

Agenda Item: 2.2
Source: ETSI MCC
Title: Report of 3GPP TSG RAN WG2 meeting #91
Beijing, China, August 24 – 28, 2015
Document for: Approval

Report of 3GPP TSG RAN WG2 meeting #91

held in Beijing, China
August 24 - 28, 2015



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Organisation of the meeting

Meeting: 3GPP TSG RAN WG2 #91
 Meeting location: Beijing, China
 Duration: Monday 24.08.2015 - Friday 28.08.2015
 Host: Huawei
 TSG RAN WG2 Chairman: Henning Wiemann (Ericsson) email: henning.wiemann@ericsson.com
 TSG RAN WG2 Vice chairman: Diana Pani (Interdigital Communications) email: diana.pani@interdigital.com
 TSG RAN WG2 Vice chairman: SeungJune Yi (LG Electronics) email: seungjune.yi@lge.com
 TSG RAN WG2 MCC Support: Yong-Jun Chung (ETSI MCC) email: Yong-jun.Chung@etsi.org
 Email reflector: 3GPP_TSG_RAN_WG2@LIST.ETSI.ORG
 Technical documents: ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_91/Docs
 Ad hocs: Official parallel ad hocs held (see agenda item 2.1) on
 UMTS session (see AI 8-11, Mon - Thu): chaired by Diana Pani
 LTE Breakout session (UP matter: see AI 6.1.2, 6.2.1.2, 6.2.3.2, 6.2.9.2 on Mon and AI 7.9, 7.2.3 on Thu chaired by SeungJune Yi, ProSe and Ext. DRX matter: see AI 7.5, 7.10 on Wed chaired by Diana)
 next meetings: TSG RAN #69 14.09. - 16.09.2015 Phoenix, USA
 TSG RAN WG2 #91bis 05.10. - 09.10.2015 Malmö, Sweden
 TSG RAN WG2 #92 16.11. - 20.11.2015 Anaheim, USA
 TSG RAN #70 07.12. - 10.12.2015 Sitges, Spain

Statistics/Executive Summary

TSG RAN WG2 #91 was held in Beijing, China, hosted by the Huawei of 3GPP (co-located with RAN1/4). This RAN WG2 meeting had 2 parallel sessions: UMTS session (see agenda items 8-11; Mon - Thu) and LTE Breakout session (UP matter: see AI 6.1.2, 6.2.1.2, 6.2.3.2, 6.2.9.2 on Mon and AI 7.9, 7.2.3 on Thu in Annex G, ProSe and Ext. DRX matter: see AI 7.5, 7.10 on Wed in Annex H). All other topics were treated in the parallel main session.

- 290 participants (registered before the meeting: 345 participants).
- 973 Tdocs allocated with 918 available contributions.
- 51 incoming liaison statements (6 on UTRA, 42 on LTE; and 3 on joint aspects): All were treated and noted.
- 21 outgoing liaison statements (4 on UTRA, 16 on LTE; and 1 on joint aspects), 1 of them agreed by email.
- 29 email discussions scheduled after RAN2 #91 (plus email discussions of RAN2 WI/SI status reports and 0 CR from RAN3 to RAN2 TS 36.300), see Annex F.
- Among 179 change requests (CRs) in total: 52 agreed (7 for UTRA 25.xxx/34.xxx specs, 45 for LTE 36.xxx specs and 0 to 37.xxx specs) and 0 technically endorsed CR for RAN #69.
- REL-13 WI: RAN aspects of Application specific Congestion control for Data Communication (ACDC) (AI 5.1):
 RAN2 made agreements on ACDC impacts on AS layer and agreed to send the LS in [R2-153876](#) to CT1 and SA1 summarizing the ACDC agreements.
- REL-13 SI: Study on Indoor Positioning Enhancements for UTRA and LTE (AI 5.2):
 RAN2 agreed TPs on protocol aspects of Indoor positioning enhancements in [R2-153877](#), [R2-153922](#) [R2-153878](#) and [R2-153920](#).
- REL-13 WI: Licensed-Assisted Access using LTE (AI 7.1):
 An Updated running stage-2 CR provided in [R2-153907](#) after email discussion [91#10][LTE/LAA] capturing RAN2 agreements on RRM measurements.
- REL-13 WI: CA enhancements (AI 7.2):
 Updated running 36.300 CR endorsed in [R2-153963](#) and new running MAC 36.321 CR and RRC 36.331 CR endorsed after email discussion [91#11][LTE/CAe] and [91#12][LTE/CAe] capturing RAN2 agreements on carrier aggregation
- REL-13 WI: Single-Cell point-to-multipoint transmission (AI 7.3):
 RAN2 made agreements on SC-PTM configuration and operation and endorsed running stage-2 CR after email discussion [91#13][LTE/SC-PTM] capturing RAN2 agreements. Also RAN2 agreed to send the LS in [R2-153965](#) on SC-PTM transmission to RAN1.

- REL-13 WI: Further LTE Physical Layer Enhancements for MTC (AI 7.4):
Updated running stage-2 CR in [R2-153967](#) capturing RAN2 agreements on SIB, Random access and Paging endorsed and the LS in [R2-153868](#) to RAN1 agreed after email discussion [91#14][LTE/MTC]. Also, the LS on C-IoT/MTC data transmission targets for security-related procedures to SA3 is agreed in [R2-153969](#).
- REL-13 WI: ProSe enhancements (AI 7.5):
Running stage-2 CR to capture RAN2 agreements endorsed after email discussion [91#16][LTE/eD2D]. Also, the topic on relay selection/re-selection will be discussed until the next meeting through email discussion [91#31][LTE/eD2D].
- REL-13 WI: LTE-WLAN Radio Level Integration (AI 7.6):
Updated running stage-2 CR capturing RAN2 agreements was endorsed in [R2-152972](#) after email discussion [91#15][LTE/WiFi].
- REL-13 WI: Multicarrier Load Distribution in LTE (AI 7.7):
Email discussion [91#28][LTE/LoadBalancing] planned on reporting on redistribution schemes and draftCR until next meeting.
- REL-13 SI: Further MDT enhancements (AI 7.8):
TR 36.880 v1.0.0 on Study on further enhancements of Minimization of Drive Tests (MDT) for E-UTRAN was agreed to submit to RAN plenary for approval after email discussion [91#06][LTE/MDT].
- REL-13 WI: Dual Connectivity Enhancements (AI 7.9):
RAN2 made further agreements on PDCP data transmission.
- REL-13 WI: RAN enhancements for extended DRX in LTE (AI 7.10):
RAN2 agreed the LS to RAN4 on extended DRX in [R2-153883](#).
- REL-13 SI: Study on Latency reduction techniques for LTE (AI 7.11):
TR 36.881 v0.3.0 on Study on Latency reduction techniques for LTE was agreed in [R2-153910](#) after email discussion [91#17][LTE/Latency].
- REL-13 WI: L2/L3 Downlink enhancements for UMTS (AI 11.1):
RAN2 discussed on Retrievable configurations , Seamless URA_PCH to CELL_FACH transitions , RNTI extension mechanisms and Improved HARQ retransmission then made working assumptions for further work. Also the LS to RAN3 on Idle to connected mode transition optimization agreed in [R2-153895](#).
- REL-13 WI: Power saving enhancements for UMTS (AI 11.2):
RAN2 agreed the LS to RAN4 on eDRX measurements in Idle mode for UMTS in [R2-153902](#) and to RAN3 on enabling return into PSM for UMTS in [R2-153903](#).
- REL-13 WI: Support of EVS over UTRAN CS (AI 11.3):
There was joint RAN1 and RAN2 session to treat all RAN1 and RAN2 Tdocs together. Reply LS to SA4 on EVSoCS agreed in [R2-153904](#).
- REL-13 SI: Study on Network-Assisted Interference Cancellation and Suppression for UMTS (AI 11.4):
Only few Tdocs were treated and noted.
- REL-13 WI: Multiflow Enhancements for UTRA (AI 11.5):
RAN2 agreed CRs on Introduction of the Multiflow 3F-4C configuration in [R2-153075 \(TS 25.321\)](#), [R2-153900 \(TS 25.302\)](#) and [R2-153901 \(TS 25.331\)](#).
- REL-13 WI: HSPA Dual-Band UL carrier aggregation (AI 11.6):
Only few Tdocs were treated and noted.
- REL-13 WI: Application specific Congestion control (AI 11.7):
Only few Tdocs were treated and noted.

Note: The sequence in which the different topics appear in this report is related to the agenda of the meeting. However, the Tdocs do not necessarily appear in the sequence as they were treated in the meeting.

1 Opening of the meeting (9 AM)

TSG RAN WG2 chairman Henning Wiemann (Ericsson) opened the meeting RAN WG2 #91 on Monday morning 24.08.2015 at 09:00 o'clock.

On behalf of the host, Huawei of 3GPP, Mr. Yi, Guo (Huawei) welcomed the delegates to Beijing, China and explained organisational issues.

RAN WG2 meeting rooms in the China World Hotel:

Main RAN2 room:	Conference Hall A (Level 1 Floor),	planned for 250 chairs, Mon-Fri
RAN2 LTE ad hoc room:	Function Room 12 (Level 1 Floor),	planned for 100 participants, Mon - Thu
RAN2 UMTS ad hoc room:	Function Room 1 (Arcade level),	planned for 35 participants, Mon - Thu

1.1 Call for IPR

Henning Wiemann (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

RAN WG2 chairman: 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

[R2-153001](#) Proposed agenda for RAN2 #91 Beijing, China, 24.8.-28.8.2015; Ericsson (RAN2 chairman); agenda;
=> Agreed

Time-schedule is only indicative (i.e. topics might move forward/backward!):

<i>Schedule</i>	Main room	LTE Breakout room	UMTS room
Mon 09:00 -> 13:00	[2],[3],[4] [5.1] ACDC [5.2] Indoor Positioning		
~15:00 ->	[6.1.1] LTE Rel-8/9/10/11 CP [6.2] LTE Rel-12	[6.1.2] LTE Rel-8/9/10/11 UP [6.2.1.2] DC UP [6.2.3.2] ProSe UP [6.2.9.2] Other UP	[8] UMTS Rel-8/9/10 [9] UMTS Rel-11 [10] Rel-12 [11.5] Multiflow
Tue 08:30 ->	[6.2] LTE Rel-12	[7.9] DC Enh. UP Stage-3	[11.1] DL enh.

Tue 14:30 ->	[7.4] MTC Low Cost		
Tue 17:00 ->		[7.5] ProSe Enh. (Relay)	
Wed 08:30 ->	"Aggregation Day" [7.6] LTE+WiFi [7.2] CA Enhancements [7.1] LAA	[7.10] Ext. DRX [7.5] ProSe Enh.	[11.3] EVS over UTRAN CS [11.4] NAICS [11.2] Power saving enh.
Thu 8:30 ->	[7.7] Load balancing [7.3] SC-PTM	[7.9] DC Enh. UP Stage-3 [7.2.3] CA Enh UP Stage-3	[11.6] Dual Band HSUPA [11.7] ACDC
14:30 ->	[7.8] MDT Enhancements [7.11] Latency Enh. [7.12] LTE Other Rel-13 [7.13] LTE TEI13		[11.8] UMTS TEI13 Comebacks
Fri 8:30 -> until 17:00	Left-overs, Comebacks including Joint LTE/UMTS		

Chairing of UMTS Sessions

In this meeting not all UMTS sessions will be chaired by the UMTS Vice Chairman. Instead, the following delegates volunteered to chair UMTS sessions as follows:

Francesco Pica (Qualcomm): "Power saving enhancements for UMTS"

Mark Curran (Ericsson): "Support of EVS over UTRAN CS" and "Study on Network-Assisted Interference Cancellation and Suppression for UMTS"

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

[R2-153002](#) Draft report of RAN2 RAN2 #90, Fukuoka, Japan, 25.05.-29.05.2015; ETSI MCC; report;
[R2-153059](#) Draft report of RAN2 RAN2 #90, Fukuoka, Japan, 25.05.-29.05.2015; ETSI MCC; report;
 => Report is Agreed in [R2-153060](#)

2.3 Reporting from other meetings

2.3.1 RAN-68 Malmö

UE capabilities/FGIs (Rel-12)

An LS ([RP-151105](#)) was sent to clarify the decisions about mandatory/optional REL-12 UE features.

CRs regarding new UE categories 15 & 16 in Rel-12 were approved ([RP-150926](#), [RP-150951](#)).

RAN4 discussed the need to support rank3/4 in TM3 and TM4 (see incoming LS)

Ongoing Rel-13 WI/SI

RAN enhancements for extended DRX in LTE

RAN agreed that extended connected mode DRX cycle beyond 10.24 seconds is no longer pursued in the REL-13 WI
 LTE_extDRX-Core (see [RP-150799](#)).

New WIs/Sis (with impact on RAN2)

LTE

R1: Licensed-Assisted Access using LTE; WID: [RP-151045](#)

R1: Feasibility Study on LTE-based V2X Services; WID: [RP-151109](#)

R1: Elevation Beamforming/Full-Dimension FD MIMO; WID: [RP-151085](#)

R2: Support of single-cell point-to-multipoint transmission in LTE; LTE_SC_PTM-Core; WID: [RP-151110](#)

UMTS

R1: DL TPC enhancements for UMTS; WID: [RP-151044](#)

R2: L2/L3 Downlink enhancements for UMTS; WID: [RP-151043](#)

R2: Power saving enhancements for UMTS; WID: [RP-151092](#)

Cellular Internet of Things

PCG way forward on "Clean Slate" was reported ([RP-150582](#)). An LS to SA on architecture for Clean Slate CIOT was approved in [RP-151087](#) asking SA2 to progress their SI FS_AE_CIoT and to provide the status to RAN #69.

2.4 Others

Rapporteur changes

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

Isolated impact analysis

Note that an isolated impact analysis is required for Rel-8 to Rel-12 CRs from Q2 2015 onwards.

Only corrections where there is a proven problem are allowed for frozen releases (Rel-8 to Rel-12).

RAN2 WG compendium

[R2-153003](#) 3GPP TSG RAN WG2 compendium v28.0 (status after RAN #68); ETSI Secretariat; other;
Not treated

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

Time Budget

The time budget endorsed at RAN-68 is available in [RP-150982](#).

3G Ultimate

[R2-153067](#) Tutorial for use of the 3G Ultimate Tdoc allocation tools; ETSI MCC; other;
Not treated

Elections

There will be Chairman / Vice-chairmen elections during this meeting. The plan is to handle it in 3 steps:

- 1) Chairman election
- 2) Vice chairman election (intention to chair LTE breakout sessions)
- 3) Vice chairman election (intention to chair UMTS and LTE breakout sessions)

Chairmanship Candidates (status 24.08.2015):

Name	Company / Partner
Mr. Benoist Sébire	Nokia Networks Japan / ARIB
Mr. Richard Burbidge	Intel / ATIS
Mr. Johan Johansson	MediaTek Beijing Inc. / CCSA

Vice Chairmanship Candidates (status 24.08.2015):

<u>Name</u>	<u>Company / Partner</u>
Dr. Nan Hu	China Mobile Com. Corporation / CCSA
Ms. Diana Pani	INTERDIGITAL COMMUNICATIONS / ETSI

Election schedule for Chairmanship:

The 1st ballot: Monday afternoon coffee break time, 16:30 to 17:00
In case of 2nd ballot: Tuesday afternoon coffee break time, 16:30 to 17:00
In case of 3rd ballot: Wednesday afternoon coffee break time, 16:30 to 17:00

Election place for Chairmanship:

Function Room 4B (Arcade level)

Delegates who have the voting right should be **wearing their badge** or showing a business card for checking their identity. In case of proxy voting, please bring the proxy voting form if you didn't submit before.

Voting rules (see [working procedures](#)): When, in the first ballot, no candidate has obtained 71% of the votes cast, a second ballot shall be held. In the second ballot, in cases where there are only two candidates, the candidate obtaining the higher number of votes is elected. In cases where there are more than two candidates, if none of them has obtained 71% of the votes, a third and final ballot shall be held among the two candidates who have obtained the highest number of votes in the second ballot. The candidate obtaining the higher number of votes in the third ballot is then elected.

Further information

[R2-153058](#) RAN WG2 chairman and vice chairmens elections; ETSI MCC; other;
Not treated

2.4.1 Election result first ballot

It was checked on Monday whether there are any further candidates. No further candidates.

First ballot was carried out on Monday 24.08.2015 16:30 - 18:00 CEST:

(Original schedule was on Monday 24.08.2015 16:30 - 17:00 CEST but it was extended to 18:00 due to long queing for 212 votes.)

Total number of votes: 230

Ballot papers issued: 212

Abstained or spoiled: 4

Valid votes: 208 (100%)

Mr. Benoist Sébire: 44 (21.15%)

Mr. Richard Burbidge: 96 (46.15%)

Mr. Johan Johansson: 68 (32.69%)

Observers: Mr. Zelmer, Donald E. (AT&T)

Ms. Kathy Wu (Huawei)

MCC: Mr. Yong-Jun Chung (MCC)

=> conclusion: Quorum acheived, no candidate achieved 71%, 2nd ballot necessary.

=> Mr. Benoist Sébire indicates that he will step down and not participate in a second ballot.

=> Second ballot on Tuesday among two candidates: Mr. Richard Burbidge and Mr. Johan Johansson

=> Second ballot will be during the Tuesday afternoon coffee break (16:30 to 17:30).

2.4.2 Election result second ballot

Second ballot was carried out on Tuesday 25.08.2015 16:30 - 17:30 CEST:

Total number of votes: 230

Ballot papers issued: 210

Abstained or spoiled: 2

Valid votes: 208 (100%)

Mr. Richard Burbidge: 123 (59.14%)

Mr. Johan Johansson: 85 (40.86%)

Observers: Mr. Zelmer, Donald E. (AT&T)

Ms. Kathy Wu (Huawei)

MCC: Mr. Yong-Jun Chung (MCC)

=> Mr. Richard Burbidge is elected as new RAN2 chairman on Tue 25.08.2015

2.4.3 Election result Vice Chairmen

It was checked on Tuesday whether there are any further candidates for RAN2 vice chairman after election of RAN2 chairmanship. No further candidates.

First vice chairman position with the intention to chair LTE breakout sessions

=> Ms. Diana Pani does not run for this position

=> Dr. Nan Hu is elected for the first vice chairman position by acclamation on Tue 25.08.2015

Second vice chairman position with the intention to chair UMTS and LTE breakout sessions

=> Ms. Diana Pani is elected for the second vice chairman position by acclamation on Tue 25.08.2015

3 Incoming liaisons

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

3.1 Joint UMTS/LTE relevance

FS_IoT_LC

[R2-153006](#) LS on Efficient Small Data Transfer (GP-150654; contact: Ericsson); GERAN2; LS in; Rel-13; FS_IoT_LC;
=> Noted

[R2-153042](#) LS on Completion of Study Item on Cellular System Support for Ultra Low Complexity and Low Throughput Internet of Things (FS_IoT_LC) (GP-151041; contact: Vodafone); GERAN

[Late]

=> Noted

Rel-12 Mandatory / Optional

[R2-153022](#) Reply LS to [R2-150703](#) on LTE Rel-12 UE feature list ([RP-151105](#); contact: NTT DOCOMO); RAN; LS in; Rel-12;

=> Noted

eDRX (LTE_extDRX-Core and UTRA_SDATA_POWSAV-Core)

[R2-153032](#) LS on paging co-ordination for extended idle mode DRX (S2-152697; contact: Qualcomm); SA2; LS in; Rel-13; eDRX;

=> Noted

=> See draft reply LS in [R2-153853](#)

[R2-153033](#) LS on extended connected mode DRX (S2-152698; contact: Qualcomm); SA2; LS in; Rel-13; FS_eDRX;

=> Noted

Token Bucket (SA4)

[R2-153027](#) Reply LS to S2-151654 on requested feedback on TR 26.924 (S2-152081; contact: Ericsson); SA2; LS in; Rel-13; QOSE2EMTSI;

=> Noted

[R2-153036](#) LS on bitrate variations and handling in RAN (S4-150866; contact: Ericsson); SA4; LS in; Rel-13; QOSE2EMTSI;

- Ericsson thinks that defining different window sizes for the same QCI will be difficult since the eNB could not distinguish when to apply which value.

- Chairman assumes that if at all, there would only be recommendations in SA4 specifications.

=> Noted

=> Can discuss offline during the week

=> See draft reply LS in [R2-153854](#)

Energy Efficiency Measurements (SA5)

[R2-153038](#) LS on update on Cooperation for Energy Efficiency Measurements (S5-153359; contact: Nokia Networks); SA5; LS in; Rel-13; OAM-PM_EE;

=> Noted

IETF - ECN

[R2-153008](#) Explicit Congestion Notification for Lower Layer Protocols Submission (IETF LS; contact: EMC); IETF; LS in;

- Chairman wonders whether we should forward this to RAN3

- Nokia Networks points out that we mention ECN in our specifications. Ericsson thinks we should check carefully if the proposed changes have any impact on our specifications

=> Postponed

The following LSin:

- [R2-153020](#) and [R2-153023](#) treated under AI 6.1.1

- [R2-153028](#) treated under AI 4.2

- [R2-153005](#), [R2-153041](#) and [R2-153044](#) treated under AI 5.1

3.2 LTE relevance

CA - PH Reporting

[R2-153045](#) Reply LS on Type 2 Power Headroom reporting; ([R1-154764](#), contact: Intel); RAN1; LS in; Rel-13; LTE_CA-Core

=> LS was handled in the UP Session

=> Noted

IOPS

- [R2-153004](#) Reply LS to S2-151423 = [R2-151027](#) on proposed method of restricting access to IOPS cells (C1-152403; contact: AT&T); CT1; LS in; Rel-13; FS_IOPS_St2;
- Noted
- [R2-153046](#) Reply LS to S2-151423 = [R2-151027](#) on proposed method of restricting access to IOPS cells (S1-152750; contact: Applied Communication Sciences); LS in; Rel-13; FS_IOPS_St2
=> Noted

TEI13 - Paging

- [R2-153014](#) Response LS to S2-150698 = [R2-150027](#) on Paging Optimisation (R3-151280; contact: Ericsson); RAN3; LS in; Rel-13; TEI13;
=> Noted
- [R2-153031](#) Reply LS to R3-151280 = [R2-153014](#) on Paging Optimisation (S2-152696; contact: Alcatel Lucent); SA2; LS in; Rel-13; TEI13;
=> Noted

In addition, the following LSin:

- [R2-153020](#), [R2-153023](#), [R2-153045](#), [R2-153048](#), [R2-153049](#) and [R2-153050](#) treated under AI 6.1
- [R2-153007](#), [R2-153015](#), [R2-153021](#), [R2-153051](#), [R2-153052](#), [R2-153053](#) and [R2-153054](#) treated under AI 7.4
- [R2-153009](#), [R2-153010](#), [R2-153011](#), [R2-153024](#), [R2-153025](#), [R2-153026](#), [R2-153030](#), [R2-153034](#), [R2-153035](#) and [R2-153047](#) treated under AI 7.5
- [R2-153012](#) treated under AI 7.2

3.3 UMTS relevance

In addition, the following LSin:

- [R2-153039](#), [R2-153040](#), [R2-153043](#) treated under AI 11.3
- [R2-153013](#) treated under AI 11.5
- [R2-153018](#) treated under AI 11.6
- [R2-153037](#) and [R2-152012](#) treated under AI 11.3

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

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

4.1 Joint UMTS/LTE: Rel-11 and earlier releases

- (SIMTC-RAN_OC-Core, leading WG: RAN2, REL-11, started: Sep.11, closed: Sep. 12, WID: [RP-111373](#))
- (eMDT_UMTS LTE-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)

Including corrections to joint LTE+UMTS TEI functionality in Rel-8 to 11. E.g. “Multiple Frequency Bands per Cell”, ...

UMTS Neighbour Cell Lists

Including output of [90#21][Joint/TEI11] Limitation of UMTS neighbour cell lists (Huawei)

- [R2-153600](#) Report of [90#21] [Joint/TEI11] Limitation of UMTS neighbour cell lists; Huawei; report; Rel-11; TEI11;
- Intel thinks that no noticeable issues have been identified so far. Huawei has received reports of such issues from operators. QC agrees with Intel that most companies did not see a need for any enhancement. Huawei would suggest discussing further during this week and conclude on Friday whether any enhancements are needed. Nokia Networks

- agrees with Intel and QC that nothing is needed and wonders what we would discuss during this week. Huawei thinks that quite few companies expressed an opinion.
- => RAN2 sees no need for any enhancement
- => Noted

4.2 Joint Rel-12 WIs/SIs

Input to any other Rel-12 Joint UMTS/LTE WIs/SIs not explicitly listed above.

(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](#))

UTRA_LTE_WLAN_interw-Core

Incoming LSs

[R2-153028](#)

- LS on UE Handling of RAN Rules for WLAN Interworking (S2-152686; contact: Qualcomm); SA2; LS in; Rel-12; TEI12;
- => Reply LS postponed

Outgoing LSs

[R2-153855](#)

- Reply LS on UE Handling of RAN Rules for WLAN Interworking; contact: Qualcomm; to SA2, CC: CT1; LS out; Rel-12; UTRA_LTE_WLAN_interw-Core, TEI12;
- Nokia Networks thinks that we did not reach consensus and might not need to send an LS. Nokia Networks wonders why this has not been discussed further offline. We should aim for reaching consensus. Nokia Networks thinks we should continue the discussion in RAN2. Vodafone thinks that currently the LOEI is not supposed to overrule the RAN rules. We would need to discuss it further here. Ericsson points out that we did discuss it in Rel-12 and agreed that the LOEI does not take precedence and we did not change that now. Therefore, the baseline still holds. MediaTek agrees with QC that we will not get consensus to SA2 and leave the decision to them. Vodafone agrees with Ericsson that the current status is that we do not allow the override. Telecom Italia agrees with Vodafone and Ericsson. We should state that baseline and say in addition that there is no consensus to change that. Nokia Networks agrees. QC agrees to the baseline that LOEI does not override RAN rules for radio related aspects. Intel agrees that this baseline is in the SA2 specifications. MediaTek does not think there is a baseline. Broadcom agrees with Intel that the baseline is in the SA2 specifications. DT agrees that we did not change the baseline that LOEI is not allowed to override RAN rules.
- => Postponed

Other

[R2-153072](#)

- Interaction between RAN rules and Local Operating Environment Information; MediaTek Inc.; discussion; Rel-12; UTRA_LTE_WLAN_interw-Core;
- Vodafone thinks that we discussed these issues earlier and decided that LOEI should not override the result of RAN rules. Vodafone thinks that the intention of the WLAN interworking was to give the network control of the access selection. We should therefore not encourage overriding the specified behaviour. It would make the whole thing untestable. We also don't have similar UE based behaviour for interworking of different 3GPP RATs. TCL wonders how the user preference is taken into account. QC thinks that Rel-12 was about the AS functionality which higher layers can overrule. SA2 thinks that LOEI can also overrule the AS decisions. Broadcom agrees with MediaTek that LOEI can overrule the AS rule. Ericsson agrees with Vodafone that we discussed and agreed all of this. Huawei also agrees. Nokia Networks also agrees with Vodafone. MediaTek does not propose any change to the RAN2 specification. MediaTek would allow SA2 to override the RAN rule decision. Intel agrees with MediaTek that there are issues such as mobility in which case it might be preferable that the UE takes its own decision. DT agrees with Vodafone that the value of the feature would diminish if we allow this to be up to UE implementation. MediaTek thinks that we had the discussion in the past. Vodafone thinks

that the RAN rules decide on radio related aspects and should not be overridden by higher layers. Sony agrees with MediaTek as far as Rel-12 is concerned. Ericsson clarifies that RAN2 specification is specified in a way that the higher layer procedure is invoked based on RAN rules. But this does not mean that higher layers should override the decision.

- Huawei thinks that we said so far that a UE not configured with any user preference should strictly follow the RAN rules. Now MediaTek seems to suggest weakening this point. Nokia Networks thinks that SA2 wanted to know how to handle the radio related aspects and whether the LOEI may override the RAN rule decision. Broadcom thinks that the metrics currently specified are not sufficient to take a decision. Therefore LOEI should be allowed to override the decision.
- => No consensus that there are scenarios where the UE should be allowed to override the RAN rules based on radio-related conditions as determined by the LOEI
- => Noted
- => Can discuss further. See draft LS in [R2-153855](#)

[R2-153812](#) UE Handling of RAN Rules for RAN-assisted WLAN Interworking; QUALCOMM CDMA Technologies; discussion; Rel-12; UTRA_LTE_WLAN_interw-Core;
Not treated

[R2-153508](#) Clarification on cell selection sequence upon leaving RRC_CONNECTED; HTC Corporation; CR; 36.331; 12.6.0; 1880; F; Rel-12; UTRA_LTE_WLAN_interw-Core;

- Nokia Networks thinks that the CR is correct. Huawei agrees. Ericsson wonders whether the CR really results in any change of the UE behaviour. Nokia Networks thinks that without the CR the UE would always release the T350 configuration and hence "if timer T350 is configured" would never be fulfilled.

=> Change cover page: UE might unintentionally release the dedicated parameters even if T350 is configured.

=> Update impact analysis

=> CB: [Joint] An updated CR on cell selection sequence upon leaving RRC_CONNECTED may be provided in [R2-153856](#) CR 1880 R1 (HTC)

[R2-153856](#) Clarification on cell selection sequence upon leaving RRC_CONNECTED; HTC Corporation; CR; 36.331; 12.6.0; 1880 R1 ; F; Rel-12; UTRA_LTE_WLAN_interw-Core;

=> Clarify the Consequences if not approved and Inter-operability

✉ **[91#01][LTE/WiFi] Clarification on cell selection sequence (HTC)**
-Update Consequences if not approved and Inter-operability
 => **Intended outcome: Agreed CR to RAN plenary in [R2-153917](#) CR1880 R2**

[R2-153811](#) Clarification of Beacon RSSI Encoding; QUALCOMM CDMA Technologies; CR; 36.331; 12.6.0; 1905; F; Rel-12; UTRA_LTE_WLAN_interw-Core;

=> Update impact analysis (consequence if UE/NW implements but NW/UE does not...)

- Nokia Networks agrees with the intention but thinks that the value range requires further thoughts.

=> Discuss the suitable value range

=> Tick "ME" on cover page

=> CB: [Joint] An update CR on Clarification of Beacon RSSI Encoding may be provided in [R2-153857](#) CR1905 R1 (QC)

[R2-153857](#) Clarification of Beacon RSSI Encoding; QUALCOMM CDMA Technologies; CR; 36.331; 12.6.0; 1905 R1; F; Rel-12; UTRA_LTE_WLAN_interw-Core;

[R2-153875](#) Clarification of Beacon RSSI Encoding; QUALCOMM CDMA Technologies; CR; 36.331; 12.6.0; 1905 R2; F; Rel-12; UTRA_LTE_WLAN_interw-Core;

=> CR is agreed

[R2-153874](#) Clarification of Beacon RSSI Encoding; QUALCOMM CDMA Technologies; CR; 25.331; 12.6.0; 5786; F; Rel-12; UTRA_LTE_WLAN_interw-Core;

=> CR is agreed

CSG

[R2-153133](#) SI reading for Open access CSG in shared network; Nokia Networks; discussion; Rel-12; EHNB_enh3-Core;

- Huawei thinks that a CSG capable UE would indicate the cgi-Info but others would not. And that is intended. Nokia Networks thinks that an open CSG does not broadcast a CSG ID. Intel agrees with Huawei and also agrees with Observation 1.

- Intel thinks that a UE not supporting autonomous gaps and SI reading would never report the PLMN ID list. Nokia Networks assumes that UEs would support this. ALU thinks that one could first do ANR in order to get the PLMN ID list. Afterwards, it is sufficient that each UE provides the primary PLMN ID. That would allow to unambiguously identifying a cell. Nokia Networks intended to avoid the use of ANR.
- => RAN2 sees no need to change the current behaviour
- => Not agreed

UTRAN-to-EUTRAN HO

- [R2-153705](#) UTRAN-to-EUTRAN HO transfer of UE EUTRA capabilities ; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion; Rel-12; TEI12;
- QC supports the proposal in order to address the problem with the large capability containers. Intel would also be OK with this solution but wonders which minimum capabilities the E-UTRAN would have to assume until the capabilities have been obtained. ALU thinks that the same principles as applied for GERAN. Nokia Networks confirms the problem but thinks that the E-UTRAN would not know the UE capabilities and has to assume the minimum capabilities. Huawei thinks that this solution is primarily required for Rel-99 SRBs. Nokia agrees that for common EDCH the problem is not so severe. Samsung wonders whether the limit to 3 kbps applies in all cases. QC clarifies that this is mainly a problem during the call setup where only the 3 kbps SRB is available. QC agrees with Samsung that if it was possible to delay the acquisition of E-UTRA capabilities until after the connection reconfiguration that would also solve the problem. ALU thinks that this will not work if the HO is urgent. QC thinks that in this case re-direction would still be possible.
 - => CB: [Joint] Discuss further offline about "UTRAN-to-EUTRAN HO transfer of UE EUTRA capabilities" during the week. (ALU)
 - ALU reports that there was not much progress. The Cat-0 issue is not yet resolved but might not be needed either. Some offline discussion will be done and we will come back with an update next meeting.
 - => Postponed
- [R2-153706](#) Enabling UTRAN to E-UTRAN HO without forwarding UE-EUTRA-Capability; Alcatel-Lucent Telecom Ltd; draftCR; 36.331; 12.5.0; Rel-12; TEI12;
Not treated

5 Joint UMTS/LTE: Rel-13

5.1 WI: RAN aspects of Application specific Congestion control for Data Communication (ACDC)

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

Time budget: 0.25 TU

Incoming LSs

- [R2-153005](#) Reply LS to S1-151622 = [R2-151029](#) on handling of uncategorised applications in ACDC (C1-152413; contact: Qualcomm); CT1; LS in;
- => Noted
- [R2-153044](#) Reply LS on ACDC mechanism; from SA1
- Huawei wonders whether NAS can pass more than one category to AS. LG clarifies that SA1 indicates now that it can be only one category.
 - => Noted
- [R2-153041](#) LS on ACDC mechanism (C1-153278; contact: LGE); CT1
- LG clarifies that the AS might have to inform NAS that barring was due to ACDC since ACDC is supposed to override ACB. Intel thinks that NAS only needs to know whether the connection was barred but NAS already knows by itself whether an access is subject to ACDC or to ACB. Huawei thinks that currently the AS informs the NAS whether barring was due to EAB or ACB. We should follow that principle here.
 - => Discuss further whether NAS needs to be informed.

=> Postponed

Other

[R2-153244](#)

ACDC impacts on AS layer; LG Electronics Inc.; discussion;

Proposal 1:

- Chairman thinks that if we agree this we also say that free-ride cannot be solved. Otherwise, we should apply ACDC also in CONNECTED. Intel agrees. LG thinks that SA1 requirement states that this is only for IDLE. CMCC is somewhat concerned about the free-ride. Ericsson thinks that CT1 is only working on IDLE mode and we should follow this in RAN2.

Proposal 3:

- Intel suggests using a new SIB since the functionality is optional, since it is independent of other barring features. Furthermore, UEs not supporting ACDC would have to re-acquire even if only the ACDC information changes in SIB2. QC wonders how frequent those updates will be. If they are not super frequent, we should use SIB2. Huawei also prefers SIB2. Nokia Networks thinks that also SIB14 could be considered. Nokia Networks thinks it also depends on other design decisions. If the mechanism follows some EAB principles, we might want to put it in SIB14. We should first discuss the other proposals.

Proposal 4, 5, 6:

- TeliaSonera thinks that the requirements say that individual parameters should be possible. QC agrees with the chairman that the requirement seems to be in-line with the LG proposal, i.e., one bit per PLMN but same barring parameters for all. QC thinks that this is what SA1 had in mind. QC would also be fine to allow for a more flexible configuration. Samsung thinks we could then not follow the usual principle of common parameters. Huawei thinks that individual parameters would add more overhead. Huawei and Nokia Networks would be OK with the additional flexibility but it does not seem to be in line with SA1 requirements. Nokia Networks does not see the need for this flexibility.

Proposal 5, 6:

- LG thinks that in order to ensure the increasing barring probability for lower categories, we have to use the probability based barring rather than EAB mechanism. Ericsson thinks that the EAB mechanism or possibly only one bit per category. Intel has a preference for the barring time/factor. Nokia Networks does not have a strong preference among EAB or ACB principle. But a single bit might not be enough. Maybe only the barring factor would be sufficient. Huawei would prefer the EAB mechanism but would prefer to discuss the options further. Ericsson thinks that also the EAB-like bitmap would allow to fulfil the increasing barring probability requirement.

Agreements

1 ACDC feature impacts RRC Connection Establishment, i.e., ACDC is applicable to UEs in idle mode only that are not a member of one or more of Access Classes 11 to 15

2 UE shall acquire the ACDC control information in SIB when UE has configuration of ACDC categories on NAS level.

FFS: ACDC control information including ACDC barring information is broadcast via SIB2.

4 ACDC control information should indicate the PLMNs which are subject to ACDC and provides barring parameters individually for each of them. (This is a working assumption that may be revisited if it causes too much overhead or complication in ASN.1. If we stick to this flexibility we will also inform CT1 and SA1 accordingly)

FFS: Whether to use EAB (bitmap) or ACB (probability/time) scheme

8 System information lists ACDC barring information per ACDC category from the highest ACDC category to the lowest ACDC category.

9 The maximum number of ACDC categories broadcast via system information is 16.

10 In RRC connection establishment, if NAS layer indicates ACDC category (including "ACDC uncategorized") information and if ACDC barring information is broadcast at a cell, UE RRC applies ACDC barring check. Otherwise, UE RRC applies legacy ACB behaviour.

FFS: Coexistence of ACDC and SSAC, EAB

11 UE RRC performs the ACDC barring check

12 For access attempt of an uncategorized application, UE RRC performs the ACDC barring check by using ACDC barring parameters corresponding to the lowest ACDC category in system information.

=> CBF: An LS to CT1 and SA1 summarizing the ACDC agreements may be provided in [R2-153858](#). The LS should also cover the UMTS discussion later this week (LG)

[R2-153858](#) Draft reply LS to CT1 and SA1 summarizing the ACDC agreements; contact: LG

✓ => The LS to CT1 and SA1 summarizing the ACDC agreements is approved in [R2-153876](#)

[R2-153112](#) Coexistence and free-ride issues of ACDC; China Mobile Com. Corporation; discussion;

[R2-153119](#) Discussion on ACDC; HTC Corporation; discussion;

[R2-153147](#) ACDC impacts on RAN; Nokia Networks; discussion;

[R2-153179](#) Discussion on RAN impacts due to ACDC; Huawei, HiSilicon; discussion;

[R2-153255](#) Considerations on signalling of ACDC barring information; Intel Corporation (UK) Ltd; discussion;

[R2-153455](#) ACDC Category handling; NEC Corporation; discussion;

[R2-153757](#) Signalling aspects of ACDC in E-UTRAN; Ericsson; discussion;

Above 7 Tdocs not treated

[R2-153087](#) Discussion on ways to get service when ACDC is applied on a cell; HTC Corporation; discussion;

[Withdrawn]

5.2 SI: Study on Indoor Positioning Enhancements for UTRA and LTE

(FS_UTRA_LTE_iPos_enh; leading WG: RAN1; REL-13; started: June 14; target: Sep. 15; WID: [RP-141102](#))

Time budget: 0.5 TU

Agreed TP for TR 37.857 on "Terrestrial Beacon System" available in [R2-152841](#).

Agreed TP for TR 37.857 on "Indoor Location Improvements utilizing WiFi, BT and Barometric Pressure Measurements" available in [R2-152840](#).

WiFi, BT, Barometric Sensors

[R2-153130](#) Signalling Protocol Options for WiFi, BT and Barometric Sensor Positioning; Qualcomm Incorporated; discussion;

- Intel thinks that we could try to agree on a preferred protocol option in the SI and Intel would like to follow the one with least impact. Therefore Intel would like to exclude the ones with LPPa. NextNav would appreciate if we could narrow down the options in the SI phase. Otherwise, NextNav would be fine to capture the TP. QC thinks that if we want to have a single protocol option, that would be LPPe since it already exists. If we want to do another option, that would always be a second option. Apple would prefer LPP or LPPe over LPPa and a slight preference of LPP over LPPe. Broadcom would also prefer LPP over LPPe. Nokia Networks thinks if LPPe over LPP we should certainly consider that option.
- QC thinks that the corresponding core network interface updates are straight forward once we have concluded on the radio aspects.
- Ericsson has some small comments for the UMTS part and provided them to QC.

- Ericsson wonders whether any enhancements for UMTS are needed at all. Apple thinks that also UMTS requires these updates. Ericsson thinks it is not that obvious. Intel thinks that in the past we aimed to support any RAT independent solution in all RATs. NextNav thinks that UMTS is still an important aspect. QC thinks that the FCC requirements talk about VoLTE. Huawei would prefer to support it also in UMTS. Ericsson has so far not seen any request from operators. Ericsson thinks that if we introduce it, it would become a mandatory UE requirements. Nokia Networks thinks that it could be decided when the WI is scoped in RAN.
- QC thinks we should also discuss and agree whether we need all three modes (UE based, UE assisted and autonomous)
 - => For UMTS: Consider a capability indication
 - => For UMTS: Discuss the wording of the request
 - => We will aim to agree the updated TP by end of the week
 - => CB: [Joint/Positioning] An updated TP on Signalling Protocol Options for WiFi, BT and Barometric Sensor Positioning may be provided in [R2-153859](#) (QC)
- Chairman wonders whether we can exclude or down-prioritize any protocol options. Nokia Networks thinks that LPP+RRC we did only if RAN information was required. This is not the case here and hence we should prefer LPP/LPPE.
 - => LPPa+RRC is not a preferred protocol option because no RAN information is required. In those cases, we prefer LPP (or LPPE)
- Nokia Networks thinks that we should just use LPPE for BT/WiFi/Barometric considering that it exists already. QC points out that LPPE is also transported in LPP. QC thinks that RAN5 could possibly define test cases also for LPPE based positioning. But testing for BT and Barometric Sensors could in any case be somewhat difficult. Apple thinks that LPPE is a big specification that cannot be deployed partially. Therefore, it would bring significant implementation complexity. Intel thinks that not all WiFi modes are specified in LPPE. QC disagrees.
- Chairman wonders whether we can exclude any modes (UE based, UE assisted and autonomous). Nokia Networks thinks that if we go for LPPE, this simply depends on what OMA already supports. QC agrees that LPPE supports all three. For LPP we would need at least the UE assisted mode and we could discuss whether we want to support the two others as well)
- Intel wonders whether there would be nothing to be done for RAN2 if we go for LPPE. Chairman understand that this would be the case. Only RAN5 would have to work on test cases. But those would be needed anyway (also for LPP).
 - => CB: [Joint/Positioning] Discuss further during this week whether to support LPP or LPPE (NetxtNav)
- NextNav indicates that there was some offline discussion but no clear consensus. Therefore, this aspect is suggested to be sorted out in the normative WI phase.
- ALU thinks that RAN3 was still discussing the LPPa+RRC option that we ruled out. NextNav thinks that there is a related RAN3 discussion and RAN3 might suggest an additional text for that. Apple thinks that the enhanced cell ID mechanisms in RAN3 would not have impact on RAN2. ALU thinks that RAN3 should send their TP to us if it has possible impact to LPPa. Nokia Networks thinks that we could leave it as is and decide later in the WI phase whether we really do anything about this. Or RAN1 cleans it up when compiling the TR.

[R2-153859](#) Signalling Protocol Options for WiFi, BT and Barometric Sensor Positioning; Qualcomm Incorporated; TP for TR;

- Apple would like to add a reference to their document showing the performance of BT and WiFi positioning.
- => Add a reference to the Apple TDoc evaluating WiFi and BT positioning performance
- => With this change the TP is approved in [R2-153877](#)

[R2-153069](#) UTRA/E-UTRA Protocol aspects of Indoor positioning enhancements using hybrid Wi-Fi/BT and barometric sensors; Apple Europe Limited; discussion;
Not treated

[R2-153123](#) Text proposals for IMU sensor for indoor positioning; Sony; discussion;

- Nokia Networks thinks that a standalone mode enhancing the location information does not need to be mentioned in our specifications. Sony thinks that the UE could indicate that it used these techniques to improve or determine the current position.

- Sony thinks that the UE could indicate in location reports (autonomous and UE based) whether it used IMU for computing that location.
- => Clarify that the only impact of IMU is that the UE could indicate in location reports (autonomous and UE based) that it used IMU for computing that location.
- => Update TP provided in [R2-153922](#)
- [R2-153922](#) Text proposals for IMU sensor for indoor positioning; Sony; pCR;
 - Nokia Networks does not consider it necessary to indicate that IMU data was used. Sony thinks that there are such FCC requirements.
- => TP is agreed
- [R2-153264](#) Considerations on RAN2 aspects of Indoor Positioning Enhancements; Intel Corporation; discussion;
Not treated
- [R2-153512](#) WLAN-aided indoor positioning with FTM; Intel Corporation; discussion;
 - QC is fine to add the description but it is already part of WiFi.
- => Can discuss offline during the week whether and how this should be added and an update may be provided in [R2-153878](#)
- [R2-153878](#) WLAN-aided indoor positioning with FTM; Intel Corporation; pCR;
 - => TP is agreed

TBS

- [R2-153761](#) Additional details of TBS protocol impacts; NextNav; discussion;
 - QC thinks that all of this is only applicable for TBS option 2. For TBS option 1 none of this would be needed. NextNav thinks that also for option 1 there might also be some changes due to the use of unlicensed spectrum. QC clarifies that option 1 would re-use the PRS signal as defined today. Some small changes as e.g. cell ID would need to be made. QC explains that option 1 would just be a transmitter for PRS and any UE supporting OTDOA would also support this.
- => Noted
- [R2-153762](#) TP for TR37.857 for TBS Protocol Impacts; NextNav; pCR; 37.857;
 - QC thinks that the first table (LTE) would only be applicable for Option 2.
- => Clarify with a note that Table 9.2.1.2-1 applies to TBS Option 2 only.
- => With this change the TP is agreed in [R2-153920](#)

5.3 Other Joint Rel-13 WIs

No contributions received.

5.4 Joint LTE+UMTS TEI13 enhancements

Small Technical Enhancements affecting both LTE and 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!

No contributions received.

6 LTE: Rel-12 and earlier releases

6.1 LTE: Rel-11 and earlier

Corrections and Changes to functionality introduced in Rel-8, 9, 10 and 11!

