optimization. Intel think this is not essential and the discussion should be deprioritized. Huawei think this is not useful, and that it is not clear what to report. LG think that for MTC this is possible. Intel think that anyway the network can know the UE Coverage levels in a cell because of Connected mode.
- LG think that MII is likely not supported for NB-IoT and it is more difficult to support this. Kyocera think that MII should be supported also for NB-IoT to support release to Idle.

⇒ **We don't spend effort to introduce assistance from UE for SC-PTM CE level control in Rel-14**

[R2-166318](#) Coverage Enhancement for SC-MTCH in NB-IoT Huawei, HiSilicon, Neul Ltd. Discussion
[R2-166412](#) Coverage Enhancement for SC-MTCH in FeMTC Huawei, HiSilicon discussion
[R2-166849](#) SC-PTM transmission for Enhanced Coverage Kyocera discussion

Above 3 documents not treated

Configuration and Scheduling

[R2-166851](#) RRC configuration of multicast enhancements for FeMTC and eNB-IoT Kyocera discussion P1

- Ericsson thinks that we don't need to support all of the options as we are short on time.
- Intel support to have some kind of SPS for SC-MCCH. Huawei also support this. Ericsson think that SPS is problematic, as it isn't supported for NB-IoT and CE mode B.
- LG wonders if SC-MCCH info in SIB is the same as PDCCH-less?
- Sony think that PDCCH-less SC-MCCH is good for NB-IoT but dynamic scheduling should be used for the MTC case.
- Huawei think that PDCCH-less will involve overhead for MBMS UEs that are not interested in this service.

- ZTE prefers PDCCH-less, and that this do not need to involve more power consumption for other ues.
- Intel think that dynamic scheduling is needed for feMTC.
- LG want to ensure that other UEs are not impacted, and LG don't want PDCCH-less design.
- CATT think PDCCH-less would work fine.

P3

- LG wonders which RNTI would be used? If the intention is that a RNTI that the UE otherwise uses shall be used then LG can support.
- Huawei think that SC-RNTI should be used.
- Kyocera think that this would be used with Paging, P-RNTI.

P4

- Ericsson think that SIB20 indicate the carrier for SC-MCCH, and SC-MCCH indicate the carrier for MTCH.
- CATT and LG think it is beneficial to have multiple SC-MCCHs as the information can be large. Huawei think that common search space may be a problem, and think one is enough.

P5

- R13 just provides TMGI for neighbour cells.

P6

- Kyocera point out that with this, the UE don't have to receive the SC_MCCH in the neighbour cell before receiving. Ericsson think that it would be more useful to get scheduling information for MTCH.

P7

- Chair think it is useful for UEs in long DRX to know start (maybe stop).
- Ericsson wonders if this is provided in other ways.

- ⇒ **SC-MCCH for feMTC and NB-IoT is scheduled dynamically.**
- ⇒ **We assume we need to support large values for SC-MCCH modification period, repetition period. Exact values FFS**
- ⇒ **RAN2 assumes that direct Indication or similar mechanism (that provides information in DCI) can be used for SC-MCCH change notification. RNTI is FFS.**
- ⇒ **SIB20 indicate the carrier for SC-MCCH, and SC-MCCH indicate the carrier for MTCH. FFS if there can be multiple SC-MCCH**
- ⇒ **FFS whether we enhance service continuity information**
- ⇒ **FFS whether RAN-level start/stop time information is introduced.**

R2-166127	Discussion on SC-MCCH scheduling and change notification	ZTE Corporation	discussion
R2-166416	SPS support for SC-PTM in FeMTC	Huawei, HiSilicon	discussion
R2-167088	Scheduling aspects of SC-PTM for FeMTC and eNB-IoT	Ericsson	discussion
R2-166317	SC-MCCH Scheduling and Update Notification in NB-IoT	Huawei, HiSilicon, Neul Ltd.	Discussion
R2-166322	Discussion on SC-PTM configuration in NB-IoT	Huawei, HiSilicon, Neul Ltd.	Discussion
R2-166415	Discussion on SC-PTM Configuration in FeMTC	Huawei, HiSilicon	discussion
R2-166535	SC-PTM for FeMTC and eNB-IoT	Nokia, Alcatel-Lucent Shanghai Bell	discussion
R2-166685	Multicast RAN2 impacts for FeMTC and eNB-IoT	Intel Corporation	discussion
R2-166214	SC-MCCH Transmission and Notification Mechanisms for NB-IoT and eMTC	CATT	discussion
R2-166410	SC-MCCH scheduling and design for FeMTC	Huawei, HiSilicon	discussion

Above 10 documents not treated

MTCH

- [R2-166128](#) Discussion on SC-MTCH scheduling ZTE Corporation discussion
- Chair wonders if there is similar opportunity both for NB-IoT and feMTC
 - Chair wonders if this is dependent on RAN1. ZTE think not
 - Huawei support this. LG support

⇒ **We will attempt to optimize start and stop conditions of DRX timers for SC-MTCH. Details FFS.**