(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](#))

6.1.1 Control Plane and Common

CA Capabilities

Clarification to number bandwidth classes in a band combination

- [R2-153354](#) Correction on Restriction to CA capability signalling; Huawei, HiSilicon; CR; 36.331; 10.17.0; 1867; F; Rel-10; LTE_CA-Core;
 => CR is agreed
- [R2-153355](#) Correction on Restriction to CA capability signalling; Huawei, HiSilicon; CR; 36.331; 11.12.0; 1868; A; Rel-11; LTE_CA-Core;
 => CR is agreed
- [R2-153356](#) Correction on Restriction to CA capability signalling; Huawei, HiSilicon; CR; 36.331; 12.6.0; 1869; A; Rel-12; LTE_CA-Core;
 => CR is agreed

Non-Contiguous Intra-Band combinations

- [R2-153510](#) Issues on intra-band non-contiguous CA signaling; Intel Corporation; discussion; Rel-10; LTE_CA-Core;
 Issue 1:
- Huawei thinks that interpretation 1 is correct for the RI bit-width calculation and RAN1 could probably clarify that the same is true for Kc calculation. A UE indicating 2 layer on one carrier and 4 layer on another in the same band, it shall use 2 bit for RI. Intel thinks that during offline discussions many companies did not share that view.
 - Huawei refers to an old LS from RAN1 coming in [R2-131559](#). QC thinks it is not clear whether this really refers to the frequency band or rather to a band entry. Ericsson agrees with Huawei but considering that so many companies have a different interpretation, a change may be needed anyway. Samsung thinks that interpretation 1 is the only possible way to interpret this now since it is too late for a change. Chairman wonders what UEs implemented for the soft buffer split. Huawei is not sure but thinks that the applying the same principle for Kc is feasible and should be clarified. Intel thinks that this could be possible but it would also be a change compared to existing specs and it would inefficient. QC thinks that it is a good chance to correct this by introducing explicit signalling from Rel-

10 onwards and to use that signalling also for intra-band contiguous and for TM3/4. Huawei agrees that explicit signalling will be introduced there but we should not introduce it for non-contiguous if we don't have to. Ericsson would be OK to introduce the explicit signalling for all cases but thinks that we then need also capability signalling for that. Huawei thinks that the handling of legacy UEs and Networks will be difficult to resolve. Samsung thinks that we should first discuss how to resolve the problem for legacy UEs. Chairman wonders whether there can be any legacy UEs considering that problems with Kc determination should have appeared in IODT. QC does not agree with Huawei's interpretation of the RI bit width calculation.

- => CB: [LTE/Capabilities] Discuss further offline the "RI bit width calculation and Kc determination" (Intel)
- Was reported to RAN1 in the context of the intra-band contiguous CA
- => Postponed until RAN1 indicates to us whether they solve it themselves or we need to do anything in RAN2.

Issue 2:

- Nokia Networks points out that RAN4 is discussing a CR to combine these two rows.
- DCM thinks that Intel's proposed interpretation would be good but DCM is afraid that there could be an IODT issue. Huawei agrees with Intel that there is no frequency order in band combination signalling for intra-band non-contiguous CA. Intel thinks that also from UE point of view there is no benefit of supporting one but not the other order.
- => There is no frequency order in band combination signalling for intra-band non-contiguous CA.

[R2-153103](#) Interpretation of intra-band non-contiguous CA capability; NTT DOCOMO, INC., Samsung; discussion; Rel-10; LTE_CA-Core;

[R2-153561](#) Clarification of intra-band non-contiguous CA capability; NTT DOCOMO, INC., Samsung; CR; 36.331; 10.17.0; 1881; F; Rel-10; LTE_CA-Core;

[R2-153562](#) Clarification of intra-band non-contiguous CA capability; NTT DOCOMO, INC., Samsung; CR; 36.331; 11.12.0; 1882; A; Rel-11; LTE_CA-Core;

[R2-153564](#) Clarification of intra-band non-contiguous CA capability; NTT DOCOMO, INC., Samsung; CR; 36.331; 12.6.0; 1883; A; Rel-12; LTE_CA-Core;
Above 4 Tdocs not treated

MIMO parameters in Intra-Band Contiguous CA

[R2-153265](#) Summary of email discussion [90#01][LTE/CA] MIMO/CSI capability for intra-band contiguous CA; Intel Corporation; discussion; Rel-12; LTE_CA-Core, TEI12;

- Intel clarifies that for intra-band contiguous CA we certainly need the explicit signalling since the legacy UE would behave different from a new UE supporting the new capability mechanism.
- => For each CC, the RI bit width is determined according to the configured number of layers signaled by the dedicated signaling.
- => Noted

[R2-153266](#) Additional MIMO/CSI capability for intra-band contiguous CA; Intel Corporation; CR; 36.331; 12.6.0; 1861; F; Revision of [R2-152921](#); Rel-12; LTE_CA-Core, TEI12;

- => Add cover page: Summary shall list explicit signalling
- => Update parameter name and description
- => Use a non-critical extension
- QC thinks that the "number of layers" is no longer part of the CQI configuration. It is used also for other purposes (Kc).
- => Move the configuration to AntennaInfoDedicated
- => CB: [LTE/Capabilities] An updated CR on "Additional MIMO/CSI capability for intra-band contiguous CA" may be provided in R2-153942 (Intel)
- => Need to take into account whether and how to fix the legacy issues (non-contiguous intra-band). Depending on that decision we may have to apply this signalling from Rel-10.

[R2-153942](#) Additional MIMO/CSI capability for intra-band contiguous CA; Intel Corporation; CR; 36.331; 12.6.0; 1861 R1; F; Revision of R2-153942; Rel-12; LTE_CA-Core, TEI12;

- => Parameter name maxLayersMIMO is agreed

☒ **[91#02][LTE/CA] Additional MIMO/CSI capability for contiguous intra-band (Intel)**
-Final check and clarification that the signaling applies to TM9/10 intra-band contiguous

-Based on [R2-153942](#) and [R2-153943](#)

=> Intended outcome: Agreed 36.306 and 36.331 CRs to plenary

[R2-153267](#) Additional MIMO/CSI capability for intra-band contiguous CA; Intel Corporation; CR; 36.306; 12.5.0; 0290; F; Rel-12; LTE_CA-Core, TEI12;

[R2-153943](#) Additional MIMO/CSI capability for intra-band contiguous CA; Intel Corporation; CR; 36.306; 12.5.0; 0290 R1; F; Rel-12; LTE_CA-Core, TEI12;

- Chairman thinks we should aim to get also a conclusion for intra-band non-contiguous and TM3/4 before sending an LS to RAN1. Huawei agrees that this would be nice but thinks we could also involve RAN1 to get further input on the legacy issue (non-contiguous).

[R2-153944](#) [Draft] LS on intra-band contiguous CA and intra-band non-contiguous CA; to RAN1
=> Clarify that the first aspect applies from Rel-12 onwards and that the second problem affects Rel-10 onwards.

- ✓ => With this change the LS on "intra-band contiguous CA and intra-band non-contiguous CA" to RAN1 is approved in [R2-153948](#)

[R2-153268](#) Proposed changes to TS36.212 for additional MIMO/CSI capability; Intel Corporation; discussion; Rel-12; LTE_CA-Core, TEI12;
Not treated

[R2-153269](#) Draft LS on additional MIMO/CSI capability for intra-band contiguous CA; Intel Corporation; LS out; Rel-12; LTE_CA-Core, TEI12;

[Withdrawn]

CA/MIMO – TM3/4

Incoming LSs

[R2-153020](#) LS regarding rank3/4 in TM3 and TM4 for additional UE categories (R4-153907; contact: Nokia Networks); RAN4; LS in; Rel-13; LTE_4Rx_AP_DL-Core;
=> Noted

[R2-153023](#) LS response regarding rank3/4 in TM3 and TM4 for additional UE categories ([RP-151113](#); contact: Nokia Networks); RAN; LS in; Rel-13; LTE_4Rx_AP_DL-Core;
=> Noted

Discussion

[R2-153465](#) Discussion on 4-layer MIMO with TM3 and TM4; Nokia Networks, Huawei, HiSilicon, Samsung, Deutsche Telekom; discussion; Summary of offline discussion on introduction of 4-layer TM3/4 as requested by RAN#68.; Rel-10; TEI10;
Proposal 4:

- Intel wonders why we need to continue the discussion intra-band contiguous. Nokia Networks thinks that for that discussion there was non conclusion. Nokia Networks thinks that they can be separated. Huawei agrees with Nokia Networks that they could be separated.

5c

- Ericsson thinks we should do the signalling as for TM9/10, i.e., per bandwidth class in a band-combination. Huawei agrees to that. QC would like to be able to have the per-CC signalling for intra-band contiguous before Rel-12. Intel thinks we could introduce per-CC

Agreements

- 1 The signalling to enable 4-layer MIMO with TM3 and TM4 shall be introduced from Rel-10 specifications.
- 2 The capability signalling is per bandwidth class like the existing signalling for TM9/10. (per-CC for intra-band contiguous will be added in Rel-12 as for TM9/10)
- 5 The capability signalling does not distinguish TM3 and TM4.
- 6 Introduce downlink signalling by which the network configures the number of layers to be used per CC (from which the UE derives the RI bit width as well as the soft buffer split (Kc))

- Nokia Networks thinks that we should send an LS to RAN1. Chairman thinks that we should describe all three cases with agreements and open issues together. Huawei would like to keep them separate. Nokia Networks thinks we could first add TM3/4 and in the next meeting cycle add support for contiguous intra-band CA. And then we could later also consider fixing the intra-band non-contiguous issue. Chairman finds it strange to first add new things before trying to fix existing functionality. DCM agrees with the chairman.
- => CB: [LTE/Capabilities] A draft LS to RAN1 informing them about the agreements on TM3/4. (Nokia Networks)

[R2-153921](#) [DRAFT]LS on decisions regarding rank3/4 in TM3 and TM4 for additional UE; to RAN1, CC: RAN, RAN4; Contact: Nokia Networks

- Intel thinks that this information might not be sufficient for RAN1 to do their corresponding CR. Huawei thinks that it contains all required information.
- => Change to "RAN2 asks RAN1..."
- => Clarify for the last bullet (6) that it is applicable for TM3/4 only
- ✓ => With this change the LS on decisions regarding rank3/4 in TM3 and TM4 for additional UE; to RAN1, CC: RAN, RAN4 is approved in [R2-153931](#)

[R2-153321](#) Support for 4 layer MIMO with TM3 and TM4; Qualcomm Incorporated; discussion; Rel-10; TEI10;
Not treated

CRs

- ☒ **[91#03][LTE/CA] Support for 4 layer MIMO with TM3 and TM4 (Nokia Networks)**
-Careful check of CRs [R2-153951](#) to [R2-153956](#)
=> Intended outcome: Agreed 36.306 and 36.331 CRs to plenary

[R2-153608](#) Signalling for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.331; 10.17.0; 1885; C; Rel-10; TEI10; revised in [R2-153951](#)

[R2-153951](#) Signalling for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.331; 10.17.0; 1885 R1; C; Rel-10; TEI10

[R2-153609](#) Signalling for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.331; 11.12.0; 1886; A; Rel-11; TEI10;

[R2-153952](#) Signalling for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.331; 11.12.0; 1886 R1; A; Rel-11; TEI10;

[R2-153610](#) Signalling for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.331; 12.6.0; 1887; A; Rel-12; TEI10;

[R2-153953](#) Signalling for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.331; 12.6.0; 1887 R1; A; Rel-12; TEI10;
=> Change to Cat. C

[R2-153611](#) Capability for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.306; 10.13.0; 0294; C; Rel-10; TEI10;

[R2-153612](#) Capability for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.306; 11.11.0; 0295 R1; A; Rel-11; TEI10;

[R2-153613](#) Capability for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.306; 12.5.0; 0296; A; Rel-12; TEI10;

[R2-153956](#) Capability for 4-layer MIMO with TM3 and TM4; Nokia Networks; CR; 36.306; 12.5.0; 0296 R1; A; Rel-12; TEI10;
=> Change to Cat. C

[R2-153322](#) Introduction of 4 layer MIMO with TM3/4; Qualcomm Incorporated; CR; 36.331; 10.17.0; 1864; F; Rel-10; TEI10;
Not treated

IDC for UL CA

- DCM thinks that RAN4 will send an LS during the evening and suggests to discuss this topic once the LS is available.

[R2-153048](#) Reply LS on 2UL interband CA problem of GNSS (Contact: DCM)
=> Noted

[R2-153345](#) IDC enhancements for Inter-Modulation Distortion in UL CA; NTT DOCOMO, INC., Nokia Networks; discussion; Rel-11; SPIA_IDC_LTE-Core;
Proposal 1:

- Huawei thinks that protecting GNSS is sufficient. Nokia and Ericsson would like to cover also other RATs. Samsung thinks that RAN4 indicates that they are focusing on GNSS and therefore, Samsung would also like to focus on GNSS. QC thinks that there is not much gain to protect WiFi and BT due to their wide system bandwidth. Nokia Networks thinks that we should also protect the ISM band. QC agrees that also ISM should be protected but the solution should be different. GNSS can be protected efficiently by an enhanced FDM scheme. Nokia Networks thinks that in Rel-11 we always applied FDM unless only TDM is feasible. Ericsson thinks that also a TDM solution would not be very efficient for e.g. WiFi and a simple FDM solution would be preferable for both.

Proposal 2:

- Ericsson thinks it becomes complex if the UE derives all this information and the NW has to determine the aggressor from this victim information. We should rather signal the aggressor (LTE) carrier.
 - QC thinks that the UE knows that/when GNSS is to be used. Then the UE should indicate the problem. At all other times, the carriers can be used as normally.
 - QC indicates that different UEs may suffer differently from UL CA when trying to do GNSS. Ericsson thinks that this is the problem: If the UE just indicates that it does GNSS, the NW does not know which UL carrier(s) is problematic for this particular UE. Ericsson thinks that in Rel-11 we just indicated the problematic LTE carrier. Now we need to indicate the problematic carrier combinations but no additional granularity or side information. QC thinks that one could just disable selected PRBs rather than entire carriers. Ericsson does not think this additional granularity is needed. Chairman thinks that QC indicated above that GNSS is used rarely and hence this additional granularity would only help in the rare cases when GNSS is used. Nokia Networks thinks that additional granularity in frequency domain might help. DCM thinks that then the current IDC could be sufficient. Ericsson thinks that the eNB does not know which carrier of a band combination is causing a problem. Huawei thinks that we only need a new solution for GNSS if we want to use the additional frequency domain granularity. If we don't want that, the current IDC is sufficient. The UE could just indicate both carriers and the NW could derive that the combination is problematic. Huawei thinks that there is no ambiguity from an eNB point of view.
 - QC thinks that also operators don't want to use TDM.
 - Telecom Italia would like to have finer granularity in frequency domain.
- => CB: [LTE/IDC] Can discuss further offline about "IDC enhancements for Inter-Modulation Distortion in UL CA" whether any enhancement is needed. (DCM)
- DCM suggests introducing victim type information as well as problematic UL band combinations in accordance with offline discussions.
 - Ericsson clarifies that the need for new DRX cycles in the indication could be discussed in the next meeting.
- => Noted

[R2-153733](#) Signalling for UL-CA IDC interference issue; Ericsson; discussion; Rel-11; LTE_CA-Core;
[R2-153800](#) A simplified IDC enhancement for UL inter-band CA IMD interference to GNSS; QUALCOMM India; discussion; Rel-11; SPIA_IDC_LTE-Core;
Above 2 Tdocs not treated

CRs

[R2-153346](#) IDC enhancements for Inter-Modulation Distortion in UL CA; NTT DOCOMO, INC.; CR; 36.331; 12.6.0; 1865; B; Rel-13; SPIA_IDC_LTE-Core, TEI13;
Not treated

[R2-153838](#) CR for IDC signalling enhancement for UL CA; Ericsson; draftCR; 36.331; 12.5.0; Rel-12; SPIA_IDC_LTE-Core;
Not treated

[R2-153872](#) CR for IDC signalling enhancement for UL CA; Ericsson; CR 1911; 36.331; 12.5.0; Rel-12; SPIA_IDC_LTE-Core;

- Samsung wants only the victim system information. Ericsson points out that RAN4 indicated that also other systems will be affected. Ericsson would therefore prefer a generally applicable solution as also targeted in Rel-11. If we drop the band combination info, we also have to remove the WiFi and BT indications.
- => Change to "on one or more supported UL CA combination" (2 places)
- => Add capability signalling
- => Clarify that this may only be configured in addition to the existing IDC indication
- => Cat. C
- QC would like to have this from Rel-11. AT&T agrees. Nokia Networks thinks that it is sufficient to add this to Rel-12. Samsung agrees with Nokia Networks. Huawei also thinks that Rel-12 is sufficient. QC thinks it is important in order to be able to deliver Rel-11 CA. Huawei thinks that this is just an optimization. Ericsson does not consider it an optimization but rather as important addition. Otherwise, many bands are basically unusable in combination with CA. Huawei does not agree and thinks that Rel-11 UEs would have to use TDM while the UE uses GNSS. QC thinks that the TDM solution requires shutting down the carrier 50% of the time. Ericsson thinks that this would be as bad as disabling the entire carrier. DCM would also support this from Rel-11.
- => The feature should be introduced from Rel-11
- ☒ **[91#05][LTE/IDC] One week: IDC signalling enhancement for UL CA (Ericsson)**
 - Final check of CR in [R2-153872](#)
 - Provide additional CRs for Rel-11
 - => Intended outcome: Approved Rel-11 and Rel-12 CRs for 36.331 and 36.306 to RAN plenary

[R2-153790](#) In-Device Coexistence for UL inter-band CA interference due to intermodulation; QUALCOMM India; CR; 36.331; 11.12.0; 1903; F; Rel-11; SPIA_IDC_LTE-Core;
Not treated

Transport Block Size for TM9/10 with MIMO

[R2-153492](#) TBS handling of DL transmission modes with 4/8 CSI-RS antenna ports; NTT DOCOMO, INC.; discussion; Rel-10; LTE_eDL_MIMO-Core;

- DCM indicates that RAN1 might inform us in the next meeting whether and what they decided for this topic.
- => Postponed (until RAN1 provides corresponding input)

CA - PCIs

[R2-153392](#) Blacklisted PCIs in Carrier Aggregation; Nokia Networks; discussion; Rel-10; LTE_CA-Core;

- LG disagrees with Nokia Networks and thinks that their "option 2" is what the specification requires. Intel agrees with LG. Ericsson thinks the proposal is difficult to understand. Ericsson would like to have option 1 but agrees that the specification text is not entirely clear. QC thinks that a black listed neighbour cell should not be measured and hence it will not be reported.
- => Should check further offline
- => CB: [LTE/Measurements] Come back to "Blacklisted PCIs in Carrier Aggregation" (Nokia Networks)
- Nokia Networks thinks that companies expressed the view offline that option 2 is the correct interpretation.
- => RAN2 confirms that option 2 is the correct interpretation.
- => Noted

NS-Values

Void additionalSpectrumEmissionPCell in 36.306

[R2-153064](#) Remove support of additionalSpectrumEmissionPCell; HTC Corporation; CR; 36.306; 10.13.0; 0285; F; Rel-10; LTE_CA-Core;

- => CR is agreed

[R2-153065](#) Remove support of additionalSpectrumEmissionPCell; HTC Corporation; CR; 36.306; 11.11.0; 0286; A; Rel-11; LTE_CA-Core;

- => CR is agreed

[R2-153066](#) Remove support of additionalSpectrumEmissionPCell; HTC Corporation; CR; 36.306; 12.5.0; 0287; A; Rel-12; LTE_CA-Core;

=> CR is agreed

MFBI and additionalSpectrumEmission

[R2-153679](#) Discussion on additionalSpectrumEmission; HTC Corporation; discussion; Rel-10; LTE_CA-Core;

- Intel agrees with the issue identified in the paper and would prefer option 1 as it would be consistent with what agreed earlier and it does not introduce backwards compatibility issues. Samsung agrees with Intel.

=> When entering RRC Connected (from IDLE) while being in a cell, the UE shall apply additionalSpectrumEmission acquired from SIB2 of that cell. Upon receiving an RRCConnectionReconfiguration including mobilityControlInfo the UE applies the additionalSpectrumEmission received therein (until going to IDLE).

- Intel clarifies that this was the behaviour we had until last meeting cycle. We then changed the behaviour unintentionally, and by this change now fix it again to what it used to be since a long time before the recent change.

=> Noted

[R2-153686](#) Correction to additionalSpectrumEmission – Option 1; HTC Corporation; CR; 36.331; 10.17.0; 1896; F; Rel-10; TEI10, LTE_CA-Core;

=> Add a reference to the CR that introduced the unwanted behaviour in the previous meeting.

- Intel thinks that the change in 5.2.2.9 is not needed. The bullet “- if in RRC_CONNECTED while T311...” is only applicable for a UE that enters a cell via handover. A UE entering that camped in the cell while in IDLE, would still apply the value in SIB2.

=> CB: [LTE] An updated CR on “Correction to additionalSpectrumEmission” covering only the second change may be provided in [R2-153923](#) CR 1896 R1 (Rel-10) (HTC)

[R2-153923](#) Correction to additionalSpectrumEmission – Option 1; HTC Corporation; CR; 36.331; 10.17.0; 1896 R1; F; Rel-10; LTE_CA-Core;

=> CR is agreed

[R2-153924](#) Correction to additionalSpectrumEmission – Option 1; HTC Corporation; CR; 36.331; 11.x.x; 1907; A; Rel-11; LTE_CA-Core;

=> CR is agreed

[R2-153925](#) Correction to additionalSpectrumEmission – Option 1; HTC Corporation; CR; 36.331; 12.x.x; 1908; A; Rel-12; LTE_CA-Core;

=> CR is agreed

[R2-153692](#) Correction to additionalSpectrumEmission – Option 2; HTC Corporation; CR; 36.331; 10.17.0; 1897; F; Rel-10; TEI10, LTE_CA-Core;

[R2-153698](#) Correction to additionalSpectrumEmission – Option 3; HTC Corporation; CR; 36.331; 10.17.0; 1898; F; Rel-10; TEI10, LTE_CA-Core;
Above 2 Tdocs not treated

Multiple NS/P-max values

[R2-153460](#) Multiple NS/P-max handling; Nokia Networks; discussion; Rel-9; TEI9;

- Nokia Networks indicates that RAN4 has discussed this and might send an LS soon.
- Nokia indicates that the consequence of the first proposal would be that all combinations of additionalSpectrumEmission + Pmax would be in SIB1. The legacy additionalSpectrumEmission would of course remain also in SIB2.
- Intel wonders why we need to add it in Rel-9. So far the capability signalling for the supported NS values was introduced in Rel-10. Nokia Networks indicates that the LS indicated Rel-9.

=> CB: [LTE] Postponed until RAN4 provided input on “Multiple NS/P-max handling” (Nokia Networks)

[R2-153049](#) Reply LS on NS values in system information broadcast; from RAN4; Contact: Ericsson
[Late]

=> Noted

- Nokia Networks points out that during offline discussions it was discovered that Pcompensation is affected. So far Pcompensation is always 0. Therefore, one might only

need Pmax when starting to transmit and if so, we don't need to move Pmax into SIB1. But if Pcompensation is actually used in the future then it becomes more complex than what we agreed to earlier this week. Ericsson thinks that could keep it simple. But then the NW would always have to set the Pmax to the lowest power class value, i.e., not support higher power class UEs in such cells using multiple NS values.

Working Assumption

- 1 The network may indicate multiple pairs of additionalSpectrumEmission and P-max in SIB2. The legacy value present in SIB2 is not listed in the new list.
- 2 Introduce an additional capability bit by which a UE indicates that it understands these additional value pairs in SIB2. Such a UE shall also provide the capability indicating the additional NS values that it supports.
- 3 Introduce from Rel-10

FFS how many additional NS values are needed.

FFS how to sort out the relation to MFBI

=> CRs postponed to next meeting

[R2-153468](#) Introduction of Multiple NS and Pmax; Nokia Networks; CR; 36.331; 9.18.0; 1874; B; Related to [R2-153460](#); Rel-9; TEI9;

[R2-153469](#) Introduction of Multiple NS and Pmax; Nokia Networks; CR; 36.331; 10.17.0; 1875; B; Related to [R2-153460](#); Rel-10; TEI9;

[R2-153470](#) Introduction of Multiple NS and Pmax; Nokia Networks; CR; 36.331; 11.12.0; 1876; A; Related to [R2-153460](#); Rel-11; TEI9;

[R2-153471](#) Introduction of Multiple NS and Pmax; Nokia Networks; CR; 36.331; 12.6.0; 1877; A; Related to [R2-153460](#); Rel-12; TEI9;
Above 4 Tdocs postponed

MDT

[R2-153132](#) Discussion on MDT accessibility measurement; Qualcomm Incorporated; discussion; Rel-11; TEI11;

- QC has observed problems with the RAN5 test cases since those mandate the UE to include this field. Intel, DCM and Ericsson thinks that the core specification is correct and we should adjust the test specification instead. QC agrees with that and points out that the test case is strange in the sense that it sends only the contention resolution MAC CE but not the corresponding RRC messages.

=> RAN2 confirms that the specified core behaviour is intentional.

=> Noted

VoLTE Establishment Cause

[R2-153213](#) Establishment Cause for VoLTE calls; Nokia Networks; discussion; Rel-10; TEI10;
Mobile Terminated case:

- Vodafone thinks that for terminated calls there is already a paging priority. Why can that not be used? Nokia Networks points out that the UE would not reflect this priority when performing the access triggered by the priority paging. Ericsson agrees that the existing paging priority could be used. DCM thinks that the priority paging is only used by the eNB to decide whether or not to discard a paging record coming in from the CN. The paging priority is not reflected by the UE in its UL access. However, if the eNB discards all low priority paging, it can be sure that all MT accesses are of high priority. Therefore, DCM thinks that nothing else is needed for terminating calls. Huawei agrees with DCM but thinks that the priority paging as such will not help the NW to understand that an uplink access is for VoLTE or in general higher priority. Nokia Networks thinks that the principle outlined by DCM would be quite extreme since it requires discarding normal priority paging. LG agrees with Vodafone and DCM for the mobile terminated call.

Mobile originating case:

- LG thinks that we discussed this earlier and concluded that ACB should be used in combination with ACB-Skip for VoLTE. Vodafone would support a new cause value for originating VoLTE calls. Nokia Networks thinks that the cause value would avoid the need for SIB updates and for the "heavy" ACB. Ericsson also sees some benefits with this cause value. Intel wonders why we need yet another solution.
 - ALU wonders how this would help for UEs in RRC Connected if intended to be used in particular in situations where the NW is not highly overloaded.
 - Intel wonders how a legacy NW would treat an unknown cause value. Ericsson thinks that we discussed this earlier and concluded that a NW would ignore an unknown cause value and not trigger any special action. Huawei agreed with Ericsson that we discussed this earlier and concluded that NWs would not reject the access.
 - ALU thinks that the network can anyway handle non-background traffic as needed even without the new establishment cause. Huawei thinks that the NW may be limited in terms of the number of CONNECTED UEs and then needs to know which attempts are for VoLTE.
 - Vodafone thinks that this could be introduced from Rel-13.
 - DCM wonders which other services we want to indicate in the establishment cause. Now we discuss VoLTE but we might discuss others. LG thinks that we might then also have to consider the cause value in ACB-Skip. Vodafone thinks we should try to keep it simple similar to what we have in UMTS. Nokia Networks thinks that we need this only for VoLTE but not for video or SMS. DT is not against this but wonders why only from Rel-13. ALU thinks that UMTS was quite different since every service had its own channel realization. Here, we have a shared channel and it is sufficient to differentiate at a later point in time.
 - Ericsson thinks could consider re-using the call type for ACB-skip for VoLTE and then introduce this correspondingly in Rel-12. Ericsson explains that the establishment cause is determined by a table in CT1 specs and we should at least think that might be sensible and simple from CT1 point of view. LG is concerned about the introduction of a new cause value and thinks that ACB is sufficient.
- => CB: [LTE/VoLTE] Can discuss further offline about "Establishment Cause for VoLTE calls" (Nokia Networks)
- After offline discussions Nokia Networks reports that focus should be on the MO case. One could consider Msg3 or Msg5.
- => Noted
- ☒ **[91#20][LTE/VoLTE] Establishment cause for mobile-originating VoLTE calls (Nokia Networks)**
- Discuss in which message to include the indication**
- => Intended outcome: CRs to the next meeting**

[R2-153215](#) Addition of establishment cause for mobile-originating VoLTE calls; Nokia Networks; CR; 36.331; 10.17.0; 1856; C; Rel-10; TEI10;

[R2-153218](#) Addition of establishment cause for mobile-originating VoLTE calls; Nokia Networks; CR; 36.331; 11.12.0; 1857; A; Rel-11; TEI10;

[R2-153219](#) Addition of establishment cause for mobile-originating VoLTE calls; Nokia Networks; CR; 36.331; 12.6.0; 1858; A; Rel-12; TEI10;
Above 3 Tdocs not treated

SON & ANR

[R2-153310](#) Minor corrections on SON measurements; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion; Rel-11; LTE-L23, TEI11;
=> RAN2 confirms that ability to perform SON measurement such as reportStrongestCells and reportStrongestCellsForSON is not influenced by number of neighbouring cells configured in the measurement object.

=> Noted

=> CB: [LTE/SON] A 36.331 CR with the second proposal may be provided in [R2-153926](#) CR 1909 (ALU)

[R2-153926](#) Minor corrections on SON measurements; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion; Rel-11; LTE-L23; 36.331; CR 1909

=> Change "IRAT" to "Inter-RAT"

=> With this change the CR is agreed in [R2-153960](#) CR1909 R1

- [R2-153632](#) Clarification on (UMTS) cells the UE should report upon reportStrongestForSON and reportCGI; Samsung; CR; 36.331; 12.6.0; 1890; F; Rel-12; SONenh_LTE-Core;
- Intel thinks that also cells which are in the NCL should be reported upon reportStrongestForSON. Samsung thinks the main intention is to find and add missing cells and hence there is no need to report known cells. Intel thinks that in section 5.1.1 there is a note indicating that for SON purposes listed and detected cells should be reported. Nokia Networks agrees with Intel. Beyond that maxReportCells and reportAmount that indicate that only the serving cell may be excluded from the SON report. ALU thinks that the UE is only allowed to report one cell and hence the behaviour described by Intel and Nokia would make it difficult to detect new cells for SON.
- => The currently specified behaviour is that any cell may be reported no matter whether it is in the NCL or not.
- => This behaviour is the same for the two cases of reportStrongestCellsForSON and reportCGI and therefore there is no need for clarification in the specification.
- => not agreed

- [R2-153794](#) ANR in case of MFBI; Huawei, Bell Mobility, HiSilicon; discussion; Rel-8; TEI8;
- ALU thinks that for X2 it is already handled by X2 configuration. ALU thinks that also for S1 one should consider a NW based solution in RAN3. Huawei wonders how a NW based solution would look like. ALU thinks that a similar means as for X2 could be considered for S1. QC agrees with ALU. ANR is supposed to provide information allowing the NW to identify the cell unambiguously. The intention is not that the UE provides the entire cell configuration. Samsung agrees with ALU. Nokia Networks would be interested in such enhancement of ANR. Ericsson would also support the addition suggested by Huawei. ALU agrees with QC that ANR should just ensure that the NW is informed about the other cell. The rest should be done in the NW. We should at least ask RAN3. Huawei could accept sending an LS to RAN3. Intel also has some concerns regarding the discussed solution. Intel thinks that usually all neighbouring cells support the same MFBI cells.
- => Noted
- => CB: [LTE/ANR] A draft LS to RAN3 on ANR in case of MFBI may be provided in [R2-153927](#) (Huawei)

- [R2-153927](#) Draft LS on ANR in case of MFBI; Contact: Huawei; to RAN3
- ✓ => The LS on ANR in case of MFBI to RAN3 is approved in [R2-153959](#)

- [R2-153796](#) ANR in case of MFBI; Huawei, Bell Mobility, HiSilicon; CR; 36.331; 12.6.0; 1904; F; Rel-12; TEI12;
- Not treated

MBMS

- [R2-153511](#) Clarification to idle mode camping for MBMS reception; Intel Corporation; discussion; Rel-9; MBMS_LTE;
- Nokia Networks thinks that this list does not enforce any mandatory requirement for the UE. Intel considers it as a pre-condition that has to be fulfilled.
 - Huawei thinks that the current text is correct. It does not require that the UE camps on that cell. It just has to camp on a cell.
 - QC thinks it is also clear from the definition of a barred cell. And QC does not see any ambiguity.
 - Intel thinks that in the last meeting we agreed that a UE that has to camp on a cell in order to receive MBMS from that cell has to consider the barring. If the cell is barred, the UE shall not camp on that cell. So, in that context, camping on a cell requires camping on that cell.
- => No need to clarify.
- => Noted

EPDCCH

- [R2-153477](#) Correction on the reference of EPDCCH; Huawei, HiSilicon; CR; 36.331; 11.12.0; 1878; F; Rel-11; LTE_enh_dl_ctrl-Core;
- Intel clarifies also other changes are needed for this field description since it also applicable PUCCH format 3.

- Intel points out that the reference would only apply for FDD. For TDD another section is applicable. We should rather refer to section 10.1.
 - => Change to "PUCCH format 1a, 1b and 3 resource starting offset for the EPDCCH set. See TS 36.213 [23, 10.1]."
 - => Update cover page accordingly
 - => With this change the CR is agreed in [R2-153929](#) CR 1878 R1
- [R2-153478](#) Correction on the reference of EPDCCH; Huawei, HiSilicon; CR; 36.331; 12.6.0; 1879; A; Rel-12; LTE_enh_dl_ctrl-Core;
- => With the same change the CR is agreed in [R2-153930](#) CR 1879 R1

MBMS

[R2-153847](#) MSI with zero length; Samsung; discussion; Rel-13; MBMS_LTE_enh-Core;
[Late]

- Nokia Networks wonders whether the specification prevents setting the L field to 0. Samsung explains that it is clear from the statement that "each subheader corresponds to either a MAC SDU, a MAC control element or padding". Nokia Networks wonders whether we should make it instead more clear in the specification.
 - ZTE would like to check this further for fields other than MSI. Samsung thinks that we should clarify it for all MAC CEs. If there is ambiguity, we need to resolve it for all. Samsung does not see any case where it could make sense to include the MAC subheader but set the L field to 0. LG agrees that it is a strange PDU format but there is no fundamental problem. If we think that this is an error case, we have to add something to the error handling section.
 - QC thinks that if there are no services there is actually no need to include the MAC CE. Samsung thinks that it is anyway not a valid MAC PDU format.
 - LG thinks that the MSI can have 0 byte. For that case, the sentence "each subheader corresponds to either a MAC SDU, a MAC control element or padding" would still be correct.
 - Samsung wonders whether everybody agrees that the MAC subheader is not needed if there is no ongoing service.
- => Postponed. Discuss until next meeting whether this PDU format with L=0 is allowed. If it is not allowed, discuss whether there is a need to define error handling.

Withdrawn

[R2-153320](#) UL64QAM configuration for release-12 category UEs; Qualcomm Incorporated; CR; 36.331; 12.6.0; 1863; F; Rel-12; TEI12;
[Withdrawn]

6.1.2 User Plane

The documents in this AI treated in the UP session. (See Annex G)

[R2-153791](#) Correction on Type 2 PH reporting; Intel Corporation; CR; 36.321; 12.6.0; 0799; F; Rel-12; LTE_CA-Core;

6.2 LTE: Rel-12

6.2.1 WI: Dual Connectivity for LTE (SCE)

(LTE_SC_enh_dualC-Core, leading WG: RAN2, REL-12, started: Dec.13, **closed**: Dec.14, WID: [RP-141797](#))

TR of corresponding SI: [36.842](#)

6.2.1.1 Dual Connectivity – Control Plane

[R2-153629](#) Small corrections concerning RadioResourceConfig; Samsung, Intel; CR; 36.331; 12.6.0; 1889; F;

- QC supports the CR

=> The CR is agreed
[R2-153730](#) Correction to SCG reconfiguration; QUALCOMM India; CR; 36.331; 12.6.0; 1902; F;
=> Include CR number on cover page
- After further offline discussion QC explains that the CR is not needed and the current specification is correct. Therefore, QC withdraws the CR.
=> [R2-153730](#) are not agreed.

R2-153932 Correction to SCG reconfiguration QUALCOMM India CR 36.331 12.6.01902 1 F
Rel-12 LTE_SC_enh_dualC-Core
[Withdrawn]

6.2.1.2 Dual Connectivity – User Plane

No contributions received.

6.2.2 WI: Small Cell Enhancements – Physical Layer

(LTE_SC_enh_L1-Core, leading WG: RAN1, REL-12, started: Dec.13, **closed**: Dec.14, WID: [RP-132073](#))

No contributions received.

6.2.3 WI: LTE Device to Device Proximity Services - Radio Aspects

(LTE_D2D_Prox-Core, leading WG: RAN1, REL-12, started: Mar.14, **closed**: Mar.15, WID: [RP-142043](#))

RAN1 TR [36.843](#) on D2D

6.2.3.1 Control Plane and Common

Critical Extension

[R2-153633](#) Handling of (SL) field critically extended in release; Samsung; discussion;
=> Proposals are agreed (see CR)
[R2-153634](#) Introducing general handling and guidelines concerning critical extensions within a release;
Samsung; CR; 36.331; 12.6.0; 1891; F;
- ALU thinks we could describe in section A.4.2 possible cases in which “this is not possible”.
=> Consider describe in section A.4.2 possible cases in which “this is not possible”. Check e.g. what is captured for message extension.
- ALU wonders whether we need to change the section heading which currently mentions “messages”
=> CB: [LTE/ASN.1] An updated CR may be provided in [R2-153933](#) CR1891 R1 (Samsung)
[R2-153933](#) Introducing general handling and guidelines concerning critical extensions within a release;
Samsung; CR; 36.331; 12.6.0; 1891 R1; F;
=> CR is agreed

Sidelink Terminology

[R2-153270](#) Sidelink terminology alignment in TS 36.300; Intel Corporation, Qualcomm Incorporated; CR; 36.300; 12.6.0; 0786; F; Revision of [R2-152153](#);
=> Change to “group destination ID” to reflect the discussion in the UP room.
- LG thinks we should remove “direct”. Intel thinks that RRC uses “sidelink direct communication” in a lot of places. Ericsson would also suggest to keep it as is (with “direct”).
- Nokia Networks finds the definitions “Sidelink direct communication: AS communication...” and “Sidelink direct discovery: An AS procedure...” confusing. Ericsson agrees with the definitions proposed by Intel.
=> Change to “Sidelink direct communication: AS functionality enabling ProSe Direct Communication as defined in TS 23.303 [62], between two or more nearby UEs, using E-UTRA technology but not traversing any network node”

- => Change to "Sidelink direct discovery: AS functionality enabling ProSe Direct Discovery as defined in TS 23.303 [62], using E-UTRA technology but not traversing any network node."
- => Correct in 23.10.1 the occurrences of "Sidelink Control" to "Sidelink Control Information"
- => Change section name to "23.10.3.2 Resource Pool for Sidelink Data"
- => CB: [LTE/ProSe] An updated CR may be provided in [R2-153934](#) CR0786 R1 (QC)
- [R2-153934](#) Sidelink terminology alignment in TS 36.300; Intel Corporation, Qualcomm Incorporated; CR; 36.300; 12.6.0; 0786 R1; F; Revision of [R2-153270](#);
 - Nokia Networks would like to check whether "Group Destination ID" is in-line with the RAN1 specifications. Intel confirms that it is like this in RAN1 specifications and that companies agreed in the UP session to adjust stage-2 accordingly. Ericsson thinks that "Group Destination ID" is not a good name but would be fine to leave it like that.
- => CR is agreed

- [R2-153271](#) Sidelink terminology alignment in TS 36.304; Intel Corporation, Qualcomm Incorporated; CR; 36.304; 12.5.0; 0273; F; Revision of [R2-152154](#);
 - => Apply same definitions as agreed for 36.331 CR.
 - => Correct heading of 11.2
 - => Remove occurrences of "for ProSe"
 - => CB: [LTE/ProSe] An updated CR may be provided in [R2-153935](#) CR0237 R1 (QC)
- [R2-153935](#) Sidelink terminology alignment in TS 36.304; Intel Corporation, Qualcomm Incorporated; CR; 36.304; 12.5.0; 0273 R1; F; Revision of [R2-153271](#);
 - => CR is agreed

- [R2-153958](#) Sidelink terminology alignment in TS 36.331; Intel Corporation, Qualcomm Incorporated; CR; 36.331; 12.6.0; 1912; F;
 - Ericsson and Nokia Networks would like to check this a bit more carefully to avoid any mistakes
 - ☒ **[LTE/ProSe] One week: Terminology alignment (Intel)**
 - Final check of CR in [R2-153958](#)
 - => Intended outcome: Agreed 36.331 CR to plenary in [R2-153961](#) CR1912 R1

Capabilities

- [R2-153227](#) Discussion on UE capabilities of sidelink communication and discovery; Huawei, HiSilicon; discussion;
 - QC thinks that the number of soft channel bits can be derived from the lowest code rate and the other channel parameters. Intel thinks that RAN1 has already discussed this. Chairman would expect RAN1 to send us an LS with the value which we can then put into 36.306. No need that we send them an LS for that.
- => Noted
- [R2-153229](#) Corrections on UE sidelink capabilities in TS 36.306; Huawei, HiSilicon; CR; 36.306; 12.5.0; 0289; F;
 - => Change the captions of the tables and the text above to also cover "transmission"
 - => Discuss further offline
 - => CB: [LTE/ProSe] An updated CR with this change may be provided in [R2-153936](#) CR0289 (Huawei)
- [R2-153936](#) Corrections on UE sidelink capabilities in TS 36.306; Huawei, HiSilicon; CR; 36.306; 12.5.0; 0289 R1; F;
 - => CR is agreed
- [R2-153398](#) Corrections on UE sidelink capabilities in TS 36.306; Huawei, HiSilicon; CR; 36.306; 12.5.0; 0291; A;
[Withdrawn]
- [R2-153401](#) draft LS on sidelink capabilities; Huawei; LS out;
Not treated

Overlapping resources in commRxPool

- [R2-153233](#) Issues on reception of sidelink communication; Huawei, HiSilicon; discussion;

- Ericsson does not consider it necessary to capture the case of bad network implementation. ZTE agrees with Ericsson that the observation is correct but no need to capture this in the specification. CATT also agrees with Ericsson. Huawei thinks that for the pre-configuration there was a corresponding note added. ZTE thinks that this is under the control of the eNB. Huawei thinks that also for pre-configuration the NW is in control.
=> Observation is correct but no need to capture this in the specification.
=> Noted

[R2-153234](#) Corrections on configuration of resource pools in SIB18; Huawei, HiSilicon; CR; 36.331; 12.6.0; 1859; F;
=> Not agreed

[R2-153400](#) Corrections on configuration of resource pools in SIB18; Huawei, HiSilicon; CR; 36.331; 12.6.0; 1871; A;

[Withdrawn]

Other

[R2-153708](#) Sidelink discovery related corrections; Nokia Networks; CR; 36.331; 12.6.0; 1900; F;
=> CR is agreed

6.2.3.2 User Plane

Documents in this agenda item treated in the UP session. (See Annex G)

Including output of [90#26][LTE/ProSe] Rel-13 SL BSR trigger and cancellation (Huawei)

- [R2-153230](#) Corrections for STCH in 36.322; Huawei, HiSilicon; CR; 36.322; 12.2.0; 0108; F;
- [R2-153231](#) Report of email discussion on sidelink BSR; Huawei, HiSilicon; discussion;
- [R2-153272](#) Corrections to Sidelink in MAC; Intel Corporation; CR; 36.321; 12.6.0; 0785; F;
- [R2-153325](#) Correction on Sidelink BSR transmission; Innovative Technology Lab Co.; CR; 36.321; 12.6.0; 0787; F;
- [R2-153397](#) Corrections for reporting and cancellation of SL BSR; Huawei, HiSilicon; CR; 36.321; 12.6.0; 0789; F;
- [R2-153399](#) Corrections for STCH in 36.322; Huawei, HiSilicon; CR; 36.322; 12.2.0; 0111; A;
- [R2-153519](#) Miscellaneous corrections on Sidelink; ASUSTEK COMPUTER (SHANGHAI); CR; 36.321; 12.6.0; 0790; F;
- [R2-153662](#) Corrections for reporting and cancellation of SL BSR; Huawei, HiSilicon; CR; 36.321; 12.6.0; 0795; F;
- [R2-153709](#) Events that trigger sidelink BSR; Nokia Networks; CR; 36.321; 12.6.0; 0796; F;
- [R2-153752](#) Clarification of cancellation of sidelink BSR; Ericsson; CR; 36.321; 12.6.0; 0797; F;
- [R2-153774](#) Corrections on ProSe BSR Report and SL MAC CE; ZTE; CR; 36.321; 12.6.0; 0798; F;

Late or Withdrawn

[R2-153232](#) Corrections for reporting and cancellation of SL BSR; Huawei, HiSilicon; CR; 36.321; 12.6.0; 0784; F;

[Withdrawn]

6.2.4 WI: Further MBMS Operations Support for E-UTRA

(MBMS_LTE_OS-Core, leading WG: RAN2, REL-12, started: Sep.13, **closed**: Dec.14, WID: [RP-140282](#))

No contributions received.

6.2.5 WI: Network-Assisted Interference Cancellation and Suppression

(LTE_NAICS-Core, leading WG: RAN1, Rel-12, started: Mar 14, **closed**: Dec.14, WID: [RP-140519](#))

Including output of [90#22][LTE/NAICS] NAICS Capability Signalling (Nokia Networks)

- [R2-153134](#) Report of email discussion [90#22][LTE/NAICS] NAICS Capability Signalling; Nokia Networks; report; Report of e-mail discussion [90#22];
- MediaTek agrees with Proposal 1 and 2. Samsung understands that we should clarify that the UE shall not reject such a configuration but otherwise, there are no requirements for the UE. Chairman wonders whether it is good to move away from the principle that the NW configuration has to be within the UE capabilities. QC thinks that it is good to configure NAICS for more carriers since the NW can e.g. provide NAICS information for all carriers and UE uses it for the ones being activated. QC also thinks that it will simplify NW implementation since it does not need to consider the NAICS capabilities at all. Samsung tends to agree that we have the general principle that the configuration has to be within the UE capabilities. We have one exception for measurements but that led to numerous discussions on the usefulness and many companies indicated that there seems little sense in configuring more than the UE is known to support. Huawei also tends to agree that we should stick to the existing principle. Nokia Networks also agrees with Huawei and Samsung. Intel agrees with Nokia Networks and Samsung that the NAICS configuration should be within the limits allowed by the UE capabilities. QC disagrees that this is different from other configurations as it is just assistance information. Nokia Networks thinks that depending on whether or not the UE applies NAICS, the CQI computation may be done differently. The NW needs to know this and will therefore only provide NAICS in accordance with UE capabilities so that it knows on which CCs the UE applies NAICS. MediaTek thinks that the eNB does not need to know whether NAICS is applied. Huawei wonders why we have capabilities at all if the NW is not supposed to acknowledge them. QC agrees with MediaTek that the NW does not need to know whether the CQI was computed with or without NAICS. MediaTek thinks that the CQI will anyway vary a lot and the eNB will not know whether it varies due to NAICS being (not) applied or due to fading. MediaTek thinks that providing it for many carriers will allow the UE to use it for carriers dynamically. MediaTek thinks that the UE might not be able to do NAICS for a carrier even though the eNB provides NAICS information for that carrier. QC and MediaTek disagree that "In accordance with the existing principles the network configures NAICS assistance information only in accordance with the UE capabilities". Chairman thinks that this is the current status and there seems to be no consensus to change that.
- => No consensus that NAICS assistance information may be provided for more CCs that what the UE supports according to the UE capabilities.

Agreements

- 1 Clarify in 36.331 that NAICS only applies for full carrier bandwidth.

- Nokia Networks thinks we could clarify that the UE is not allowed to provide a more restrictive subset in the UE capabilities. The current text indicates that but we should clarify that the NAICS subsets shall not be conflicting, i.e., exclude parts of each other.
- => Can discuss further offline whether this needs to be clarified.
- After offline discussion Nokia Networks explains that there was no consensus whether and what to change even though some companies think that there are issues with the current signalling. Nokia Networks would prefer to receive a clarification from RAN4 if there are really any problems. QC thinks that we could resolve it in RAN2 which interpretation to apply. QC clarifies only the aspects of the "subset" definition. In addition it needs to be discussed whether the NW is allowed to configure NAICS capabilities for more carriers.
- => Noted

- [R2-153722](#) Further discussion on NAICS capability subset definition; Qualcomm India; discussion;
- Nokia Networks does not agree with QC's interpretation: [3 CC; 200 PRB] actually implies that the UE can support NAICS on up to 200 PRBs which may be split onto one, two or three CCs. This is also what the specification currently states. The only clarification required is the one agreed above, i.e., only entire CCs can be configured with NAICS.
- => Noted

- [R2-153833](#) Clarification for NAICS capability signalling; Nokia Networks; CR; 36.331; 12.6.0; 1906; F; Outcome CR of the e-mail discussion [90#24].;
- => CB: [LTE/NAICS] An updated CR may be provided in [R2-153937](#) CR 1906 R1 (Nokia Networks)

[R2-153937](#) Clarification for NAICS capability signalling; Nokia Networks; CR; 36.331; 12.6.0; 1906 R1; F; Outcome CR of the e-mail discussion [90#24].;

=> Update Inter-operability issues

=> [LTE/NAICS] An updated CR may be provided in [R2-153962](#)

[R2-153962](#) Clarification for NAICS capability signalling; Nokia Networks; CR; 36.331; 12.6.0; 1906 R2; F; Outcome CR of the e-mail discussion [90#24].;

=> The CR is agreed

6.2.6 WI: Low Cost MTC for LTE

(LC_MTC_LTE-Core, leading WG: RAN1, REL-12, started: Jun 13, **closed**: Dec 14, WID: [RP-140522](#))

No contributions received.

6.2.7 WI: Group Call eMBMS congestion management for LTE

(GCSE_LTE-MBMS_CM-Core, leading WG: RAN3, started: Sep. 14, **closed**: Mar. 2015, WID: [RP-141035](#))

No contributions received.

6.2.8 WI: FDD/TDD Carrier Aggregation

(LTE_CA_TDD_FDD-Core, leading WG: RAN1, REL-12, started: Jun 13, **closed**: Jun 14, WID: [RP-140465](#))

Timing Difference

Incoming LSs

[R2-153019](#) LS Out on TDD + FDD dual UL UE behavior (R4-153889; contact: Ericsson); RAN4; LS in; => Noted

[R2-153050](#) Reply LS on TDD + FDD dual UL UE behavior; from RAN1; contact: QC; LS in [Late]

=> Noted

Discussion & CRs

[R2-153656](#) Refinement of requirements for TA difference in TDD-FDD CA; Ericsson; discussion; Rel-12; LTE_CA_TDD_FDD-Core; [Moved from 6.1.1 to 6.2.8]

- Intel indicates that RAN1 thinks that the timing difference should not be increased for this case. RAN1 has sent such an LS to RAN4 but now it seems that RAN4 made the opposite decision. RAN1 is discussing whether to follow the RAN4 decision or to challenge it again.
- => CB: [LTE] See whether CR on "Refinement of requirements for TA difference in TDD-FDD CA" can be agreed depending on RAN1 and RAN4 discussion (Ericsson)
- => Postponed (According to LS in [R2-153050](#), RAN4 should confirm their previous decisions)

[R2-153657](#) Refinement of requirements for TA difference in TDD-FDD CA; Ericsson; CR; 36.300; 12.6.0; 0789; F; Rel-12; LTE_CA_TDD_FDD-Core; Not treated

[Moved from 6.1.1 to 6.2.8]

[R2-153658](#) Refinement of requirements for TA difference in TDD-FDD CA; Ericsson; CR; 36.300; 13.0.0; 0790; A; Rel-13; LTE_CA_TDD_FDD-Core; Not treated

[Moved from 6.1.1 to 6.2.8]

Requirements on PCell support

[R2-153144](#) Capturing PCell support for FDD-TDD CA; NTT DOCOMO, INC., Qualcomm Incorporated; CR; 36.306; 12.5.0; 0288; F; => CR is agreed

6.2.9 LTE Other Closed Rel-12 WIs

Input to any other Rel-12 WI/SI not explicitly listed above.

(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, target: Sep 14, WID: [RP-122007](#))

(Cov_Enh_LTE-Core, leading WG: RAN1, REL-12, started: Jun.13, closed: Jun.14, WID: [RP-130833](#))

(LTE_TDD_eIMTA-Core, leading WG: RAN1, REL-12, started: Dec 12, closed: Jun.14, WID: [RP-121772](#))

(SCM_LTE-Core, leading WG: RAN2, REL-12, started: Mar.14, closed: Sep.14, WID: [RP-140434](#))

Including corrections to TEI12 enhancements introduced in Rel-12.

6.2.9.1 LTE Other Closed Rel-12 WIs – CP and common CP/UP

Optional / Mandatory

[R2-153579](#) Capturing mandatory/optional features of Rel-12 UEs; NTT DOCOMO, INC., Ericsson, Huawei; CR; 36.306; 12.5.0; 0293; F; related to LSin [R2-153022](#); Rel-12; LTE_SC_enh_L1-Core, LTE_UTRA_IncMon-Core;
=> CR is agreed

ACB Skip

[R2-153249](#) highPriorityAccess for MMTEL voice, MMTEL video and SMS; MediaTek Inc.; CR; 36.331; 12.6.0; 1860; F; Rel-12; SCM_LTE-Core;
- Intel wonders whether the second part of the sentences (“related to mobile originating signalling”, “related to mobile originating calls”) is needed. MediaTek thinks that this condition is necessary since “highPriorityAccess” by itself does not distinguish MO and MT which use different parameters.
=> Add impact analysis
- Intel thinks that it is not obvious that AS will be aware whether a highPriorityAccess attempt is MO or MT
=> CB: [LTE] An updated CR on highPriorityAccess for MMTEL voice may be provided in [R2-153938](#) CR1860 R1 (MediaTek)

[R2-153938](#) highPriorityAccess for MMTEL voice, MMTEL video and SMS; MediaTek Inc.; CR; 36.331; 12.6.0; 1860 R1; F; Rel-12; SCM_LTE-Core;
- LG thinks that there is no problem with the current text. Intel agrees with LG. Chairman thinks that currently it is not clear what the UE shall do in case of “highPriorityAccess”. Chairman thinks that for “highPriorityAccess” the UE would never access the section 5.3.3.11. MediaTek agrees. Nokia Networks agrees that the current wording is not OK.
=> Postponed (Should discuss further how to address this case)

Capabilities

[R2-153353](#) Correction on UE band combination capability; Huawei, HiSilicon; CR; 36.331; 12.6.0; 1866; F; Rel-12; TEI12;
=> CR is agreed

[R2-153567](#) Clarification of the maximum number of bits of a single DL-SCH transport block for DL Category 16; NTT DOCOMO, INC., Huawei, Samsung, Intel Corporation; CR; 36.306; 12.5.0; 0292; F; Rel-12; LTE_CA-Core, TEI12, LTE_SC_enh_L1-Core;
=> CR is agreed

[R2-153604](#) The support of UL64QAM; Huawei, HiSilicon, CMCC, Qualcomm Incorporated; CR; 36.331; 12.6.0; 1884; F; Rel-12; TEI12;
=> CR is agreed

6.2.9.2 LTE Other Closed Rel-12 WIs – UP

No contributions received.

7 LTE Rel-13

7.1 WI: Licensed-Assisted Access using LTE

(LTE_LAA-Core, leading WG: RAN1, started: June 15, target: Dec. 15, WID: [RP-151045](#))

Time budget: 1,5 TU

The approved version TR 36.889 is available [here](#).

7.1.1 Organizational

Work Plan

- [R2-153792](#) RAN2 Work Plan of Licensed-Assisted Access to Unlicensed Spectrum; Huawei, Ericsson; discussion;
- Proposal 1:
- QC wonders whether we should wait for RAN1 before starting that discussion. Huawei thinks that RAN1 is discussing the LBT scheme including support of multiple QoS levels. But if there is impact on RAN2 protocols, those would need to be captured by us. QC thinks that we should wait for RAN1.
 - ETRI wonders whether there is any need to describe LBT in MAC considering that we did not expect MAC impact during the SI.
- Proposal 3:
- Huawei confirms that we should re-use the existing RRM measurement framework as agreed in the SI.
- Proposal 4:
- => Proposals 1 to 4 are agreed.
- => Noted

Running CRs

Stage-2

- [R2-153323](#) CR to capture LAA agreements; Huawei, HiSilicon; CR; 36.300; 13.0.0; 0787; B;
- => CB: [LTE/LAA] An updated running stage-2 CR may be provided in R2-153907 (Huawei)
- ☒ **[91#10][LTE/LAA] Two Weeks: Running stage-2 CR (Huawei)**
- Capture agreements from this meeting**
- => Intended outcome: Technically endorsed running 36.300 CR in [R2-153907](#)**
- CR0787 R1**

7.1.2 RRM Measurements

- [R2-153807](#) DRS measurements in LAA; QUALCOMM CDMA Technologies; discussion;
- Proposal 1:
- Huawei thinks that we do not need to make such an assumption. QC thinks that in order to be able to measure neighbour frequency, this is a prerequisite since we agreed that a UE is configured with only one DRS DMTC window. Huawei thinks that the agreement from last meeting just means that only cells that are aligned with respect to the DMTC window can be measured by a UE.
- Proposal 2:
- BlackBerry thinks that just the fact that the UE measured outside the DMTC window, does not mean that all of that is necessarily from other operator's cells. Samsung points out that RAN1 had some discussion and concluded on the need for a separate DRS timing configuration. QC thinks that RAN1 is discussing this. We could take it into account in the next meeting.
- => Postponed
- Proposal 3:
- Ericsson wonders what the eNB should do with that information. QC thinks that in particular for neighbour cells this ensures that the eNB does not use an outdated result.

=> Can discuss further whether outdated measurements or inaccurate measurements due to absent DRSs are problematic and need to be resolved.

Proposal 4:

- ZTE wonders whether RSSI always includes all sources. Nokia Networks thinks that we first need from RAN1 the definition of RSSI before deciding this.
- Ericsson wonders what RSSI probability is. Would it be like a histogram? QC thinks that it would basically be the probability that RSSI was above a threshold. Ericsson understands that this would basically be a histogram with two buckets. Ericsson thinks that for estimating the downlink interference level it is useful to have more than just two buckets. For UL it would be sufficient to know the probability that RSSI is above the LBT threshold. Nokia Networks wonders how the NW would use the histogram. QC also does not see a need for many bins. Huawei is fine with the agreement and thinks that the number of bins and the granularity of the probability can be discussed later.

Agreements

- 1 A UE is only expected to detect and measure cells transmitting DRS during the configured DRS DMTC window.
- 4 Introduce measurements of average RSSI and channel occupancy (percentage of time that RSSI was above a threshold) for reporting in LAA

- FFS whether multiple thresholds should be distinguished

=> Noted

[R2-153659](#) RSSI measurement reporting for LAA; Ericsson; discussion;

=> Noted

[R2-153666](#) Scope, characteristics and high level design of RSSI measurement; Samsung; discussion;

- Samsung thinks that the UE and E-UTRAN need to perform the RSSI measurement during exactly the same times/ MTUs. Furthermore, the UE might have to report the result for all time frames/MTUs. Huawei thinks that RAN1 has already agreed that the NW will indicate to the UE at which occasions in time to perform RSSI measurements. Huawei thinks that RSSI is mostly for carrier selection and that it is not necessary to report all measurement occasions.
- Samsung thinks that the RSSI measurements are not time critical and therefore it is sufficient to re-use the existing measurement gaps.

=> Noted

[R2-153311](#) Considerations of Measurement Issues in LAA; Huawei, HiSilicon; discussion;

- Nokia Networks indicates that this is FFS in RAN1. Intel thinks that it should be discussed in the context of the RAN4 SI and is not specific to LAA but generally applicable to CA.

Proposal 4:

- QC think we need to investigate filtering a bit more

Proposal 5a:

- Nokia Networks thinks that 5a would contradict to 4 since if we re-use the current filtering there will always be a valid value.

Agreements

- 1 The NW configures one DMTC for all neighbor cells as well as for the serving cell (if any) in one frequency (as for Rel-12 DRS mechanism)
- 5 Periodical reporting is supported for LAA RRM measurements,
- 6 Reporting events A1/A2/A4/A6/C1/C2 are supported on LAA SCells

=> Noted

[R2-153125](#) TTT handling for LAA RSRP/RSRQ measurement; Sony; discussion;

[R2-153126](#) LAA Measurements and carrier selection procedure; Sony; discussion;
[R2-153167](#) Measurement objects for LAA; SAMSUNG Electronics Co., Ltd.; discussion;
[R2-153196](#) Discussion on RSSI Reporting; Guangdong OPPO Mobile Telecom.; discussion;
[R2-153209](#) Discussion on LAA DRS design; China Mobile Com. Corporation; discussion;
[R2-153216](#) RRM measurements and reporting; China Mobile Com. Corporation; discussion;
[R2-153217](#) RSSI measurements and reporting; China Mobile Com. Corporation; discussion;
[R2-153273](#) RSSI measurement for LAA; Intel Corporation; discussion;
[R2-153312](#) RSSI Measurement in LAA; Huawei, HiSilicon; discussion;
[R2-153396](#) RRM measurement for carrier selection; Kyocera; discussion;
[R2-153419](#) Discussion on LAA Measurement and Report; ITRI; discussion;
[R2-153429](#) RSSI Measurement for LAA; ETRI; discussion;
[R2-153453](#) Valid samples in DRS based measurement; NEC Corporation; discussion;
[R2-153454](#) Draft LS on valid measurement samples in LAA; NEC Corporation; LS out;
[R2-153494](#) RRM measurement for LAA cell; CATT; discussion;
[R2-153517](#) Further Discussion on LAA Radio Link Adaptation; ZTE Corporation; discussion;
[R2-153521](#) Further Discussion on RRM Measurement and Carrier Selection for LAA Scell; ZTE Corporation; discussion;
[R2-153525](#) Higher Layer Impacts by LAA LBT Procedure; ZTE Corporation; discussion;
[R2-153660](#) Introducing RSSI measurements for LAA; Ericsson; CR; 36.331; 12.6.0; 1895; B;
[R2-153671](#) Measurement configurations for LAA; Sharp; discussion;
[R2-153815](#) RSSI measurement for unlicensed frequency; LG Electronics Inc.; discussion;
 Above 21 Tdocs not treated

[R2-153393](#) RSSI Measurement for LAA; ETRI; other;
 [Withdrawn]

7.1.3 Other

[R2-153163](#) Consideration on DL MAC for unlicensed band; LG Electronics Inc.; discussion;
 Proposal 1:

- Ericsson thinks that we discussed this a lot in the SI and did not conclude that we need to change the DRX scheme. LG thinks that this proposal is different.
- DCM thinks that we had the same discussion for CA enhancements and don't need to repeat it.
- Samsung thinks that this solution would not give a significant enhancement. If common DRX is not sufficient, we should introduce a clean solution with separate DRX.
- ZTE supports LG's proposal. TCL supports the LG proposal but would like to see the benefits from scheduling point of view. Nokia Networks wonders points out that we finished the SI and should only be re-opened if many companies support the same solution. Samsung agrees with Nokia Networks. DCM agrees with Samsung. Motorola thinks that the LAA operation would result in extended active time and hence we should revisit this. QC agrees with Motorola.

Proposal 2:

- DCM supports proposal 2.
- Ericsson thinks that if we touch this, we should rather have deactivation timer values separately per SCell. Huawei thinks that we could just re-use what we agreed for PUCCH SCell, i.e., not to use this timer for LAA SCells. Ericsson thinks that this is one possible configuration if configurable per SCell. DCM agrees with Ericsson.

=> Noted

[R2-153745](#) Understanding DRX operation with LAA; Motorola Mobility UK Ltd.; discussion;

- Ericsson understands that the problem is that no transmissions on the PCell have been assumed and hence the UE goes to DRX. Motorola aimed to use only the LAA SCell. Ericsson thinks that an eNB would also serve a UE on the PCell if there is data and if the PDB is about to expire. That would keep the UE active and give the possibility to serve it on PCell and LAA SCells. Huawei agrees with Ericsson. QC thinks that instead of waking up frequently and long on all cells, the UE could sleep on the PCell and be awake often on the SCell and be scheduled only there. Nokia Networks thinks that this has never been a concern in CA where the eNB might also serve a UE primarily on the SCell. QC thinks that due to LBT it is necessary to configure a longer active time. If that longer time is also applied to the PCell the UE consumes a lot of power for both PCell and SCells. Nokia Networks thinks that if the LBT kicks in so often, it might be better to deactivate the LAA

SCell and use only the PCell instead. QC thinks that the LAA SCell might still offer some throughput. Motorola thinks that even for low LAA load, the active times on that SCell have to be long in order to ensure on-time packet delivery.

- Motorola thinks that the SI requires support for VoLTE on the LAA SCell. Huawei thinks that there is no such requirement. The eNB may schedule services on any available serving cell.
- CATT points out that we have anyway only DL LAA so that the corresponding UL traffic will anyway keep the PCell awake. Motorola agrees with that point and therefore does not suggest separate DRX cycles but rather to extend the common active time when the UE observes that the carrier is busy (LBT).
- BlackBerry thinks that we should avoid that the UE stays awake on the LAA SCell very long while sleeping on the PCell. BlackBerry would rather prefer that the UE is active and served quickly on all serving cells and then goes to sleep again.

=> Noted

[R2-153746](#)
[R2-153840](#)

Options for Reducing Active Time with LAA; Motorola Mobility UK Ltd.; discussion;
Considerations on DRX procedure for LAA-LTE; QUALCOMM CDMA Technologies;
discussion;

[R2-153314](#)

DL LBT Operation; Huawei, HiSilicon; discussion;

[R2-153313](#)

Supported functionalities and parameters for LAA cell; Huawei, HiSilicon; discussion;

[R2-153421](#)

UE assistance for carrier selection; ITRI; discussion;

[R2-153431](#)

Discussion on Activation/Deactivation for LAA; ETRI; discussion;

[R2-153516](#)

Further Discussion on LAA Data Transmission; ZTE Corporation; discussion;

[R2-153523](#)

Further Thoughts on (De)activation of LAA SCell; ZTE Corporation; discussion;

[R2-153526](#)

LCP Modification for LAA SCell; ZTE Corporation; discussion;

[R2-153527](#)

UL Issues for LAA SCell; ZTE Corporation; discussion;

[R2-153569](#)

Deactivation for LAA; NTT DOCOMO INC.; discussion;

[R2-153779](#)

LAA SCell Activation and Deactivation; Samsung Electronics Co., Ltd; discussion;

[R2-153780](#)

Update to DRX Behaviour in support of Asynchronous UL HARQ; INTERDIGITAL COMMUNICATIONS; discussion;

[R2-153799](#)

Discussion on LAA SCell Activation and Deactivation; KT Corporation; discussion;
Above 14 Tdocs not treated

[R2-153395](#)

Discussion on Activation/Deactivation for LAA; ETRI; other;

[Withdrawn]

7.2 WI: CA enhancements

(LTE_CA_enh_b5C-Core, leading WG: RAN1, started: Dec. 14, target: Dec. 15, WID: [RP-150771](#))

Time budget: 1 TU (+ 1TU for stage-3 UP aspects)

7.2.1 Organizational

Incoming LSs

[R2-153012](#)

LS on RAN1 agreements on CA Enhancement Beyond 5 Carriers ([R1-153672](#); contact: Nokia Networks); RAN1; LS in;
=> Noted

Work Plan

[R2-153570](#)

Revised Work Plan for LTE Carrier Aggregation Enhancement Beyond 5 Carriers; NTT DOCOMO INC., Nokia Networks; discussion;
=> Noted without presentation

Running CRs

Technically endorsed 36.300 CR after RAN2-90: [R2-152855](#)

=> CB: [LTE/CA] An updated draft running 36.300 CR for B5C and SCell on PUCCH may be provided in [R2-153945](#) (Nokia Networks)

- [R2-153945](#) Running 36.300 CR to capture agreements on carrier aggregation enhancements; Nokia Networks; draftCR; Rel-13; B;
 => Change to "Use non-critical extension for SCellToAddMod and SCellToRelease"
 => Clarify that PDCP SN extension applies only to RLC AM DRBs.
 => With these changes the running 36.300 CR is endorsed in [R2-153963](#)

MAC

- [R2-153653](#) Running MAC CR for Carrier Aggregation enhancements; Ericsson; CR; 36.321; 12.6.0; 0793; B;
 - Ericsson clarifies that this is intended to be used as baseline for the running CR capturing all agreements (including those from this meeting)
 => CB: [LTE/CA] An updated MAC CR on B5C and SCell on PUCCH capturing the agreements from this meeting may be provided in [R2-153947](#) (Ericsson)

- [R2-153947](#) Running MAC CR for Carrier Aggregation enhancements; Ericsson; CR; 36.321; 12.6.0; 0793 R1; Rel-13; B;

- ☒ **[91#11][LTE/CAe] Two weeks: Running 36.321 CR (Ericsson)**
 -Align with RRC CR
 => Intended outcome: Technically endorsed running 36.321 CR in [R2-153964](#)
CR0793 R2

RRC

- [R2-153459](#) 36331 CR for capturing B5C and SCell on PUCCH; Nokia Networks; CR; 36.331; 12.6.0; 1872; Rel-13; B;
 => CB: [LTE/CA] An updated RRC CR on B5C and SCell on PUCCH capturing the agreements from this meeting may be provided in [R2-153946](#) (Nokia Networks)

- [R2-153946](#) 36331 CR for capturing B5C and SCell on PUCCH; Nokia Networks; CR; 36.331; 12.6.0; 1872 R1; Rel-13; B;

- ☒ **[91#12][LTE/CAe] Two weeks: Running 36.331 CR (Nokia Networks)**
 -Align with MAC CR
 => Intended outcome: Technically endorsed running 36.331 CR in [R2-153946](#)

7.2.2 CP and common aspects

7.2.2.1 B5C

E.g. Capability signalling; RRC configuration; ...

- [R2-153457](#) Impacts on RRC for more than 5 CCs ; Nokia Networks ; discussion;
 - Ericsson prefers to have a completely new value range covering all cells. Nokia Networks agrees. ZTE also supports this
 => Use non-critical extension for SCellToAddMod and SCellToRelease
 => Introduce r13 version of CrossCarrierSchedulingConfig in order to capture extension of schedulingCellID as well as explicit cif-configuration
 - Samsung wonders whether the eNB could also use the r13 version when configuring less than 6 serving cells. Huawei agrees that we should discuss this aspect. We need to specify the UE behaviour when NW has configured the r10 version and then provides the r13 version instead.
 => FFS: UE behaviour when changing from r10 to r13 version for reconfiguration and handover.
 => Noted

- [R2-153102](#) Solution to reduce CA capability signalling size for B5C; NTT DOCOMO, INC.; discussion;
 - Huawei thinks that a UE also has to include the legacy capabilities. Huawei thinks we could consider some restrictions for the legacy band combination list or the new eNB could create the legacy capability format based on the new Rel-13 format.
 - Huawei thinks we should certainly study the concept further to understand how we can save most overhead.

Agreements

- 1 The UE shall provide Band Combination capability signalling for more than 5 carriers only upon request of the eNB.

=> Noted

[R2-153135](#) UE capability structure for carrier aggregation enhancements; Nokia Networks; discussion;

- Nokia Networks thinks that with Reference to tables we could not only get rid of the band numbers but maybe even of the bandwidth classes since those would also be implicitly given by the tables. QC thinks that we should discuss this with RAN4. Nokia Networks agrees that we cannot decide this by ourselves.
- => Discuss (email discussion) reference to RAN4 tables in RAN2 before involving RAN4.
- => Noted

[R2-153274](#) Discussion on UE capability signaling for B5C; Intel Corporation; discussion;
Not treated

- ✉ **[91#21][LTE/CAe] Capability signalling enhancements (Nokia Networks)**
 - Identify feasible solutions to reduce capability signalling
 - Ensure backwards compatibility
 - => Intended outcome: Email discussion report to the next meeting
 - => Intended outcome: LS to RAN4 if needed

[R2-153839](#) C-DRX for B5C; QUALCOMM CDMA Technologies; discussion;

- Ericsson thinks that we discussed it a lot for LAA and concluded to stick to common DRX. LG thinks that this is different from LAA since here more power saving is intended on the other carriers whereas in LAA the intention was to allow longer on durations on the LAA carriers. LG support the QC proposal. Huawei agrees with Ericsson.
- Chairman wonders why we don't just use A/D. QC thinks that this scheme could be faster. Chairman thinks that we should then reduce the A/D timeline. QC thinks that this would be up to RAN4 to decide
- Huawei thinks that it might even be more efficient to enable all carriers at once when data becomes available.
- Nokia Networks thinks that this is not important and we should rather focus on other aspects
- ZTE points out that the independent DRX could also result in interruptions on the other active carriers.
- => Noted. (can come back if more support)

[R2-153574](#) Discussion on C-RNTI handling for CA beyond 5CCs; NTT DOCOMO INC.; discussion;

[R2-153360](#) UE CA capability signalling for B5C; Huawei, HiSilicon; discussion;

[R2-153361](#) Remaining CP issues for B5C; Huawei, HiSilicon; discussion;

[R2-153423](#) C-RNTI collision problem in Rel-13 CA enhancements ; Samsung Telecommunications; discussion;

[R2-153740](#) Considerations on capability signalling enhancements for B5C; Ericsson; discussion;
Above 5 Tdocs not treated

7.2.2.2 PUCCH on SCell

E.g. RRC configuration, ...

[R2-153458](#) Impacts on RRC for PUCCH on SCell; Nokia Networks; discussion;

- CATT points out that this paper does not list all things that need to be configured. Nokia Network agrees that this is more complete in [R2-153504](#). Nokia Networks understands that CATT suggest to reuse the DC structure of the PSCell.
- => Add PUCCH SCell configuration to RadioResourceConfigCommonSCell and RadioResourceConfigDedicatedSCell
- => Consider the details as proposed in [R2-153504](#) (Table 1)
- => Indicate in the RadioResourceConfigDedicatedSCell configuration which PUCCH SCell to use. Absence of the field indicates that the PUCCH of the PCell/PSCell is supposed to be used.
- => Noted

[R2-153504](#) Detail on PUCCH SCell configuration; CATT; discussion;
Not treated

- [R2-153505](#) UE actions upon PUCCH SRS release request; CATT; discussion;
- Ericsson thinks that the current modelling is not correct since MAC does the release for each SCell and RRC iterates again through all SCells. We should try to clean this up.
 - Huawei thinks that for the SR failure there is still an open issue in the UP session. Nokia Networks agrees that we could postpone that part.
- => RAN2 agrees to the principle. The details can be discussed further.
- => Noted

- [R2-153636](#) Change of PUCCH SCell; Samsung; discussion;
- [R2-153587](#) PUCCH SCell activation and UL timing alignment; Alcatel-Lucent Shanghai Bell, Alcatel-Lucent; discussion;
- Above 2 Tdocs not treated

7.2.3 UP aspects

Stage-3 UP aspects

Documents submitted to this AI treated in the UP session. (See Annex G)

7.2.3.1 B5C

E.g. Header formats, ...

- [R2-153152](#) PHR format for eCA; LG Electronics Inc.; discussion;
- [R2-153171](#) L2 enhancements for eCA; SAMSUNG Electronics Co., Ltd.; discussion;
- [R2-153263](#) PHR for CA enhancement for more than 5 CCs; Nokia Networks; discussion;
- [R2-153275](#) Layer 2 header size to support CA with up to 32 CCs; Intel Corporation; discussion;
- [R2-153296](#) L2 enhancements for more than 5 CCs; Nokia Networks; discussion;
- [R2-153297](#) Further Extended Power Headroom Report; Nokia Networks; CR; 36.321; 12.6.0; 0786; B;
- [R2-153298](#) Further Extended Power Headroom Report; Nokia Networks; CR; 36.331; 12.6.0; 1862; B;
- [R2-153299](#) Extending RLC header; Nokia Networks; CR; 36.322; 12.2.0; 0109; B; Relates to [R2-153296](#);
- [R2-153324](#) Remaining issues on Activation/Deactivation MAC CE for b5C; Innovative Technology Lab Co.; discussion;
- [R2-153362](#) UP impacts due to high peak data rate of 32CCs; Huawei, HiSilicon; discussion;
- [R2-153363](#) Extension of L field in MAC PDU; Huawei, HiSilicon; CR; 36.321; 12.6.0; 0788; B;
- [R2-153364](#) Extension of SN and SO field in RLC PDU; Huawei, HiSilicon; CR; 36.322; 12.2.0; 0110; B;
- [R2-153365](#) Extension of SN field in PDCP PDU; Huawei, HiSilicon; CR; 36.323; 12.4.0; 0141; B;
- [R2-153366](#) Extension due to high data rate; Huawei, HiSilicon; CR; 36.331; 12.6.0; 1870; B;
- [R2-153418](#) Details of Activation/Deactivation MAC CE in UE aspect; Samsung Telecommunications; discussion;
- [R2-153420](#) Remaining issues on PHR MAC CE in UP aspect; Samsung Telecommunications; discussion;
- [R2-153425](#) BSR format for B5C; LG Electronics Inc.; discussion;
- [R2-153577](#) Combination solution for AD MAC CE with up to 32 CCs; Beijing Xinwei Telecom Techn.; discussion;
- [R2-153588](#) BSR report for enhanced CA ; Alcatel-Lucent Shanghai Bell, Alcatel-Lucent; discussion;
- [R2-153593](#) Remaining format for eCA PHR ; Alcatel-Lucent Shanghai Bell, Alcatel-Lucent; discussion;
- [R2-153601](#) Extending MAC protocol header; Ericsson; CR; 36.321; 12.6.0; 0791; B;
- [R2-153602](#) Extending RLC protocol header; Ericsson; CR; 36.322; 12.2.0; 0112; B;
- [R2-153603](#) Extending PDCP protocol header; Ericsson; CR; 36.323; 12.4.0; 0142; B;
- [R2-153605](#) Impact of carrier aggregation enhancement on L2 UP protocols; Ericsson; discussion;
- [R2-153651](#) Extension of BSR for CA enhancements beyond 5 CC; Ericsson; discussion;
- [R2-153652](#) New BSR mapping table for Carrier Aggregation enhancements beyond 5 CCs; Ericsson; CR; 36.321; 12.6.0; 0792; B;
- [R2-153654](#) LCIDs for extended MAC CEs for CA enhancements beyond 5 CCs; Ericsson; discussion;
- [R2-153655](#) CR for LCIDs for extended MAC CEs for CA enhancements beyond 5 CCs; Ericsson; CR; 36.321; 12.6.0; 0794; B;

7.2.3.2 PUCCH on SCell

- [R2-153154](#) Remaining issue on TAG for CA enhancement; LG Electronics Inc.; discussion;
- [R2-153159](#) sCellDeactivationTimer for PUCCH SCell; LG Electronics Inc.; discussion;
- [R2-153226](#) PUCCH SCell pre-activation; Nokia Networks; discussion;
- [R2-153228](#) Remaining issues on PUCCH SCell; Nokia Networks; discussion;

- [R2-153367](#) SRS handling for SCells in Secondary PUCCH Group; Huawei, HiSilicon; discussion;
- [R2-153368](#) Issues for SR on PUCCH SCell; Huawei, HiSilicon; discussion;
- [R2-153369](#) Pre-activation SR; Huawei, HiSilicon; discussion;
- [R2-153415](#) Reducing use delay on PUCCH SCell; III; discussion;
- [R2-153417](#) Remaining issues on interleaved SR; Samsung Telecommunications; discussion;
- [R2-153463](#) Managing PUCCH resources on a deactivated PUCCH SCell; HTC Corporation; discussion;
- [R2-153467](#) Discussion on SR prohibition time and D-SR failure; HTC Corporation; discussion;
- [R2-153506](#) Discussion on PHR for eCA; CATT; discussion;
- [R2-153509](#) PUCCH SCell activation; CATT; discussion;
- [R2-153571](#) Activation_deactivation of PUCCH SCell; NTT DOCOMO INC.; discussion; Resubmission of [R2-152424](#);
- [R2-153573](#) Draft LS on PUCCH SCell activation; NTT DOCOMO INC.; LS out; Related to [R2-153571](#);

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

(LTE_SC_PTM-Core, leading WG: RAN2, started: June 15, target: Dec 15, WID: [RP-151110](#))

Time budget: 1 TU

The approved TR 36.890 is available [here](#).

7.3.1 Organizational

- [R2-153377](#) Work plan for SC-PTM WI; Huawei (Rapporteur); discussion;
 - Huawei thinks that there will be RAN1 impact and we should inform RAN1 considering that they have no dedicated task for this.
 => Noted

7.3.2 SC-PTM Configuration and Operation

- [R2-153378](#) SC-PTM configuration and operation; Huawei, HiSilicon; discussion;
 - Proposal 1:
 - ALU thinks that the functionality of the SC-MCCH is quite different from the existing MCCH and we should discuss the mapping of logical channel to transport channel. Nokia Networks assumes that there should be a separate logical control channel for SC-PTM. QC thinks that we should consider separate logical control channels.
 - Samsung thinks that there is actually no need for an MCCH considering that there is anyway no MBSFN gain. Ericsson thinks that we have not discussed whether there is also the possibility for a synchronized scheme where one might actually have an MBSFN gain. ALU agrees that we don't need to model this as MCCH if there is no MBSFN gain. Huawei only considers single cell scheme for Rel-13. LG thinks that we agreed to use an MCCH anyway. Huawei thinks that the SIB is limited in size and therefore MCCH is a better choice.
 - Ericsson wonders whether the mapping of one Group-RNTI per TMGI could be provided by the MCE. Huawei thinks that for SC-PTM the idea was that the eNB configures this. But Huawei is fine to discuss this in the context of Service Continuity. QC agrees with Ericsson that the mapping should be done by the MCE.
 - Proposal 4:
 - LG would prefer to use the same mechanism as for MBSFN MBMS and e.g. use one of the 8 bits defined there. QC agrees with LG that we should maintain the similarity. The 8 bits could be used to address different service groups. ZTE thinks that for 1.4 MHz carrier we cannot send the change notification.
 - Nokia Networks wonders which DCI format Huawei intends to use and whether it would have RAN1 impact. Huawei intends to use an existing format.
 - ALU thinks that the UE would have to follow the NDI even if it is not scheduled to come according to user guide. Chairman thinks that the UE would consider the NDI to be toggled once the time has come according to the EGP. And from then onwards it would check whether the NDI toggles. Ericsson thinks that there would be some special cases where the UE would have to follow possible NDI changes. Huawei thinks that option 2 would not have that problem. Option 2 would however work also in 1.4 MHz carriers.
 - LG would not want to mix the HARQ operation (NDI) with the change on MCCH level.

- Ericsson would also prefer to maintain similarities with MBMS and would therefore prefer the option 1 outlined in the Huawei document. QC agrees.
- => FFS how to realize the change notification.

Proposal 5:

- LG would like to use SIB13. Huawei thinks that some fields in SIB13 are mandatory but not needed for SC-PTM. QC agrees that at least MBSFN area would need to be provided but of course not applicable to SC-PTM. Samsung wonders which additional impacts we get e.g. related to references in 36.304. Huawei thinks that there is just one reference in 36.304 to SIB13 and that would need to be updated accordingly. Huawei does not see other impacts. Nokia Networks would prefer a new SIB.

Proposal 7:

- ZTE thinks that the TM only needs to be configured per cell and not per service. QC thinks we could ask RAN1 about this. Huawei thinks we don't need to ask RAN1. Configuring the TM per service allows more flexibility and even allows supporting additional TMs in the future. LG would like to ask RAN1 about this.
 - ALU wonders whether it will be possible to schedule more than one Group-RNTI in a subframe. If we allow this and the eNB schedules multiple services with different TMs it is not clear that UEs could receive that. Huawei is not sure but thinks that if it is not possible, the NW could ensure that only services with the same TM are scheduled in the same subframe. Ericsson thinks that this would be important to find out.
- => We will ask RAN1 whether a UE is required to support reception of multiple services (G-RNTIs) with different TMs in one subframe.

Proposal 8:

- LG thinks that this would result in non-aligned periods for different services that a UE would need to follow. In MBMS, there was alignment ensured implicitly. Huawei thinks that this might e.g. allow spreading different services in time for cases where a UE cannot receive many services in the same TTI. Huawei thinks that already in MBSFN the UE might have to receive different PMCHs and hence support multiple periods. ALU thinks that the proposed scheme could still put too much restrictions on the scheduler. ALU would like to consider an MSI like mechanism which would increase the flexibility without increasing unnecessarily the power consumption. Huawei thinks that we used MSI since we did not have PDCCH. Now we have PDCCH and therefore don't need MSI.
- QC would like even more flexibility by re-using the connected mode DRX concept. Huawei thinks we should avoid such schemes since they are error prone. In case the UE misses an initial transmission in a scheduling period it may go to DRX and miss also subsequent transmissions. QC thinks it will be recovered in the next cycle.
- Samsung thinks we also need to take into account the synchronization across cells as discussed in the context of service continuity. LG agrees with that observation and points out that also synchronization with PMCH services should be ensured. Nokia Network thinks that we did not assume any synchronization across cells. LG thinks that the SYNC protocol will be re-used which allows ensuring alignment across cells.
- Huawei thinks that the proposed scheme would allow to configure either separate, non-overlapping scheduling occasions for different service and thereby maximize the sleep opportunities for UEs interested in only one service. Or the eNB may configure the same scheduling periods to multiple service and thereby get more scheduling flexibility at the expense of higher UE power consumption.
- QC thinks that this scheme would anyway not be flexibly for larger traffic bursts since the scheduling occasions would need to be re-configured. Chairman thinks that the scheme that Huawei suggests maintains more similarity with MBSFN. Huawei thinks that the unicast DRX scheme would result in more packet loss. Ericsson wonders whether there is any difference between IDLE and CONNECTED. Huawei thinks that the UE behaviour is supposed to be the same.
- ALU thinks that PDCCH reception is today coupled with DRX and since we use PDCCH for SC-PTM we have to carefully evaluate the resulting impact of the scheme that Huawei describes. LG agrees with Huawei that the broadcast reception on PDCCH is today not considered in the unicast DRX description.
- ALU wonders about HARQ retransmissions. Huawei thinks that there is no UL feedback and blind retransmissions don't seem too beneficial. But the eNB could anyway schedule those in the pre-configured scheduling occasions.
- ALU thinks that the flexibility of having different patterns per service may not be usable anyway since it is not predictable long in advance how many resources will be needed for

each service at which point in time. Therefore, practically, many or even all services may have to share the same pattern.

- QC would like to discuss this further until next meeting. LG agrees. ALU would also like to keep this open until next meeting. Huawei wants to keep their proposal 8 as working assumption. Chairman thinks that the proposal maintains a lot of commonality with MBSFN and also allows for a synchronized transmission as suggested by some companies.

Agreements

- 1 Confirm the following agreements for SC-PTM configuration and operation:
 - Use one Group-RNTI per TMGI.
 - Use SC-PTM specific MCCH to provide the SC-PTM configuration, e.g. TMGI to Group-RNTI mapping. The MCCH for SC-PTM is a new logical channel.
 - Use SC-RNTI to identify the PDCCH that contains the scheduling information for SC-MCCH.
 - System information contains the SC-MCCH configuration.
- 2 Only one SC-MCCH can be configured for one cell.
- 3 SC-MCCH supports repetition period, modification period and change notification.
- 5 Introduce a new SIB to accommodate the SC-MCCH configuration, which contains the SC-MCCH modification period, SC-MCCH repetition period and SC-MCCH subframe offset.
- 6 The value of SC-RNTI is predefined in the specification.
- 7 SC-PTM configuration comprises the list of MBMS services to be provided over SC-PTM, for each including:
 - TMGI and optional Session ID
 - Associated Group-RNTI
 - Transmission Mode (i.e. TM 1, 2 or 3)
- 8a The SC-PTM reception opportunities are independent of the unicast DRX scheme.

=> Noted

- ✉ **[91#22][LTE/SC-PTM] Scheduling pattern, DRX and Change Notification (Huawei)**
 - Discuss whether SC-PTM configuration also comprises the scheduling period, scheduling window and start offset which indicates the subframes where UE should monitor the associated Group-RNTIs on PDCCH.
 - Discuss whether the pattern is per service
 - Discuss whether more flexible schemes should be considered (e.g. period extends when valid PDCCH assignment detected...)
 - Discuss how change notification is provided
 - => Intended outcome: Email discussion report to next meeting

[R2-153246](#) Reception of DL-SCH carrying MTCH; LG Electronics Inc.; discussion;
[R2-153408](#) Link adaptation for SC-PTM transmission; Kyocera; discussion;
[R2-153187](#) Discussion on UL feedback for SC-PTM; Fiberhome Technologies Group; discussion;
[R2-153245](#) Reception of DL-SCH carrying MCCH; LG Electronics Inc.; discussion;
[R2-153390](#) SC-PTM configuration procedure; TD Tech; discussion;
 Above 5 Tdocs not treated

[R2-153409](#) Details of radio interface enhancements for SC-PTM transmission; Kyocera; discussion;
 [Withdrawn]

[R2-153777](#) Details of radio interface enhancements for SC-PTM transmission; Kyocera; discussion;
[R2-153472](#) Issues of SC-PTM configuration; Potevio Company Limited; discussion;
[R2-153635](#) SC-PTM Configuration; NEC; discussion;

[R2-153637](#) ROHC and ciphering for SC-PTM; NEC; discussion;
[R2-153781](#) SC-PTM Configuration; Qualcomm Incorporated; discussion;
 Above 5 Tdocs not treated

7.3.3 Service Continuity

[R2-153496](#) Service continuity aspects for SC-PTM; Ericsson; discussion;

Proposal 1:

- Huawei thinks that the unified G-RNTIs does not give a benefit in scenarios where a service is provided only in individual cells. Ericsson agrees but wonders whether this is the focus scenarios. Huawei thinks we should support SC-PTM to SC-PTM and SC-PTM to unicast. QC thinks that for the single cell scenario, the SI could indicate the services provided by the neighbour cell(s). Ericsson thought that this causes a lot of overhead and frequent updates in SIB. This is in particular since/if SC-PTM is supposed to be very dynamic. Huawei thinks that the information about service support in neighbour cells could be provided in SC-MCCH. Nokia Networks wonders how dynamic it will be. Chairman thinks that if we want to broadcast the neighbour cell information, the MCCH could indicate for each service a list of PCIs of the neighbour cells that provide the same service. If the MCE decides which cell provides which service, this could be handled by the MCE. ALU points out that if we do it this way, the PDCCH change notification shall not be triggered if only neighbour cell information changes. A UE receiving the service needs to read MCCH anyway and will get the update. UEs not receiving any service, don't need to re-read any MCCH. Huawei thinks that this would be a good scheme. QC thinks that we could do the same in SIB15. LG thinks the MCCH scheme would be good if MCE decides which cell provides which service. But otherwise, it could be difficult. Huawei thinks that with the proposed MCCH scheme, SIB15 would only ensure that UEs prioritize the right carrier. MCCH provides information about intra-frequency neighbour cells.
- ALU thinks we need to know which node selects MBSFN vs. SC-PTM. Huawei thinks that the MCE decides as we discussed in the SI.
- Ericsson thinks that for a connected mode solution the eNB would need to indicate the services of interest in the interest indication. But that would increase the complexity.

=> Noted

☒ **[91#23][LTE/SC-PTM] Service continuity (Huawei)**

-Discuss suitable means to realize service continuity

-Consider overhead in broadcast and e.g. update frequency

=> Intended outcome: Email discussion report to the next meeting

[R2-153410](#) Service continuity with SC-PTM; Kyocera; discussion;

[R2-153379](#) Service Continuity for the UE in RRC_CONNECTED; Huawei, HiSilicon; discussion;

[R2-153388](#) Service continuity solution for SC-PTM; TD Tech; discussion;

[R2-153411](#) Switching between SC-PTM and MBSFN; Kyocera; discussion;

[R2-153473](#) Accurate RAN counting mechanism; Potevio; discussion;

[R2-153712](#) Efficient Solution for SC-PTM Service Continuity; Nokia Networks; discussion;

[R2-153782](#) SC-PTM Service Continuity; Qualcomm Incorporated; discussion;

[R2-153818](#) SC-PTM service continuity in RRC CONNECTED; LG Electronics Inc.; discussion;

Above 8 Tdocs not treated

7.3.4 Other

[R2-153380](#) PDCCH search space for SC-PTM transmission; Huawei, HiSilicon; discussion;
 Not treated

[R2-153381](#) Draft LS to RAN1 on SC-PTM transmission; Huawei; LS out;

- Add the question regarding transmission modes (see above)

=> CB: [LTE/SC-PTM] An update draft LS may be provided in [R2-153949](#) (Huawei)

[R2-153949](#) Draft LS to RAN1 on SC-PTM transmission; Huawei; LS out;

✓ => The LS on SC-PTM transmission to RAN1 is approved in [R2-153965](#)

[R2-153382](#) Introduction of SC-PTM stage2; Huawei, HiSilicon; draftCR; 36.300; 13.0.0;

☒ **[91#13][LTE/SC-PTM] Two week: Running stage-2 CR (Huawei)**

-Capture the agreements from this meeting

=> Intended outcome: Endorsed running stage-2 CR

7.4 WI: Further LTE Physical Layer Enhancements for MTC

(LTE_MTCe2_L1-Core, leading WG: RAN1, started: Sep. 14, target: Dec. 15, WID: [RP-150492](#))

Time budget: 2 TU

7.4.1 Organizational

Incoming LSs

- [R2-153015](#) Response LS to [R2-151786](#) on Paging for MTC (R3-151311; contact: Alcatel Lucent); RAN3; LS in;
=> See draft reply LS in [R2-153939](#)
=> Noted
- [R2-153021](#) LS response to [R1-150919](#) = [R2-151007](#) on measurement performance for MTC (R4-153909; contact: Ericsson); RAN4; LS in;
=> Noted
- [R2-153051](#) LS response on measurement performance for Rel-13-MTC; from RAN4; Contact: Ericsson; LS in
=> Noted
- [R2-153007](#) Reply to LS to S3-151418 = [R2-152017](#) on C-IoT/MTC data transmission targets for security-related procedures (GP-150669; contact: Vodafone); GERAN; LS in;
=> Noted
- [R2-153052](#) Reply LS on PRACH coverage enhancement; from RAN4, to RAN1, CC: RAN2; Contact: Huawei
=> Noted
- [R2-153053](#) Reply LS to [R1-145455](#) on the maximum power of the new UE power class for MTC (R4-155349; contact: Ericsson) from RAN4
=> Noted
- [R2-153054](#) LS reply to [R2-152914](#) on measurements cell selection and reselection for MTC LC/EC (R4-155119; contact: Nokia Networks) RAN4
=> Noted

Outgoing LSs

- => CB: [MTC] A reply LS indicating that the approach outlined by RAN3 is feasible may be provided in [R2-153939](#). (ALU)
- [R2-153939](#) Draft Response LS to [R2-153015](#) on Paging for MTC to RAN3; Contact: ALU
✓ => The Response LS on Paging for MTC to RAN3 is approved in [R2-153966](#)

Running CRs

The technically endorsed running 36.300 CR from RAN2-90 is available in [R2-152933](#) (result of [90#10]).