☒ **[95bis#29][LTE/NB-IoT/feMTC] Email discussion on SC-PTM progressing on FFSes on configuration and scheduling (Huawei)**

Multi-Carrier

[R2-166211](#) Multicast on Non-anchor Carrier for NB-IoT CATT discussion

Moved from 8.11.2

[R2-167122](#) SC-PTM MTCH reception related issues in feMTC LG Electronics Inc. discussion

[R2-167124](#) SC-PTM MTCH reception related issues in NB-IOT LG Electronics Inc. discussion

Above 3 documents not treated

Priority

[R2-166216](#) Priority Handling between Multicast Reception and RRC Connection Establishment/Resume CATT discussion

- Chair wonders if we can leave this for UE implementation.
- Vodafone think R2 cannot leave this for UE implementation. LG agrees.
- Sony think UE need to be able to receive paging.
- ZTE think this can be left for implantation. Ericsson think MO can be left for implementaiton.
- Huawei think NAS should decide this.

⇒ **Noted**

Offline discussion to what extent R2 need to address this, and whether to involve other group (Vodafone).

- This has been discussed on the reflector with the following three proposals.
- Proposal 1: MT (paging) vs. Sc-PTM: MT (Paging) has higher priority than SC-PTM
- Proposal 2: MO data vs SC-PTM: UE implementation
- Proposal 3: NAS signalling(MO-signalling) vs SC-PTM: NAS (MO-signalling) has priority.
- Intel wonders if the last proposal means MO signalling. Vodafone confirms yes.
- Huawei wonder if we should wait for RAN1 as RAN1 is discussing this. Huawei are concerned that SC-PTM performance may be very bad.
- CATT think we should specify that delay tolerant access has lower priority then SC-PTM.
- Qualcomm think that MO exception data should have higher priority than SC-PTM.
- CATT think that MO voice should have higher priority than SC-PTM.
- LG think we should make it simple.

⇒ **We consider to make the following agreement (working assumption for now):**

MT (paging) vs. SC-PTM: MT (Paging) has higher priority than SC-PTM

MO (except signalling) vs SC-PTM: UE implementation

MO signalling vs SC-PTM: MO signalling has priority.

[R2-166321](#) Priority of Multi-Cast in NB-IoTHuawei, HiSilicon, Neul Ltd. Discussion

Above document not treated

Service Continuity & SIB

[R2-166411](#) Service Continuity support for SC-PTM in FeMTC Huawei, HiSilicon discussion

[R2-167091](#) Service continuity in multicast for eMTC and NB-IoT UEs Ericsson discussion

[R2-167123](#) SIB related issues for SC-PTM in feMTC LG Electronics Inc. discussion

[R2-167125](#) SIB related issues for SC-PTM in NB-IOT LG Electronics Inc. discussion

Above 4 documents not treated

Mobility

[R2-167104](#) Considerations on multicast support for feMTCLG Electronics Francediscussion

- Chair wonders we make enhancements that are applicable to NB-IoT and/or feMTC EC
- Sony and Kyocera think that priority can be used in any case.
- Gemalto think this can be made very simple and is related to whether the UE can receive the service or not.

⇒ **We will make enhancements that are applicable to NB-IoT and / or feMTC EC (where we currently do ranking). The exact solution is FFS.**

✉ **[95bis#30][LTE/NB-IoT/feMTC] Email discussion on mobility enhancements for SC-PTM (CATT)**

[R2-167105](#) Considerations on multicast support for NB-IoT LG Electronics France discussion
[R2-166319](#) Cell Reselection Related to Multi-cast in NB-IoT Huawei, HiSilicon, Neul Ltd. Discussion
 Above 2 documents not treated

SC-PTM support in Connected (feMTC)

[R2-166414](#) SC-PTM reception in RRC_CONNECTED for FeMTC Huawei, HiSilicon discussion
 - Huawei think that if feedback is not supported then Connected mode does not need to be supported.

⇒ **SC-PTM is supported only in IDLE also for feMTC**

[R2-167090](#) Multicast for eMTC UEs in connected mode Ericsson discussion
[R2-166848](#) Multicast reception of FeMTC UE in RRC Connected Kyocera discussion
 Above 2 documents not treated

8.12.2 Higher data rates

[R2-166686](#) Higher TBS and VoLTE support Intel Corporation discussion
 - Apple think that UL and DL BW operation mode can be different.
 - LG think that the question on MSG3 indications is for the CP solution only, and we need to think about whether we will support this for the CP solution or for the UP solution only.
 - Apple think that wider bw will be configured explicitly.
 P6
 - Intel think such indication is useful for VOLTE. Apple agrees that such indication is useful.
 - Vodafone think that such indication need some more study. LG think that eNB already have the information to correctly configure the UE.