- ✉ **[91#14][LTE/MTC] Two weeks: Running stage-2 CR (Ericsson)**
=> Intended outcome: Technically endorsed running 36.300 CR in [R2-153967](#); an LS to RAN1 with the attached running CR in [R2-153968](#)

RRC

[R2-153627](#) Running RRC CR for Rel-13 low complexity and coverage enhanced UEs; Ericsson; draftCR; 36.331; 12.5.0;
Not treated

[R2-153618](#) Running RRC CR for Rel-13 low complexity and coverage enhanced UEs; Ericsson; CR; 36.331; 12.6.0; 1888; B;

[Withdrawn]

7.4.2 SIB

Including output of [90#23][LTE/MTC-LC] SIB Contents (Intel)

- [R2-153277](#) Email discussion summary report on [90#23][LTE/MTCe2] SIB Contents; Intel Corporation; discussion;
 Proposal 1:
 => Aspects listed under proposal 1 are agreed
 => Exception 1.6: Can decide later based on ASN.1 whether to exclude values 1, 2 and 5ms.
 - 1.9: Huawei thinks that this will allow for very low change rate of SIB. Ericsson would also suggest to discuss this further. Samsung also isn't sure whether there is really a gain in extending the time so much. Gemalto thinks it would be useful if the UE could assume longer validity. MediaTek thinks we should first understand the probably change rate. Also, we need to decide whether this covers the PSM time. MediaTek thinks so.
 => Exception 1.9: Discuss further whether the validity time can be increased (impact on required change rate) and whether this requires an increase of the value tag range
 - 1.15: Intel thinks that EAB does not need to be supported. Huawei thinks we should support also EAB and if we really have to drop one, we should drop ACB. Samsung agrees with Huawei that EAB should be supported. ALU also agrees.
 => Proposal 1.15: In addition to ACB, EAB is also supported with the same conditions as in legacy.
 => Clarification: 1.21: frequency refers to the periodicity
 Proposal 1.25
 - Huawei thinks that RAN1 should inform us about new parameters.
 => Exception 1.25: This is only a working assumption subject to decision by RAN1.
 Proposal 2.1:
 - Samsung thinks that we can wait for RAN1 decision. CATT thinks that we also need to think about TDD.
 => Continue discussion
 Proposal 2.2
 - Huawei thinks that to maintain commonality with existing specification, we should support those modes.
 => CSFB, SSAC and ACB skip are needed for Rel-13 LC/EC SIB supporting the corresponding functionality (conditionally mandatory as today)
 => Noted

- [R2-153616](#) RRC details for Rel-13 low complexity and coverage enhanced UEs; Ericsson; discussion;
 => Noted

- [R2-153677](#) Narrowband SIB1x Contents; Alcatel-Lucent Telecom Ltd; discussion;

- Discussion:
 - ALU thinks that the savings by a critical extension would be larger than what Ericsson calculated but would like to check this further. Ericsson would be fine with optimizations if they bring a significant benefit. Intel thinks that we should re-use the fields of SIB1 as much as needed but create a new SIB1 message. Sony thinks it requires a very careful trade-off between overhead and specification maintenance.
 - ALU wonders whether it would be an option to inherit the current SIB1 extensions into a new SIB1bis. Ericsson thinks that the extensions are a reason why there is little benefit of creating a new SIB1bis structure: As soon as we add one non-critical extension to that new SIB1bis, we get that overhead anyway. MediaTek does not have a strong view and agrees with Sony that one has to do a trade-off. Huawei supports Ericsson's proposal to re-use the existing structure.
 - Ericsson thinks that due to the limited granularity of the SIB1bis size that can be addressed in MIB, there will anyway be padding overhead. Therefore, an optimization of a few bits in SIB1bis will likely not result in any saving.

Working Assumption

- 1 Create an extension to BCCH-DL-SCH message class.
- 2 Denote the field and type identifiers as systemInformationBlockType1bis-r13 and SystemInformationBlockType1bis-r13 respectively.
- 3 Use SIB1 structure for SIB1bis.
- 4 The UE shall consider all fields with the same identifier name as the same field even if

the fields are present in different SIB instances.

- 5 Whenever the UE acquires SIB or SIB1bis new field value shall replace the old one and absent field shall be released if specified as Optional Release (OR).
- 6 If a mandatory present field is not needed for SIB1bis, the UE shall ignore it and delete any stored value of the field.

=> Noted

[R2-153795](#)

System Information Change; MediaTek Inc.; discussion;

Proposal 1:

- Samsung wonders if a paging based mechanism is really efficient for extended coverage. LG thinks that a notification mechanism is useful but agrees that a paging mechanism may be inefficient. MediaTek considered that the UE could receive a notification ones it wakes up but agrees that the existing paging record may not be efficient for this purpose. Ericsson thinks that the need for a notification mechanism comes from the possibility that e.g. the paging configuration changes and then a UE would not be reachable anymore.

Proposal 2:

- Intel would prefer to leave this to RAN1 who is currently discussing this. Ericsson explains that RAN1 has a working assumption that there should be a M-PDCCH for scheduling the paging message.

Proposal 3

- Intel clarifies that this has already been agreed as part of the email discussion.

Proposal 5

- Sony thinks that an alternative would be to release the UE to IDLE. This might be worth considering that it does not happen often. Ericsson agrees with Sony and thinks that the NW can decide whether the change requires releasing the UE immediately or whether it can still complete its data transfer. Huawei agrees that such a complex solution is not needed. MediaTek would also be OK to release the UE to IDLE. CATT agrees that the UE could be released to IDLE and be required to read SI only in IDLE.
- Ericsson thinks that the NW could also provide updated SIB1/2 content to the UE via dedicated signalling.

Agreements

- 1 Both value tag and Notification/Paging mechanisms are supported for system information change for LC UEs and UEs in EC.
- 2 RAN2 assumption, for RAN1 to confirm: It is possible to notify the IDLE UE of a system information update using the control channel (M-PDCCH) while avoid sending a paging record on the shared channel.
- 5 The UE is not required to detect SIB change while being in RRC CONNECTED. The NW may release the UE to IDLE if it wants the UE to acquire changed SIB or provide the updated SIB by dedicated signalling.

=> Noted

[R2-153372](#)

MTC SIB transmission; Huawei, HiSilicon; discussion;

[R2-153711](#)

SIB for Rel-13 low complexity and coverage enhanced UEs; Ericsson; discussion;

[R2-153247](#)

SI change notification for Rel-13 MTC UEs; LG Electronics Inc.; discussion;

[R2-153276](#)

Open aspects on system information messages for Release-13 low complexity UEs and enhanced coverage; Intel Corporation; discussion;

[R2-153335](#)

Further Considerations on SIB Transmission; CATT; discussion;

[R2-153638](#)

Access barring mechanisms for MTC UEs; NEC; discussion;

[R2-153641](#)

SIB content relevant; NEC; discussion;

[R2-153716](#)

MIB for Rel-13 low complexity and coverage enhanced UEs; Ericsson; discussion;

[R2-153756](#)

MIB and SIB Considerations for MTC Low Cost and Enhanced Coverage; Fujitsu; discussion;

[R2-153778](#)

SIB1 scheduling for Rel-13 MTC; Samsung Electronics Co., Ltd; discussion;

Above 10 Tdocs not treated

7.4.3 Random Access

[R2-153717](#) Random access for Rel-13 low complexity and enhanced coverage UEs; Ericsson; discussion; Proposal 1:

- ZTE wonders whether this means that the UE has to follow the same repetition pattern and frequency allocation than a LC UE in EC. ZTE thinks that it is then not possible to determine based on RA whether this is a normal complexity UE or a LC UE. Ericsson agrees and thinks that the NW could differentiate only later. ZTE thinks that this contradicts the Observation 1 in the paper.

Proposal 2:

- Samsung thinks that the criteria could be left up to UE implementation.

Proposal 8:

- CATT, Nokia Networks, Huawei and Samsung think that the repetition factor should be derived from the RAR or PRACH repetition level rather than being scheduled in the UL grant in RAR. Ericsson thinks that we lose flexibility. Huawei thinks we don't need this flexibility for Msg3. LG thinks that RAN1 is still discussing the resource allocation.

Agreements

- 1 Rel-13 "normal complexity" UEs in enhanced coverage use the same random access resources as a Rel-13 low complexity UEs in the same enhanced coverage level.
 - 2 In addition to PRACH resource sets and corresponding PRACH repetition factor (PRACH repetition number), system information for Rel-13 LC/CE UEs should include...
 1. Selection criterion (measurement threshold, pending RAN1/4 confirmation) for determining the initial PRACH coverage level, and
 2. Number of maximum preamble transmission attempts per coverage level.
 - 3 Confirm the following RAN1 agreement: RAR time/frequency resource and repetition factor (either for PDSCH or M-PDCCH) are derived from the used PRACH resources.
 - 4 For Rel-13 UEs in extended coverage, RA response window duration is extended based on the RAR repetition factor.
 - 6 Uplink grant in RAR is used for the initial HARQ transmission of Msg3 for Rel-13 low complexity and coverage enhanced UEs.
 - 7 Support HARQ with repetitions for all unicast transmissions after RAR.
- FFS whether the repetition factor is also in the RAR or provided/derived by other means

=> Noted

- ✉ **[91#24][LTE/MTC] Timer handling for extended coverage (Ericsson)**
-Discuss how MAC and RRC timers relevant for RA and connection establishment need to be extended for UEs in extended coverage.
=> Intended outcome: Email discussion summary to the next meeting

[R2-153673](#) Considerations on RACH for LC-MTC; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;

[R2-153278](#) Considerations on random access procedure for Release-13 low complexity UEs and enhanced coverage; Intel Corporation; discussion;

[R2-153357](#) Consideration on RACH procedure in coverage enhancement; Huawei, HiSilicon; discussion;

[R2-153451](#) Random Access procedure for Rel-13 MTC UE; NEC Corporation; discussion;

[R2-153485](#) Consideration on random access for R13 eMTC ; CATT; discussion;

[R2-153486](#) Consideration on random access for further MTC enhancement; ASUSTEK COMPUTER (SHANGHAI); discussion;

[R2-153607](#) Random access procedure for enhanced coverage UEs; Nokia Networks; discussion;

- [R2-153736](#) Remaining open issues related to Random Access procedure; INTERDIGITAL COMMUNICATIONS; discussion;
[R2-153802](#) RAR transmission for Rel-13 MTC; KT Corp.; discussion;
[R2-153832](#) Random Access considerations for Rel13 eMTC; QUALCOMM CDMA Technologies; discussion;
 Above 10 Tdocs not treated

7.4.4 Paging

- [R2-153279](#) Paging for Release-13 low complexity UEs and enhanced coverage; Intel Corporation; discussion;
 Proposal 4:
- Sierra Wireless is concerned that with this proposal all normal complexity UEs supporting extended coverage would utilize the resources intended for LC and EC UEs. Intel thinks that the alternative would be that for these UEs the NW first pages on the legacy paging resources and afterwards on the LC/EC paging resources. Chairman thinks that this would only work if the NW expects the UE to be in normal coverage. But if the NW expects the UE to be in extended coverage, it would page the UE with the new mechanism in the new resource while the UE monitors the legacy resource.

Agreements

- 1 The number of M-PDCCH repetitions corresponding to each coverage level will be known to the UE, for example based on information broadcast in system information
 - 2 For paging, the M-PDCCH repetition pattern in both time and frequency domain is determined irrespective of the UEs coverage extension level.
 - 3 RAN2 agrees as a baseline that it is acceptable for a UE to receive paging based only on its current coverage level. Final confirmation of UE behaviour can be made once RAN4 have concluded whether a UE can make a reliable estimate of its current coverage level.
- FFS: Think more about....
 A non-LC UE capable of EC operation but in normal coverage on a cell that supports EC, monitors ...
 a) paging according to the new paging mechanism introduced for Rel-13 LC UEs and EC if the NW expects the UE to be in extended coverage,
 b) legacy paging if the NW expects the UE to be in normal coverage
- 5 A non-LC UE capable of EC operation and in normal coverage on a cell that does not support EC (but may support Rel-13 LC UEs), monitors paging according to the legacy paging mechanism.
 - 6 Starting subframes of the Rel-13 LC and EC paging mechanism can be determined in the same way as the paging occasion in the legacy paging mechanism.
 - 7 Repetitions pattern in both time and frequency should be determined and specified by RAN1.
 - 8 As part of the ongoing work, RAN2 should consider limiting the shorter DRX cycles and supporting extended DRX in combination with enhanced coverage operation.

=> Noted

- [R2-153737](#) Remaining Issues on Paging for MTC UE ; INTERDIGITAL COMMUNICATIONS; discussion;
[R2-153449](#) PF and PO for Rel-13 low complexity MTC; Samsung Telecommunications; discussion;
[R2-153143](#) Mobility and power considerations for extended coverage paging; QUALCOMM CDMA Technologies; discussion;
[R2-153337](#) Further Considerations on Paging for Coverage Enhancement UEs; CATT; discussion;
[R2-153371](#) MTC Paging transmission; Huawei, HiSilicon; discussion;
[R2-153448](#) Paging reception procedure in the enhanced coverage mode; Samsung Telecommunications; discussion;

- [R2-153452](#) Coverage enhancement information for MTC paging; NEC Corporation; discussion;
 - [R2-153640](#) Paging transmission to Rel-13 MTC UEs ; NEC; discussion;
 - [R2-153718](#) Paging mechanism for Rel-13 low complexity and coverage enhanced UEs; Ericsson; discussion;
 - [R2-153719](#) SI update for Rel-13 low complexity and coverage enhanced UEs; Ericsson; discussion;
 - [R2-153835](#) Further considerations on paging for Rel.13 eMTC; QUALCOMM CDMA Technologies; discussion;
- Above 11 Tdocs not treated

7.4.5 Mobility Support

- ☒ **[91#25][LTE/MTC] Mobility Support (MediaTek)**
 - continue discussion on mobility support also taking into account recent input from RAN4
 - Can address IDLE and CONNECTED mode
- => Intended outcome: Email discussion report to next meeting**

- [R2-153127](#) Cell Reselection for Enhanced Coverage; Sony; discussion;
 - [R2-153307](#) Connected mode mobility support for Rel.13 eMTC; QUALCOMM CDMA Technologies; discussion;
 - [R2-153068](#) MTC cell re-selection and mobility implications; Gemalto N.V.; discussion;
- [Moved from 7.4.2 to 7.4.5]
- [R2-153358](#) Mobility Enhancement in Emtc; Huawei, HiSilicon; discussion;
 - [R2-153447](#) Cell Selection/Reselection for Rel-13 low complexity MTC; Samsung Telecommunications; discussion;
 - [R2-153515](#) Further discussion on cell selection reselection parameters in EC; HTC Corporation; discussion;
 - [R2-153606](#) Cell reselection for coverage enhanced UEs; Nokia Networks; discussion;
 - [R2-153614](#) Connected mobility for Rel13 UEs in EC mode; Nokia Networks; discussion;
 - [R2-153615](#) RLM/RLF for Rel13 low complexity UE or/and UE in EC mode; Nokia Networks; discussion;
 - [R2-153713](#) Connected mode Mobility for LC and CE; Ericsson; discussion;
- Above all Tdocs not treated

7.4.6 Other

Including output of [90#20][LTE/C-IoT] Data transmission targets for security-related procedures (Vodafone)

Security

- [R2-153518](#) Report of email discussion [90#20][LTE/C-IoT] Data transmission targets for security-related procedures ; Vodafone GmbH; report; Report of e-mail discussion [90#20];

[Moved from 7.4.1 to 7.4.6]

=> Noted

- [R2-153524](#) [draft] Reply LS on C-IoT/MTC data transmission targets for security-related procedures; Vodafone GmbH; LS out;

[Moved from 7.4.1 to 7.4.6]

- Intel thinks we should not attach the report as it is RAN2 internal. Ericsson agrees.
- Intel thinks that for answer 1 it should be clarified that the signaling overhead related to security procedures should be reduced. Ericsson agrees and thinks it is difficult to conclude whether 10% is good or not. Furthermore, the definition of “security procedures” is somewhat vague and unclear. Vodafone thinks we should clarify the 10%. ALU thinks that RAN2 could just say “the less the better” rather than a percentage. Vodafone thinks that one particular traffic model was discussed for which 10% should be targeted. Intel thinks that the numbers depend on a lot of factors.
- Intel thinks we should not add a reference to TR45.820 as that has nothing to do with RAN2 at this point in time.

=> CB: [MTC] An updated draft reply LS on C-IoT/MTC data transmission targets for security-related procedures may be provided in [R2-153940](#) (Vodafone)

- [R2-153940](#) [draft] Reply LS on C-IoT/MTC data transmission targets for security-related procedures; Vodafone GmbH; LS out;

=> Change to “As one example, the overhead due to AS security...”

- => Change red font to black
- ✓ => With this change the LS on C-IoT/MTC data transmission targets for security-related procedures to SA3 is approved in [R2-153969](#)

Other

- [R2-153721](#) HARQ and TTI bundling for Rel-13 low complexity and coverage enhanced UEs; Ericsson; discussion;
- Intel thinks that 2, 3, 5, 7 have already been agreed. In particular the possibility to pre-configure several repetition levels by RRC and to indicate the actual repetition level by M-PDCCH. The timing relations should be specified by RAN1. But MAC would initiate the multiple subsequent transmissions attempts belonging to a bundle.
 - Ericsson thinks we should discuss the MAC operation, i.e., whether we still want to support non-adaptive HARQ or whether all retransmissions have to be triggered by a new UL grant. Ericsson and Intel indicate that there will not be a PHICH but there may be a M-PDCCH DCI supporting non-adaptive retransmissions. This is still FFS in RAN1. Ericsson thinks that if there is this PHICH-like functionality on M-PDCCH, we should discuss whether MAC assumes that the UL TB has been ACKed or NACKed in case of absence of this indication. QC thinks that if we do not use this PHICH like signal to trigger retransmissions, we could also use asynchronous HARQ in UL. QC thinks that this would also allow changing the repetition level between transmissions and retransmissions. QC, Ericsson and Huawei think that we don't need non-adaptive retransmissions. Chairman thinks that all retransmissions should be scheduled explicitly by an UL grant. In absence of an UL grant the UE should assume that the process was successfully received, i.e., not trigger a retransmission by itself. Intel agrees but thinks that RAN1 is also discussing it.
- => Noted

[R2-153280](#) Timer impact for Release-13 low complexity UEs and enhanced coverage; Intel Corporation; discussion;

[R2-153281](#) UE battery lifetime evaluation for MTC/C-IoT use cases; Intel Corporation; discussion;

[R2-153359](#) Consideration on the simultaneous transmission for MTC Ues; Huawei, HiSilicon; discussion;

[R2-153446](#) DRX enhancements for Rel-13 low complexity MTC; Samsung Telecommunications; discussion;

[R2-153789](#) CE level change procedure; LG Electronics Inc.; discussion;
Above 5 Tdocs not treated

7.5 WI: ProSe enhancements

(LTE_eD2D_Prox-Core, leading WG: RAN2, started: Dec. 14, target: Dec. 15, WID: [RP-150441](#))

Time budget: 3 TU

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

Incoming LSs

Discovery

- [R2-153009](#) LS on public safety discovery ([R1-152422](#); contact: Qualcomm); RAN1; LS in;
- [R2-153011](#) LS on Type 1 discovery for partial and outside network coverage ([R1-153667](#); contact: Qualcomm); RAN1; LS in;
- [R2-153035](#) Reply LS to S2-150691 = [R2-151011](#) on public safety discovery (S3-151524; contact: Qualcomm); SA3; LS in;
- [R2-153010](#) Reply LS to S3-151524 = on public safety discovery from SA3 ([R1-153555](#); contact: Qualcomm); RAN1; LS in;
- [R2-153025](#) LS reply to S3-151524 = [R2-153035](#) on Public Safety discovery (S2-151813; contact: Qualcomm); SA2; LS in;
- [R2-153026](#) Reply LS to C1-151597 = [R2-151021](#) on network feature support for ProSe Discovery (S2-152064; contact: Qualcomm); SA2; LS in;
- [R2-153034](#) LS on ProSe coarse proximity estimation based on path loss (S2-152699; contact: T-Mobile); SA2; LS in;

Communication

[R2-153024](#) LS reply to [R2-151789](#) on ProSe Priorities (S2-151810; contact: Intel); SA2; LS in;
[R2-153047](#) Reply LS reply to S2-151810=[R2-153024](#) on ProSe Priorities (S1-152748; Contact: Qualcomm); SA1; LS in;

[Late]

=> Noted

[R2-153030](#) LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay (S2-152695; contact: Qualcomm); SA2; LS in;

7.5.1 UE-to-Network Relays

Including output of email discussion [90#25][LTE/ProSe] Relay UE initiation, discovery and selection/re-selection (ZTE)

7.5.1.1 Relay UE initiation/discovery

Relay UE initiation (e.g. network control / criteria for initiation / supported RRC modes)

Relay UE discovery (in coverage): The level of eNB control of discovery transmission initiation (Model B) (if any)

[R2-153239](#) Considerations on Relay initiation; Huawei, HiSilicon; discussion;
[R2-153254](#) Discussion on relay initialization procedure; Shenzhen Coolpad Technologies; discussion;
[R2-153351](#) Consideration of initiation of ProSe UE-to-Network Relays; Kyocera; discussion;
[R2-153426](#) Network control on relay UE initiation and activation; ITRI; discussion;
[R2-153462](#) Initiation of ProSe UE-to-Network relay; Ericsson; discussion;
[R2-153476](#) Considerations on supported RRC modes for relay discovery; Potevio Company Limited; discussion;
[R2-153550](#) Discussion on UE-to-Network Relay initiation; General Dynamics UK Limited; discussion;
[R2-153552](#) Behaviour of the UE-to-Network relay; General Dynamics UK Ltd; discussion;
[R2-153572](#) Consideration on relay UE initiation and release process; SHARP Corporation; discussion;
[R2-153626](#) Relay initiation and (re)selection for Public Safety UE; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;
[R2-153672](#) Relay Initiation; CATT; discussion;
[R2-153675](#) Signalling considerations for relay UE initiation; Intel Corporation; discussion;
[R2-153678](#) Further discussion on some relay related aspects; Samsung; discussion;

[Late]

[R2-153732](#) Relay UE initiation and discovery; Qualcomm Incorporated; discussion;
[R2-153734](#) Running stage 2 CR TS 36.300 to capture agreement on eD2D ; Qualcomm Incorporated; draftCR; 36.300; 13.0.0;
[R2-153744](#) MCPTT service over relays: In-coverage to Out-of-coverage transition; BlackBerry UK Limited; discussion;
[R2-153747](#) MCPTT service over relays: Out-of-coverage to In-coverage transition; BlackBerry UK Limited; discussion;
[R2-153749](#) In coverage MCPTT UEs and UE-to-Network relaying; BlackBerry UK Limited; discussion;
[R2-153764](#) Report of email discussion [90#25][LTE/ProSe] Relay UE initiation, discovery and selection/re-selection; ZTE (rapporteur); report; Report of e-mail discussion [90#25];
[R2-153765](#) Discussion on relay initiation and discovery; ZTE, Ericsson, Intel, Interdigital; discussion;
[R2-153786](#) Initiation of relay function; LG Electronics Inc.; discussion;
[R2-153826](#) Inter-cell relay selection; LG Electronics Inc. ; discussion;

7.5.1.2 Relay UE selection/re-selection

Relay UE selection / re-selection (in coverage): The level of eNB control in relay selection (if any).

Is Uu link quality used for selection/reselection purposes? Criteria for selection/reselection.

Can the relay UE trigger reselection?

Level of eNB control for in-coverage UEs relay selection?

[R2-153106](#) Considerations on trigger condition for relay reselection; Fujitsu; discussion;
[R2-153107](#) The remote UE access to relay from neighbor cell; Fujitsu; discussion;

[R2-153128](#) Relay Measurements and Selection/Reselection; Sony; discussion;
[R2-153282](#) Measurement on PSDCH; Intel Corporation; discussion;
[R2-153283](#) Radio quality criteria for the (re)selection of the relay UE; Intel Corporation; discussion;
[R2-153403](#) Procedure of Relay-UE selection and reselection; Huawei, HiSilicon; discussion;
[R2-153475](#) Discussion on relay UE selection and re-selection; Potevio; discussion;
[R2-153481](#) Relay UE selection in coverage; Ericsson; discussion;
[R2-153482](#) Sidelink measurements for Relay Selection; Ericsson; discussion;
[R2-153487](#) Discussions on L3-based UE-to-Network Relays communication procedure; CATT; other;
 [Withdrawn]

[R2-153488](#) Discussions on L3-based UE-to-Network Relays communication procedure; CATT; discussion;
[R2-153554](#) Relay selection for the in-coverage remote UE; General Dynamics UK Ltd; discussion;
[R2-153597](#) Relay selection criteria for public safety discovery; Ericsson; discussion;
[R2-153598](#) Transport channel for public safety discovery; Ericsson; discussion;
[R2-153714](#) Relay Selection while in E-UTRAN coverage; Nokia Networks; discussion;
[R2-153751](#) Relay UE Selection and Reselection Mechanisms; Qualcomm Incorporated; discussion;
[R2-153766](#) Discussion on Remote UE's Relay discovery, selection and reselection; ZTE, Ericsson, Interdigital, Telecom Italia; discussion;
[R2-153808](#) Relay Selection Issues; CATT; discussion;
[R2-153830](#) Relay Selection Process and Radio Condition Evaluation; LG Electronics Inc.; discussion;

7.5.1.3 Connection establishment

Once relay selection is performed, what is the level of eNB control for connection establishment for out-of-coverage UEs (e.g. does the eNB authorise remote UEs)? What information is required to be transmitted to the eNB?

For in-coverage UEs, when is relay connection establishment done and what is eNB involvement?

AS involvement (UE and/or eNB) with NAS in deciding "when" to switch "allowed traffic" (as determined by higher layers) between Uu and PC5 (if any).

[R2-153241](#) UE-to-Network Relay connection establishment; Huawei, HiSilicon; discussion;
[R2-153261](#) Simultaneous Uu and PC5 link and SRB DRB mapping; PANASONIC R&D Center Germany; discussion;
[R2-153461](#) Management of the PC5 link between the Relay UE and the Remote UE; Ericsson; discussion;
[R2-153676](#) Authorization of out of coverage remote UEs for UE-to-Network relay; Intel Corporation; discussion;
[R2-153731](#) Connection establishment for relay operation; Qualcomm Incorporated; discussion;
[R2-153767](#) Discussion on the traffic switch between Uu and PC5; ZTE; discussion;
[R2-153768](#) eNB involvement in remote UEs authorization and connection establishment; ZTE; discussion;
[R2-153769](#) Considerations on the ProSe Layer-2 ID conflict issue; ZTE; discussion;
[R2-153787](#) When to switch data transmission path; LG Electronics Inc.; discussion;
[R2-153788](#) Connection establishment of remote UE; LG Electronics Inc.; discussion;
[R2-153803](#) Analysis on the Knowledge of Remote UE by eNB; CATT; discussion;
[R2-153822](#) Connection Establishment for UE-to-Network Relays; INTERDIGITAL COMMUNICATIONS; discussion;

7.5.1.4 Other

Resource allocation, one-to-one communication, etc

[R2-153098](#) MAC PDU Addressing for Communication with UE-to-Network Relay; Samsung Electronics Co., Ltd; discussion;
[R2-153100](#) Resource Allocation Aspects for UE-to-Network Relay; Samsung Electronics Co., Ltd; discussion;
[R2-153129](#) Resource Allocation for Remote UE ; Sony; discussion;
[R2-153142](#) Consideration of bearer mapping for ProSe UE-to-Network Relays; Kyocera Corporation; discussion;
[R2-153235](#) Inter-frequency scenario and requirements for UE-Network relay; Huawei, HiSilicon; discussion;
[R2-153252](#) Discussion on radio resource allocation for ProSe UE-to-NW relay; Shenzhen Coolpad Technologies; discussion;
[R2-153284](#) Considerations on relay UE operation for packet relaying; Intel Corporation; discussion;
[R2-153287](#) Support of one-to-one communication; Intel Corporation; discussion;

- [R2-153300](#) Public safety perspectives on GCSE_LTE latency requirements for evaluating UE-Network Relay solutions; U.S. Department of Commerce; discussion;
- [R2-153404](#) Addressing for ProSe one-to-one communication; Huawei, HiSilicon; discussion;
- [R2-153555](#) Potential solutions for one-to-one communication addressing; General Dynamics UK Ltd; discussion;
- [R2-153575](#) QoS control in sidelink communications; Beijing Xinwei Telecom Techn.; discussion;
- [R2-153681](#) Considerations on Layer-2 ID Collision; CATT; discussion;
- [Withdrawn]
- [R2-153682](#) Considerations on Layer-2 ID Collision; CATT; discussion;
- [R2-153770](#) Priority in UE-to-Network relay; ZTE; discussion;
- [R2-153805](#) Missing Packet due to Half-duplex in PC5; CATT; discussion;
- [R2-153806](#) Protocol Stacks for UE-to-Network Relay; CATT; discussion;
- [R2-153809](#) Layer-2 addressing for ProSe one-to-one communication; ETRI; discussion;
- [R2-153827](#) NAS operation by remote UE; LG Electronics Inc.; discussion;
- [R2-153829](#) Prioritization of PC5-S; LG Electronics Inc. ; discussion;

7.5.2 ProSe discovery in partial- and outside network coverage

RAN2 aspects of supporting out-of-coverage discovery

- [R2-153092](#) RAN2 Aspects of ProSe Discovery in Partial & OOC; Samsung Electronics Co., Ltd; discussion;
- [R2-153286](#) Support of public safety discovery in partial- and out-of-coverage; Intel Corporation; discussion;
- [R2-153592](#) Differentiation between PS discovery and non-PS discovery; Ericsson; discussion;
- [R2-153596](#) Out of coverage discovery; Ericsson; discussion;
- [R2-153599](#) Handling collisions between communication and discovery resources; Ericsson; discussion;
- [R2-153665](#) Discussion on ProSe Discovery in Partial and Outside Network Coverage; CATT; discussion;
- [R2-153742](#) Out-of-Coverage discovery for Public Safety; Qualcomm Incorporated; discussion;
- [R2-153771](#) RAN2 aspects of supporting out-of-coverage discovery; ZTE; discussion;

7.5.3 ProSe discovery for inter-carrier and inter-PLMN

- [R2-153091](#) Inter Carrier Discovery; Samsung Electronics Co., Ltd; discussion;
- [R2-153093](#) Timing Synchronisation for Inter Carrier Discovery Transmission; Samsung Electronics Co., Ltd; discussion;
- [R2-153094](#) Prioritisation Rule for Inter Carrier Discovery Transmission; Samsung Electronics Co., Ltd; discussion;
- [R2-153095](#) Handling Power Limitation during Inter Carrier Discovery Transmission; Samsung Electronics Co., Ltd; discussion;
- [R2-153096](#) Signaling Aspects of Gap for Discovery Reception; Samsung Electronics Co., Ltd; discussion;
- [R2-153097](#) Signaling Aspects of Gap for Discovery Transmission; Samsung Electronics Co., Ltd; discussion;
- [R2-153151](#) The uncoordinated and coordinated inter-PLMN ProSe discovery; ITRI; discussion;
- [R2-153236](#) Impact analysis of sidelink gap; Huawei, HiSilicon; discussion;
- [R2-153242](#) Discovery transmission on inter-carriers of intra-PLMN and inter-PLMN; Huawei, HiSilicon; discussion;
- [R2-153348](#) Sidelink gap details for direct discovery; Kyocera; discussion;
- [R2-153370](#) Possible issues in intra-PLMN and coordinated inter-PLMN; Kyocera; discussion;
- [R2-153424](#) Carrier Prioritization for Type 1 Inter-Carrier Discovery ; ITRI; discussion;
- [R2-153456](#) CN Impacts of inter-PLMN sidelink discovery transmission; Huawei, HiSilicon; discussion;
- [R2-153586](#) Inter-PLMN coordination for discovery transmission; TELECOM ITALIA S.p.A.; discussion;
- [R2-153594](#) Direct Discovery on non-PCell carriers; Ericsson; discussion;
- [R2-153595](#) On D2D gaps; Ericsson; discussion;
- [R2-153668](#) LS on ProSe authorization for inter-PLMN; CATT; LS out;
- [R2-153669](#) Discussion on Prose Authorization for Inter-PLMN; CATT; discussion;
- [R2-153715](#) Inter carrier ProSe discovery; Nokia Networks; discussion;
- [R2-153738](#) Draft LS on Intra-PLMN & Inter-PLMN D2D discovery; Qualcomm Incorporated; LS out;
- [R2-153753](#) Inter Frequency and Inter PLMN Discovery; Qualcomm Incorporated; discussion;
- [R2-153772](#) On ProSe Discovery for inter-frequency and inter-PLMN; ZTE; discussion;
- [R2-153801](#) Inter-carrier and Inter-PLMN Discovery issues; CATT; discussion;
- [R2-153824](#) Cell selection and measurements for non-PCel discovery; LG Electronics Inc. ; discussion;

- [R2-153825](#) Discovery on non-primary frequency; LG Electronics Inc. ; discussion;
[R2-153831](#) sidelink gap for discovery; LG Electronics Inc.; discussion;
[R2-153848](#) Draft LS on inter-PLMN sidelink discovery transmission Huawei, HiSilicon LS out [Late]
- [R2-153850](#) Signaling Aspects of Gap for Discovery Reception Samsung Electronics Co., Ltd discussion

7.5.4 Group priorities for ProSe communication

Mapping between the logical channel priority and LCG .

Solutions to address prioritization in case of autonomous resource selection (e.g. solutions other than static one-to-one association between priorities and resource pools).

Need/requirement for pre-emption.

Are multiple transmissions to different destination IDs allowed within one SA period?

- [R2-153099](#) Priority Handling for D2D Communication; Samsung Electronics Co., Ltd; discussion;
[R2-153101](#) ProSe Per-Packet Priority for DL traffic relayed by UE-to-Network relay; Samsung Electronics Co., Ltd; discussion;
- [R2-153164](#) Bearer mapping in UE-Network Relay; LG Electronics Inc.; discussion;
[R2-153165](#) Providing PPP information to Relay UE; LG Electronics Inc.; discussion;
[R2-153166](#) BSR and LCP supporting ProSe priorities; LG Electronics Inc.; discussion;
[R2-153238](#) Priority handling based on ProSe Per Packet Priority; Huawei, HiSilicon; discussion;
[R2-153257](#) Buffer status reporting/priority handling for ProSe communication; PANASONIC R&D Center Germany; discussion;
- [R2-153258](#) LCP procedure for ProSe communication; PANASONIC R&D Center Germany; discussion;
[R2-153259](#) Multiple SA transmissions during one SC period; PANASONIC R&D Center Germany; discussion;
- [R2-153260](#) Resource pool selection for the autonomous resource allocation mode; PANASONIC R&D Center Germany; discussion;
- [R2-153285](#) Priority handling for UE autonomous resource selection; Intel Corporation; discussion;
[R2-153295](#) Realizing off-network MCPTT priority and associated pre-emption on PC5; U.S. Department of Commerce; discussion;
- [R2-153480](#) Impact of PPP on user plane; Ericsson; discussion;
[R2-153628](#) Priority handling for ProSe Communication; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;
- [R2-153670](#) Priority for ProSe Communication; CATT; discussion;
[R2-153720](#) Prioritization of sidelink transmissions with pre-emption via resource pools; SHARP; discussion;
- [R2-153729](#) Priority handling for Sidelink Direct Communication; Qualcomm Incorporated; discussion;
[R2-153739](#) Priorities and Pre-emption for D2D communications; INTERDIGITAL COMMUNICATIONS; discussion;
- [R2-153741](#) Draft response LS on D2D priority handling ; Qualcomm Incorporated; LS out;
[R2-153743](#) Draft Response LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay; Qualcomm Incorporated; LS out;
- [R2-153773](#) Issues on Priority Handling; ZTE; discussion;
[R2-153828](#) Support of pre-emption; LG Electronics Inc.; discussion;

7.5.5 Other

MCPTT related, etc

- [R2-153483](#) Floor control and pre-emption for MCPTT using ProSe; Ericsson; discussion;
[R2-153674](#) Reply LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay; CATT; LS out; Draft reply LS to the LS from SA2 (S2-152695);

7.6 WI: LTE-WLAN Radio Level Integration

(LTE_WLAN_radio-Core, leading WG: RAN2, started: Mar. 15, target: Dec. 15, WID: [RP-151022](#))

Time budget: 1,5 TU

7.6.1 Organizational

Incoming LSs

Running CRs

The technically endorsed running 36.300 CR after RAN2-90 is available in [R2-152922](#) (Note: At this stage the CR just captures the agreements made so far. The actual stage-2 text and placement in the specification will be discussed further).

Including output of [90#24][LTE/WiFi] Update of running stage-2 CR (Intel)

- [R2-153763](#) Running 36.300 CR for LTE-WLAN Radio Level Integration and Interworking Enhancement; Intel Corporation, China Telecom, Qualcomm Incorporated; CR; 36.300; 13.0.0; 0791; B;
- AT&T thinks that some things might need to be discussed
 - Broadcom objects to endorsing this as baseline. Intel points out that this CR just reflects the agreements from the previous meetings.
 - Broadcom thinks that in figure XX.1.2-1 there should be a gateway in the co-located scenario. Nokia Networks thinks that for the co-located case, the WLAN functionality is considered to be within the eNB. Broadcom would like to specify the WT node also in this scenario. Huawei agrees with Nokia Networks that in this scenario we don't need to specify or depict the WT. Intel agrees and thinks that this CR just reflects the agreements from the last meetings. Vodafone also agrees and would suggest to agree this running CR. CMCC also agrees that there is no WT in the co-located case. China Telecom also agrees with Intel. DT would also like to endorse the CR. Cisco is also OK with the CR
 - Cisco thinks that for 2C we have not agreed that there has to be flow control only from the WT. Intel thinks that the details will be discussed in RAN3. QC and Ericsson think that so far we agreed that the flow control comes from the WT. If we agree that it can also come from the UE, that will be added.
- => Add an FFS that we will discuss whether the flow control feedback can alternatively come from the UE.
- Broadcom thinks that also uplink should be supported for the switched bearer.
 - Broadcom objects to the running CR. Chairman clarifies that this version just captures what we agreed so far. Other aspects will be discussed in this and following meetings.
 - With this change the running CR is revised in [R2-153941](#).
- [R2-153941](#) Running 36.300 CR for LTE-WLAN Radio Level Integration and Interworking Enhancement; Intel Corporation, China Telecom, Qualcomm Incorporated; CR; 36.300; 13.0.0; 0791 R1 B; Rel-13; LTE_WLAN_radio-Core
- => revised in [R2-153970](#)
- [R2-153970](#) Running 36.300 CR for LTE-WLAN Radio Level Integration and Interworking Enhancement; Intel Corporation, China Telecom, Qualcomm Incorporated; CR; 36.300; 13.0.0; 0791 R2; B;
- ☒ **[91#15][LTE/WiFi] Running 36.300 CR (Intel)**
- **Incorporate the agreements of this meeting in the latest endorsed CR**
 - **Clarify the figure**
 - **Incorporate RAN3 CR into this CR**
- => **Intended outcome: Technically endorsed 36.300 CR in [R2-153972](#) 0791 R3**

7.6.2 LTE+WLAN Aggregation

7.6.2.1 Control Plane Architecture and Functionality

[R2-153820](#) WLAN Selection and Mobility ; QUALCOMM CDMA Technologies; discussion;

=> Noted

[R2-153663](#) WLAN aggregation, Review of differences to DC; Samsung; discussion;

Figure 1:

- => Change AP/SeNB to WT
- => Clarify that WeNB addition is initiated by the eNB
- => Add confirmation messages after step 8 from the WT to the eNB
- => Remove steps 9 and 10.
- => Figure is agreed as baseline and should be refined further during this week

- => Coexistence issues such as relation to user preferences and ANDSF is to be discussed by SA2
- => Status indication message (including association confirmation) from UE to eNB if FFS

Discussion:

- Broadcom proposes to use ANDSF instead.
- Intel prefers the procedure described by Samsung. Intel thinks that we do not need to care at all about mobility within a mobility set. The call flow presented by Samsung is sufficient to capture all cases. Huawei also supports the Samsung approach and points out that we agreed that meeting that mobility across different mobility sets is under network control and based on measurements.
- Nokia Networks wonders in which direction the addition request is supposed to go. Nokia Networks thinks it should come from the eNB. Samsung intends that the eNB initiates this step.
- CATT thinks that the UE should send an indication to the eNB after successful association. Samsung thinks that the WT should indicate that to the eNB.
- MediaTek wonders at which point in time the association can happen. BlackBerry agrees that the association could happen at any time. Ericsson thinks that it shall happen after step 6 and 7 as shown here. Intel agrees with Ericsson that it cannot happen at any time as the WT has to be prepared.

Agreements

- 0 A mobility-set is a set of one or more BSSID/HESSID/SSIDs. Mobility across the APs belonging to a mobility set is transparent to E-UTRAN, i.e., the UE does not inform the eNB about such intra-mobility-set mobility.
- 1 All APs belonging to a mobility set share a common WT as termination point for CP and UP.
- 2 There may be multiple mobility sets within a WT
- 3 A UE is connected with at most one mobility set at any point in time.

=> Noted

[R2-153693](#) Signalling flows for LTE-WLAN aggregation over Xw and RRC; Ericsson; discussion;
[R2-153150](#) UE behaviours of different UE and Network conditions in LTE-WLAN integrated Network Environment; Samsung R&D Institute UK; discussion;

[Late]

[R2-153557](#) WLAN link monitoring and failure report for LTE-WLAN aggregation and interworking enhancement; Huawei, HiSilicon; discussion;

[R2-153081](#) Handling of WLAN UE Capability & User Preferences; Samsung R&D Institute UK; discussion;
 [Late] [Moved from 7.6.4 to 7.6.2]

[R2-153071](#) Control plane design for LTE-WLAN radio level integration; MediaTek Inc.; discussion;
[R2-153078](#) Mobility handling for LTE-WLAN aggregation; Samsung R&D Institute UK; discussion;

[Late]

[R2-153079](#) LTE handover during LTE-WLAN aggregation; Samsung R&D Institute UK; discussion;
 [Late]

[R2-153080](#) WLAN Activation/Deact during LTE-WLAN aggregation; Samsung R&D Institute UK; discussion;

[Late]

[R2-153109](#) Discussion on Architecture and Procedure of C-plane; CATT; discussion;
[R2-153110](#) Discussion on mobility procedures of aggregation bearer; CATT; discussion;
[R2-153136](#) UE capabilities for LTE-WLAN Integration; Nokia Networks; discussion;
[R2-153137](#) RRC for LTE-WLAN aggregation; Nokia Networks; discussion;
[R2-153138](#) RLM for LTE-WLAN aggregation; Nokia Networks; discussion;

- [R2-153169](#) UE requirements for LTE-WLAN interworking/integration; SAMSUNG Electronics Co., Ltd.; discussion;
[Moved from 7.6.4 to 7.6.2]
- [R2-153212](#) Consideration on the QoS guarantee in LTE-WLAN aggregation; China Mobile Com. Corporation; discussion;
[Moved from 7.6.3 to 7.6.2]
- [R2-153248](#) WLAN Mobility with WLAN Group; MediaTek Inc.; discussion;
- [R2-153343](#) Consideration on mobility aspect for LTE-WLAN aggregation; China Telecommunications; discussion;
- [R2-153347](#) Discussion on the configuration of AP group; ZTE Corporation; discussion;
- [R2-153433](#) Discussion on the configuration of a group of APs; ITRI; discussion;
- [R2-153434](#) Completion of AP selection; ITRI; discussion;
- [R2-153436](#) Procedure of LTE-WLAN Aggregation; ITRI; discussion;
- [R2-153438](#) Discussion on WLAN Authentication of LTE-WLAN Aggregation; ITRI; discussion;
- [R2-153553](#) Setup procedure of LTE-WLAN aggregation; Huawei, HiSilicon; discussion;
- [R2-153617](#) Further consideration of control plane issues for LWA; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;
- [R2-153689](#) Mobility procedures for LTE-WLAN aggregation; Ericsson; discussion;
- [R2-153699](#) LWA and UE mobility; NEC; discussion;
- [R2-153725](#) Discovery and selection of a network that provides cellular – WLAN aggregation; BROADCOM CORPORATION; discussion;
- [R2-153726](#) Discussion on LWA CP/UP termination ; MediaTek Inc.; discussion;
- [R2-153727](#) Providing per bearer QoS handling over WLAN; BROADCOM CORPORATION; discussion;
- [R2-153754](#) WLAN Reliability with LTE+WLAN Aggregation in LTE R13; INTERDIGITAL COMMUNICATIONS; discussion;
- [R2-153813](#) Policing, Authorization, and Charging for LTE/WLAN Aggregation; QUALCOMM CDMA Technologies; discussion;
- [R2-153814](#) LTE/WLAN aggregation mobility aspects ; MediaTek Inc.; discussion;
- [R2-153816](#) The coexistence of LTE/WLAN aggregation and Rel-12 interworking; LG Electronics Inc.; discussion;
- [R2-153819](#) Signaling for LTE/WLAN Aggregation; QUALCOMM CDMA Technologies; discussion;
- [R2-153846](#) WLAN aggregation and interworking mobility procedures; BlackBerry UK Limited; discussion; [Late]

Above 36 Tdocs not treated

- ✉ **[91#26][LTE/WiFi] Radio Link Monitoring for WLAN aggregation (Huawei)**
=> **Intended outcome: Email discussion summary to the next meeting**

7.6.2.2 User Plane Architecture and Functionality

- [R2-153111](#) Further Discussion on UP Architecture of LTE-WLAN Aggregation; CATT; discussion;
=> Noted
- [R2-153549](#) Further discussion on the user plane related issues for LTE-WLAN aggregation; Huawei, HiSilicon; discussion;
- - LG thinks that we should specify a separate layer with its own header. This layer then determines the corresponding PDCP entity and delivers the packet accordingly.
 - IDT thinks that we can avoid adding this if we instead use multiple virtual MAC addresses. TCL agrees with IDT. QC thinks that a separate header is easier. Intel also agrees that a new header is easier. Broadcom thinks that the use of virtual MAC addresses for separating bearers is already supported.
 - BlackBerry wonders whether the WT is still supposed to treat bearers differently. QC thinks that this header does not preclude this. It is only for bearer identification on the UE and eNB side.
 - CATT thinks the bearer ID should be added at the WT.
 - Broadcom does not want a new header for the bearer ID. Nokia Networks and LG would first like to understand how the virtual MAC address solution would work. Broadcom also suggests to discuss it further based on contributions

Informal show of hands:

- a) Bearers are distinguished by a bearer ID: 20
- b) Bearers are distinguished by other means (e.g. virtual MAC address): 5

- Broadcom and IDT object to the separate bearer ID. AT&T would like to have a discussion on the MAC address solution before making a decision.
- Intel thinks that using an EtherType would be much simpler. Broadcom does not agree with that. TCL also supports EtherType. Cisco thinks that packets with unknown EtherType might be dropped in legacy APs. Broadcom thinks that EtherType will need a number of changes to modem and AP. ZTE thinks that IP has advantages in terms of routability but would also be OK with EtherType. Huawei thinks that it is not a problem to support new EtherType since products need to be upgraded anyway.
- When checking by the end of the meeting week, the bullets below were agreeable

Agreements

- 1 The bearer ID is added by the eNB
- 2 The bearer ID is placed into a separate header

=> Noted

[R2-153724](#) User Plane Architecture solutions based on DuCo Solution 2C; BROADCOM CORPORATION; discussion;

[R2-153183](#) 2C vs 3C; LG Electronics Inc.; discussion;

[R2-153104](#) Architecture and protocol details for LWA; Fujitsu; discussion;

[R2-153113](#) Flow Control for LTE-WLAN aggregation; CATT; discussion;

[R2-153139](#) Functions and termination of adaptation layer in LTE-WLAN aggregation; Nokia Networks; discussion;

[R2-153140](#) Flow control for LTE-WLAN aggregation; Nokia Networks; discussion;

[R2-153184](#) Discussions on User Plane aspects of LTE-WLAN aggregation; LG Electronics Inc.; discussion;

[R2-153344](#) Considerations on the adoption of adaption layer in the user plane for LTE-WLAN aggregation; China Telecommunications; discussion;

[R2-153928](#) Considerations on the adoption of adaption layer in the user plane for LTE-WLAN aggregation
China Telecommunications discussion

[R2-153349](#) Consideration on the adaptation entity in WT; ZTE Corporation; discussion;

[R2-153352](#) Discussion on the interface between WT and UE; ZTE Corporation; discussion;

[R2-153439](#) Analysis of the user plane architecture and functionality for LTE/WLAN aggregation; ITRI; discussion;

[R2-153513](#) User Plane Aspects of LWA; Intel Corporation; discussion;

[R2-153683](#) Flow control in LTE-WLAN Aggregation; Ericsson; discussion;

[R2-153843](#) Flow control in LTE-WLAN Aggregation; Ericsson; discussion; revision of [R2-153683](#);

[Withdrawn]

[R2-153685](#) User plane aspects of LTE-WLAN aggregation; Ericsson; discussion;

[R2-153844](#) User plane aspects of LTE-WLAN aggregation; Ericsson; discussion; revision of [R2-153685](#);

[Withdrawn]

[R2-153723](#) User Plane Architecture solutions based on DuCo Solution 3C; BROADCOM CORPORATION; discussion;

[R2-153728](#) On the need of separating user plane solutions for LTE-WLAN Radio Level Integration based on Dual Connectivity (DC) 3C and 2C; BROADCOM CORPORATION; discussion;

[R2-153755](#) Quality-of-Service (QoS) with LTE+WLAN Aggregation in LTE R13; INTERDIGITAL COMMUNICATIONS; discussion;

[R2-153759](#) Bearer Architecture for LTE+WLAN Aggregation in LTE R13; INTERDIGITAL COMMUNICATIONS; discussion;

[R2-153804](#) Details of LWA Adaptation Layer; INTERDIGITAL COMMUNICATIONS; discussion;

[R2-153086](#) User plane related issues for LTE-WLAN aggregation; Huawei, HiSilicon; discussion; [Withdrawn]

Above 20 Tdocs not treated

7.6.3 Interworking Enhancements

[R2-153170](#) Overall operational procedure for LTE-WLAN interworking; SAMSUNG Electronics Co., Ltd.; discussion;

Proposal 2:

- Ericsson wonders how detailed the capabilities are supposed to be. Samsung thinks that in order to configure the measurements the NW needs to know the supported WLAN bands. MediaTek agrees with Ericsson that we might not need to have all details. Nokia Networks thinks that the eNB needs to know how measurements can be configured.
- Broadcom thinks that the user might not want to provide this information to the network.
- QC thinks that the NW also needs to know the WLAN version. Apple thinks that this information does not need to be provided to the NW. ZTE agrees with Samsung and QC. Vodafone agrees that at least the bands need to be indicated. Need for additional information could be discussed later. Huawei agrees that measurements are part of this work and to configure those the NW needs to know the bands. BlackBerry thinks that the bands are needed but is not sure about the version.
- DT agrees that the bands need to be indicated in order to configure measurements. Nokia Networks agrees as well.
- Broadcom thinks that the supported bands are not sufficient to send a steering a command. Huawei explains that the purpose of the capabilities is just to allow configuring measurements which will then allow proper steering. Nokia Networks thinks that this does not affect how WLAN works but only enables the eNB to configure a measurement.

Proposal 3:

- Intel thinks that the channel will already imply the country and operating class.
- Samsung thinks that we need to decide whether the measurements allow filtering in the frequency domain so that the NW gets measurements only for selected frequencies. Huawei agrees but believes that a white list might be sufficient. QC thinks that filtering will help in terms of power consumption.
- Broadcom disagrees that the NW can configure measurements for a specific band or channel.

Proposal 4:

- Ericsson is not convinced that frequent messages are needed every time the UE changes something. Samsung thinks that we can discuss the status exchange maybe separately. Intel thinks that some kind of status report could be needed but the details could maybe be discussed in context of aggregation. QC also thinks that some kind of indication is needed. IDT agrees. Samsung thinks that the indication should only be sent once the network configures WLAN measurement. ZTE thinks we should re-use an existing message. Kyocera thinks that we might also need a kind of reject message.

Proposal 5:

- Ericsson and MediaTek think that we already agreed this.
- Broadcom does not agree that the mobility set may comprise the BSSID

Agreements

- 1 To have separate capability bits for interworking and aggregation.
- 2 The UE indicates the supported WLAN bands in the capability signalling for interworking and aggregation.
- 3 UE is configured with measurements for WLAN using the WLAN numerologies (e.g. 'Country', 'Operating Class', and/or 'Channel Number') (same principle as for CDMA2000).

=> Noted

[R2-153551](#) Traffic steering method for interworking enhancement; Huawei, HiSilicon; discussion;

=> Noted

[R2-153589](#) Further details on interworking enhancements ; Nokia Networks; discussion;

=> Noted

[R2-153646](#) Further discussion on WLAN interworking for Rel-13; Ericsson; discussion;

-

Discussion:

- Huawei thinks that the IDLE mode behaviour of Rel-12 is problematic anyway. Huawei thinks that if the NW releases the UE to IDLE after steering the traffic to WLAN, the UE keeps the traffic in WLAN until the WLAN is about to fail. MediaTek thinks that the Rel-12 behaviour would certainly be preferable for this case.
- BlackBerry thinks that the question is whether the steering command received in CONNECTED is still valid when the UE moved to IDLE. BlackBerry thinks that using a steering command in CONNECTED and the Rel-12 solution in IDLE is problematic. MediaTek thinks that a similar mechanism to the Rel-12 timer could be considered.
- Nokia Networks thinks we need to determine whether the Rel-13 UE uses the broadcast information from Rel-12. QC thinks that a UE configured to steer traffic while in CONNECTED may decide by itself what to do when going to IDLE rather than using Rel-12 rules. IDT thinks that by providing dedicated thresholds, it will ensure alignment with the Rel-12 behaviour. Nokia Network thinks that the NW should be able to control both IDLE and CONNECTED mode. MediaTek agrees with that.
- Intel supports the Huawei approach and to leave IDLE mode behaviour up to the UE. Nokia Networks thinks we should not leave it to the UE what to do in IDLE. Sony would support the Ericsson suggestion since it would be a simple enhancement of the Rel-12 solution. CATT thinks that the NW should have control in IDLE and CONNECTED. ZTE agrees as well. Huawei thinks we could define cases and conditions in which the UE moves traffic back to LTE. Therefore, it would be still under network control. Ericsson thinks that the re-use of the rules still ensure full network control. ALU also agrees that in IDLE the RAN rules should be applied and that the concept of Rel-12 mechanism for connected could be re-used. Samsung is not sure whether the operator would use both the Rel-12 and the Rel-13 solution.

=> Noted

[R2-153070](#) Some considerations for network-controlled LTE-WLAN radio level interworking; MediaTek Inc.; discussion;

[R2-153082](#) Inactivity reporting in enhanced LTE-WLAN interworking; Samsung R&D Institute UK; discussion;

[Late]

[R2-153114](#) Procedures of Interworking Enhancements; CATT; discussion;

[R2-153412](#) RAN assistance parameters for Idle UE in interworking enhancement; Kyocera; discussion;

[R2-153413](#) UE offload confirmation for interworking enhancement; Kyocera; discussion;

[R2-153619](#) Need of UE interworking status for LTE-WiFi interworking; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;

[R2-153625](#) User preference aspects of WLAN aggregation and interworking; BlackBerry UK Limited; discussion;

[R2-153645](#) Connection failure report; Ericsson; discussion;

[R2-153647](#) Threshold based WLAN interworking; Ericsson; CR; 36.331; 12.6.0; 1893; B;

[R2-153648](#) Parameter handling for WLAN interworking; Ericsson; discussion;

[R2-153649](#) Parameter handling for WLAN interworking; Ericsson; CR; 36.331; 12.6.0; 1894; B;

[R2-153650](#) Parameter handling for WLAN interworking; Ericsson; CR; 36.304; 12.5.0; 0274; B;

[R2-153798](#) On acknowledging WLAN aggregation and traffic steering commands; MediaTek Inc.; discussion;

Above 13 Tdocs not treated

7.6.4 RRM Measurements

RRM measurement framework both, for LTE+WLAN Aggregation and Interworking

✉ **[91#27][LTE/WiFi] RRM Measurement Framework (Intel)**

=> **Intended outcome: Email discussion summary to the next meeting**

[R2-153642](#) WLAN measurement reporting; Ericsson; discussion;

- [R2-153115](#) RRM Measurements for WLAN; CATT; discussion;
[R2-153168](#) Measurement objects for WLAN; SAMSUNG Electronics Co., Ltd.; discussion;
[R2-153243](#) RRM Measurement for LWA and NCIWK; MediaTek Inc.; discussion;
[R2-153253](#) Discussion on RRM Issues for LTE WLAN Interworking Enhancement; Spreadtrum Communications; discussion;
[R2-153342](#) Considerations on the measurement for LTEWLAN aggregation and interworking enhancements; China Telecommunications; discussion;
[R2-153384](#) Consideration on WLAN measurement for the LTE/WLAN aggregation and interworking enhancement; ZTE Corporation; discussion;
[R2-153414](#) Consideration on WLAN measurement; Kyocera; discussion;
[R2-153428](#) Update of WLAN identifiers for measurement and reporting; ITRI; discussion;
[R2-153430](#) Consideration of user preference; ITRI; discussion;
[R2-153556](#) RRM measurements for LTE-WLAN aggregation and interworking enhancement; Huawei, HiSilicon; discussion;
[R2-153590](#) Mobility and RRM measurements for LTE-WLAN radio aggregation and interworking; Nokia Networks; discussion;
[R2-153644](#) Introducing WLAN measurements; Ericsson; CR; 36.331; 12.6.0; 1892; B;
[R2-153643](#) Layer-3 filtering for WLAN measurements; Ericsson; discussion;
[R2-153661](#) RRM measurement framework for WLAN aggregation/ interworking; Samsung; discussion;
[Moved from 7.6.1 to 7.6.4]
[R2-153817](#) WLAN measurement framewor; LG Electronics Inc.; discussion;
[R2-153821](#) UE Measurements of WLAN for LWA and Interworking Enhancement; QUALCOMM CDMA Technologies; discussion;
Above all Tdocs not treated

7.7 WI: Multicarrier Load Distribution in LTE

(LTE_MC_load-Core, leading WG: RAN2, started: Mar. 15, target: Dec. 15, WID: [RP-150611](#))

Time budget: 1 TU

Extension of Frequency Priorities

- [R2-153141](#) Extension of Frequency Priorities; Nokia Networks; discussion;
=> Noted
[R2-153290](#) Extension of frequency priority; Intel Corporation; discussion;
=> Noted

Discussion:

- Intel wonders how the NW would determine proper sub-priority values with the Nokia Networks solution. Samsung thinks we could just consider it a value range extension and would not even need to touch 36.304. Intel thinks that also the new field would come without changes to 36.304.
=> We increase the value range of the existing field
- ZTE wonders whether this should also apply for inter-RAT reselection from UTRAN. Nokia Networks did not intend that but could consider it as well. ALU agrees that we should also do it for UMTS and GERAN
=> Apply the same value range extension for UMTS
=> Nokia Networks should provide updated CRs to the next meeting

CRs

- [R2-153210](#) Extending Frequency Priorities; Nokia Networks; draftCR; 36.331; 12.5.0;
[R2-153211](#) Extending Frequency Priorities; Nokia Networks; draftCR; 36.304; 12.5.0;
Above 2 Tdocs not treated

Load Balancing Enhancements

- [R2-153153](#) Randomized threshold offset based reselection; ZTE Corporation, China Telecom; discussion;
=> Noted
[R2-153262](#) Solutions addressing Multi-Carrier Load Balancing; Nokia Networks; discussion;
- Intel thinks that we are aiming for solutions that also support IDLE mode UEs. Nokia Network agrees that this might be an advantage to address IDLE UEs. Nokia Networks

thinks that one could consider a mechanism where the NW re-configures priorities for a group of UEs e.g. by means of paging. Kyocera wonders how the NW would know which UEs' priorities to change.

=> Noted

[R2-153775](#)

Continuous vs one-shot distribution mechanism for reselection; Kyocera; discussion;

- Nokia Networks basically agrees with Proposals 2, 3, 4 and 5.
- ZTE thinks that such one-shot scheme could be useful in selected scenarios but believes that the continuous schemes are generally more applicable.
- Nokia Networks supports the observation 3 in this paper, i.e., continuous search for higher priority cells on another frequency will increase the power consumption. ALU thinks that we should go for a mechanism where the UE prioritizes continuously on frequency level. The cell specific inter-frequency search should not be run continuously. ZTE thinks that it is no worse than absolute higher priority configured for a carrier with spotty small cells. Samsung wonders whether reduced performance measurements apply only while the UE has not found a cell on the mixed coverage carrier. Nokia Networks thinks the reduced performance applies continuously.
- Samsung assumes that the UE should perform the re-evaluation periodically and only then the UE checks whether there are suitable inter-frequency cells.
- Samsung thinks that we should try not to interfere with existing absolute priority schemes. The randomization should only be between equal priority layers. ALU agrees that the absolute priorities might be mapped e.g. to subscriptions and we should avoid impacting such NW configurations with a new mechanism. ZTE thinks that randomization among equal priority layers will not be sufficient since a UE might thereby select another frequency with higher absolute priority. ZTE wants to enable randomization that could apply also to carriers with different absolute priorities.
- ALU thinks that we need some cell specific priorities. Secondly, we could discuss the randomization and whether it should be continuously or one-shot.
- ALU suggests to agree on support of cell specific priorities now and discuss by email until next meeting whether and how to randomize. ZTE would be OK with this proposal. ZTE would then also like to discuss by email whether and how to randomize.
- Vodafone thinks that cell specific priorities could make network configuration more complex.
- Huawei thinks that the consequence could be that a UE in good coverage of the macro cell on one carrier is moved to the cell edge of a prioritized cell on the other carrier. Kyocera agrees with Huawei's concern. ZTE thinks that this is no additional problem compared to today.

=> Adopt cell specific priorities as baseline

- LG and ZTE think that we also need a mechanism to distribute UEs between macro cells on different frequency layers. Nokia Networks thinks that randomization does not solve this problem. Nokia Networks thinks we should not start randomizing everything.

=> CB: [LTE/Load Balancing] Discuss further offline whether a randomization scheme is needed and whether it would be applicable to frequency- and/or cell specific priorities. (ZTE)

- ZTE reports that during offline discussions it was concluded that a solution to continuously randomize reselection is beneficial. ZTE suggests to discuss further whether in addition to a continuous randomization scheme also a one shot scheme is needed. Nokia Networks thinks that it was only agreed that a solution should be found that a solution fulfilling the requirements should be determined. But there was no agreement that this requires randomization. Nokia Networks suggests an email discussion to discuss possible solutions and to provide one joint proposal for the next meeting. Verizon agrees with ZTE but thinks that we can look at the solutions on the table and see which of those has most support. Verizon thinks that we should only discuss schemes relying on randomization. Nokia Networks thinks that the definition of that is unclear. Does it imply one-shot schemes? Verizon would just like to exclude further evaluation of dedicated priority schemes. Nokia Networks thinks that we should not exclude any solution.

=> Noted

☒ **[91#28][LTE/Load Balancing] Redistribution Schemes (ZTE)**

-Investigate advantages and benefits of schemes that can redistribute IDLE UEs (continuous randomization and one-shot mechanism)

-Do not discuss existing dedicated reselection priorities provided during RRC connection release
-Aim to converge to one solution
=> Intended outcome: Email discussion report and possibly draft CRs to next meeting

- [R2-153105](#) Cell-specific probability setting; Fujitsu; discussion;
[R2-153288](#) Stability evaluation for load distribution schemes; Intel Corporation; discussion;
[R2-153289](#) Performance impact of different load distribution triggering mechanisms; Intel Corporation; discussion;
[R2-153308](#) Solution for Idle load distribution; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;
[R2-153340](#) Text Proposal for measurement rules supporting CSP; LG Electronics Inc.; discussion;
[R2-153402](#) Distributing idle UEs to multiple carriers; Huawei, HiSilicon; discussion;
[R2-153406](#) Continuous vs one-shot distribution mechanism for reselection; Kyocera; discussion;
[Withdrawn]
[R2-153407](#) Detailed solution of one-shot re-distribution mechanism; Kyocera; discussion;
[Withdrawn]
[R2-153776](#) Detailed solution of one-shot re-distribution mechanism; Kyocera Corporation; discussion;
[R2-153441](#) Probability based idle UE distribution for multicarrier environment; ITRI; discussion;
[R2-153450](#) RS-SINR measurement condition triggered by RSRQ measurement for load balancing; LG Electronics Inc.; discussion;
[R2-153621](#) Cell-specific prioritization for load balancing; Ericsson; discussion;
[R2-153667](#) Scope and main characteristics of idle load balancing solution; Samsung; discussion;
Above 11 Tdocs not treated
[R2-153797](#) UE redistribution for load balancing; MediaTek Inc.; discussion;
[Withdrawn]

CRs

- [R2-153156](#) Support for Randomized threshold offset based reselection; China Telecom, ZTE Corporation; draftCR; 36.304; 12.5.0;
[R2-153158](#) Support for Randomized threshold offset based reselection; China Telecom, ZTE Corporation; draftCR; 36.331; 12.6.0;
[R2-153622](#) Cell-specific prioritization for idle mode load balancing (Alt 1); Ericsson; draftCR; 36.331; 12.5.0;
[R2-153623](#) Cell-specific prioritization for idle mode load balancing (Alt 2); Ericsson; draftCR; 36.331; 12.5.0;
[R2-153624](#) Cell-specific prioritization for idle mode load balancing; Ericsson; draftCR; 36.304; 12.5.0;
Above 5 Tdocs not treated

7.8 SI: Further MDT enhancements

(FS_LTE_eMDT2, leading WG: RAN2, started: Mar. 15, target: Sep. 15, WID: [RP-150472](#))

Time budget: 0,5 TU

TR

Agreed skeleton TR v0.3.0 is available in [R2-152931](#).

- [R2-153957](#) CB: [LTE/MDT] An updated draft TR 36.880 may be provided in [R2-153957](#) v0.3.1 (CMCC) TR 36.880; Study on further enhancements of Minimization of Drive Tests (MDT) for E-UTRAN; v0.3.1
=> Remove Evaluation section
=> Updated styles
=> Updated abbreviations
☒ **[91#06][LTE/MDT] TR 36.880 (CMCC)**
=> Intended outcome: Agreed TR 36.880 v0.3.2 in [R2-153971](#) for approval at RAN plenary

=> RAN2 agrees that the SI is completed and can be closed

TPs

[R2-153639](#) TP for TR 36.880; Huawei, HiSilicon, CMCC; pCR; 36.880; 0.3.0;
Not treated

Coverage Optimization

[R2-153849](#) Enhanced Coverage Optimization use case; Nokia Networks; Disc
[Late]

- Kyocera wonders what the NW could do with a measurement for which the UE indicated that it was affected by IDC. Kyocera thinks the UE should just discard such samples. Nokia Networks thinks that it would help the NW to understand that the absence of a report was not due to lack of coverage but due to IDC. QC thinks that it is not necessary to report these results as the NW would for that location get other reports from other UEs. Ericsson agrees with QC that MDT relies on statistical information. Ericsson thinks that alternatively, the UE would have to provide more detailed additional information about the IDC interference. LG supports Nokia Network's proposal. ZTE agrees with Kyocera. MediaTek agrees that IDC coloured measurement reports should just be dropped. Nokia Networks thinks that the additional indication would be needed.
 - Chairman wonders whether it would be agreeable that The UE omits measurements in the Logged MDT report that were affected by IDC interference. QC thinks that this would only work for UEs that support the IDC mechanism.
 - Nokia Networks wanted to apply this also for RLF reports. MediaTek thinks that it could be more interesting to have an IDC indication in the RLF report.
 - Intel wonders how this is supposed to work in connected. Nokia Networks thinks that in CONNECTED the NW knows from the IDC indication. But Nokia Networks would be fine to extend the indications to CONNECTED. MediaTek thinks that SA5 could log the IDC indications and thereby solve the issue. LG wants to flag also connected mode measurement reports. QC thinks that for connected mode there is no problem since the eNB will anyway solve the IDC problem when the UE reports it.
- => No need to do anything for connected mode.

Agreements

- 1 UEs supporting the IDC mechanism remove measurement from the Logged MDT report that were affected by IDC interference.
- 2 Consider indicating from the eNB whether measurements are collected while eICIC was configured. Alternatively, do not report those results to the TCE. (only SA5 impact)

=> Noted

[R2-153338](#) Enhancement for Coverage Optimization; CATT; discussion;
[R2-153389](#) Logged MDT under IDC; Kyocera; discussion;
[R2-153445](#) Enhancements for Refined MDT Measurements; Samsung Telecommunications; discussion;
Above 3 Tdocs not treated

QoS metrics

[R2-153191](#) Way forward on UL delay measurement ; CMCC, Qualcomm Incorporated, Huawei, Alcatel-Lucent, Samsung, ZTE, Intel, CATT, ITRI, Nokia Networks, China Telecom; discussion;

- LG thinks that this does not reveal any information about the actual transmission delay. Kyocera agrees with LG and thinks that the solution would not show the actual jitter.
- LG thinks that PHR does not reflect the coverage situation.
- MediaTek acknowledges that the proposal is simple and even though the quality might not very good, it could be acceptable.
- QC and Huawei think that this metric is not very accurate but gives at least a rough indication of the UL queuing delay which is not visible to the NW today. LG thinks that the goal was to have an accurate measurement.

- LG thinks that the UE is not aware of the QCI. Therefore, it could only report the E-RAB ID. QC thinks that the UE knows the QCI on NAS level. MediaTek agrees that the UE has the QCI and reporting QCI makes the post processing much easier. ALU points out that the AS/NAS interactions are loosely specified which does not mean that the UE cannot access this information.

Agreements

- 2 UL PDCP queuing delay measurement should be performed per QCI per UE and should reflect the packet delay observed at UE's PDCP layer only (from packet arrival at PDCP upper SAP until the packet starts to be delivered to RLC)

=> Noted

[R2-153182](#) UL packet delay measurement in MDT; LG Electronics Inc.; discussion;
[R2-153785](#) Integrating MTSI QoE Metrics into MDT; Qualcomm Incorporated; discussion;
[R2-153145](#) UL delay measurement; Nokia Networks; discussion;
[R2-153146](#) MDT QoS metrics; Nokia Networks; discussion;
[R2-153220](#) Reporting UL packet discard rate measurement per logical chanenl priority in MDT; LG Electronics Inc.; discussion;
[R2-153386](#) Post processing procedure of UL latency measurements; Kyocera; discussion;
[R2-153528](#) More consideration on MMTEL traffic measurement; ZTE Corporation; discussion;
[R2-153530](#) UL delay measurement in MDT; ZTE Corporation; discussion;
[R2-153783](#) UL delay measurement; Qualcomm Incorporated; discussion;
Above 9 Tdocs not treated

Call drop rate and setup delay

[R2-153309](#) Monitoring VoIP call drop ; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;
Proposal 2:

- MediaTek thinks it would be nice to avoid logging anything from IMS layer. Nokia Networks agrees.

Agreements

- 1 Include presence of a QCI 1 bearer at the time of RLF in the RLF report provided by the UE. The UE also indicates failure of subsequent re-establishment and NAS recovery.

=> Noted

[R2-153391](#) Logging of latency in call establishment; Kyocera; discussion;
Not treated

Late or withdrawn

[R2-153178](#) Reporting UL packet discard rate measurement per logical chanenl priority in MDT; LG Electronics Inc.; discussion;

[Withdrawn]

[R2-153181](#) UL packet delay measurement in MDT; LG Electronics Inc.; discussion;

[Withdrawn]

[R2-153221](#) Reporting UL packet discard rate measurement per logical chanenl priority in MDT; LG Electronics Inc.; discussion;

[Withdrawn]

[R2-153529](#) UL delay measurement in MDT; ZTE Corporation; discussion;

[Withdrawn]

[R2-153784](#) UL delay measurement; Qualcomm Incorporated; discussion;

[Withdrawn]

7.9 WI: Dual Connectivity Enhancements

(LTE_dualC_enh-Core, leading WG: RAN2, started: Mar. 15, target: Dec. 15, WID: [RP-150490](#))

Time budget: 0 TU in main room (+1 TU in stage-3 UP session)

Documents submitted to this AI treated in the UP session. (See Annex G)

- [R2-153088](#) Further discussion on PDCP discard with split bearers; Nokia Networks; discussion;
- [R2-153089](#) Stage 3 Details of DC Enhancements; Nokia Networks; discussion;
- [R2-153090](#) Transmission of PDCP status report at PDCP data recovery; Nokia Networks; discussion;
- [R2-153148](#) PDCP data indication to MAC with threshold; LG Electronics Inc.; discussion;
- [R2-153149](#) Buffer status reporting and PDCP data transmission; LG Electronics Inc.; discussion;
- [R2-153155](#) Transmission of PDCP Control PDU in split bearer; LG Electronics Inc.; discussion;
- [R2-153157](#) PDCP Discard issue with UL split bearers; LG Electronics Inc.; discussion;
- [R2-153160](#) PDCP SDU discard in split bearers; LG Electronics Inc.; draftCR; 36.323; 12.4.0;
- [R2-153162](#) PDCP reordering enhancement; LG Electronics Inc.; discussion;
- [R2-153175](#) Kick off to work on SFN/subframe offset reporting; NTT DOCOMO, INC. (Rapporteur); discussion;
- [R2-153237](#) PDCP Discard; MediaTek Inc.; discussion;
- [R2-153256](#) Transmission of PDCP control PDUs for Split bearers; PANASONIC R&D Center Germany; discussion;
- [R2-153315](#) Delivery of PDCP PDU to RLC Layer for UL Split Bearer; Huawei, HiSilicon; discussion;
- [R2-153316](#) PDCP data transmission for UL split bearer; Huawei, HiSilicon; discussion;
- [R2-153317](#) PDCP Discard Issue for UL Split Bearer; Huawei, HiSilicon; discussion;
- [R2-153318](#) UL data transmission upon SCG-RLF for UL split bearer; Huawei, HiSilicon; discussion;
- [R2-153319](#) Over-scheduling problem for UL split bearer; Huawei, HiSilicon; discussion;
- [R2-153326](#) PDCP Control PDU for UL Split Bearer; Samsung Electronics Co., Ltd; discussion;
- [R2-153327](#) How to capture uplink split in the relevant specifications; Samsung Electronics Co., Ltd; discussion;
- [R2-153328](#) Introducing threshold based uplink split operation into the PDCP specification ; Samsung Electronics Co., Ltd; CR; 36.323; 12.4.0; 0140; F;

[Withdrawn]

- [R2-153329](#) Introducing threshold based uplink split operation into the RRC specification; Samsung Electronics Co., Ltd; draftCR; 36.331; 12.5.0;
- [R2-153330](#) On preventing PDCP SN gap due to discard timer; Samsung Electronics Co., Ltd; discussion;
- [R2-153336](#) Introducing threshold based uplink split operation into the PDCP specification ; Samsung Electronics Co., Ltd; draftCR; 36.323; 12.4.0;
- [R2-153383](#) Clarification of PDCP behavior for uplink split bearer; Kyocera; discussion;
- [R2-153387](#) Discussion on the PDCP discard issue in bear split; ZTE Corporation; discussion;
- [R2-153394](#) Draft CR_Improvement on the detection of discarded PDCP PDU; ZTE Corporation; draftCR; 36.323; 13.0.0;
- [R2-153443](#) Remaining Issues of Supporting Uplink Split Bearers; ITRI; discussion;
- [R2-153444](#) PDCP Discard Issue of Split Bearer; ITRI; discussion;
- [R2-153491](#) Clarifications on BSR of UL bearer split; ZTE Corporation; discussion;
- [R2-153507](#) Consideration on over-scheduling issue for uplink split; CATT; discussion;
- [R2-153520](#) Scheduling coordination between MeNB and SeNB; CATT; discussion;
- [R2-153522](#) Considerations on PBR of UL split bearer; CATT; discussion;
- [R2-153568](#) Over allocation problem on UL bearer split; NTT DOCOMO INC.; discussion;
- [R2-153703](#) Discussion on UL bearer split for Dual Connectivity: QoS guarantee; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;
- [R2-153704](#) Discussion on UL bearer split for Dual connectivity: BSR triggers and timers; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;
- [R2-153758](#) PDCP data transfer procedure for uplink bearer split; Ericsson; discussion;
- [R2-153760](#) PDCP data transfer procedure for uplink bearer split; Ericsson; CR; 36.323; 12.4.0; 0143; B;

7.10 WI: RAN enhancements for extended DRX in LTE

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

Time budget: 1 TU

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

7.10.1 eDRX for idle mode

Timer based vs. SFN based mechanism and other idle mode impacts

[R2-153083](#) Extended DRX impact on idle mode UE measurement and cell reselection; Acer Incorporated; discussion;

[R2-153108](#) SFN extension vs Timer based solution for extended Idle DRX cycle; Fujitsu; discussion;

[R2-153124](#) UE preferred eDRX behaviour; Sony; discussion;

[R2-153173](#) Paging Robustness for Extended Idle Mode DRX in LTE; MediaTek Inc.; discussion;

[R2-153214](#) Impacts on system change acquisition for eDRX; LG Electronics Inc.; discussion;

[Withdrawn]

[R2-153224](#) Analysis on IDLE mode extended DRX cycle solutions; Nokia Networks; discussion;

[R2-153225](#) Analysis on IDLE mode extended DRX cycle solutions; Nokia Networks; discussion;

[Withdrawn]

[R2-153240](#) Operator requirements for Idle-eDRX solution; NTT DOCOMO INC.; discussion;

[R2-153250](#) Impacts on system change acquisition for eDRX; LG Electronics Inc.; discussion;

[R2-153291](#) Analysis of extending DRX cycle solutions for idle mode; Intel Corporation; discussion;

[R2-153339](#) Extending DRX Cycle in Idle Mode; HuaWei Technologies Co., Ltd; discussion;

[R2-153385](#) Idle mode UE behaviour with Extended DRX; Kyocera; discussion;

[R2-153422](#) Some Design Needs for extended DRX cycle; China Unicom; discussion;

[R2-153432](#) On the length of eDRX in the Idle mode; Samsung Telecommunications; discussion;

[R2-153435](#) On the ETWS/CMAS support in Rel-13 eDRX ; Samsung Telecommunications; discussion;

[R2-153437](#) How to apply the extended DRX in the idle mode; Samsung Telecommunications; discussion;

[R2-153440](#) SI update in the extended IDLE DRX; Samsung Telecommunications; discussion;

[R2-153442](#) Signalling for Rel-13 eDRX support; Samsung Telecommunications; discussion;

[R2-153620](#) Comparison of eDRX concepts for RRC idle mode; Ericsson; discussion;

[R2-153680](#) Considerations for establishing a maximum idle mode eDRX time; Sierra Wireless, S.A.; discussion;

[R2-153684](#) Considerations for Paging Occasion Change Indication in eDRX; Sierra Wireless, S.A.; discussion;

[R2-153697](#) Considerations on RAN based and CN based approaches for extended idle mode DRX; QUALCOMM CDMA Technologies; discussion;

[R2-153700](#) Discussion on solutions for extended idle mode DRX; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;

[R2-153735](#) Design Aspects of IDLE Mode eDRX; INTERDIGITAL COMMUNICATIONS; discussion;

[R2-153793](#) Hyper-SFN vs Timer based eDRX; MediaTek Inc.; discussion;

7.10.2 eDRX for connected mode

RAN2 issues related to extending DRX up to 10.24s in connected mode.

Note: RAN-68 agreed that extended connected mode DRX cycle beyond 10.24 seconds is no longer pursued in this WI

[R2-153085](#) RLF prevention without mobility enhancement for Connected Mode eDRX; Acer Incorporated; discussion;

[R2-153172](#) Remaining Issues for Extended Connected Mode DRX in LTE; MediaTek Inc.; discussion;

[R2-153174](#) [DRAFT] LS on extended connected mode DRX; MediaTek Inc.; LS out;

[R2-153341](#) Extending DRX Cycle in Connected Mode; HuaWei Technologies Co., Ltd; discussion;

[R2-153427](#) How to apply the extended DRX in the connected mode; Samsung Telecommunications; discussion;

[R2-153576](#) the issues on the C-eDRX; Beijing Xinwei Telecom Techn.; discussion;

[R2-153836](#) Extended DRX in connected mode; QUALCOMM CDMA Technologies; discussion;

7.11 SI: Study on Latency reduction techniques for LTE

(FS_LTE_LATRED; leading WG: RAN2; started: Mar. 15; target: June 16; WID: [RP-150465](#))

Time budget: 1 TU

TR

TR 36.881 v0.2.0 is agreed in [R2-152936](#) (result of email discussion [90#11])

- ✉ **[91#17][LTE/Latency] Two weeks: Update of TR 36.881 (Ericsson)**
-Capture agreements from this meeting
=> Intended outcome: Agreed update of TR 36.881 v0.2.1 in [R2-153910](#)

Discussion

[R2-153489](#)

Areas for latency reduction; Ericsson; discussion;

- ZTE thinks that the padding could be avoided irrespective of the fast uplink access. Ericsson agrees but thinks that it is necessary for the described fast uplink scheme.
 - LG thinks that the UE might not benefit from TTI shortening at high system load. LG thinks that with many UEs in the system, a long SR period may have to be configured. Ericsson has also scaled the PUCCH cycle. Nokia Networks agrees with LG that for higher system load the gain will be smaller also e.g. due to higher scheduling delay. MediaTek thinks that it is quite natural that at high system load this is not applicable since the queuing delay becomes dominating.
 - Huawei thinks that one should also evaluate this for the cell edge
 - Huawei wonders what L1/2 overhead Ericsson assumed. Ericsson has assumed reduced payload resources for UL by 50%. Huawei wonders about the overhead assumption for DL. Ericsson did not model DL overhead since they assumed that when a UE is scheduled for multiple short TTIs within a subframe no additional DMRS would be needed. Intel thinks that some overhead should have been assumed for the DL. The UL overhead that was modelled shows no effect since the UL only carries TCP ACKs.
 - ALU thinks that the benefit of going below 0.5 ms TTI is not that significant and expect it to be smaller when some DL overhead was considered.
 - Samsung supports the intention to capture the TP in the TR. MediaTek also supports the intention to capture this in the TR. MediaTek agrees that some other aspects should be taken into account.
 - ETRI thinks that simulation results will look worse if mobility and varying link conditions had been assumed since the SPS allocation would not be usable for a longer time (link adaptation). Ericsson points out that, as shown by other contributions, the shorter TTI also allows faster link adaptation which has not been assumed in this paper.
- => Noted

[R2-153292](#)

Evaluation of TTI reduction gain with additional L1/L2 overhead; Intel Corporation; discussion;

- Huawei thinks that 0.1 ms TTI does not match any integer number of symbols. Intel agrees but thinks that the results anyway show the gains that can be achieved.
- => Noted

[R2-153497](#)

Analysis on latency reduction with TTI shortening; CATT, China Telecom; discussion;

- Intel is surprised that the gains in table 4 are so small. This seems different from other evaluations.
 - Huawei thinks that if the configured maximum TCP window size is smaller than the packet-delay-product, the lower latency will ensure increased e2e data rate even for large files. Chairman is not sure whether we should base our assumptions on that scenario where the TCP window is the bottleneck.
 - Ericsson suggests that we don't look at all evaluation papers online but rather discuss those via email. Companies may provide TPs with their results to the email discussion so that they can be included in one big TP by the rapporteur. That TP will then be provided as input to the next meeting and hopefully be agreeable. Possibly, a conclusion for those results should be added.
- => Noted

- ✉ **[91#29][LTE/Latency] Evaluation results (Ericsson)**
-All companies may provide comprehensive TPs with their assumptions, results and conclusions to the email discussion. Those parts can then be included in one big TP by the rapporteur. That TP will then be provided as input to the next meeting. Possibly, a conclusion for those results should be added
=> Intended outcome: TP with simulation assumptions, results and conclusions

[R2-153332](#) Skipping uplink transmission with no data to transmit (discussion); Samsung Electronics Co., Ltd; discussion;

- Nokia Networks thinks that this is generally a good idea but the UE will have to send a BSR from time to time so that the eNB can detect lost PDCCH. Ericsson also supports the general idea. Ericsson considers that this is particularly useful for the SPS configured grant. Ericsson wonders whether it would really be efficient for dynamic grants. Furthermore, there would be the problem outlined by Nokia Networks. Samsung thinks that this could be addressed in addition to proposal 1 and 2. Panasonic would like to restrict this scheme to SPS configured grants in order to avoid these problems. Samsung is not against this but would actually like to apply it also to dynamic pre-scheduling. Nokia Networks would also like to be able to apply it to dynamic pre-scheduling. LG would also like to support this for dynamic scheduling. Ericsson thinks we should enhance SPS to enable the pre-scheduling. The benefit is savings of PDCCH resources. Huawei also sees a risk with the PDCCH losses and therefore sees benefits from SPS.

=> Noted

[R2-153490](#) L2 enhancements to reduce latency; Ericsson; discussion;

- Ericsson clarifies that only one UE had been assumed in the evaluation but in principle the eNB could assign the same UL resources to multiple UEs. Ericsson explains that the eNB would give individual grants but for the same UL resource. UEs would reply to the first grant and afterwards use the resource when they have data. Huawei thinks that if two UEs transmit at the same time, there will be a collision. Ericsson has not focused on contention based transmission in this contribution.
- ETRI thinks that this proposal is like random access. Ericsson has not focused on the case where multiple UEs get the same resource allocated. Ericsson assumes that as the load increases, the eNB would fall back to normal request based UL scheduling. Samsung agrees that we should focus on the dedicated SPS allocation (no contention) and supports this as a solution direction.
- Samsung proposes to agree on the principle of omitting empty UL PDUs. We could then independently for SPS and dynamic scheduling discuss suitable means to address PDCCH loss.
- Nokia Networks thinks that we should focus on the case without double allocation of resources to multiple UEs, i.e., not to investigate contention based access. QC thinks that an eNB implementation could allocate the same resource to multiple UEs. LG agrees with Nokia Networks that we should not focus on the contention based. Ericsson confirms that here the focus was on what Nokia Networks and LG expressed. Ericsson also agrees that the NW could over-allocate but agrees that we should not optimize for that here in RAN2. Apple thinks we could investigate also contention based schemes. Samsung does not suggest excluding anything now but thinks we could focus on dedicated allocation. TCL thinks that multiple UEs could share the same resources if we support contention based schemes. Huawei agrees provided that there is not much RAN1 impact.
- Samsung thinks that the SPS scheme would also solve the PDCCH load aspect.
- LG thinks that the UE does not need to send any feedback to the received grant activating SPS. Huawei tends to agree that the UE would use the SR resource if it did not receive the SPS grant. Ericsson thinks that it would result in unused resources. If the NW has configured a rare D-SR resource, this will also result in some wait time. AsusTek agrees that it is good to send a feedback but it could be an ACK. AsusTek thinks this would be similar to the DL SPS release.

Agreements

- 1 It is beneficial to allow UEs to skip (most) dynamic and configured uplink transmissions if no data is available for transmission (the UE still sends the regular MAC CE, if any). The eNB may enable this by RRC dedicated signalling.
- 2 A shorter SPS interval (1 TTI) should be supported

=> Noted

[R2-153185](#) Latency Reduction during Handover; Nokia Networks; discussion;

- QC agrees that the handover should be looked at. QC wonders though how this scheme could be better than CF handover. Nokia Networks thinks that by omitting the RA the latency would be reduced. QC thinks that power control is needed anyway.
 - ALU thinks that even after sending the HO command, the eNB may still send data to the UE while forwarding those same packets. The target eNB could then filter out those that the UE still received from the source cell before disconnecting. QC thinks that the UE has to reset L2 once it receives the HO command. ALU thinks that the UE could possibly still receive L2 data while the UE processes the RRC Command. A possible enhancement could be to use the time from resetting L2 until the RA occasion in the target. QC agrees that one could look at that. Samsung thinks that the L1 re-tuning to the target cell often takes in the order of 50 ms.
 - Motorola wonders how the UE would get UL TA. Nokia Network agrees that this would need to be studied. It could be possible at least in small cells.
 - Ericsson wonders in which of the HO steps Nokia Networks has identified the biggest latency.
 - Chairman wonders whether a UE could receive still from the source cell while establishing time sync with the target cell. Samsung and Nokia Networks think that it is possible.
 - ZTE thinks that if we want to skip the RA, the target eNB would have to pre-allocate PUSCH resources from the point in time where it expects the UE to arrive in the target cell.
 - Ericsson would like to understand more where the delay comes from to be sure that we enhance the right aspect.
- => Can further evaluate latency caused by handover (which steps cost most time?) and investigate possible enhancements.
- => Noted

- [R2-153374](#) Uplink latency reduction for synchronized UEs; Huawei, HiSilicon; discussion;
[R2-153161](#) Potential area for latency reduction; LG Electronics Inc.; discussion;
[R2-153222](#) Potential protocol enhancement for Fast Uplink Access; Nokia Networks; discussion;
[R2-153223](#) Simulation result for fast uplink access and TTI shortening; Nokia Networks; discussion;
[R2-153293](#) Effect of UE and eNB processing times on TCP performance; Intel Corporation; discussion;
 [Withdrawn]
- [R2-153810](#) Effect of UE and eNB processing times on TCP performance; Intel Corporation; discussion;
[R2-153294](#) Protocol impact of fast uplink access solution for latency reduction; Intel Corporation; discussion;
- [R2-153331](#) Discussion on Contention Based Access; Samsung Electronics Co., Ltd; discussion;
[R2-153333](#) Skipping uplink transmission with no data to transmit (321 CR); Samsung Electronics Co., Ltd; draftCR; 36.321; 12.6.0;
[R2-153334](#) Skipping uplink transmission with no data to transmit (331 CR); Samsung Electronics Co., Ltd; draftCR; 36.331; 12.6.0;
- [R2-153373](#) Downlink latency reduction for unsynchronized UEs; Huawei, HiSilicon; discussion;
[R2-153375](#) Problems of the current LTE system on latency; Huawei, HiSilicon; discussion;
[R2-153376](#) Evaluation on the gains provided by one symbol length TTI; Huawei, HiSilicon; discussion;
[R2-153851](#) Evaluation on the gains provided by one symbol length TTI; Huawei, HiSilicon; discussion; revision of [R2-153776](#)
- [R2-153405](#) Initial consideration of fast uplink access solution; Kyocera; discussion;
[R2-153416](#) Combined SR with BSR for reducing UP latency; Ill; discussion;
[R2-153493](#) Study of shorter TTI for latency reduction; Ericsson; discussion;
[R2-153499](#) Analysis on VoLTE capacity with TTI shortening; CATT; discussion;
[R2-153500](#) Analysis on uplink access solutions; CATT; discussion;
[R2-153514](#) Specificaiton impacts of short TTI; ZTE Corporation; discussion;
[R2-153548](#) Consideration on Random Access for Heterogeneous TTIs in a Carrier; ETRI; discussion;
[R2-153578](#) Performance evaluation on short TTI; ZTE Corporation; discussion;
[R2-153852](#) Performance evaluation on short TTI; ZTE Corporation; discussion; revision of [R2-153578](#)
[R2-153701](#) Discussion on reduction of handover interruption; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;
- [R2-153702](#) Discussion on solutions for latency reduction; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell; discussion;
- [R2-153823](#) Considerations on latency reduction solutions based on pre-grant procedure for LTE; KDDI Corporation; discussion;
- [R2-153837](#) System performance with shorter TTI; QUALCOMM CDMA Technologies; discussion;

Above 26 Tdocs not treated

7.12 Other LTE Rel-13 WIs

RAN Sharing Enhancements

(RSE-RAN_LTE-Core; leading WG RAN3; started: Sep 14; target: Sep 15; WID: [RP-141671](#))

Incoming LSs

[R2-153017](#) LS on overload of MME resource quotas in RAN sharing scenarios (R3-151317; contact: Alcatel Lucent); RAN3; LS in; Rel-13; RSE-RAN_LTE-Core;

[Moved from 3.2 to 7.12]

=> Noted

[R2-153029](#) Reply LS to R3-151317 = [R2-153017](#) on overload of MME resource quotas in RAN sharing scenarios (S2-152692; contact: Alcatel Lucent); SA2; LS in; Rel-13; RSE-RAN_LTE-Core;

[Moved from 3.2 to 7.12]

=> Noted

[R2-153016](#) LS on RAN Sharing Enhancements for LTE (R3-151316; contact: Nokia Networks); RAN3; LS in; Rel-13; RSE-RAN_LTE-Core;

[Moved from 3.2 to 7.12]

- Telecom Italia wonders whether the restriction of 200 is per UE or per cell or per operator. Nokia Networks believes that it will be per eNB.