⇒ **FFS if larger TBS and/or wider bandwidth will require new UE category(ies)**
 ⇒ **FFS if we have an early indication in MSG3 for larger TBS and/or wider bandwidth.**
 ⇒ **Configuration: FFS if DL and UL bandwidth can be different. RAN2 expects that DCI formats will be new for wider bandwidth which will require configuration.**

[R2-166077](#) Consideration on supporting higher data rates in eMTC ZTE Corporation discussion
 ⇒ **R2 expect that DL common transmissions to be backwards compatible, e.g. SI, Paging, MPDCCH etc. (this is given by the statement in the WID that the enhancements are only for connected mode).**

[R2-166282](#) Higher data rates for MTC Ericsson other
 ⇒ **The features we consider are: ACK/NACK bundling, 10 HARQ processes, larger TBS, wider bandwidth**
 ⇒ **We expect R1 to define relation between the features (for UE capabilities).**
 ⇒ **FFS if the Ack/Nack bundling impacts the HARQ RTT timer.**

- [R2-166417](#) On supporting larger maximum TBS and wider bandwidth for FeMTC Huawei, HiSilicon discussion
- [R2-166418](#) Introduction a capability of larger maximum UL TBS for TDD HD-FDD Huawei, HiSilicon draftCR 36.306 14.0.0- - B Rel-14 LTE_feMTC-Core
- [R2-166419](#) Indication for the extended maximum UL TBS for Cat M1 Huawei, HiSilicon draftCR 36.331 14.0.0- - B Rel-14 LTE_feMTC-Core

Above 3 documents not treated

8.12.3 Other

- [R2-166420](#) Positioning consideration in FeMTC Huawei, HiSilicon discussion
⇒ **Noted**

- [R2-166560](#) Inter-frequency measurements for Further Enhanced MTC Ericsson discussion
Above document not treated

Summary

[7.14] NB-IoT Rel-13 corrections

For information

The CR that was accidentally omitted from RP approval, was (re)agreed for Rel-13 and Rel-14

RRC processing delay requirements was agreed.

Comeback:

[R2-167224](#) Correction on field description of up-ClOT-EPS-Optimisation NEC, Intel Corporation
draftCR 36.331 13.3.0- - F Rel-13 NB_IOT-Core

[8.11] eNB-IoT (incl SC-PTM joint with [8.12] feMTC)

For Information

The used time for eNB-IoT was >> TU allocation.

RACH and Paging on non-anchor PRB was discussed with good progress

Mobility Enhancements, was agreed a solution for NB-IoT with CP ClOT enhancement where NAS performs re-transmissions at mobility, based on indications from AS (UL) or eNB (DL), at re-establishment (with context fetch). Mobility is still RLF-triggered,

2 HARQ processes and Reduced Power Class to be treated by email

Enhanced coverage Authorization was discussed (joint ClOT topic), result is a draft LS out. It was considered to have an email discussion conditional to SA2 requesting RAN2 to do the work, but not finally agreed as there is no WI.

[Joint] SC-PTM was discussed with good progress. Several decisions on the limitation of scope, no feedback, no assistance for Coverage level control, only IDLE also for feMTC.

LS out

[R2-167235](#) LS on NB-IoT Rel-14 RACH and Paging on non-anchor carrier RAN2 LSout
[R2-167234](#) LS on coverage enhancement in SC-PTM for FeMTC and eNB-IoT RAN2 LSout

NB-IoT Email discussions

- ☒ **Email discussion on Stage-3 oriented aspects how to implement, and identify remaining open issues for RACH on non-anchor (CATT)**
- ☒ **Email discussion on Stage-3 oriented aspects, how to implement, and identify remaining open issues for paging on non-anchor (Huawei)**
- ☒ **Email discussion on reduced power class to identify the issues to resolve and progress as far as possible (Ericsson)**
- ☒ **Email discussion on 2 HARQ processes to identify the issues to resolve and progress as far as possible (Huawei)**

NB-IoT feMTC Email discussions

- ✉ **Email discussion on SC-PTM progressing on FFses on configuration and scheduling (Huawei)**
- ✉ **Email discussion on Mobility Enhancements for SC-PTM (CATT)**

Comebacks:

- [R2-167237](#) Draft LS on mobility enhancements for NB-IoT Huawei LSout
- [R2-167238](#) DRAFT Security aspects of RRC Connection Re-Establishment for NB-IoT (DoNAS)
Vodafone LSout
- [R2-167233](#) Draft Response LS on Enhanced Coverage authorization impact on cell and PLMN selection
proceduresQualcomm LSout

[8.12] feMTC specific

Higher Data Rate was discussed

Annex J: History

Document history		
Date	TSG RAN WG2 Tdoc	Subject
03.10.2016	-	Skeleton report for RAN WG2 #95bis provided before the meeting
05.10.2016	-	Update 1 of skeleton report for RAN WG2 #95bis provided before the meeting
07.10.2016	-	Update 2 of skeleton report for RAN WG2 #95bis provided before the meeting
19.10.2016	-	Draft report v0.1 for RAN WG2 #95bis provided after the meeting
09.11.2016	R2-167401	Draft report v1.0 for RAN WG2 #95bis provided after the meeting
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