=> Noted

Discussion

[R2-153664](#)

RAN Sharing enhancements resource usage reporting; NEC; discussion; Related to incoming LS [R2-153016](#); Rel-13; RSE-RAN_LTE;

- Nokia Network points out that the 200 counters are per eNB and not per UE as one might think from this paper. NEC agrees that there are at most 200 counters per eNB but many UEs may contribute to each of those counters. The details of the mapping/filtering are still being discussed in RAN3.
- Nokia Networks thinks that RAN3 agreed a stage-2 CR which mentions measurements that are in-line with our L2 measurements. The filtering (e.g. based on dimension of PLMN) does not need to be captured in 36.314. Chairman thinks that we should replace the measurement definition in 36.300 proposed by RAN3 by a reference to 36.314 instead. MediaTek agrees and think that any possible additions to the measurement definitions should also be captured in 36.314. TI also agrees but would like to ensure that the intended filtering by PLMN and others are supported.
- Ericsson thinks that the L2 measurements in 36.314 are per QCI. RAN3 wants to filter them further per PLMN, ARP. MediaTek thinks that RAN3 and SA5 are aware of that specification and could provide CRs for that.

=> Noted

=> Reply to RAN3 and SA5 that they may consider using the measurements already defined in 36.314 and propose extensions, if necessary, for enabling the desired filtering (e.g. PLMN, GBR value range...). New measurements should not be defined in 36.300.

=> CB: [LTE/Network Sharing] A draft reply LS on RAN Sharing Enhancements for LTE to RAN3 may be provided in [R2-153868](#) (Nokia Networks)

[R2-153868](#)

Draft Reply LS on RAN Sharing Enhancements for LTE (contact: Nokia Networks); RAN3, SA5; LS out; Rel-13; RSE-RAN_LTE-Core;

=> Change LS to "RAN2 would like to thank RAN3 for the LS in R3-151316 regarding Rel-13 WI on RAN Aspects of RAN Sharing Enhancements for LTE.

RAN2 has discussed Data Volume Report measurements and noticed that measurements proposed by RAN3 are available in TS 36.314. New measurement definitions should not be defined in TS 36.300 as currently done in the endorsed RAN3 CR. The RAN3 CR should rather refer to TS 36.314.

With reference to enabling the desired filtering required for the Data Volume Reporting (e.g. PLMN, GBR value range...) RAN3 and SA5 decisions are required. Any proposed

extensions, if necessary, can be introduced in TS 36.314 upon RAN3/SA5 indication and agreement in RAN2.”

- ✓ => With this change the Draft Reply LS on RAN Sharing Enhancements for LTE to RAN3 is approved in [R2-153911](#)

[R2-153630](#) Data Volume measurement for RAN Sharing; Nokia Networks; discussion; Rel-13; RSE-RAN_LTE;

[R2-153631](#) Draft Reply LS on RAN Sharing Enhancements for LTE; Nokia Networks; discussion; Rel-13; RSE-RAN_LTE;
Above 2 Tdocs not treated

7.13 LTE TEI13 enhancements

Small Technical Enhancements affecting LTE 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!

36.302

[R2-153350](#) TS36.302 rapporteur's cleanup; Alcatel-Lucent; CR; 36.302; 12.4.0; 0061; D; Rel-12; TEI12;
=> Changes to Cat. F

=> Remove changes on changes in 6.1.2

- Ericsson points out that the Mode 1 assignment for Sidelink carried on the PDCCH uses SL-RNTI. This should probably be mentioned in table Table 8.2-1. ALU thinks that this could be in a separate CR.

=> With these changes the CR is agreed in [R2-153869](#) CR0061 R1

Paging Enhancements

[R2-153464](#) Paging optimization; Huawei, HiSilicon; discussion; Rel-12; TEI12;
[Moved from 6.2.9 to 7.13]

- Proposals 1 to 4 are agreed but we introduce this from Rel-13 as suggested by RAN3 and SA2.

=> Noted

[R2-153466](#) Paging optimization; Huawei, HiSilicon; CR; 36.331; 12.6.0; 1873; F; Rel-12; TEI12;
[Moved from 6.2.9 to 7.13]

=> Add field descriptions explaining e.g. that the eNB has to generate an empty UE-RadioPagingInfo-r12 if the UE does not provide it.

=> Change the field name “supportedBandListEUTRA” to avoid confusion with the field provided directly by the UE.

=> Update to “13” in field names

=> Update cover page

=> CB: [LTE/Paging] An updated CR may be provided in [R2-153870](#) (Huawei)

=> Intention is to technically endorse this CR and to provide it to other groups as reference.

[R2-153870](#) Paging optimization; Huawei, HiSilicon; CR; 36.331; 12.6.0; 1873 R1; B; Rel-13; TEI13;

=> Change to “The eNB generates the ue-RadioPagingInfo and the contained UE-Category-v1250 is absent when the UE is not a category 0 UE”

=> Change to “Indicates the UE supported frequency bands which is derived by the eNB from UE-EUTRA-Capability.”

=> With these changes the CR is technically endorsed in [R2-153912](#) CR1873 R2

[R2-153474](#) Draft Response LS on Paging optimization; Huawei; LS out; reply LS to [R2-153015](#); Rel-12; TEI12, LC_MTC_LTE-Core, LTE_MTCe2_L1-Core;

[Moved from 6.2.9 to 7.13]

=> Remove the text related to MTC and the WI code

=> Update to Rel-13/TEI13

=> Change to “extend the existing container”

=> CB: [LTE/Paging] An updated draft LS may be provided in [R2-153871](#) (Huawei)

- [R2-153871](#) Draft Response LS on Paging optimization; Huawei; LS out; reply LS to [R2-153015](#); Rel-13; TEI13;
=> Clarify that the attached CR is only technically endorsed and will not be submitted to RAN plenary in September
=> Update the reference
✓ => With these changes the Draft Response LS on Paging optimization to RAN3 and SA2 is revised in [R2-153913](#) then approved in [R2-153973](#)

Access Control

- [R2-153801](#) Restricting Unattended/Background Data Traffic; Verizon, Acatel-Lucent, Ericsson, Qualcomm; discussion; Rel-13; TEI13;
- DT thinks that this addresses an important issue but DT wonders how we can standardize this properly. How can we in 3GPP ensure that the right traffic is barred in the operating system? Verizon intends to specify only the AS signalling whereas the handling on higher layers is left to the Operating System. Vodafone thinks that all kind of machine traffic would fall into this category and one may wonder if this is intended. Verizon assumes that an MTC OS would not classify any background traffic. Sony agrees that it would still be up to the operating system. Nokia Networks shares this concern also regarding testability. Sony agrees that it will not be testable.
 - Sony is concerned about the device performance. Sony thinks that save a lot of battery by proprietary means and Sony is concerned that this would become bad with such a feature. BlackBerry shares those concerns.
 - Intel thinks that the requirements has been added in the context of UPCON and assumes that it was supposed to be handled by NAS functionality which is currently however not done due to the absence of a corresponding WI.
 - Regarding observation 3, BlackBerry thinks that a way to reduce the RRC signalling overhead is to keep the UE longer in CONNECTED.
 - KDDI supports Verizon's proposal.
 - Nokia Networks thinks that operating systems already allow the user to disable background traffic. It is up to the user to make use of that functionality or not. Verizon agrees but thinks that most users don't enable this today.
 - Nokia Networks thinks that the load will appear anyway once the user enables the screen again. Verizon thinks that those are typically keep alive messages and requests that will not be sent all later.
 - Nokia Networks wonders whether push email while the screen is disabled is considered unattended traffic. Verizon explains that this is supposed to be used by the network during high load phases. And then it is better to block unattended background traffic rather than actively used phones. Huawei agrees with Nokia Network's concern and thinks that a so called background service with its notifications might be very essential for the user.
 - MediaTek wonders whether this is similar to ACDC. Verizon explains that the difference is that this does not generally block certain applications but rather all applications while they are in background mode. Verizon points out that net neutrality may not allow blocking only individual applications by ACDC.
 - LG thinks that such a solution should be discussed in CT1. Ericsson thinks that RAN2 can address the problem since it is a problem with radio load. CT1 could afterwards discuss the feasibility with respect to interaction between NAS and higher layers. Telecom Italia points out that ACDC came from CT1 and SA1 and not the other way around. ALU thinks that the intention is to provide the indication from AS more or less directly to the OS. Therefore, there should be hardly any CT1 impact.
 - Nokia Networks thinks that this might rather be a candidate for a WI considering it will likely involve multiple WGs.
- => Noted

RRM Measurements

- [R2-153687](#) Cell lists for Ax events; Ericsson; discussion; Rel-13; TEI13;
- MediaTek agrees that this is a problem and supports proposal 1.
 - MediaTek does not think that A4 events should be prohibited since that shows inter-eNB cells needed for mobility. Ericsson agrees that for A4 it would be better to configure this on an event level rather than on carrier level.
 - Samsung wonders why it is not important to know that there is an intra-frequency cell from another eNB. Shouldn't that stop the eNB from using the current SCell for CA. QC

wonders about the same but thinks that as long as the SCell has no UL, there is no interference problem. Chairman assumes that at least for DL SCell deactivation the eNB could use the CQI. Huawei thinks it will generally be beneficial to know also intra-frequency neighbours from RRM measurements.

- QC supports the proposal as it helps to avoid sending useless measurement reports.
- Nokia Networks wonders why we would not apply it to other events such as A3. Ericsson observed the problems primarily with A6 and considered A4 to be similar to that. QC thinks that measurements related to the PCell (e.g. A3, A1, A2, ...) are usually needed at the eNB. But QC would be fine to introduce it also for other events. Nokia Networks agrees.
- Samsung thinks we should avoid frequency specific information in

Agreements

- 1 Introduce the possibility to apply black/white lists only to selected ReportConfigEUTRA. (Details FFS)

=> Noted

[R2-153707](#) White-list for A4 and A6 event triggering; Ericsson; CR; 36.331; 12.6.0; 1899; C; Rel-13; TEI13;

[R2-153710](#) White-list and black-list for Ax event triggering; Ericsson; CR; 36.331; 12.6.0; 1901; C; Rel-13; TEI13;

Above 2 Tdocs not treated

[R2-153189](#) Location specific UE measurement configurations; Nokia Networks; discussion; Rel-13; TEI13;

- MediaTek thinks that this sounds sophisticated and complex. Tuning on the NW side might be more appropriate. MediaTek also thinks that if the base station wanted to do this, it could do it today by using some positioning information and to re-configure the measurement parameters when the UE moves into an area that requires these specific parameters. This would not require any changes in RAN2 protocols.
- Ericsson wonders whether the assumption is that the eNB knows the positions where specific measurement configurations are needed. Nokia Networks assumes that the NW obtains RLFs from specific locations that indicate need for contradicting configurations.
- Samsung thinks that we have discussed other enhancements that would also allow tuning the measurement parameters without requiring accurate location information.
- MediaTek thinks that triggering a bit too early is usually not as much a problem as too late handovers. The former result typically in a bit more ping pong but could be acceptable.

=> No support for the proposed enhancement.

=> Noted

MRO

[R2-153188](#) Enhancement of the UE timer used by MRO for Failure Analysis; Nokia Networks; discussion; Rel-13; TEI13;

- MediaTek wonders which of the RLFs is supposed to be classified. Nokia Networks explains that it is the second one. MediaTek thinks that this is one in a cell that UE has selected. But we cannot do MRO for cell selection. QC agrees with MediaTek and wonders what Nokia Networks actually wants to optimize. Nokia Networks thinks that without addition there is a risk that outdated RLF reports can be reported. Huawei agrees with QC that this is not needed.

=> No support

=> Noted

ProSe

[R2-153559](#) Discussion on acknowledgement for Sidelink grant; ASUSTEK COMPUTER (SHANGHAI); discussion; Rel-13; TEI13; revised in [R2-153563](#)

[Withdrawn]

[R2-153563](#) Discussion on acknowledgement for Sidelink grant; ASUSTEK COMPUTER (SHANGHAI); discussion; Rel-13; TEI13;

- Ericsson points out that this was discussed in Rel-12 and not agreed. What has changed since then? ASUSTEK thinks that we did not discuss it due to lack of time. Ericsson does not consider this enhancement necessary. ASUSTEK thinks that PDCCH is lost with a

probability of 1% and the effect is significant since the sidelink grant is applicable for many subframes.

- ASUSTEK thinks that if the feedback comes too late to re-send the sidelink grant, it could still allocate some of the resources allocation.
- LG thinks that the paper was treated in RAN2-88 and noted due to lack of support.
- eNB thinks that there is also the risk that the eNB does not receive the feedback correctly, there is a risk that the eNB allocates the same resource to two UEs. ASUSTEK thinks that the combined probability is low.

=> No support

=> Noted

[R2-153566](#) Discussion on Random Access for Sidelink; ASUSTEK COMPUTER (SHANGHAI); discussion; Rel-13; TEI13;

- Ericsson thinks that this was discussed in RAN2-88 and agreed on another solution for random access. ASUSTEK thinks that at that time we had no time to discuss optimizations in detail. LG tends to agree with the intention of the proposal but thinks that one should rather remove C-RNTI contention resolution. CATT thinks that both are needed.
- ASUSTEK explains that upon loss of time alignment the UE requests sidelink resources by a CB RA. Chairman thinks that this is rare case. Typically, SL-BSR transmission will rely on D-SR. Ericsson thinks that this optimization is not needed.

=> Can be discussed next meeting

=> Noted

EVS Support

[R2-153131](#) Discussion on the need of eNB awareness for EVS; Qualcomm Incorporated; discussion; Related to SA4 LS in [R2-153036](#); Rel-13; TEI13;

[Withdrawn]

8 UTRA Release 10 and earlier releases

[R2-153305](#) Clarification for the physical channel combination of DC-HSUPA and MC-HSDPA Nokia Networks discussion

- ALU likes the suggested text for table 2-3 and thinks that for Rel-10 one possibility could be to introduce a third column that lists all other secondary carriers.

=> Bring a CR next meeting to fix the issue

=> Noted

9 UTRA Release 11

(Cell_FACH_enh-Core, leading WG: RAN2, REL-11, started: March 11, closed: Dec. 12, WID: [RP-111321](#))

(HSDPA_MFTX-Core, leading WG: RAN2, REL-11, started: Sep.11, closed: Dec.12, WID: [RP-111375](#))

(4Tx_HSDPA-Core, leading WG: RAN1, REL-11, started: Sep.11, closed: Dec.12, WID: [RP-111393](#))

(MIMO_64QAM_HSUPA-Core, leading WG: RAN1, REL-11, started: Dec. 11, closed: Dec. 12, WID: [RP-121794](#))

(rSRVCC-RAN_UTRA-Core, leading WG: RAN3, REL-11, started: Sep.11, closed: Dec.12, WID: [RP-111334](#))

(HSPA_UL_TxDiv-CL-Core, leading WG: RAN1, REL-11, started: Dec.10, target: Dec.12, WID: [RP-120367](#))

(HSPA_UL_TxDiv-OL-Core, leading WG: RAN4, REL-11, started: Dec.10, closed: Dec. 12, WID: [RP-120367](#))

(8C_HSDPA-Core, leading WG: RAN1, REL-11, started: Dec.10, closed: Sep. 12, WID: [RP-101419](#))

Including corrections for UTRA functionality introduced as TEI11.

No contributions received

10 UTRA Release 12

10.1 WI: Further EUL Enhancements

(EDCH_enh-Core, leading WG: RAN2, REL-12, started: Dec. 13, **closed**: Dec. 14, WID: [RP-140127](#))

No contributions received

10.2 WI: Enhancements to SIB

(UTRA_SIBenh-Core, leading WG: RAN2, started: Dec. 13, **closed**: Sep 14, WID: [RP-140131](#))

No contributions received

10.3 WI: UMTS Heterogeneous Networks enhancements

(UTRA_hetnet_enh-Core, leading WG: RAN1, started: Dec.13, **closed**: Sep. 14, [RP-140463](#))

No contributions received

10.4 WI: DCH Enhancements for UMTS

(UTRA_DCHenh-Core, leading WG: RAN1, started: Sept.13, **closed**: Sep. 14, [RP-131357](#))

No contributions received

10.5 WI: WLAN/3GPP Radio Interworking – UTRA aspects

(UTRA_LTE_WLAN_interw-Core, leading WG: RAN2, REL-12, started: Dec.13, **closed**: Sep. 14, WID: [RP-132101](#))

No contributions received

10.6 WI: Increasing the minimum number of carriers for UE monitoring in UTRA and E-UTRA

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

- [R2-153306](#) Clarification for the inter-frequency measurement results on RACH with extended cell ID values Nokia Networks, Huawei, HiSilicon CR 25.331 12.6.05780 F Rel-12
LTE_UTRA_IncMon-Core
moved from 10.7 to 10.6
- Ericsson thinks that we should use the correct capability and we can remove the reference to stage 2.
- => the CR is moved to email discussion

Email discussion

- ☒ **[91#00][UMTS/IncMon] – Agree to 25.331 CR**
- Agree to 25.331 CR ([R2-153905](#))
 - One week after the meeting

- [R2-153532](#) Increased UE carrier monitoring E-UTRA support mandatory Ericsson CR 25.306
12.5.00488 F Rel-12 LTE_UTRA_IncMon-Core
moved from 4.2 to 10.6
- Ericsson this that we should make the capability dependent on E-UTRA capability “ in this release of the specification if the UE supports E-UTRA and if it is not category 0 UE it shall support ...”
- => The CR is revised in [R2-153898](#)

- [R2-153898](#) Increased UE carrier monitoring E-UTRA support mandatory Ericsson CR 25.306
12.5.00488 1 F Rel-12 LTE_UTRA_IncMon-Core

=> The CR is agreed

10.7 Other UMTS Rel-12 WI/SIs

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, target: June 14, WID: [RP-140092](#))

Including corrections for UTRA functionality introduced as TEI12.

[R2-153077](#) Simultaneous reconfiguration and active set update procedures Nokia Networks discussion
=> Noted

[R2-153591](#) Rapporteur corrections for 25.331 RRC specification Ericsson CR 25.331 12.6.05785
D Rel-12 TEI12
=> The CR is agreed

11 UTRA Release 13

11.1 WI: L2/L3 Downlink enhancements for UMTS

(UTRA_EDL_L23-Core, leading WG: RAN2, started: June 15, target: Dec. 15, WID: [RP-151043](#))

Time budget: 4 Tus

[R2-153190](#) Work Plan for the WI of L2 and L3 Downlink enhancements Huawei (Rapporteur) discussion
- Ericsson wonders how much can RAN3 progress in this meeting. Huawei thinks that at least RAN3 can progress on objective 4 part of the WI.
=> Noted

[R2-153203](#) Introduction of L2 and L3 Downlink enhancements in TS 25.300 Huawei, HiSilicon CR
25.300 12.4.00018 B Rel-13 UTRA_EDL_L23-Core
=> Not treated

11.1.1 Retrievable configurations

Contributions should focus on the solutions discussed and concluded in the SI phase

[R2-153194](#) Discussion on the solution on configuring retrievable configurations Huawei, HiSilicon discussion
- Ericsson thinks that we should use the same IEs for retrievable configuration. If we add new IEs in the same message we are increasing the message size and increasing the potential impacts to the spec. Huawei wonders how the network can configure multiple configurations.
- Ericsson wonders why a retrievable configuration needs to be deleted. Huawei would like to have the possibility to disable the feature. Qualcomm thinks that one use case could be to replace a configuration. Ericsson thinks that it can be done by overriding the configuration.
- Ericsson thinks that proposal 3 and 4 are fine but wants to ensure that we can change part of the configuration only.
=> Noted

[R2-153302](#) Retrievable configurations Nokia Networks discussion

- Huawei wonders what is meant by Proposal 3. Nokia Net indicates that the proposal is addressing how many configurations we can send in one message.

=> Noted

[R2-153583](#) Retrievable configurations Ericsson discussion

=> Noted

[R2-153193](#) Discussion on the parameters in the retrievable configurations Huawei, HiSilicon discussion

=> Not treated

[R2-153584](#) Retrievable configurations Ericsson CR 25.300 12.4.00021 B Rel-13

UTRA_EDL_L23

=> Not treated

NOTE: WI code should be "UTRA-EDL_L23-Core" in CR coversheet

[R2-153585](#) Retrievable configurations Ericsson CR 25.331 12.6.05784 B Rel-13

UTRA_EDL_L23

=> Not treated

NOTE: WI code should be "UTRA-EDL_L23-Core" in CR coversheet

Discussion

How to configure/signal a retrievable configuration (only one retrievable configuration in a RRC message or multiple retrievable and introduction on new IEs)

- Nokia Net prefers to have multiple configurations per message and doesn't think that it will introduce too much complexity. For example eSCC, we didn't introduce spec changes for every IE we included. We only specified that we act on the container only when we do the cell change.
- Ericsson doesn't think that we should increase the message size and maybe we can have a new message introduced.
- Huawei thinks that if you want to signal more than one you have to send more than one RRC message.
- Qualcomm would also like to have the flexibility to send more than one.

Should "Downlink HS-PDSCH Information" be included in retrievable configurations

- Nokia Net wonders why we shouldn't include the Downlink HS-PDSCH Information. Ericsson thinks that the retrievable configurations shouldn't be very dynamic parameters. Qualcomm thinks that it can be left up to the network to include or not.

The network should have a possibility to provide configurations for a particular state regardless of the state in which a UE is

- Qualcomm wonders that the configurations are common for all states that we are limiting the amount of configurations we can provide. Nokia Net thinks that this is a trade off.

Working assumption:

- Multiple retrievable configurations are allowed to be signalled using a single message
- "Downlink HS-PDSCH Information" may be included in retrievable configurations

Agreements

- The UE can store up to 16 retrievable configurations
- Retrievable configurations can only be signalled to the UE in CELL_FACH or CELL_DCH
- Retrievable configurations can be stored in all states except idle mode. FFS if is used in CELL_PCH and URA_PCH

11.1.2 Seamless URA_PCH to CELL_FACH transitions

Seamless URA_PCH to CELL_FACH transitions (with or without RNTI extension)

[R2-153195](#) Discussion on seamless transition from URA_PCH to CELL_FACH Huawei, HiSilicon discussion
 Proposal 1: It is proposed RAN2 to agree the URA-wide RNTI solution for seamless transition from URA_PCH to CELL_FACH.
 - Ericsson agrees
 Proposal 2: It is proposed RAN2 to agree a seamless URA_PCH state transition requires a UE to be configured with C-RNTI, dedicated H-RNTI and E-RNTI.
 - Ericsson thinks C-RNTI is not needed. Huawei thinks that we should align the procedure as much as possible with the existing common E-DCH variables and there the C-RNTI is needed. Qualcomm thinks that the problem now is that if we remove C-RNTI now then it will be too complicated to clean up the spec and changing it in one place may trigger a chain reaction.
 => Noted

[R2-153303](#) Seamless transition from URA_PCH Nokia Networks discussion
 - Huawei thinks that we should check further in which cases we need to send CELL_UPDATE.
 => Noted

[R2-153197](#) Introduction of seamless transition from URA_PCH to CELL_FACH Huawei, HiSilicon CR 25.301 12.0.00110 B Rel-13 UTRA_EDL_L23-Core
 => Not treated

[R2-153198](#) Introduction of seamless transition from URA_PCH to CELL_FACH Huawei, HiSilicon CR 25.308 13.0.00168 B Rel-13 UTRA_EDL_L23-Core
 - Nokia Net thinks that the changes in this section are modifying a different feature. Huawei thinks that they were aligning the behaviour with CELL_PCH in terms of how paging is done. Qualcomm is wondering whether the HSPA paging and PCH seamless transition were different features. Nokia confirms that it is a different feature and we should discuss whether we want to enable it or not.
 => The CR is postponed

[R2-153199](#) Introduction of seamless transition from URA_PCH to CELL_FACH Huawei, HiSilicon CR 25.319 12.3.00134 B Rel-13 UTRA_EDL_L23-Core
 => The CR is postponed

[R2-153201](#) Introduction of seamless transition from URA_PCH to CELL_FACH Huawei, HiSilicon CR 25.331 12.6.05778 B Rel-13 UTRA_EDL_L23-Core
 - Ericsson thinks that we should maybe use a new variable. Huawei thought that a new variable was a bit more complicated.
 - Qualcomm indicates that the variable HSPA_RNTI_STORED_CELL_PCH variable was introduced for the case where the network or the UE does not support HSPDA based paging and the variable ready for common E-DCH is for the case where both network and UE both support HSDPA based paging.
 => The CR is postponed

Not treated

[R2-153558](#) Introduction of Seamless URA_PCH to CELL_FACH transition Ericsson CR 25.308 13.0.00170 B Rel-13 UTRA_EDL_L23-Core

[R2-153560](#) Introduction of Seamless URA_PCH to CELL_FACH transition Ericsson CR 25.319 12.3.00135 B Rel-13 UTRA_EDL_L23-Core

[R2-153565](#) Introduction of Seamless URA_PCH to CELL_FACH transition Ericsson CR 25.331 12.6.05782 B Rel-13 UTRA_EDL_L23-Core

withdrawn

[R2-153200](#) Introduction of seamless transition from URA_PCH to CELL_FACH Huawei, HiSilicon CR 25.321 12.2.00811 B Rel-13 UTRA_EDL_L23-Core

Agreements:

- To support seamless URA_PCH state transition a UE needs to be configured with C-RNTI, dedicated H-RNTI and E-RNTI. FFS on the need of C-RNTI and impact on legacy procedures if C-RNTI is not included.
- FFS whether HSDPA based paging is allowed for seamless URA_PCH transitions (e.g. paging on HS-SCCH)

11.1.3 RNTI extension mechanisms

RAN2 specific aspects related to extending RNTI? What states is this extension applicable to?

[R2-153202](#) Discussion on the extended RNTI solution Huawei, HiSilicon discussion
=> Noted

[R2-153304](#) Overview of solutions for extending the RNTI space Nokia Networks discussion
- Ericsson thinks that for the solution two we would to signal the UE the channels it has to monitor.
- Ericsson thinks that this would require using up a lot of HS-SCCH and you impact capacity. Nokia Net thinks that nothing comes for free.
=> Noted

[R2-153531](#) RNTI extension Ericsson discussion
=> Noted

Discussion:

- Nokia Net is in favour of the solution in which parallel channels are configured.
- Huawei would prefer that for E-RNTI extension we introduce parallel E-AGCH channels and for H-RNTI extension we should consider MAC PDU extension. Ericsson thinks that the MAC PDU solution has impact on battery consumption.
- Ericsson favours changing the E-AGCH and HS-SCCH channels to extend the E-RNTI/H-RNTI.
- Chair wonders what about C-RNTI. Nokia Net thinks that we can use the U-RNTI in the MAC PDU.
- Ericsson thinks that maybe we can send an LS to RAN1 to get their opinion. Nokia Net thinks that here in RAN2 we can already understand the RAN1 impacts.
- Chair wonders how a legacy UE knows that the HS-SCCH is using a new format. Nokia Net thinks that to be able to distinguish the HS-SCCH format you may need a different HS-SCCH channel.

11.1.4 Improved HARQ retransmission

[R2-153204](#) Discussion on improved HARQ retransmission Huawei, HiSilicon discussion
- Qualcomm is not convinced about the benefits of this feature. Huawei wonders what the detailed concerns are.
- Nokia Net wonders why HARQ A/N repetitions wouldn't be allowed. Huawei indicates this is because the UE may be scheduled in consecutive TTIs and this means that A/N repetitions can't be done. Nokia Net wonders how A/N will work, is it once after all the repetitions are done or will it be generated after every transmissions. Huawei thinks that independent A/N feedback will be done, one for each transmission. Nokia Net thinks that we can potentially allow two A/N repetitions if the retransmissions are done every 2 TTIs.
- Chair wonders how the scheduling is done. Huawei thinks it would follow normal scheduling.
- Nokia Net wonders if we can use a better name for the feature. One option can be unsolicited retransmission. Ericsson agrees we should have a better name, maybe blind retransmissions.
- Ericsson thinks that the limitations on the max number of retransmissions should be specified in the MAC.

It is proposed RAN2 to agree on the combinations of the improved HARQ retransmission feature with the legacy features, such as DC-HSDPA, 4C-HSDPA, 8C-HSDPA, Multiflow and DL MIMO

- Ericsson wonders if we have analysed the DL MIMO scenario and thinks that it may be complex. Huawei wonders what the potential complexity could be. Ericsson thinks that MIMO can be complex since we have retransmissions across streams

It is proposed RAN2 to agree that the improved HARQ retransmission feature can be only applied to the serving HS-DSCH cell

- Nokia Net and Ericsson wonder why we would limit this to serving HS-DSCH cell and not the secondary serving HS-DSCH cell. Huawei thinks that one reason was to not increase UE complexity.
=> Noted

Not treated

R2-153205	Introduction of improved HARQ retransmission for HSDPA	Huawei, HiSilicon	CR	25.308
	13.0.00169 B Rel-13 UTRA_EDL_L23-Core			
R2-153206	Introduction of improved HARQ retransmission for HSDPA	Huawei, HiSilicon	CR	25.321
	12.2.00812 B Rel-13 UTRA_EDL_L23-Core			
R2-153207	Introduction of improved HARQ retransmission for HSDPA	Huawei, HiSilicon	CR	25.331
	12.6.05779 B Rel-13 UTRA_EDL_L23-Core			
R2-153208	Introduction of improved HARQ retransmission for HSDPA	Huawei, HiSilicon	CR	25.306
	12.5.00487 B Rel-13 UTRA_EDL_L23-Core			

Working assumption:

- RAN2 will specify the blind HARQ retransmission operation for CELL_DCH UE
- The blind HARQ retransmissions will apply to both signalling and data transmission.
- Blind HARQ retransmission feature can work in combination with the following with the legacy features, DC-HSDPA, 4C-HSDPA, 8C-HSDPA, and Multiflow. FFS is combination with DL MIMO is allowed
- It is proposed RAN2 to agree that the blind HARQ retransmission feature can be applied to the serving and secondary HS-DSCH cells
- The re-transmissions will be scheduled using legacy scheduling mechanisms and the UE will report A/N feedback on a per transmission basis.
- The network can ensure that A/N repetitions don't collide or can be configured by proper scheduling and configuration.
- No restrictions on number of total HARQ retransmissions should be specified

11.1.5 Other

Discuss whether a conclusion on the benefits and consensus on a solution can be achieved for UE state transition and synchronous RRC reconfiguration

Contributions on RAN2 specific aspects related to optimization from IDLE to CONNECTED state can be submitted here.

- [R2-153116](#) Optimizations for the IDLE to CONNECTED state transition Nokia Networks discussion
- Ericsson thinks that we should send an LS to RAN3 but not mandate that they specify this. We should indicate what RAN2 is considering and RAN3 should discuss.
- => RAN2 will send an LS to RAN3 indicating the solution RAN2 is considering and that it finds it beneficial.
- Ericsson wonders if there are any RAN2 impacts. Nokia Net indicates that [R2-153845](#) discusses the RAN2 impacts.
- [R2-153893](#) LS to RAN3 on optimization of Idle to connected mode transition Nokia Networks LS out to RAN3 from RAN2 Rel-13 UTRA_EDL_L23-Core
- Ericsson thinks that we should ask RAN3 to confirm the benefits of the feature. Nokia Net thinks that RAN3 can discuss the feature and if they have any concerns they can indicate their concerns to us.

RAN2 has discussed optimizing the latency of idle to connected mode state transition and has concluded that it could be beneficial if the RNC provides additional information to the Node-B to facilitate acquisition of a common E-DCH resource. If Node B wants to initiate common E-DCH resource acquisition, it can send the corresponding HS-SCCH order to the UE.

2. Actions:**To RAN3:**

RAN2 kindly asks RAN3 to take the conclusion into account.

=> The LS is agreed with the changes above in [R2-153895](#)

- [R2-153117](#) Latency reduction for uplink signalling traffic Nokia Networks discussion
- => revised in [R2-153845](#)
- [R2-153845](#) Latency reduction for uplink signalling traffic Nokia Networks discussion

- Huawei wonders what is meant by different traffic types. Nokia Net indicates that it is CCCH or DCCH.
 - Huawei thinks that a higher power would impact the interference level in the network. Nokia Net thinks that the proper value should be decided by the network, but since the signalling traffic volume of DCCH/CCCH is much lower than the overall UL traffic the impact is not very large. Huawei thinks that there could be use cases where many UE start UL signalling at the same time.
 - Ericsson wonders how much gains the improvement would provide.
- => Noted

Not treated

[R2-153192](#) Discussion on the way forward of objectives (5) and (6) for EDL Huawei, HiSilicon discussion

[R2-153580](#) Improved synchronized RRC procedures Ericsson discussion

[R2-153748](#) Enhanced synchronous RRC re-configuration procedure Nokia Networks discussion

[R2-153750](#) Autonomous state transition Nokia Networks discussion

Discussions:

- Huawei doesn't think a consensus has been reached.
- Ericsson thinks that without these changes, we can't speed up the synchronous re-configurations. Nokia Net agrees that we won't be able to speed up the synchronous procedures but we also have asynchronous procedures.

After comeback

- Huawei thinks that for objective 5 (autonomous state transition) there seems to be a consensus for the RRC layer handshake
- Ericsson wonders if there will be a RRC configuration option whether to use the procedure or not. Companies confirm that this is the understanding
- Huawei thinks that for objective 6 most companies are fine with the MAC layer handshake (Solution 1)

=> RAN2 has decided that for autonomous state transition RAN2 will work on RRC layer handshake (solution 3)
 => For Improved synchronize RRC procedures RAN2 will work on the MAC layer handshake solution (solution 1)

Not treated

[R2-153581](#) Improved synchronized RRC procedures Ericsson CR 25.321 12.2.00813 B
 Rel-13 UTRA_EDL_L23

NOTE: WI code should be "UTRA-EDL_L23-Core" in CR coversheet

[R2-153582](#) Improved synchronized RRC procedures Ericsson CR 25.331 12.6.05783 B
 Rel-13 UTRA_EDL_L23

NOTE: WI code should be "UTRA-EDL_L23-Core" in CR coversheet

[R2-153118](#) Release of dedicated RNTIs Nokia Networks discussion

- Qualcomm wonders how this will work and if we remove the dedicated RNTI we will remove the ability to do seamless transitions.
- => Noted

Withdrawn

[R2-153120](#) Latency reduction for uplink signalling traffic Nokia Networks discussion

11.2 WI: Power saving enhancements for UMTS

(UTRA_SDATA_POWSAV-Core, leading WG: RAN2, started: June 15, target: Mar 2016, WID: [RP-151092](#))

Time budget: 2 TUs

[R2-153537](#) Workplan WI Power Saving enhancements for UMTS Ericsson discussion

- Huawei: 3 options are listed, as agreed by SA2. What about the option of eDRX within SFN limit of 40sec?
 - ERI: no details have been provided in this paper, but we agree we should discuss that.
 - NN: does the TU allocation depend on the selected solution?
 - ERI: no issue is expected at this time. We'll see how things progress in RAN2.
- => Noted

11.2.1 Extended DRX mechanisms in Idle mode

[R2-153501](#) Considerations on DRX extension beyond SFN limit in idle mode Huawei, HiSilicon discussion

- ERI: the paper focuses on DRX > 40.96. Our understanding is that those considerations may be generic to eDRX, e.g. the timer based solution may also apply to DRX < 40.96
 - Huawei: we can discuss more based on other contributions.
 - NN: agree that solutions may apply to both DRX ranges, but certain issues may differ, e.g. paging.
- => Noted

[R2-153121](#) Further considerations for DRX cycle configurations Nokia Networks discussion

- ERI: about CS attach, we agree with the observation. Our understanding is that this enhancement should apply to PS-only UEs.
 - NN: we agree
 - ERI: in RAN2 LTE there was some discussion on e.g. the support of ETWS, but no final conclusion.
 - ERI: about specs impact, the impacts of the timer-based solution may be larger than what is described in the paper, e.g. on 25.304
- => Noted

Working assumption: we can agree that eDRX should apply only to UEs not attached to the CS domain. FFS about the support of ETWS, PWS, PS Emergency calls, etc.

[R2-153540](#) eDRX solution in Idle mode Ericsson discussion

- Huawei: in Table1, HSFN impacts are limited to UE and RAN. What about CN impacts? E.g. the extended k range would be an impact.
- ERI: agree. CT1/NAS specs are impacted
- Huawei: for the clock based solution, there should also be RAN impacts
- ERI: no spec changes, but e.g. the GPS time should be broadcast
- NN: in Fig.1 we understand that SGSN may still control the paging and avoid page buffering in RAN
- ERI: in the SA2 tech endorsed solutions, in the RAN based HSFN solution, CN is not SFN aware, thus paging buffering in RAN is assumed [R2-153498](#) Discussion on DRX extension configuration in idle mode Huawei, HiSilicon discussion
- ERI: we don't see much value in the use case of DRX < 40sec, thus our main interest is in very long DRX. Thus we prefer to keep it simple, e.g. not to have two different options/solutions.
- NN: one common solution is also preferable in our view; no strong opinion on the need/value of DRX < 40sec option.
- HW: there may be use cases, e.g. for future PS-only devices, where DRX < 40sec may be valuable. In that case, we would like to use legacy DRX below 40sec
- ERI: the option of DRX < 40sec should be supported, but we prefer to define one common solution.
- Huawei: below 40sec, MIB reading would be an issue (battery wise), thus legacy DRX may be better

- ERI: agree that MIB reading may not be optimal, but shorter DRX values should not be the main use case
- NN: two different RAN algorithms/implementations seem unnecessary complex, thus why we prefer one common solution.
- => Noted

Working agreement: we will standardize the timer based solution, as endorsed by SA2, for Idle mode eDRX in UMTS, for both DRX cycles below and above 40.96 sec. The solution

- Chair: Majority of companies assumes that the solution shall be RAN transparent.
- NN: the assumption that the solution is RAN transparent is a key reason for us to agree on the above working agreement; otherwise we could consider other solutions.

[R2-153541](#) Measurements and mobility with I-eDRX Ericsson discussion
- Huawei: on Proposal1, can you be more specific on the RAN4 impacts? About proposal2, can you please clarify the expected UE behaviour?
- ERI: we can discuss more on p1 as part of the proposed LS-out. On P2, we can think/discuss more.
=> Noted

[R2-153542](#) LS on eDRX measurements in Idle mode for UMTS Ericsson LS out
- Huawei: may be we can add some examples on the value/range of the eDRX cycle
- NN: may be we can reword the sentence "RAN2 assumed that the UE is not required to measure during the sleep period" as e.g. "RAN2 assumed that the UE shall not measure during the sleep period".
- ERI: we can consider some rewording
- NN: About the sentence "existing DRX measurement requirements apply during the paging window", is the intention to re-use the existing requirements for the entire PTW, or part of it?
- ERI: up to RAN4.
=> LS is revised in [R2-153896](#).

[R2-153896](#) LS on eDRX measurements in Idle mode for UMTS Ericsson LS out
Rel-13 UTRA_SDATA_POWSAV-Core
=> The LS is agreed in [R2-153902](#)

11.2.2 Extended DRX mechanisms in Connected Mode

[R2-153484](#) Discussion on the way forward for the extended DRX for connected mode Huawei, HiSilicon discussion
=> Noted

[R2-153543](#) eDRX solution in Connected mode Ericsson discussion
- Huawei: about the 2nd PICH, do you have any concern on the impacts (on legacy UEs) due to a large number of eDRX UEs?
- ERI: the small eDRX cycle length (e.g. up to 20s) should not cause significant impacts
=> Working assumption eDRX in connected mode is not supported
=> Noted

[R2-153544](#) Measurements and mobility with C-eDRX Ericsson discussion
=> Not treated

[R2-153545](#) LS on eDRX measurements in PCH state for UMTS Ericsson LS out
=> Not treated

11.2.3 Other

[R2-153122](#) Options for quick return to PSM idle mode Nokia Networks discussion
=> Noted

[R2-153495](#) Considerations on quick return into power saving mode Huawei, HiSilicon discussion
=> Noted

[R2-153546](#) Quick return into power saving Ericsson discussion
=> Noted

=> RAN2 agrees that a NW based solution is preferred, and a LS will be sent to RAN3.

FFS if there is need to extend it to eDRX as well

[R2-153547](#) LS on quick return into PSM for UMTS Ericsson LS out
- Chair: Change SA3 to RAN3
- Some rewording will be proposed

=> LS is revised in [R2-153897](#)
[R2-153897](#) LS on quick return into PSM for UMTS Ericsson LS out Rel-13
UTRA_SDATA_POWSAV-Core
=> Actions should be to RAN3
=> The LS is agreed in [R2-153903](#)

[R2-153503](#) Draft LS to RAN3 on Quick return to PSM Huawei LS out
=> Not treated

Spec impacts

Not treated

[R2-153502](#) Stage 3 impacts analysis on DRX extension within SFN limit for both idle and connected mode
Huawei, HiSilicon discussion

[R2-153538](#) eDRX RAN2 specification impact Ericsson discussion

[R2-153539](#) Introduction of extended DRX in Idle and Connected mode Ericsson CR 25.300 12.4.0
0020 B Rel-13 UTRA_SDATA_POWSAV-Core

11.3 WI: Support of EVS over UTRAN CS

(EVSoCS_UTRAN-Core; leading WG: RAN2, started: Dec. 14, target: Sep 15, WID: [RP-142282](#))

Time budget: 1 TU

[R2-153906](#) Minutes of Joint RAN1 and RAN2 EVS session Ericsson Discussion Rel-13
EVSoCS_UTRAN-Core
- Comeback from joint session – LS related to [R2-153694](#) revised in [R2-153899](#)
=> Noted

[R2-153899](#) Draft Reply LS on EVSoCS Qualcomm Incorporated LS out
=> References need to be deleted
=> The LS is agreed in [R2-153904](#) with the deletion of references above

Documents in this agenda item were handled in a joint RAN1 and RAN2 session – with notes captured in [R2-153906](#)

Incoming LS

[R2-153037](#) Reply LS to [R2-150598](#) and [R2-151734](#) on EVS over UTRAN (S4-150870; contact: Ericsson)
SA4 LS in Rel-13 EVSoCS
=> Noted

[R2-153043](#) Reply LS to S4-150870 = [R2-153037](#) on EVS over UTRAN (C4-151290; contact: Ericsson)
CT4
=> Noted

[R2-153039](#) Reply LS to S4-150870 = [R2-153037](#) on EVS over UTRAN (C1-153239; contact: Qualcomm)
CT1 LS in cc: RAN2Rel-13 EVSoCS
=> Noted

[R2-153040](#) Reply LS to S4-150870 = [R2-153037](#) on EVS over UTRAN (C3-153456; contact: Qualcomm)
CT3 LS in cc: RAN2Rel-13 EVSoCS
=> Noted

Discussion

- [R2-153479](#) Additional radio bearer combination for EVS over CS Huawei, HiSilicon discussion
=> Noted
- [R2-153688](#) Considerations on EVSoCS error protection Qualcomm Incorporated discussion
=> Noted
- [R2-153690](#) Considerations on EVSoCS mode sets and RABs Qualcomm Incorporated discussion
=> Noted
- [R2-153691](#) Examples of EVS CS RABs and configuration parameters Qualcomm Incorporated discussion
=> Noted
- [R2-153694](#) Draft Reply LS on EVSoCS Qualcomm Incorporated LS out
=> revised in [R2-153899](#) [R2-153899](#) Draft Reply LS on EVSoCS Qualcomm Incorporated LS out
=> agreed in [R2-153904](#)

11.4 SI: Study on Network-Assisted Interference Cancellation and Suppression for UMTS

(FS_UTRA_NAICS, Leading WG: RAN1, started: Dec. 14, target: Sept. 2015, SID: [RP-150174](#))

Time budget: 1.5 TU

- [R2-153186](#) Impacts of NAICS solutions in RAN2 Huawei, HiSilicon discussion
NN RAN1 have a CB on conclusions later this week, so what is the intention of the paper?
Huawei indicate it is only for information.
- => Noted.

11.5 WI: Multiflow Enhancements for UTRA

(HSDPA_MFTX_enh-Core, leading WG: RAN2, started March 15, target: Sep. 15, WID: [RP-150288](#))

Time budget: 0.5 TU

Incoming LS

- [R2-153013](#) LS on RAN1 Multiflow 3F-4C agreements ([R1-153694](#); contact: Nokia Networks) RAN1 LS in Rel-13 HSDPA_MFTX_enh-Core
- Qualcomm wonders why CQI repetition was only allowed for some configurations in Rel-11. Nokia Networks explains that it depends on the HS-DPCCH format and the same limitations would apply for Rel-13.
- => Noted

Discussion

- [R2-153073](#) Remaining aspects on the Multiflow 3F-4C configuration Nokia Networks discussion
- Huawei thinks that the HARQ A/N repetition agreement should have 25.331 impacts. Nokia Net explains that there is impact but due to Rel-11 existing text we do not have to make any changes.
 - Ericsson wants to confirm that in Figure 4a (right) whether the F1 frequency is the primary freq. Nokia Net confirms.
- => Use the relative order of secondary serving HS-DSCH cells to determine their mapping to CQIs
- => If a UE supports dual-band 3F-4C with two cells on two frequencies in band A and two cells on one frequency in band B, then a UE also supports a combination with two cells on one frequency in band A and two cells on two frequencies in band B (see Figure 4a).
- => If a UE supports dual-band 3F-4C with three cells on two frequencies in band A and one cell on one frequency in band B, then a UE also supports a combination with one cell on one frequency in band A and three cells on two frequencies in band B (see Figure 4b).
- => The capability signalling for this combinations will follow the same signalling mechanism as previous releases – indicating number of cells/frequencies supported in each band.
- => Noted
- [R2-153074](#) Introduction of the Multiflow 3F-4C configuration Nokia Networks CR 25.302 12.1.00237
B Rel-13 HSDPA_MFTX_enh-Core

- ALU has reviewed the CR and thinks everything is good
- Huawei thinks that table Table 2-5: FDD Downlink and Uplink (Multiflow) only includes one secondary HS-DSCH and wonders if we need to include a new column for this configuration.

=> The CR is revised in [R2-153894](#)

[R2-153894](#) Introduction of the Multiflow 3F-4C configuration Nokia NetworksCR 25.302 12.1.00237
B 1 Rel-13 HSDPA_MFTX_enh-Core

=> Update the heading of the table 2-4 to make it look similar to 2-5

=> The CR is agreed in [R2-153900](#)

[R2-153075](#) Introduction of the Multiflow 3F-4C configuration Nokia NetworksCR 25.321 12.2.00810
B Rel-13 HSDPA_MFTX_enh-Core

=> The CR is agreed

[R2-153076](#) Introduction of the Multiflow 3F-4C configuration Nokia NetworksCR 25.331 12.6.05776
B Rel-13 HSDPA_MFTX_enh-Core

=> Change to from three frequencies to two frequencies

=> In 8.5.71 link the "numbering of entries" to 3F-4C

- Qualcomm wonders if we should use the same terminology as multi-carrier for "number of entries". Nokia Net indicates that the same terminology is used.

- Huawei thinks that current text on HARQ A/N repetition doesn't distinguish between intra-Node B and inter-Node B. Nokia Net thinks that the Rel-11 text should only be applicable for inter-Node B as all these restrictions apply to inter-Node B case. Chair thinks that this is not clear in the RAN2 specs. Huawei thinks that the legacy text in Rel-11 is applicable to intra-Node B and inter-Node B

=> Check whether for Rel-11 the text is applicable to both intra-/inter-Node B operation and whether RAN1 specifies something in their specs

- Ericsson thinks that Section 8.1.3.6 may need to be updated to reflect up to three frequencies

- Qualcomm wonders where we would specify the dependency that if you support 3F-4C then you also support 2F-4C. Nokia Net needs to check

- Qualcomm thinks we can make Note 6 more explicit to indicate all 4 scenarios

=> The CR is revised in [R2-153891](#)

[R2-153891](#) Introduction of the Multiflow 3F-4C configuration Nokia NetworksCR 25.331 12.6.05776
B 1 Rel-13 HSDPA_MFTX_enh-Core

=> add (assisting) to first changes on section 8.5.71

- Ericsson thinks that the changes in table 10.3.3.42 extending the allowed value to be signalled for band B are not needed.

=> remove the tabular changes for band B in table 10.3.3.42

=> The CR is agreed in [R2-153901](#) CR 5776 R2 with the changes above

11.6 WI: HSPA Dual-Band UL carrier aggregation

(HSUPA_DB_MC-Core; leading WG: RAN4; REL-13; started: Dec. 14; target: Dec. 15; WID: [RP-142237](#))

Time budget: 0.5 TU

Incoming LS

[R2-153018](#) LS to RAN2 on HSPA DB UL CA agreements (R4-153782; contact: Qualcomm) RAN4 LS in
=> Noted

Discussion

[R2-153695](#) RAN2 impacts due to the introduction of DB-DC-HSUPA Qualcomm Incorporated discussion

- Nokia Net thinks that the greedy power allocation algorithm may result in the UE always starting with the primary carrier.
- Nokia Net has some concerns on changing the formula.
- Intel thinks that we should wait for RAN4 to finish their discussions on the allowed classes.

[R2-153696](#) Draft Reply LS on DB-DC-HSUPA Qualcomm Incorporated LS out
Late
=> Not treated

11.7 WI: Application specific Congestion control

(ACDC-RAN-Core; leading WG: RAN2; REL-13; started: Mar. 15; target: Dec. 15; WID: [RP-150512](#))

Time budget: 0.25 TU

UMTS specific aspects of ACDC

- [R2-153180](#) Discussion on ACDC in UMTS Huawei, HiSilicon discussion
- => Confirm LTE decision for Proposal 1-3
 - Ericsson thinks that for Proposal 4 we need to discuss and verify before confirming the LTE agreements.
 - Intel agrees for DSAC case, the UE behaviour in the proposal is acceptable. Ericsson thinks that we need to discuss it further. Intel indicates that last meeting we decided that ACDC applies to PS data only and DSAC as well, so they don't see an issue.
 - Intel wonders about the PPAC case. Ericsson thinks that PPAC and ACDC are not related and won't happen at the same time.
 - Intel wonders what happens to EAB.
 - Qualcomm wonders if ACDC applies to emergency calls. Intel's understanding is that it shouldn't but hasn't been agreed yet.
- => Noted

- [R2-153251](#) Support of ACDC in UTRAN Ericsson discussion
- Intel thinks that we need to signal the flag for all the categories as in LTE they decided to signal all of the categories from highest to lowest.
 - Intel thinks that if we have a single flag we may not be able to assign different probability of access to different categories as in LTE. Huawei thinks that we should follow the EAB like solution.
 - Intel thinks that we should support a new ACDC SIB and we should discuss it independently from LTE. Ericsson agrees and in UMTS we have additional considerations. Qualcomm has a preference for a new SIB.
- => Noted

Agreements

- No special behaviour from UE when both ACDC barring information and PPAC are included in SIB. The UE applies the mechanisms independently for different purposes
- FFS on UE behaviour if both ACDC barring information and DSAC are included
- The ACDC information will be provided in a new SIB for UMTS

11.8 UMTS 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!

- [R2-153084](#) Multi-carrier HSUPA with CS Nokia Networks discussion
- Qualcomm supports the proposal
 - Huawei also supports but thinks we should generalize to DCH
 - Ericsson thinks that we should have it as a Rel-14 WI. There are multiple group impacts. Nokia Net thinks that functionally there is no impact to other groups, just small modifications.
 - Ericsson thinks that in RAN4 there may be a need for some changes. Qualcomm thinks that after some verification they think that the existing evaluations can be used.
- => Noted

- [R2-153176](#) Considerations on DL RLC PDU size configuration for D2F state transition Huawei, HiSilicon discussion
- Late

- Qualcomm thinks that option 3 would have ASN.1 impact and procedural impacts related to DL PDU size selection.
 - Qualcomm would prefer a solution that is available for legacy releases
 - Ericsson thinks that option 2 and 4 can already be done in existing implementations
- => Noted

[R2-153177](#) Correction on DL RLC PDU size configuration for D2F state transition Huawei, HiSilicon
CR 25.331 12.6.05777 F Rel-13 TEI13
Late

=> Not treated

[R2-153533](#) Access Groups based access control enhancements Ericsson discussion

Support of Access group mechanisms for URA_PCH with seamless transition to CELL_FACH

- Huawei thinks this proposal makes sense and wonders if we can do it in DL enhancements WI instead. Ericsson thinks that we should not link the features as they are independent features.

Support of Access group mechanisms for URA_PCH/CELL_PCH without seamless transition to CELL_FACH

- Nokia Net thinks that we should allow this and maybe we can consider introducing it directly in Rel-12.
- Qualcomm wonders why we didn't include this case in Rel-12. Ericsson thinks that we didn't think of this case. Huawei indicates that in Rel-12 we decided to only control the DTCH and not control the DCCH, since the network can include the wait time in the CELL_UPDATE confirm. Qualcomm wonders if there is a need in this case.
- Nokia Net wonders what happens with the measurement reporting in case of seamless transition, as the DCCH measurement reporting is not blocked.
- Ericsson indicates that during the small data study item phase we concluded that access group mechanisms in URA/PCH without seamless transition can be beneficial

=> Noted

Agreements

=> Access group mechanisms for URA_PCH with seamless transition to CELL_FACH will be supported in Rel-13

Not treated

R2-153534	Access Groups based access control enhancements Ericsson	CR	25.300	12.4.00019
	B Rel-13 TEI13, EDCH_enh-Core			
R2-153535	Access Groups based access control enhancements Ericsson	CR	25.306	12.5.00489
	B Rel-13 TEI13, EDCH_enh-Core			
R2-153536	Access Groups based access control enhancements Ericsson	CR	25.331	12.6.05781
	B Rel-13 TEI13, EDCH_enh-Core			

12 Outgoing LSs and email discussions from UTRA session

12.1 Agreed outgoing LSs from UTRA session

[R2-153895](#) LS to RAN3 on optimization of Idle to connected mode transition RAN2 LS out
to RAN3 from RAN2 Rel-13 UTRA_EDL_L23-Core

[R2-153902](#) LS on eDRX measurements in Idle mode for UMTS RAN2 LS out to RAN4
from RAN2 Rel-13 UTRA_SDATA_POWSAV-Core

[R2-153903](#) LS on enabling return into PSM for UMTS RAN2 LS out to RAN3 from
RAN2 Rel-13 UTRA_SDATA_POWSAV-Core

[R2-153904](#) Reply LS on EVSoCS RAN2 LS out from: RAN2 to: SA4 cc: RAN1, RAN3
Rel-13 EVSoCS_UTRAN

12.2 Email discussions from UTRA

- ✉ [91#00][UMTS/IncMon] – Agree to 25.331 CR
- Agree to 25.331 CR ([R2-153905](#))
- One week after the meeting

13 Comebacks

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

13.1 LTE breakout session

13.1.1 Report from the User Plane session

[R2-153861](#) Report from UP Session, Vice-Chair (LGE)

CA enhancements

- Nokia Networks thinks that previously the 15 bit SN was only specified for RLC AM. Does the same apply for the new 23 bit SN? Nokia Networks thinks that it would be sufficient for AM bearers. Samsung agrees that this is not needed for UM bearers.
- => The PDCP SN of 23 bit applies only for AM bearers
- Ericsson thinks that we need to clarify when which PHR format is used. 8 vs. 32 is decided based on the number of carriers. It should also be implicitly derived from whether PUCCH is configured for SCell whether the Type2 format is used. At the moment, we agreed that there is explicit configuration. VC suggests to discuss this further. Nokia Networks that one could use the old format even when using up to 8 carriers and no PUCCH on SCell. Nokia Networks thinks we need to indicate explicitly whether the UE should use the new or the old format(s). If the new formats are used, the UE determines the applicable format from the actual configuration. Ericsson thinks that there is an impact on MAC and we should discuss it during the email discussion where we endorse the running CR.
- => Discuss further offline how to agreements made in this meeting affect MAC operation.
- => CB: [LTE/DCE] Send LS to RAN3, CT4, SA3 to inform that PDCP SN size is increased to 23 bits in [R2-153866](#) (Nokia).
- [R2-153866](#) PDCP SN increase; to RAN3, CT4, SA3
- => Remove “, potentially also to SA3 specifications.”
- => Put SA3 to CC
- => Remove yellow highlight
- ✓ => With this change the LS on “PDCP SN increase” to RAN3, CT4 (CC: SA3) is approved in [R2-153873](#)

Dual Connectivity

- ✉ [91#30][LTE/DCE] SFN/subframe offset reporting (NTT DOCOMO)
- related [R2-153175](#)
- => Intended outcome: Email discussion report to next meeting

13.1.2 Report from LTE Break-Out session

[R2-153885](#) Report from LTE Break-Out Session, Vice-Chair (InterDigital)

ProSe Rel-13

[R2-153881](#) Response LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay ([R2-153030](#)/S2-152695; contact: Qualcomm) Qualcomm LS out from RAN2
to: SA2 cc: RAN1 Rel-13 eProSe-Ext-SA2

- ✓ => The LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay to SA2 (CC: RAN1) is approved in [R2-153887](#)

- [R2-153883](#) LS on Inter-PLMN sidelink discovery transmission Huawei LS out from RAN2 to: SA2 and CT1 Rel-13 LTE_eD2D_Prox-Core
 => Change to “- The UE is not expected to perform any PLMN change for the purpose of inter-PLMN sidelink discovery transmission”
 ✓ => With this change the LS on Inter-PLMN sidelink discovery transmission to SA2 and CT1 is approved in [R2-153886](#)

eDRX

- [R2-153853](#) Draft reply LS on paging coordination in extended idle mode DRX; Qulacomm; LS out; from RAN2 to: SA2, RAN3 Rel-13 FS_eDRX
 - Intel thinks that the first mail needs to be adjusted to reflect the agreement.
 - ALU would like to clarify that there is no need for tight network synchronization
 - ZTE thinks that the second action should be for RAN3. QC thinks that it is not clear whether we will need some X2 aspects and hence RAN3 might not need to be involved. QC thinks that on a high level SA2 should start the work first. Huawei thinks that the synchronization between cells is clearly in the scope of RAN3. But Huawei thinks that the actual tasks are different for the two groups.

=> [eDRX] An update LS may be provided in [R2-153888](#)

- [R2-153888](#) Draft reply LS on paging coordination in extended idle mode DRX; Qulacomm; LS out; from RAN2 to: SA2 Rel-13 FS_eDRX

- [R2-153909](#) Draft reply LS on paging coordination in extended idle mode DRX; Qulacomm; LS out; from RAN2 to: SA2 Rel-13 FS_eDRX
 => Remove “RAN2 has not defined a range for the H-SFN timing difference, but it is expected to be in the order of seconds.”

- ✓ => With this change the reply LS on paging coordination in extended idle mode DRX to RAN3 and SA2 is approved in [R2-153914](#)

- [R2-153882](#) LS on eDRX MediaTek Inc. LS out from RAN2 to: RAN4 Rel-13 LTE_extDRX-Core

- ✓ => The LS on eDRX to RAN4 is approved in [R2-153915](#)

Discuss/agree whether we should send an LS to RAN4

- ☒ [91#07][LTE/eD2D] One week: LS to RAN4 (QC)
 -Agree on LS to RAN4 notifying them of RAN2 agreements related to gaps for inter-frequency/inter-PLMN discovery
 => Intended outcome: Approved LS to RAN4

13.2 UMTS breakout session

13.3 Main session

This section contains a temporary list of comebacks (press F9 to update while the cursor is inside the list).

No table of figures entries found.

13.4 Email Discussions from main session

This section contains a **preliminary list** of email discussions (press F9 to update while the cursor is inside the list). A complete list will be provided on the RAN2 email reflector after the meeting.

- ☒ [LTE/WiFi] Clarification on cell selection sequence (HTC) - Update Consequences if not approved and Inter-operability => Intended outcome: Agreed CR to RAN plenary in R2-153917 CR1880 R2
- ☒ [LTE/CA] Additional MIMO/CSI capability for contiguous intra-band (Intel) - Final check and clarification that the signaling applies to TM9/10 intra-band contiguous - Based on R2-153942 and R2-153943 => Intended outcome: Agreed 36.306 and 36.331 CRs to plenary

- ☒ [LTE/CA] Support for 4 layer MIMO with TM3 and TM4 (Nokia Networks) - Careful check of CRs R2-153951 to R2-153956 => Intended outcome: Agreed 36.306 and 36.331 CRs to plenary
- ☒ [LTE/IDC] One week: IDC signalling enhancement for UL CA (Ericsson) - Final check of CR in R2-153872 - Provide additional CRs for Rel-11 => Intended outcome: Approved Rel-11 and Rel-12 CRs for 36.331 and 36.306 to RAN plenary
- ☒ [LTE/VoLTE] Establishment cause for mobile-originating VoLTE calls (Nokia Networks) - Discuss in which message to include the indication => Intended outcome: CRs to the next meeting
- ☒ [LTE/ProSe] One week: Terminology alignment (Intel) - Final check of CR in R2-153958 => Intended outcome: Agreed 36.331 CR to plenary in R2-153961 CR1912 R1
- ☒ [LTE/LAA] One Week: Running stage-2 CR (Huawei) - Capture agreements from this meeting => Intended outcome: Technically endorsed running 36.300 CR in R2-153907 CR0787 R1
- ☒ [LTE/CAe] One week: Running 36.321 CR (Ericsson) - Align with RRC CR => Intended outcome: Technically endorsed running 36.321 CR in R2-153964
- ☒ [LTE/CAe] One week: Running 36.331 CR (Nokia Networks) - Align with MAC CR => Intended outcome: Technically endorsed running 36.331 CR in R2-153946
- ☒ [LTE/CAfe] Capability signalling enhancements (Nokia Networks) - Identify feasible solutions to reduce capability signalling - Ensure backwards compatibility => Intended outcome: Email discussion report to the next meeting => Intended outcome: LS to RAN4 if needed
- ☒ [LTE/SC-PTM] Scheduling pattern, DRX and Change Notification (Huawei) - Discuss whether SC-PTM configuration also comprises the scheduling period, scheduling window and start offset which indicates the subframes where UE should monitor the associated Group-RNTIs on PDCCH. - Discuss whether the pattern is per service - Discuss whether more flexible schemes should be considered (e.g. period extends when valid PDCCH assignment detected...) - Discuss how change notification is provided => Intended outcome: Email discussion report to next meeting
- ☒ [LTE/SC-PTM] Service continuity (Huawei) - Discuss suitable means to realize service continuity - Consider overhead in broadcast and e.g. update frequency => Intended outcome: Email discussion report to the next meeting
- ☒ [LTE/SC-PTM] Running stage-2 CR (Huawei) - Capture the agreements from this meeting => Intended outcome: Endorsed running stage-2 CR
- ☒ [LTE/MTC] One week: Running stage-2 CR (Ericsson) => Intended outcome: Technically endorsed running 36.300 CR in R2-153967; an LS to RAN1 with the attached running CR in R2-153968
- ☒ [LTE/MTC] Timer handling for extended coverage (Ericsson) - Discuss how MAC and RRC timers relevant for RA and connection establishment need to be extended for UEs in extended coverage. => Intended outcome: Email discussion summary to the next meeting
- ☒ [LTE/MTC] Mobility Support (MediaTek) - continue discussion on mobility support also taking into account recent input from RAN4 - Can address IDLE and CONNECTED mode => Intended outcome: Email discussion report to next meeting
- ☒ [LTE/WiFi] Running 36.300 CR (Intel) - Incorporate the agreements of this meeting in the latest endorsed CR - Clarify the figure - Incorporate RAN3 CR into this CR => Intended outcome: Technically endorsed 36.300 CR in R2-153972
- ☒ [LTE/WiFi] Radio Link Monitoring for WLAN aggregation (Huawei) => Intended outcome: Email discussion summary to the next meeting
- ☒ [LTE/WiFi] RRM Measurement Framework (Intel) => Intended outcome: Email discussion summary to the next meeting
- ☒ [LTE/Load Balancing] Redistribution Schemes (ZTE) - Investigate advantages and benefits of schemes that can redistribute IDLE UEs (continuous randomization and one-shot mechanism) - Do not discuss existing dedicated reselection priorities provided during RRC connection release - Aim to converge to one solution => Intended outcome: Email discussion report and possibly draft CRs to next meeting

- ☒ [LTE/MDT] TR 36.880 (CMCC) => Intended outcome: Agreed TR 36.880 v0.3.2 in R2-153971 for approval at RAN plenary
- ☒ [LTE/Latency] One week: Update of TR 36.881 (Ericsson) - Capture agreements from this meeting => Intended outcome: Agreed update of TR 36.881 v0.2.1 in R2-153910
- ☒ [LTE/Latency] Evaluation results (Ericsson) - All companies may provide comprehensive TPs with their assumptions, results and conclusions to the email discussion. Those parts can then be included in one big TP by the rapporteur. That TP will then be provided as input to the next meeting. Possibly, a conclusion for those results should be added => Intended outcome: TP with simulation assumptions, results and conclusions
- ☒ [LTE/DCE] SFN/subframe offset reporting (NTT DOCOMO) - related R2-153175 => Intended outcome: Email discussion report to next meeting
- ☒ [LTE/eD2D] One week: LS to RAN4 (QC) - Agree on LS to RAN4 notifying them of RAN2 agreements related to gaps for inter-frequency/inter-PLMN discovery => Intended outcome: Approved LS to RAN4

14 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)

Token Buckets

- => CBF: [QoS] A draft reply LS “on bitrate variations and handling in RAN” to SA4 may be provided in [R2-153854](#) (Ericsson)
- [R2-153854](#) Draft reply LS on bitrate variations and handling in RAN (reply to [R2-153036](#); contact: Ericsson); to SA4; LS out; Rel-13; QOSE2EMTSI;
- ✓ => The LS on bitrate variations and handling in RAN to SA4 is approved in [R2-153916](#)

Approved LSs

This section contains a list of approved outgoing LSs (press F9 to update while the cursor is inside the list).

- ✓ => The LS to CT1 and SA1 summarizing the ACDC agreements is approved in R2-153876
- ✓ => With this change the LS on “intra-band contiguous CA and intra-band non-contiguous CA” to RAN1 is approved in R2-153948
- ✓ => With this change the LS on decisions regarding rank3/4 in TM3 and TM4 for additional UE; to RAN1, CC: RAN, RAN4 is approved in R2-153931
- ✓ => The LS on ANR in case of MFBI to RAN3 is approved in R2-153959
- ✓ => The LS on SC-PTM transmission to RAN1 is approved in R2-153965
- ✓ => The Response LS on Paging for MTC to RAN3 is approved in R2-153966
- ✓ => With this change the LS on C-IoT/MTC data transmission targets for security-related procedures to SA3 is approved in R2-153969
- ✓ => With this change the Draft Reply LS on RAN Sharing Enhancements for LTE to RAN3 is approved in R2-153911
- ✓ => With these changes the Draft Response LS on Paging optimization to RAN3 and SA2 is approved in R2-153913
- ✓ => With this change the LS on “PDCP SN increase” to RAN3, CT4 (CC: SA3) is approved in R2-153873

- ✓ => The LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay to SA2 (CC: RAN1) is approved in R2-153887
- ✓ => With this change the LS on Inter-PLMN sidelink discovery transmission to SA2 and CT1 is approved in R2-153886
- ✓ => With this change the reply LS on paging coordination in extended idle mode DRX to RAN3 and SA2 is approved in R2-153914
- ✓ => The LS on eDRX to RAN4 is approved in R2-153915
- ✓ => The LS on bitrate variations and handling in RAN to SA4 is approved in R2-153916

15 Any other business

Future meeting dates

Click [here](#) for the overview of all RAN2 and RAN meeting dates.

MEETING	DATES	LOCATION	HOST	CO-LOCATION
RAN #67	9 March – 12 March 2015 **	China	Shanghai	
RAN2 #89bis	20 April – 24 April 2015	Bratislava, Slovakia	EF3	RAN2 only
RAN2 #90	25 May – 29 May 2015	Fukuoka, Japan	JF3	RAN 1/2/3/4/5, SA2
RAN #68	15 June – 18 June 2015 **	Malmö, Sweden	EF3	
RAN2 #91	24 Aug. – 28 Aug. 2015	Beijing, China	Huawei	RAN 1/2/3/4/5
RAN #69	14 Sep. – 17 Sep. 2015 **	tbc, USA	NAF3 (tbc)	
RAN2 #91bis	5 Oct. – 9 Oct. 2015	Malmö, Sweden	EF3	RAN2 only
RAN2 #92	16 Nov. – 20 Nov. 2015	tbd, USA		RAN 1/2/3/4/5
RAN #70	7 Dec. – 10 Dec. 2015 **	Sitges, Spain	EF3	

EF3: European Friends of 3GPP
 NAF3: North American Friends of 3GPP
 JF3: Japanese Friends of 3GPP

For plans for email discussions after RAN2 #91 see Annex **F.Other**

Other

[R2-153834](#) Reuse of LTE L2/L3 layers for Cellular IoT; Alcatel-Lucent, Alcatel-Lucent Shanghai Bell, Ericsson LM, Mediatek Inc., Panasonic, Sierra Wireless SA, ZTE Corporation, Nokia Networks, Marvell, Intel Corporation, Sequans, Gemalto; discussion; only for Information

[R2-153841](#) CloT – Normative work plan and potential meeting schedule; Vodafone Group plc; other; only for Info; Rel-13;

[R2-153842](#) Draft WID proposal for Clean Slate Cellular IoT (For Information only); Vodafone Group plc; other; only for Info; Rel-13;
 Above 3 Tdocs not treated

16 Closing of the meeting (17:00)

The TSG RAN WG2 chairman Henning Wiemann (Ericsson) thanked the delegates for participating and contributing to RAN WG2 meeting #91. He thanked the Huawei for hosting this meeting.

TSG RAN WG2 chairman Henning Wiemann (Ericsson) closed the meeting on Friday 28.08.2015 at about 17:00.

Annex A: List of participants

The list of participants of this RAN WG2 meeting #91 is be attached to this report.

Total number of participants: 289 (registered before the meeting: 345)

Annex B: List of Tdocs

The list of Tdocs of this RAN WG2 meeting #91 is attached to this report.

Total number of Tdocs: 973 of which 55 Tdocs are not available, i.e. 918 Tdocs are available.

Annex C: Incoming liaison statements for TSG RAN WG2 #91

RAN2 Tdoc	title (original Tdoc; contact)	source	original Tdoc	status	final LS answer	additional comments
R2-153004	Reply LS to S2-151423 = R2-151027 on proposed method of restricting access to IOPS cells (C1-152403; contact: AT&T)	CT1	S2-151423	noted		
R2-153005	Reply LS to S1-151622 = R2-151029 on handling of uncategorised applications in ACDC (C1-152413; contact: Qualcomm)	CT1	C1-152413	noted		
R2-153006	LS on Efficient Small Data Transfer (GP-150654; contact: Ericsson)	GERAN2	GP-150654	noted		
R2-153007	Reply to LS to S3-151418 = R2-152017 on C-IoT/MTC data transmission targets for security-related procedures (GP-150669; contact: Vodafone)	GERAN	GP-150669	noted		

RAN2 Tdoc	title (original Tdoc; contact)	source	original Tdoc	status	final LS answer	additional comments
R2-153008	Explicit Congestion Notification for Lower Layer Protocols Submission (IETF LS; contact: EMC)	IETF		postponed		
R2-153009	LS on public safety discovery (R1-152422 ; contact: Qualcomm)	RAN1	R1-152422	noted		
R2-153010	Reply LS to S3-151524 = on public safety discovery from SA3 (R1-153555 ; contact: Qualcomm)	RAN1	R1-153555	noted		
R2-153011	LS on Type 1 discovery for partial and outside network coverage (R1-153667 ; contact: Qualcomm)	RAN1	R1-153667	noted		
R2-153012	LS on RAN1 agreements on CA Enhancement Beyond 5 Carriers (R1-153672 ; contact: Nokia Networks)	RAN1	R1-153672	noted		
R2-153013	LS on RAN1 Multiflow 3F-4C agreements (R1-153694 ; contact: Nokia Networks)	RAN1	R1-153694	noted		
R2-153014	Response LS to S2-150698 = R2-150027 on Paging Optimisation (R3-151280; contact: Ericsson)	RAN3	R3-151280	noted		
R2-153015	Response LS to R2-151786 on Paging for MTC (R3-151311; contact: Alcatel Lucent)	RAN3	R3-151311	noted	R2-153966	
R2-153016	LS on RAN Sharing Enhancements for LTE (R3-151316; contact: Nokia Networks)	RAN3	R3-151316	noted	R2-153911	
R2-153017	LS on overload of MME resource quotas in RAN sharing scenarios (R3-151317; contact: Alcatel Lucent)	RAN3	R3-151317	noted		
R2-153018	LS to RAN2 on HSPA DB UL CA agreements (R4-153782; contact: Qualcomm)	RAN4	R4-153782	noted		
R2-153019	LS Out on TDD + FDD dual UL UE behavior (R4-153889; contact: Ericsson)	RAN4	R4-153889	noted		

RAN2 Tdoc	title (original Tdoc; contact)	source	original Tdoc	status	final LS answer	additional comments
R2-153020	LS regarding rank3/4 in TM3 and TM4 for additional UE categories (R4-153907; contact: Nokia Networks)	RAN4	R4-153907	noted		
R2-153021	LS response to R1-150919 = R2-151007 on measurement performance for MTC (R4-153909; contact: Ericsson)	RAN4	R4-153909	noted		
R2-153022	Reply LS to R2-150703 on LTE Rel-12 UE feature list (RP-151105 ; contact: NTT DOCOMO)	RAN	RP-151105	noted		
R2-153023	LS response regarding rank3/4 in TM3 and TM4 for additional UE categories (RP-151113 ; contact: Nokia Networks)	RAN	RP-151113	noted		
R2-153024	LS reply to R2-151789 on ProSe Priorities (S2-151810; contact: Intel)	SA2	S2-151810	noted		
R2-153025	LS reply to S3-151524 = R2-153035 on Public Safety discovery (S2-151813; contact: Qualcomm)	SA2	S2-151813	noted		
R2-153026	Reply LS to C1-151597 = R2-151021 on network feature support for ProSe Discovery (S2-152064; contact: Qualcomm)	SA2	S2-152064	noted		
R2-153027	Reply LS to S2-151654 on requested feedback on TR 26.924 (S2-152081; contact: Ericsson)	SA2	S2-152081	noted		
R2-153028	LS on UE Handling of RAN Rules for WLAN Interworking (S2-152686; contact: Qualcomm)	SA2	S2-152686	postponed		
R2-153029	Reply LS to R3-151317 = R2-153017 on overload of MME resource quotas in RAN sharing scenarios (S2-152692; contact: Alcatel Lucent)	SA2	S2-152692	noted		
R2-153030	LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay (S2-152695; contact: Qualcomm)	SA2	S2-152695	noted	R2-153887	
R2-153031	Reply LS to R3-151280 = R2-153014 on Paging Optimisation (S2-152696; contact: Alcatel Lucent)	SA2	S2-152696	noted		

RAN2 Tdoc	title (original Tdoc; contact)	source	original Tdoc	status	final LS answer	additional comments
R2-153032	LS on paging co-ordination for extended idle mode DRX (S2-152697; contact: Qualcomm)	SA2	S2-152697	noted	R2-153914	
R2-153033	LS on extended connected mode DRX (S2-152698; contact: Qualcomm)	SA2	S2-152698	noted		
R2-153034	LS on ProSe coarse proximity estimation based on path loss (S2-152699; contact: T-Mobile)	SA2	S2-152699	noted		
R2-153035	Reply LS to S2-150691 = R2-151011 on public safety discovery (S3-151524; contact: Qualcomm)	SA3	S3-151524	noted		
R2-153036	LS on bitrate variations and handling in RAN (S4-150866; contact: Ericsson)	SA4	S4-150866	noted	R2-153916	
R2-153037	Reply LS to R2-150598 and R2-151734 on EVS over UTRAN (S4-150870; contact: Ericsson)	SA4	S4-150870	noted	R2-153904	
R2-153038	LS on update on Cooperation for Energy Efficiency Measurements (S5-153359; contact: Nokia Networks)	SA5	S5-153359	noted		
R2-153039	Reply LS to S4-150870 = R2-153037 on EVS over UTRAN (C1-153239; contact: Qualcomm)	CT1	C1-153239	noted		
R2-153040	Reply LS to S4-150870 = R2-153037 on EVS over UTRAN (C3-153456; contact: Qualcomm)	CT3	C3-153456	noted		
R2-153041	LS on ACDC mechanism (C1-153278; contact: LGE)	CT1	C1-153278	postponed	R2-153876	
R2-153042	LS on Completion of Study Item on Cellular System Support for Ultra Low Complexity and Low Throughput Internet of Things (FS_IoT_LC) (GP-151041; contact: Vodafone)	GERAN	GP-151041	noted		
R2-153043	Reply LS to S4-150870 = R2-153037 on EVS over UTRAN (C4-151290; contact: Ericsson)	CT4	C4-151290	noted		

Report of 3GPP TSG RAN WG2 #91, Beijing, China, August 24 - 28, 2015

RAN2 Tdoc	title (original Tdoc; contact)	source	original Tdoc	status	final LS answer	additional comments
R2-153044	Reply LS to C1-152413 = R2-153005 on ACDC requirements (S1-152406; contact: LGE)	SA1	S1- 152406	noted	R2-153876	
R2-153045	Reply LS to R2-152838 on Type 2 Power Headroom reporting (R1-154764 ; contact: Intel)	RAN1	R1-154764	noted		
R2-153046	Response LS to S2-151423 = R2-151027 on proposed method of restricting access to IOPS cells (S1-152750; contact: Applied Communication Sciences)	SA1	S1-152750	noted		
R2-153047	Reply LS to S2-151810 = R2-153024 on ProSe Priorities (S1-152748; contact: Qualcomm)	SA1	S1-152748	noted		
R2-153048	Reply LS on 2 UL inter-band CA protection of GNSS (R4-154064; contact: NTT DOCOMO)	RAN4	R4-154064	noted		
R2-153049	Reply LS to R2-152856 on NS values in system information broadcast (R4-155258; contact: Ericsson)	RAN4	R4-155258	noted		
R2-153050	Reply LS to R4-153889 = R2-153019 on TDD + FDD dual UL UE behavior (R1-154905 ; contact: Qualcomm)	RAN1	R1-154905	noted		
R2-153051	LS response to R1-150919 = R2-151007 on measurement performance for Rel-13-MTC (R4-155112; contact: Ericsson)	RAN4	R4-155112	noted		
R2-153052	Reply LS to R1-150920 = R2-151008 on PRACH coverage enhancement (R4-155113; contact: Huawei)	RAN4	R4-155113	noted		
R2-153053	Reply LS to R1-145455 on the maximum power of the new UE power class for MTC (R4-155349; contact: Ericsson)	RAN4	R4-155349	noted		
R2-153054	LS reply to R2-152914 on measurements cell selection and reselection for MTC LC/EC (R4-155119; contact: Nokia Networks)	RAN4	R4-155119	noted		

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: 51 LSs (4 on UTRA, 42 on LTE, 3 on joint aspects)
- 0 resubmissions from RAN2 #90
- 51 incoming LSs were noted.
- 16 of the 51 incoming LSs were received during the RAN2 #91 meeting:
- For 3 incoming LS an LS answer was postponed.

Annex D: Outgoing liaison statements of TSG RAN WG2 #91

Only final outgoing LSs are listed here.

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
R2-153873	LS on extension to field length of PDCP Sequence Number (to: RAN3, CT4; cc: SA3; contact: Nokia Networks)	RAN3, CT4	SA3	Nokia Networks		Rel-13	LTE_CA_enh_b5C-Core	
R2-153876	Reply LS on ACDC mechanism (to: CT1, SA1; cc:-; contact: LGE)	CT1, SA1	-	LGE	R2-153041 = C1-153278, R2-153044 = S1-152406	Rel-13	ACDC-RAN-Core	
R2-153886	LS on Inter-PLMN sidelink discovery transmission (to: SA2, CT1; cc: RAN3; contact: Huawei)	SA2, CT1	RAN3	Huawei		Rel-13	LTE_eD2D_Prox-Core	
R2-153887	Response LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay (to: SA2; cc: RAN1; contact: Qualcomm)	SA2	RAN1	Qualcomm	R2-153030 = S2-152695	Rel-13	eProSe-Ext-SA2	
R2-153895	LS to RAN3 LS on Idle to connected mode transition optimization (to: RAN3; cc: -; contact: Nokia Networks)	RAN3	-	Nokia Networks		Rel-13	UTRA_EDL_L23-Core	outgoing LS was sent on 26.08.2015 during the meeting
R2-153902	LS on eDRX measurements in Idle mode for UMTS (to: RAN4; cc: -; contact: Ericsson)	RAN4	-	Ericsson		Rel-13	UTRA_SDATA_POWSAV-Core	
R2-153903	LS on enabling return into PSM for UMTS (to: RAN3; cc: -; contact: Ericsson)	RAN3	-	Ericsson		Rel-13	UTRA_SDATA_POWSAV-Core	

final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
R2-153904	Reply LS on EVSoCS (to: SA4; cc: RAN1, RAN3; contact: Qualcomm)	SA4	RAN1, RAN3	Qualcomm	R2-153037 = S4-150870	Rel-13	EVSoCS_UTRAN-Core	
R2-153911	Reply LS on RAN Sharing Enhancements for LTE (to: RAN3, SA5; cc: SA1; contact: Nokia Networks)	RAN3, SA5	SA1	Nokia Networks	R2-153016 = R3-151316	Rel-13	RSE-RAN_LTE-Core	
R2-153914	Reply LS on paging co-ordination for extended idle mode DRX (to: SA2, RAN3; cc: -; contact: Qualcomm)	SA2, RAN3	-	Qualcomm	R2-153032 = S2-152697	Rel-13	LTE_extDRX-Core	
R2-153915	LS on extended DRX (to: RAN4; cc: -; contact: Media Tek)	RAN4	-	Media Tek		Rel-13	LTE_extDRX-Core	
R2-153916	LS on bitrate variations and handling in RAN (to: SA4; cc: -; contact: Ericsson)	SA4	-	Ericsson	R2-153036 = S4-150866	Rel-13	QOSE2EMTSI	
R2-153931	LS on decisions regarding rank3/4 in TM3 and TM4 for additional UE categories (to: RAN1; cc: RAN, RAN4; contact: Nokia Networks)	RAN1	RAN, RAN4	Nokia Networks		Rel-10	TEI10	outgoing LS was sent on 26.08.2015 during the meeting
R2-153948	LS on intra-band contiguous CA and intra-band non-contiguous CA (to: RAN1; cc: -; contact: Intel)	RAN1	-	Intel		Rel-12	LTE_CA-Core, TEI12	outgoing LS was sent on 26.08.2015 during the meeting
R2-153959	LS on ANR in case of MFBI (to: RAN3; cc: -; contact: Huawei)	RAN3	-	Huawei		Rel-8	TEI8	
R2-153965	LS to RAN1 on SC-PTM transmission (to: RAN1; cc: -; contact: Huawei)	RAN1	-	Huawei		Rel-13	LTE_SC_PTM-Core	

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final LS Tdoc	title	to	cc	contact	reply to	release	WI	comments
R2-153966	Response LS on Paging for MTC (to: RAN3; cc: CT1, SA2, RAN1; contact: Alcatel-Lucent)	RAN3	CT1	Alcatel-Lucent	R2-153015 = R3-151311	Rel-13	LTE_MTCe2_L1-Core	
R2-153968	LS on Rel-13 low complexity and coverage enhanced Ues (to: RAN1; cc: -; contact: Ericsson)	RAN1	-	Ericsson		Rel-13	LTE_MTCe2_L1-Core	one week email discussion planned for completion of this outgoing LS
R2-153969	Reply LS on C-IoT/MTC data transmission targets for security-related procedures (to: SA3; cc: GERAN1, GERAN2, RAN1; contact: Vodafone)	SA3	GERAN1, GERAN2, RAN1	Vodafone	R2-152017 = S3-151418	Rel-13		
R2-153973	Response LS on Paging Optimization considering supported frequency bands (to: RAN3, SA2; cc: -; contact: Huawei)	RAN3, SA2	-	Huawei	R2-152010 = R3-150889	Rel-13	TEI13	
R2-153983	LS on gap handling for sidelink discovery (to: RAN4; cc: -; contact: Qualcomm)	RAN4	-	Qualcomm		Rel-13	LTE_eD2D_Prox-Core	result of one week email discussion [91#07][LTE/eD2D]

Summary:

In total 21 outgoing LSs of RAN2 #91:
4 on UTRA, 16 on LTE/E-UTRA and 1 on joint aspects.

Annex E:

List of agreed CRs for RAN #69

□ Overview of 52 agreed and 0 technically endorsed RAN2 CRs submitted to RAN #69 (Phoenix, USA): see also RP-151126:

spec	REL-8	REL-9	REL-10	REL-11	REL-12	REL-13	CRs	specs	rapporteur	email
25.302	0	0	0	0	0	1	1	1	David Bhatoolaul (ALU)	david.bhatoolaul@alcatel-lucent.com
25.306	0	0	0	0	1	0	1	1	Martin van der Zee (Ericsson)	martin.van.der.zee@ericsson.com
25.321	0	0	0	0	0	1	1	1	Alexander Sayenko (NSN)	alexander.sayenko@nokia.com
25.331	0	0	0	0	3	1	4	2	Mark Curran (Ericsson)/ASN.1: Xudong Yang (Huawei)	mark.curran@ericsson.com yangxudong@huawei.com
36.300	0	0	0	0	1	0+1*	1+1*	2	Benoist Sebire (NSN)	benoist.sebire@nokia.com
36.302	0	0	0	0	1	0	1	1	Seau Sian Lim (Alcatel-Lucent)	seaulim@alcatel-lucent.com
36.304	0	0	0	0	1	0	1	1	Jarkko Koskela (Nokia)	jarkko.t.koskela@nokia.com
36.306	0	0	2	3	8+2*	0	13+2*	3	Ravi Kuchibhotla (Motorola Mobility)	ravi.kuchibhotla@motorola.com
36.321	0	0	0	0	4	0	4	1	Magnus Stattin (Ericsson)	magnus.stattin@ericsson.com
36.322	0	0	0	0	1	0	1	1	Toru Uchino (NTT DoCoMo)	tooru.uchino.fv@nttdocomo.com
36.331	0	0	3	5	16+3*	0	24+3*	3	Himke van der Velde (Samsung)	himke.vandervelde@samsung.com
UTRA	0	0	0	0	4	3	7	5		
LTE	0	0	5	8	32+5*	0+1*	45+6*	12		
total	0	0	5	8	36+5*	3+1*	52+6*	17		

Note: No CRs from REL-4 to REL-7

*: **xx** company CRs

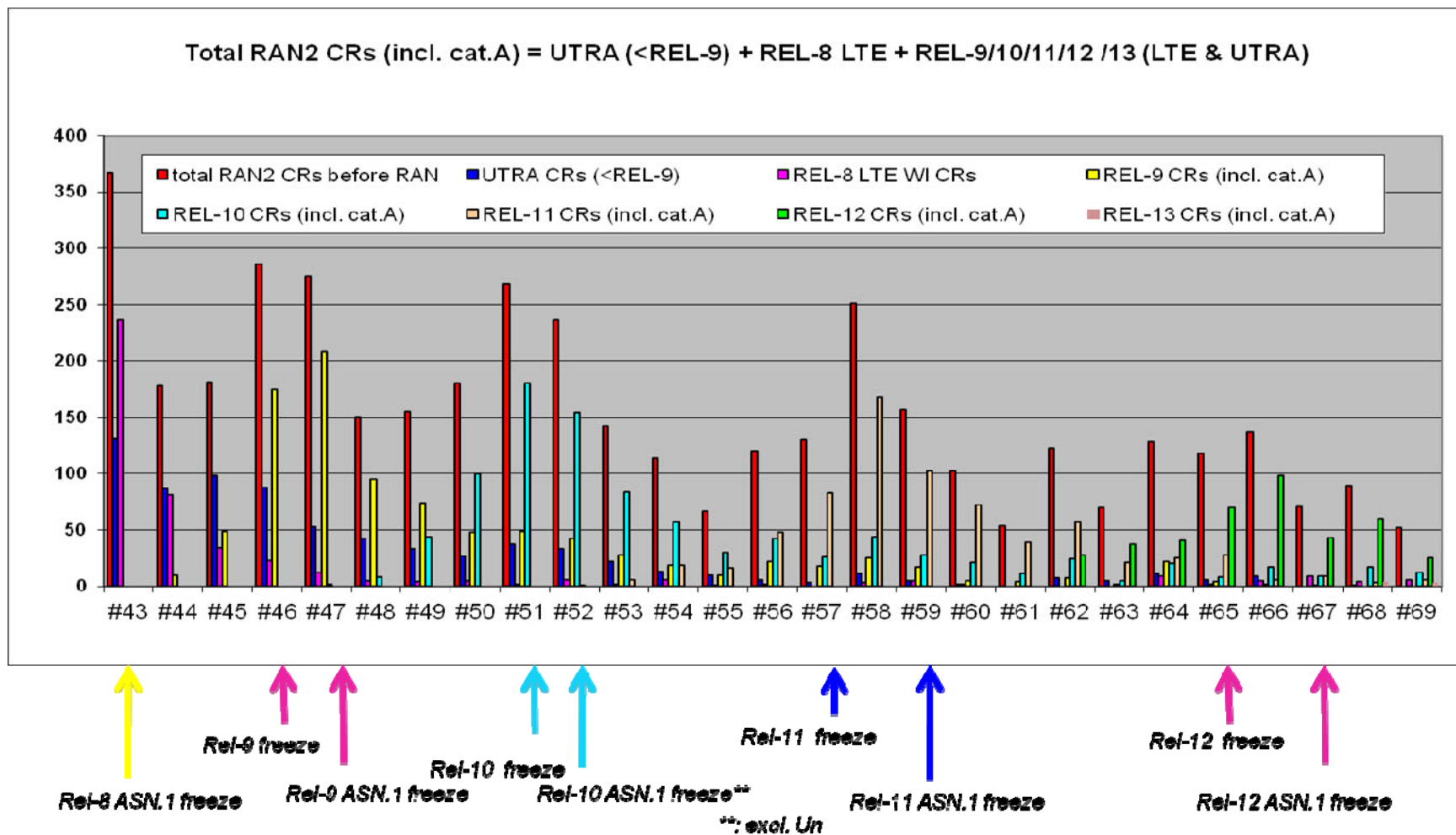


Figure E-1: RAN2 CRs submitted to the previous and the following RAN plenary #69

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The following table includes the RAN2 CRs submitted to RAN #69 in Phoenix, USA:

Spec	CR #	rev	cat	REL	RAN2 Tdoc	Title	SI/WI	RAN2 Source	RAN2 status	RAN Tdoc	RAN status	Remarks
36.306	0285	-	F	Rel-10	R2-153064	Remove support of additionalSpectrumEmissionPCell	LTE_CA-Core	HTC Corporation	agreed	RP-151438	approved	
36.306	0286	-	A	Rel-11	R2-153065	Remove support of additionalSpectrumEmissionPCell	LTE_CA-Core	HTC Corporation	agreed	RP-151438	approved	
36.306	0287	-	A	Rel-12	R2-153066	Remove support of additionalSpectrumEmissionPCell	LTE_CA-Core	HTC Corporation	agreed	RP-151438	approved	
25.321	0810	-	B	Rel-13	R2-153075	Introduction of the Multiflow 3F-4C configuration	HSDPA_MFTX_enh-Core	Nokia Networks	agreed	RP-151444	approved	
36.306	0288	-	F	Rel-12	R2-153144	Capturing PCell support for FDD-TDD CA	LTE_CA_TDD_FDD-Core	NTT DOCOMO, INC., Qualcomm Incorporated	agreed	RP-151442	approved	
36.322	0108	-	F	Rel-12	R2-153230	Corrections for STCH in 36.322	LTE_D2D_Prox-Core	Huawei, HiSilicon	agreed	RP-151441	approved	
36.331	1866	-	F	Rel-12	R2-153353	Correction on UE band combination capability	TEI12	Huawei, HiSilicon	agreed	RP-151443	approved	
36.331	1867	-	F	Rel-10	R2-153354	Correction on Restriction to CA capability signalling	LTE_CA-Core	Huawei, HiSilicon	agreed	RP-151438	approved	
36.331	1868	-	A	Rel-11	R2-153355	Correction on Restriction to CA capability signalling	LTE_CA-Core	Huawei, HiSilicon	agreed	RP-151438	approved	
36.331	1869	-	A	Rel-12	R2-153356	Correction on Restriction to CA capability signalling	LTE_CA-Core	Huawei, HiSilicon	agreed	RP-151438	approved	
36.306	0292	-	F	Rel-12	R2-153567	Clarification of the maximum number of bits of a single DL-SCH transport block for DL Category 16	LTE_CA-Core, TEI12, LTE_SC_enh_L1-Core	NTT DOCOMO, INC., Huawei, Samsung, Intel Corporation	agreed	RP-151442	approved	
36.306	0293	-	F	Rel-12	R2-153579	Capturing mandatory/optional features of Rel-12 UEs	LTE_SC_enh_L1-Core, LTE_UTRA_IncMon-Core	NTT DOCOMO, INC., Ericsson, Huawei	agreed	RP-151442	approved	
25.331	5785	-	D	Rel-12	R2-153591	Rapporteur corrections for 25.331 RRC specification	TEI12	Ericsson	agreed	RP-151443	approved	
36.331	1884	-	F	Rel-12	R2-153604	The support of UL64QAM	TEI12	Huawei, HiSilicon, CMCC, Qualcomm Incorporated	agreed	RP-151443	approved	
36.331	1889	-	F	Rel-12	R2-153629	Small corrections concerning RadioResourceConfig	LTE_CA-Core, LTE_SC_enh_dualC-Core	Samsung, Intel	agreed	RP-151442	approved	
36.331	1900	-	F	Rel-12	R2-153708	Sidelink discovery related corrections	LTE_D2D_Prox-Core	Nokia Networks	agreed	RP-151441	approved	
36.321	0799	1	F	Rel-12	R2-153862	Correction on Type 2 PH reporting	TEI12, LTE_CA-Core	Intel Corporation	agreed	RP-151438	approved	
36.321	0795	1	F	Rel-12	R2-153863	Corrections for reporting and cancellation of SL BSR	LTE_D2D_Prox-Core	Huawei, HiSilicon	agreed	RP-151441	approved	
36.321	0785	1	F	Rel-12	R2-153864	Corrections to Sidelink in MAC	LTE_D2D_Prox-Core	Intel Corporation	agreed	RP-151441	approved	
36.321	0790	1	F	Rel-12	R2-153865	Miscellaneous corrections on Sidelink	LTE_D2D_Prox-Core	ASUSTeK	agreed	RP-151441	approved	
36.302	0061	1	F	Rel-12	R2-153869	TS36.302 rapporteur's cleanup	TEI12	Alcatel-Lucent	agreed	RP-151443	approved	
25.331	5786	-	F	Rel-12	R2-153874	Clarification of Beacon RSSI Encoding	UTRA_LTE_WLAN_interw-Core	Qualcomm Incorporated	agreed	RP-151440	approved	
36.331	1905	2	F	Rel-12	R2-153875	Clarification of Beacon RSSI Encoding	UTRA_LTE_WLAN_interw-Core	Qualcomm Incorporated	agreed	RP-151440	approved	
36.331	1913	-	C	Rel-11	R2-153879	CR for IDC signalling enhancement for UL CA	SPIA_IDC_LTE-Core	Ericsson, Nokia Networks, NTT	agreed	RP-151439	approved	

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Spec	CR #	rev	cat	REL	RAN2 Tdoc	Title	SI/WI	RAN2 Source	RAN2 status	RAN Tdoc	RAN status	Remarks
								DOCOMO, INC., Samsung				
36.331	1911	1	A	Rel-12	R2-153880	CR for IDC signalling enhancement for UL CA	SPIA_IDC_LTE-Core	Ericsson, Nokia Networks, NTT DOCOMO, INC., Samsung	agreed	RP-151439	approved	
25.306	0488	1	F	Rel-12	R2-153898	Increased UE carrier monitoring E-UTRA support mandatory	LTE_UTRA_IncMon-Core	Ericsson	agreed	RP-151440	approved	
25.302	0237	2	B	Rel-13	R2-153900	Introduction of the Multiflow 3F-4C configuration	HSDPA_MFTX_enh-Core	Nokia Networks	agreed	RP-151444	approved	
25.331	5776	2	B	Rel-13	R2-153901	Introduction of the Multiflow 3F-4C configuration	HSDPA_MFTX_enh-Core	Nokia Networks	agreed	RP-151444	approved	
25.331	5780	1	F	Rel-12	R2-153905	Clarification for the inter-frequency measurement results on RACH with extended cell ID values	LTE_UTRA_IncMon-Core	Nokia Networks, Huawei, HiSilicon	agreed	RP-151440	approved	
36.331	1880	2	F	Rel-12	R2-153917	Clarification on cell selection sequence upon leaving RRC_CONNECTED	UTRA_LTE_WLAN_interw-Core	HTC Corporation	agreed	RP-151440	approved	
36.306	0297	-	C	Rel-11	R2-153918	CR for IDC signalling enhancement for UL CA	SPIA_IDC_LTE-Core	Ericsson, Nokia Networks, NTT DOCOMO, INC., Samsung	agreed	RP-151439	approved	
36.306	0298	-	A	Rel-12	R2-153919	CR for IDC signalling enhancement for UL CA	SPIA_IDC_LTE-Core	Ericsson, Nokia Networks, NTT DOCOMO, INC., Samsung	agreed	RP-151439	approved	
36.331	1896	1	F	Rel-10	R2-153923	Correction to additionalSpectrumEmission - Option 1	LTE_CA-Core	HTC Corporation	agreed	RP-151438	approved	
36.331	1907	-	A	Rel-11	R2-153924	Correction to additionalSpectrumEmission - Option 1	LTE_CA-Core	HTC Corporation	agreed	RP-151438	approved	
36.331	1908	-	A	Rel-12	R2-153925	Correction to additionalSpectrumEmission - Option 1	LTE_CA-Core	HTC Corporation	agreed	RP-151438	approved	
36.331	1878	1	F	Rel-11	R2-153929	Correction on the reference of EPDCCH	LTE_enh_dl_ctrl-Core	Huawei, HiSilicon, China Telecom	agreed	RP-151439	approved	
36.331	1879	1	A	Rel-12	R2-153930	Correction on the reference of EPDCCH	LTE_enh_dl_ctrl-Core	Huawei, HiSilicon, China Telecom	agreed	RP-151439	approved	
36.331	1891	1	F	Rel-12	R2-153933	Introducing general handling and guidelines concerning critical extensions within a release	TEI12, LTE_D2D_Prox-Core	Samsung	agreed	RP-151441	approved	
36.300	0786	1	F	Rel-12	R2-153934	Sidelink terminology alignment in TS 36.300	LTE_D2D_Prox-Core	Intel Corporation, Qualcomm Incorporated, LG Electronics Inc.	agreed	RP-151441	approved	REL-13 cat.A CR for REL-12 cat.F CR R2-153934 is provided in company CR RP-151520
36.304	0273	1	F	Rel-12	R2-153935	Sidelink terminology alignment in TS 36.304	LTE_D2D_Prox-Core	Intel Corporation, Qualcomm Incorporated, LG Electronics Inc.	agreed	RP-151441	approved	
36.306	0289	1	F	Rel-12	R2-153936	Corrections on UE sidelink capabilities in TS 36.306	LTE_D2D_Prox-Core	Huawei, HiSilicon	agreed	RP-151441	approved	

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Spec	CR #	rev	cat	REL	RAN2 Tdoc	Title	SI/WI	RAN2 Source	RAN2 status	RAN Tdoc	RAN status	Remarks
36.331	1909	1	F	Rel-12	R2-153960	Applicability of longCodeState1XRTT for 1xRTT IRAT ANR	TEI12	Alcatel-Lucent, Alcatel-Lucent Shanghai Bell	agreed	RP-151443	approved	
36.331	1912	1	F	Rel-12	R2-153961	Sidelink terminology alignment in TS 36.331	LTE_D2D_Prox-Core	Intel Corporation, Qualcomm Incorporated, LG Electronics Inc.	agreed	RP-151441	approved	
36.331	1906	2	F	Rel-12	R2-153962	Clarification for NAICS capability signalling	LTE_NAICS-Core	Nokia Networks	agreed	RP-151442	approved	
36.331	1861	2	C	Rel-12	R2-153974	Additional MIMO/CSI capability for intra-band contiguous CA	LTE_CA-Core, TEI12	Intel Corporation, NTT DOCOMO, Samsung	agreed	RP-151467	approved	
36.306	0290	2	C	Rel-12	R2-153975	Additional MIMO/CSI capability for intra-band contiguous CA	LTE_CA-Core, TEI12	Intel Corporation, NTT DOCOMO, Samsung	agreed	RP-151467	approved	
36.331	1885	2	C	Rel-10	R2-153976	Signalling for 4-layer MIMO with TM3 and TM4	LTE-L23, TEI10	Nokia Networks, Ericsson, Qualcomm Incorporated, Huawei, HiSilicon, Samsung, Deutsche Telekom	agreed	RP-151466	approved	
36.331	1886	2	A	Rel-11	R2-153977	Signalling for 4-layer MIMO with TM3 and TM4	LTE-L23, TEI10	Nokia Networks, Ericsson, Qualcomm Incorporated, Huawei, HiSilicon, Samsung, Deutsche Telekom	agreed	RP-151466	approved	
36.331	1887	2	C	Rel-12	R2-153978	Signalling for 4-layer MIMO with TM3 and TM4	LTE-L23, TEI10	Nokia Networks, Ericsson, Qualcomm Incorporated, Huawei, HiSilicon, Samsung, Deutsche Telekom	agreed	RP-151466	approved	
36.306	0294	2	C	Rel-10	R2-153979	Capability for 4-layer MIMO with TM3 and TM4	LTE-L23, TEI10	Nokia Networks, Ericsson, Qualcomm Incorporated, Huawei, HiSilicon, Samsung, Deutsche Telekom	agreed	RP-151466	approved	
36.306	0295	2	A	Rel-11	R2-153980	Capability for 4-layer MIMO with TM3 and TM4	LTE-L23, TEI10	Nokia Networks, Ericsson, Qualcomm Incorporated, Huawei, HiSilicon, Samsung, Deutsche Telekom	agreed	RP-151466	revised	cover sheet wrongly shows rev 1
36.306	0296	2	C	Rel-12	R2-153981	Capability for 4-layer MIMO with TM3 and TM4	LTE-L23, TEI10	Nokia Networks, Ericsson, Qualcomm Incorporated, Huawei, HiSilicon, Samsung, Deutsche Telekom	agreed	RP-151466	revised	cover sheet wrongly shows rev 1
36.331	1914	-	C	Rel-12	-	Allowing NAICS with TM10	LTE_NAICS-Core	-	-	RP-151458	revised	company CR; related to RAN4 agreement to allow NAICS operation with TM10 in a specific condition; CR was not provided to RAN2

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Spec	CR #	rev	cat	REL	RAN2 Tdoc	Title	SI/WI	RAN2 Source	RAN2 status	RAN Tdoc	RAN status	Remarks
												#91; related to RP-151348 and RP-151349
36.300	0792	-	A	Rel-13	-	Sidelink terminology alignment in TS 36.300	LTE_D2D_Prox-Core		-	RP-151520	approved	company CR to provide missing REL-13 cat.A CR to the REL-12 cat.F 36.300 CR in R2-1533934 of RP-151441
36.331	1914	1	C	Rel-12	-	Allowing NAICS with TM10	LTE_NAICS-Core		-	RP-151594	revised	company CR; related to RAN4 agreement to allow NAICS operation with TM10 in a specific condition; CR was not provided to RAN2 #91; related to RP-151348 and RP-151349; revision of RP-151458
36.306	0295	3	A	Rel-11	-	Capability for 4-layer MIMO with TM3 and TM4	LTE-L23, TEI10		-	RP-151596	approved	company CR to revise R2-153980 of RP-151466 to correct rev to rev 3
36.306	0296	3	C	Rel-12	-	Capability for 4-layer MIMO with TM3 and TM4	LTE-L23, TEI10		-	RP-151597	approved	company CR to revise R2-153981 of RP-151466 to correct rev to rev 3
36.331	1914	2	C	Rel-12	-	Allowing NAICS with TM10	LTE_NAICS-Core		-	RP-151625	approved	company CR; related to RAN4 agreement to allow NAICS operation with TM10 in a specific condition; CR was not provided to RAN2 #91; related to RP-151348 and RP-151349; revision of RP-151594;

- Rows highlighted in yellow indicate company contributions treated at RAN #69 for which no Tdoc was submitted to RAN2 #91.
- The table above has 54 entries (rows excl. header row) of which 58 CRs were approved at RAN #69:
 - 52 CRs agreed by RAN2 of which then 50 CRs were approved by RAN #69, 0 were postponed and 2 CR was revised in company contributions.
 - 0 CRs were technically endorsed by RAN2 and 0 CRs were postponed at RAN #69.
 - 6 company contributions (highlighted in yellow) of which then 4 CRs were approved and 0 CRs were postponed at RAN #69.

So finally: Approved RAN2 CRs after RAN #69: 54.

spec	REL-8	REL-9	REL-10	REL-11	REL-12	REL-13	CRs	specs	rapporteur	email
25.302	0	0	0	0	0	1	1	1	David Bhatoolaul (ALU)	david.bhatoolaul@alcatel-lucent.com
25.306	0	0	0	0	1	0	1	1	Martin van der Zee (Ericsson)	martin.van.der.zee@ericsson.com
25.321	0	0	0	0	0	1	1	1	Alexander Sayenko (NSN)	alexander.sayenko@nokia.com
25.331	0	0	0	0	3	1	4	2	Mark Curran (Ericsson)/ASN.1: Xudong Yang (Huawei)	mark.curran@ericsson.com yangxudong@huawei.com
36.300	0	0	0	0	1	0+1*	1+1*	2	Benoist Sebire (NSN)	benoist.sebire@nokia.com
36.302	0	0	0	0	1	0	1	1	Seau Sian Lim (Alcatel-Lucent)	seaulim@alcatel-lucent.com
36.304	0	0	0	0	1	0	1	1	Jarkko Koskela (Nokia)	jarkko.t.koskela@nokia.com
36.306	0	0	2	3	6+2*	0	11+2*	3	Ravi Kuchibhotla (Motorola Mobility)	ravi.kuchibhotla@motorola.com
36.321	0	0	0	0	4	0	4	1	Magnus Stattin (Ericsson)	magnus.stattin@ericsson.com
36.322	0	0	0	0	1	0	1	1	Toru Uchino (NTT DoCoMo)	tooru.uchino.fv@nttdocomo.com
36.331	0	0	3	5	16+1*	0	24+1*	3	Himke van der Velde (Samsung)	himke.vandervelde@samsung.com
UTRA	0	0	0	0	4	3	7	5		
LTE	0	0	5	8	32+3*	0+1*	45+4*	12		
total	0	0	5	8	36+3*	3+1*	52+4*	17		

Note: No CRs from REL-4 to REL-7

*: 4 company CRs

Annex F: RAN WG2 meeting #91 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 03.09.2015 midnight Pacific time, i.e. Fri 04.09.2015 9am CEST:

[91#00][UMTS/IncMon] Inter-frequency measurement results on RACH (Nokia Networks)

- Review CR in [R2-153306](#)
- => Intended outcome: Agreed 25.331 CR to RAN plenary in [R2-153905](#) CR 5780 R1
- conclusion: Email discussion was kicked off by Sayenko, Alexander (Nokia Networks) on 01.09.2015.
- 25.331 CR in [R2-153905](#) was agreed on 04.09.2015.

[91#01][LTE/WiFi] Clarification on cell selection sequence (HTC)

- Update Consequences if not approved and Inter-operability of the CR in [R2-153856](#)
- => Intended outcome: Agreed CR to RAN plenary in [R2-153917](#) CR1880 R2
- conclusion: Email discussion was kicked off by Eric Chen (HTC) on 01.09.2015.
- 36.331 CR in [R2-153917](#) was agreed on 04.09.2015.

[91#02][LTE/CA] Additional MIMO/CSI capability for contiguous intra-band (Intel)

- Final check and clarification that the signaling applies to TM9/10 intra-band contiguous
- Based on [R2-153942](#) and [R2-153943](#)
- => Intended outcome: Agreed 36.306 and 36.331 CRs to plenary
- conclusion: Email discussion was kicked off by Youn Hyoungh Heo (Intel) on 31.08.2015.
- 36.306 CR in [R2-153975](#) and 36.331 CR in [R2-153974](#) were agreed on 05.09.2015.

[91#03][LTE/CA] Support for 4 layer MIMO with TM3 and TM4 (Nokia Networks)

- Careful check of CRs [R2-153951](#) to [R2-153956](#)
- => Intended outcome: Agreed 36.306 and 36.331 CRs to plenary
- conclusion: Email discussion was kicked off by Tero Henttonen (Nokia Networks) on 31.08.2015.
- 36.306 CRs in [R2-153979](#), [R2-153980](#) and [R2-153981](#) and 36.331 CRs in [R2-153976](#), [R2-153977](#) and [R2-153978](#) were agreed on 08.09.2015.

[91#04][LTE/IDC] IDC signalling enhancement for UL CA (Ericsson)

- Final check of CR in [R2-153872](#)
- Provide additional CRs for Rel-11
- => Intended outcome: Agreed Rel-11 and Rel-12 CRs for 36.331 and 36.306 to RAN plenary
- conclusion: Email discussion was kicked off by Riikka Susitaival (Ericsson) on 31.08.2015.
- 36.306 CRs in [R2-153918](#) & [R2-153919](#) and 36.331 CR in [R2-153879](#) & [R2-153880](#) were agreed on 05.09.2015.

[91#05][LTE/ProSe] Terminology alignment (Intel)

- Final check of CR in [R2-153958](#)
- => Intended outcome: Agreed 36.331 CR to plenary in [R2-153961](#) CR1912 R1
- conclusion: Email discussion was kicked off by Youn Hyoungh Heo (Intel) on 31.08.2015.
- 36.331 CR in [R2-153961](#) was agreed on 08.09.2015.

[91#06][LTE/MDT] TR 36.880 (CMCC)

- => Intended outcome: Agreed TR 36.880 v0.3.2 in [R2-153971](#) for 1-step approval at RAN plenary
- conclusion: Email discussion was kicked off by Hu Nan (China Mobile) on 01.09.2015.

TR 36.880 v0.3.2 in R2-153971 and TR 36.880 v0.4.0 in R2-153982
were agreed on 07.09.2015.

[91#07][LTE/eD2D] LS to RAN4 (QC)

- Agree on LS to RAN4 notifying them of RAN2 agreements related to gaps for inter-frequency/inter-PLMN discovery

=> Intended outcome: Approved LS to RAN4

conclusion: Email discussion was kicked off by Sudhir Baghel (Qualcomm) on 01.09.2015.
The LS to RAN4 in R2-153983 was agreed on 05.09.2015.

Email discussions with finalisation by Thu 10.09.2015 midnight Pacific time, i.e. Fri 11.09.2015 9am CEST:

[91#10][LTE/LAA] Running stage-2 CR (Huawei)

- Capture agreements from this meeting
- => Intended outcome: Technically endorsed running 36.300 CR in [R2-153907](#) CR0787 R1
- conclusion: Email discussion was kicked off by Hao Bi (Huawei) on 01.09.2015.
36.300 CR in [R2-153907](#) was endorsed on 15.09.2015.

[91#11][LTE/CAe] Running 36.321 CR (Ericsson)

- Align with RRC CR
- => Intended outcome: Technically endorsed running 36.321 CR in [R2-153964](#)
- conclusion: Email discussion was kicked off by Mattias Bergström A (Ericsson) on 31.08.2015.
36.321 CR in [R2-153964](#) was endorsed on 11.09.2015.

[91#12][LTE/CAe] Running 36.331 CR (Nokia Networks)

- Align with MAC CR
- => Intended outcome: Technically endorsed running 36.331 CR in [R2-153946](#)
- conclusion: Email discussion was kicked off by Jarkko T. Koskela (Nokia Networks) on 31.08.2015.
36.331 CR in [R2-153946](#) was endorsed on 11.09.2015.

[91#13][LTE/SC-PTM] Running stage-2 CR (Huawei)

- Capture the agreements from this meeting
- => Intended outcome: Technically endorsed running stage-2 CR
- conclusion: Email discussion was kicked off by david lecompte (Huawei) on 31.08.2015.
36.300 CR in [R2-153889](#) was endorsed on 25.09.2015.

[91#14][LTE/MTC] Running stage-2 CR (Ericsson)

- => Intended outcome: Technically endorsed running 36.300 CR in [R2-153967](#); an LS to RAN1 with the attached running CR in [R2-153968](#)
- conclusion: Email discussion was kicked off by Emre Yavuz (Ericsson) on 04.09.2015.
36.300 CR in [R2-153967](#) was endorsed and the LS in [R2-153968](#) was agreed on 15.09.2015.

[91#15][LTE/WiFi] Running 36.300 CR (Intel)

- Incorporate the agreements of this meeting in the latest endorsed CR
- Clarify the figure
- Incorporate RAN3 CR into this CR
- => Intended outcome: Technically endorsed 36.300 CR in [R2-153972](#)
- conclusion: Email discussion was kicked off by Sasha Sirotkin (Intel) on 04.09.2015.
36.300 CR in [R2-153972](#) was endorsed on 24.09.2015.

[91#16][LTE/eD2D] Running stage 2 CRs (QC)

- Capture agreements on eD2D up to RAN2#91
- => Intended outcome: Technically Endorsed 36.300 CR
- conclusion: Email discussion was kicked off by Sudhir Baghel (Qualcomm) on 01.09.2015.
36.300 CR in [R2-153890](#) was endorsed on 11.09.2015.

[91#17][LTE/Latency] Update of TR 36.881 (Ericsson)

- Capture agreements from this meeting
- => Intended outcome: Agreed update of TR 36.881 v0.2.1 in [R2-153910](#) (not for approval at RAN)
- conclusion: Email discussion was kicked off by Henrik Enbuske (Ericsson) on 02.09.2015.
TR 36.881 v0.2.1 in [R2-153910](#) and TR 36.881 v0.3.0 in [R2-153984](#) were agreed on 16.09.2015.

Email discussions with finalisation by Thu 24.09.2015 midnight Pacific time, i.e. Fri 25.09.2015 9am CET:

[91#20][LTE/VoLTE] Establishment cause for mobile-originating VoLTE calls (Nokia Networks)

- Discuss in which message to include the indication
- => Intended outcome: CRs to the next meeting
- conclusion: Email discussion was kicked off by Tero Henttonen (Nokia Networks) on 15.09.2015.
Email discussion result is provided to RAN2 #91bis in [R2-154895](#).

[91#21][LTE/CAe] Capability signalling enhancements (Nokia Networks)

- Identify feasible solutions to reduce capability signalling
- Ensure backwards compatibility
- => Intended outcome: Email discussion report to the next meeting
- => Intended outcome: LS to RAN4 if needed
- conclusion: Email discussion was kicked off by Tero Henttonen (Nokia Networks) on 15.09.2015.
Email discussion result is provided to RAN2 #91bis in [R2-154894](#).

[91#22][LTE/SC-PTM] Scheduling pattern, DRX and Change Notification (Huawei)

- Discuss whether SC-PTM configuration also comprises the scheduling period, scheduling window and start offset which indicates the subframes where UE should monitor the associated Group-RNTIs on PDCCH.
- Discuss whether the pattern is per service
- Discuss whether more flexible schemes should be considered (e.g. period extends when valid PDCCH assignment detected...)
- Discuss how change notification is provided
- => Intended outcome: Email discussion report to next meeting
- conclusion: Email discussion was kicked off by Jeff Gao (Huawei) on 14.09.2015.
Email discussion result is provided to RAN2 #91bis in [R2-154195](#).

[91#23][LTE/SC-PTM] Service continuity (Huawei)

- Discuss suitable means to realize service continuity
- Consider overhead in broadcast and e.g. update frequency
- => Intended outcome: Email discussion report to the next meeting
- conclusion: Email discussion was kicked off by David Lecompte (Huawei) on 16.09.2015.
Email discussion result is provided to RAN2 #91bis in [R2-154196](#).

[91#24][LTE/MTC] Timer handling for extended coverage (Ericsson)

- Discuss how MAC and RRC timers relevant for RA and connection establishment need to be extended for UEs in extended coverage.
- => Intended outcome: Email discussion summary to the next meeting
- conclusion: Email discussion was kicked off by Emre Yavuz (Ericsson) on 17.09.2015.
Email discussion result is provided to RAN2 #91bis in [R2-154870](#).

[91#25][LTE/MTC] Mobility Support (MediaTek)

- Discuss mobility support also taking into account recent input from RAN4
- Can address IDLE and CONNECTED mode
- => Intended outcome: Email discussion report to next meeting
- conclusion: Email discussion was kicked off by Johan Johansson (Media Tek) on 24.09.2015.
Email discussion result is provided to RAN2 #91bis in [R2-154888](#).

[91#26][LTE/WiFi] Radio Link Monitoring for WLAN aggregation (Huawei)

- => Intended outcome: Email discussion summary to the next meeting
- conclusion: Email discussion was kicked off by David Lecompte (Huawei) on 17.09.2015.
Email discussion result is provided to RAN2 #91bis in [R2-154868](#).

[91#27][LTE/WiFi] RRM Measurement Framework (Intel)

- => Intended outcome: Email discussion summary to the next meeting
- conclusion: Email discussion was kicked off by Sasha Sirotkin (Intel) on 16.09.2015.
Email discussion result is provided to RAN2 #91bis in [R2-154395](#).

[91#28][LTE/Load Balancing] Redistribution Schemes (ZTE)

- Investigate advantages and benefits of schemes that can redistribute IDLE UEs (continuous randomization and one-shot mechanism)
- Do not discuss existing dedicated reselection priorities provided during RRC connection release
- Aim to converge to one solution

=> Intended outcome: Email discussion report and possibly draft CRs to next meeting

conclusion: Email discussion was kicked off by Zhongsa Du (ZTE) on 02.09.2015.

Email discussion result is provided to RAN2 #91bis in [R2-154440](#).

[91#29][LTE/Latency] Evaluation results (Ericsson)

- All companies may provide comprehensive TPs with their assumptions, results and conclusions to the email discussion. Those parts can then be included in one big TP by the rapporteur. That TP will then be provided as input to the next meeting. Possibly, a conclusion for those results should be added

=> Intended outcome: TP with simulation assumptions, results and conclusions

conclusion: Email discussion was kicked off by Henrik Enbuske (Ericsson) on 03.09.2015.

Email discussion results are provided to RAN2 #91bis in [R2-154743](#) and [R2-154744](#).

[91#30][LTE/DCe] SFN/subframe offset reporting (NTT DOCOMO)

- Related to [R2-153175](#)

=> Intended outcome: Email discussion report to next meeting

conclusion: Email discussion was kicked off by Toru Uchino (NTT DOCOMO) on 11.09.2015.

Email discussion result is provided to RAN2 #91bis in [R2-154398](#).

[91#31][LTE/D2D] Relay selection and reselection (Qualcomm)

- Define relay selection/reselection terminology
- Define the detailed criteria to select a new relay and whether/how to perform the ranking of relays

=> Intended outcome: Sept. 11: Company opinions provided

=> Intended outcome: Sept. 18: Rapporteur provides way forward

conclusion: Email discussion was kicked off by Sudhir Baghel (Qualcomm) on 09.09.2015.

Email discussion result is provided to RAN2 #91bis in [R2-154796](#).

[91#32][LTE/eDRX] eDRX and H-SFN range (Intel)

- Agree on an acceptable eDRX range and values for idle mode
- Agree on the range of H-SFN
- Discuss how to handle system information update
- Deadline one week before contribution deadline

=> Intended outcome: Email discussion report to next meeting

conclusion: Email discussion was kicked off by Marta M Tarradell (Intel) on 11.09.2015.

Email discussion result is provided to RAN2 #91bis in [R2-154294](#).

CRs from other WGs to be agreed/reviewed by RAN2 before RAN #69:

No CRs received from other WGs

Preparation of status reports for SIs and WIs under RAN2 leadership for RAN #69:

Rapporteurs were asked to make draft status reports available for review on the RAN2 reflector (without Tdoc number) as soon as possible after RAN2 #91. Below the results of RAN #69 are summarized as percentage complete/target completion date/status report.

- REL-13 SI: Study on further enhancements of Minimization of Drive Tests (MDT) for E-UTRAN, rapporteur: Hu, Nan (CMCC)
acronym: FS_LTE_eMDT2, SID: [RP-150472](#) at RAN #67, TR36.880
History: RAN #67: new/Sep.15/-

now: RAN #68: 70%/Sep.15/**RP-150806**
 now: RAN #69: 100%/Sep.15/**RP-151181**

- REL-13 SI: Study on Latency reduction techniques for LTE, rapporteur: Enbuske, Henrik (Ericsson)
 acronym: FS_LTE_LATRED, SID: **RP-150465** at RAN #67, TR 36.881
 History: RAN #67: new/June 16/-
 RAN #68: 10%/June 16/**RP-150780**
 now: RAN #69: 50%/June 16/**RP-151286**
- REL-13 WI: Support of EVS over UTRAN CS, rapporteur: Francesco PICA (Qualcomm)
 acronym: EVSoCS-UTRAN-Core, WID: **RP-142282** at RAN #66
 History: RAN #66: new/Sept 15/-
 RAN #67: 10%/Sept 15/ **RP-150128**
 RAN #68: 25%/Sept 15/ **RP-150759**
 Now: RAN #69: 50%/Dec 15/ **RP-151282**
- REL-13 WI: Enhanced LTE Device to Device Proximity Services, rapporteur: Shailesh Patil (Qualcomm)
 acronym: LTE_eD2D_Prox-Core, WID: **RP-142311** at RAN #66; revised in **RP-150441** at RAN#67
 History: RAN #66: new/Dec 15/-
 RAN #67: 0%/Dec 15/ **RP-150095**
 RAN #68: 40%/Dec 15/ **RP-150795**
 Now: RAN #69: 55%/Dec 15/ **RP-151337**
- REL-13 WI: Core part: Multiflow Enhancements for UTRA, rapporteur: Sayenko, Alexander (Nokia Networks)
 acronym: HSDPA_MFTX_enh-Core, WID: **RP-150288** at RAN #67, revised in **RP-151021** at RAN#68
 History: RAN #67: new/Sep.15/-
 RAN #68: 80%/Sep.15/**RP-150827**
 now: RAN #69: 100%/Sep.15/**RP-151302**
- REL-13 WI: Core part: Dual Connectivity enhancements for LTE, rapporteur: Uchino, Toru (NTT DOCOMO)
 acronym: LTE_dualC_enh-Core, WID: **RP-150490** at RAN #67
 History: RAN #67: new/Dec.15/-
 RAN #68: 25%/Dec.15/**RP-150744**
 now: RAN #69: 55%/Dec.15/**RP-151214**
- REL-13 WI: Core part: Multicarrier Load Distribution of UEs in LTE, rapporteur: DU, Zhongda (ZTE)
 acronym: LTE_MC_load-Core, WID: **RP-150491** at RAN #67, revised in **RP-150611** at RAN#68; revised in **RP-151206** at RAN#69
 History: RAN #67: new/Dec.15/-
 RAN #68: 40%/Dec.15/**RP-150610**
 now: RAN #69: 50%/Dec.15/**RP-151190**
- REL-13 WI: Core part: RAN enhancements for extended DRX in LTE, rapporteur: Vajapeyam, Madhavan (Qualcomm)
 acronym: LTE_extDRX-Core, WID: **RP-150493** at RAN #67; revised in **RP-151339** at RAN#69
 History: RAN #67: new/Dec.15/-
 RAN #68: 20%/Dec.15/**RP-150798**
 now: RAN #69: 45%/Dec.15/**RP-151338**
- REL-13 WI: Core part: LTE-WLAN Radio Level Integration and Interworking Enhancement, rapporteur: Sirotkin, Sasha (Intel)
 acronym: LTE_WLAN_radio-Core, WID: **RP-150510** at RAN #67, revised in **RP-151114** at RAN#68
 History: RAN #67: new/Dec.15/-
 RAN #68: 30%/Dec.15/**RP-151081**
 now: RAN #69: 40%/Dec.15/**RP-151319**
- REL-13 WI: Core part: RAN aspects of Application specific Congestion control for Data Communication, rapporteur: Youngdae LEE (LG Electronics)
 acronym: ACDC-RAN-Core, WID: **RP-150512** at RAN #67
 History: RAN #67: new/Dec.15/-

RAN #68: 25%/Dec.15/**RP-150661**
now: RAN #69: 70%/Dec.15/**RP-151275**

- REL-13 WI: Support of single-cell point-to-multipoint transmission in LTE, rapporteur: Jeff GAO (Huawei)
acronym: LTE_SC_PTM, WID: **RP-151110** at RAN #68
History: RAN #68: new/Dec 15/-
now: RAN #69:30%/Dec 15/**RP-151237**
- REL-13 WI: L2/L3 Downlink enhancements for UMTS, rapporteur: Jun Chen (Huawei)
acronym: UTRA_EDL_L23, WID: **RP-151043** at RAN #68; revised in **RP-151249** at RAN#69
History: RAN #68: new/June.15/-
now: RAN #69: 35%/June.15/**RP-151238**
- REL-13 WI: Power saving enhancements for UMTS, rapporteur: Martin van der Zee (Ericsson)
acronym: UTRA_SDATA_POWSAV, WID: **RP-151092** at RAN #68; revised in **RP-151292** at RAN#69
History: RAN #68: new/March.15/-
now: RAN #69: 25%/March.15/**RP-151291**

New SIs and WIs under RAN2 leadership for RAN #69:

- REL-13 WI: Dual Carrier HSUPA Enhancements for UTRAN CS, rapporteur: SAYENKO, Alexander (Nokia Networks)
acronym: DC_HSUPA_CS-Core, WID: **RP-151607** at RAN #69
now: RAN #69: new/Dec 15/-
- REL-13 WI: Further Enhancements of Minimization of Drive Tests for E-UTRAN, rapporteur: Hu, Nan (CMCC)
acronym: LTE_eMDT2-Core, WID: **RP-151611** at RAN #69
now: RAN #69: new/Dec 15/-
- REL-13 WI: LTE-WLAN RAN Level Integration supporting legacy WLAN, rapporteur: Lim, Seau Sian (Alcatel-Lucent)
acronym: LTE_WLAN_radio_legacy-Core, WID: **RP-151615** at RAN #69
now: RAN #69: new/Dec 15/-
- REL-13 WI: Indoor Positioning Enhancements for UTRA and LTE, rapporteur: Vogedes, Jerome (NextNav)
acronym: UTRA_LTE_iPos_enh-Core, WID: **RP-151624** at RAN #69
now: RAN #69: new/June 16/-

Annex G: LTE UP session

On Monday and on Thursday of RAN2 #91, in parallel to the main LTE session, an LTE User Plane session was held in room Function Room 12 (Level 1 Floor) chaired by RAN2 vice-chairman SeungJune Yi (LG) addressing:

On Monday:

- 6.1.2 LTE: Rel-12 and earlier releases: User Plane
- 6.2.1.2 LTE: Rel-12: WI: Dual Connectivity for LTE (SCE): User Plane
- 6.2.3.2 LTE: Rel-12: WI: LTE Device to Device Proximity Services - Radio Aspects: User Plane
- 6.2.9.2 LTE Other Closed Rel-12 WIs: UP

On Tuesday:

- 7.9 LTE: Rel-13: WI: Dual Connectivity Enhancements

On Thursday:

- 7.9 LTE: Rel-13: WI: Dual Connectivity Enhancements
- 7.2.3 LTE: Rel-13: WI: CA enhancements: UP aspects

The corresponding report of this session [R2-153861](#) was presented and agreed on Fri in the joint session and the contents is provided in this Annex G for convenience reasons.

6 LTE: Rel-12 and earlier releases

6.1.2 User Plane

The documents in this AI treated in the UP session.

[R2-153045](#) Reply LS on Type 2 Power Headroom reporting ([R1-154764](#); contact: Intel); RAN1; LS in; Rel-12; TEI12;
=> Noted

[R2-153791](#) Correction on Type 2 PH reporting Intel Corporation CR 36.321 12.6.00799 F
Rel-12 LTE_CA-Core
NOTE: TEI12 should be added in WI code since LTE-CA-Core was a REL-10 WI
- LG think we discussed the issue at the last meeting, and RAN2 agreed to change RAN1 specification. LG think MAC spec does not need to change. Ericsson think MAC assumes there was a transmission, so the intention of the CR is correct. MediaTek think the change is aligned with last agreement.
- Ericsson want to change "if needed" to "if available". Intel think PCMAX is always available, so "if available" is misleading.
- Panasonic think the proposed change incurs change of UE implementation.
=> Remove "if needed"
=> Cover sheet should be updated.
=> With above changes, the CR0799r1 is agreed in [R2-153862](#) (Intel).

6.2 LTE: Rel-12

6.2.3 WI: LTE Device to Device Proximity Services - Radio Aspects

(LTE_D2D_Prox-Core, leading WG: RAN1, REL-12, started: Mar.14, **closed**: Mar.15, WID: [RP-142043](#))

RAN1 TR [36.843](#) on D2D

6.2.3.2 User Plane

Documents in this agenda item treated in the UP session.

Including output of [90#26][LTE/ProSe] Rel-13 SL BSR trigger and cancellation (Huawei)

MAC

Reporting and cancellation of SL BSR

- [R2-153231](#) Report of email discussion on sidelink BSR Huawei, HiSilicon discussion
- Ericsson wonders why the issue is discussed in R12. Chairman clarified that the issue was triggered in R12, so it's ok to discuss it in R12.

Proposal1

- => The UE does not report empty SL BSR. All triggered sidelink BSRs shall be cancelled in case the MAC entity has no data available for transmission for any of the sidelink logical channels.
- AsusTek wants to limit the change to periodic and padding SL BSR. Huawei think the previous sentence covers the cancellation of regular SL BSR.

Proposal2

- => All triggered Regular Sidelink BSRs shall be cancelled (the triggered periodic SL BSR is not cancelled) in case the remaining configured SL grant(s) valid for this SC Period can accommodate all pending data available for transmission.

Release

- Huawei think the issue exists from R12, so want to apply the change from R12. Ericsson want to check whether there is a severe problem. LG, Coolpad is fine from R12.
- => Apply the change from R12.

- [R2-153397](#) Corrections for reporting and cancellation of SL BSR Huawei, HiSilicon CR 36.321
12.6.00789 F Rel-13 LTE_D2D_Prox-Core
=> CR is not agreed.

- [R2-153662](#) Corrections for reporting and cancellation of SL BSR Huawei, HiSilicon CR 36.321
12.6.00795 F Rel-12 LTE_D2D_Prox-Core
=> Tick the RAN box.
=> With above change, CR0795r1 is agreed in [R2-153863](#) (Huawei).

- [R2-153325](#) Correction on Sidelink BSR transmission Innovative Technology Lab Co. CR 36.321
12.6.00787 F Rel-12 LTE_D2D_Prox-Core
=> CR is not agreed.

- [R2-153752](#) Clarification of cancellation of sidelink BSR Ericsson CR 36.321 12.6.00797 F
Rel-12 LTE_D2D_Prox-Core
- AsusTek ask what is 0 byte SL grant. Ericsson clarified that there was a concern on whether data available for transmission = 0 byte can be accommodated into non-received SL grant. Nokia think the NOTE is not clear. LG think Huawei CR covers this case.

=> CR is not agreed.

MAC others

[R2-153272](#) Corrections to Sidelink in MAC Intel Corporation CR 36.321 12.6.00785 F Rel-12 LTE_D2D_Prox-Core

Removing MAC CE

- ITL think removing MAC CE is not future proof. Intel want to make the spec clear, and keeping MAC CE makes confusion. ZTE supports for removing MAC CE. LG is fine with removing MAC CE. Ericsson, Huawei think there may be IOT issues with different releases. Intel think as long as the UE is standard compliant, there would be not IOT issues. ITL want to postpone the discussion to R13. Intel think it is the clean-up of R12 specification.

=> Remove SL MAC CE

Sidelink Control Layer-1 ID

- Nokia wonders whether the new terminology is used in RAN1 spec. Intel think there is misalignment between stage-2 and stage-3 spec. Nokia think SL Control L1 ID is a subset of Group Destination, and the change may not be just change of the name. Huawei want to keep the Group Destination.

=> Change stage-2 terminology, if needed.

N in SL BSR MAC CE

- ZTE think this change is not needed. ITL think it is useful clarification. Huawei think such clarification is not specified for PHR.

=> The change is not needed.

zero or one MAC SDU

- LG agree with the change.

=> Agree to change to one or more MAC SDU.

=> All other changes are agreed.

=> With above changes, the CR0785r1 is agreed in [R2-153864](#) (Intel).

[R2-153774](#) Corrections on Prose BSR Report and SL MAC CE ZTE CR 36.321 12.6.00798 F Rel-12 LTE_D2D_Prox-Core

- Ericsson think there is only one LCG in R12. Chairman think this CR is for R13.

=> CR is not agreed.

[R2-153519](#) Miscellaneous corrections on Sidelink ASUSTEK COMPUTER (SHANGHAI) CR 36.321 12.6.00790 F Rel-12 LTE_D2D_Prox-Core

1st change

- LG agree with the intention but want to change to "for sidelink logical channels". Panasonic, Ericsson think the sentence in 5.14.1.3 already covers this clarification. Ericsson think there may be issue in R13 if we introduce multiple SL grant. Huawei agree with the change.

=> Agree to the 1st change with change of "for sidelink logical channels".

2nd change

- LG think the 10 bytes restriction is a guideline to eNB, and prefer to have it. AsusTek think if it could be a guideline it would be good to have NOTE for eNB. LG wonders whether there is difference between NOTE and normative text. Huawei wonders whether it is captured in other place that padding PDU is not allowed for SL.

=> Keep it as it is.

3rd change

- Ericsson, QC support the change. LG think in legacy “transmission” includes both “transmission” and “retransmission”.
- => The change is agreed.

4th change

- QC, LG support.
- => The change is agreed.

5th change

=> The change is agreed.

=> With above changes, CR0790r1 is agreed in [R2-153865](#) (AsusTek).

- [R2-153709](#) Events that trigger sidelink BSR Nokia Networks CR 36.321 12.6.00796 F Rel-12 LTE_D2D_Prox-Core
- Ericsson think there is no functional change, and does not improve readability. Nokia think “An SL-RNTI is configured by upper layers” is confusing, so want to make it clear. LG think the first four bullets refer to the UE in mode 1, and the last bullet refers to the event the UE mode is changed from mode 2 to mode 1.
- => CR is not agreed.

RLC

- [R2-153230](#) Corrections for STCH in 36.322 Huawei, HiSilicon CR 36.322 12.2.00108 F Rel-12 LTE_D2D_Prox-Core
- => CR is agreed.

- [R2-153399](#) Corrections for STCH in 36.322 Huawei, HiSilicon CR 36.322 12.2.00111 A Rel-13 LTE_D2D_Prox-Core
- => CR is not agreed.

Withdrawn

- [R2-153232](#) Corrections for reporting and cancellation of SL BSR Huawei, HiSilicon CR 36.321 12.6.00784 F Rel-13 LTE_D2D_Prox-Core
- => Withdrawn

7 LTE Rel-13

7.2 WI: CA enhancements

(LTE_CA_enh_b5C-Core, leading WG: RAN1, started: Dec. 14, target: Dec. 15, WID: [RP-150771](#))

Time budget: 1 TU (+ 1TU for stage-3 UP aspects)

7.2.3 UP aspects

Stage-3 UP aspects

Documents submitted to this AI treated in the UP session

7.2.3.1 B5C

E.g. Header formats, ...

Activation/Deactivation

Optimization for Ci field

Use of new LCID

- [R2-153418](#) Details of Activation/Deactivation MAC CE in UE aspect Samsung Telecommunications discussion
- Samsung clarified that they still consider need for new LCID. The implicit configuration means that there is no need for RRC signaling. Huawei wonders why did we introduce a new LCID for DC PHR MAC CE. Samsung think the DC PHR MAC CE is an optional feature, so RRC signaling is needed. Ericsson think the situation in eCA is different from DC. ITL think even if more than 8 cells are configured, the eNB can send AD MAC CE with 1 byte. Xinwei want to introduce a new LCID for new MAC CE. LG doesn't want to introduce a new LCID.

Discussion: whether 1 byte AD MAC CE is allowed even if highest sCellIndex is larger than 8.

- => If the highest sCellIndex is less than 8, the AD MAC CE is 1 byte.
- => If the highest sCellIndex is larger than or equal to 8, the AD MAC CE is 4 bytes.
- => It is up to eNB implementation to control the highest sCellIndex is below 8 when the number of configured cells are less than 8.

Discussion: new LCID

- Huawei, Ericsson, LG, Nokia, QC is ok with not introducing a new LCID. Samsung think there would be a big change if we don't introduce a new LCID. Nokia, Ericsson think we already have the MAC CE whose size depends on the configuration, e.g. PHR MAC CE. Samsung think in PHR MAC CE, there is a L field, but for this case, there is no L field. Samsung think fixed size MAC CE needs different LCIDs. ITL, AsusTek, ZTE, Xinwei want to introduce a new LCID. Huawei think there is no problem of ambiguity. MediaTek agree with Huawei. Samsung think common LCID works but brings much complexity.

Introduce a new LCID for AD MAC CE with 4 bytes

- Option1: Introduce a new LCID 7
- Option2: Do not introduce a new LCID 8
- => Come back at the next meeting.

- [R2-153654](#) LCIDs for extended MAC CEs for CA enhancements beyond 5 CCs Ericsson discussion
- [R2-153324](#) Remaining issues on Activation/Deactivation MAC CE for b5C Innovative Technology Lab Co. discussion

- [R2-153577](#) Combination solution for AD MAC CE with up to 32 CCs Beijing Xinwei Telecom Techn. discussion
- => All documents are not treated as already covered by discussion under [R2-153418](#).

- [R2-153655](#) CR for LCIDs for extended MAC CEs for CA enhancements beyond 5 CCs Ericsson CR 36.321 12.6.00794 B Rel-13 LTE_CA_enh_b5C-Core
- => CR is not treated.

PHR

Optimization for Ci field

Location of Type2 PH field

- [R2-153420](#) Remaining issues on PHR MAC CE in UP aspect Samsung Telecommunications discussion

Proposal1

- => The bitmap in new PHR MAC CE format is followed by Type 2 PHs.

Proposal2

- NTT DCM want to check with RAN1 whether it can be considered as simultaneous PUCCH-PUSCH transmission in case PUCCH is transmitted on PCell group and PUSCH is transmitted on PUCCH SCell group. Ericsson think simultaneous PUCCH-PUSCH transmission is configured per PUCCH group. Nokia confirms Ericsson's understanding.
- => The presence of PUCCH SCell Type 2 PH depends on simultaneous PUCCH-PUSCH configuration of the PUCCH cell group.

Proposal3

- => R13 Extended PHR MAC CE format is explicitly configured by RRC

New LCID for FE-PHR MAC CE

- Huawei think there is no need to introduce a new LCID. Samsung think there are still many LCID values left. Nokia think PHR is different from AD MAC CE because PHR is UL. Thus, a new LCID is needed for new PHR MAC CE. Ericsson, LG agree with Nokia. ITL think there is no difference between PHR and AD MAC CE.
- => New LCID is used for R13 Extended PHR MAC CE

[R2-153263](#)

PHR for CA enhancement for more than 5 CCs Nokia Networks discussion

- Samsung has sympathy for the proposal. LG think it would be sufficient to rely on the highest sCellIndex not on the highest sCellIndex with configured UL. Nokia think typically there would not many SCells with configured UL, so would like to rely on the highest sCellIndex with configured UL. LG think eNB can manage the highest sCellIndex with configured UL.
- => If the highest sCellIndex of SCell with configured UL is less than 8, the Ci field of PHR MAC CE is 1 byte.
- => If the highest sCellIndex of SCell with configured UL is larger than or equal to 8, the Ci field of PHR MAC CE is 4 bytes.
- => It is up to eNB implementation to control the highest sCellIndex of SCell with configured UL is below 8 when the number of configured cells are less than 8.

[R2-153152](#)

PHR format for eCA LG Electronics Inc. discussion

[R2-153593](#)

Remaining format for eCA PHR Alcatel-Lucent Shanghai Bell, Alcatel-Lucent discussion

[R2-153506](#)

Discussion on PHR for eCA CATT discussion

[moved from 7.2.3.2 to 7.2.3.1]

- => All documents are not treated as already covered by previous discussion.

[R2-153297](#)

Further Extended Power Headroom Report Nokia Networks CR 36.321 12.6.00786 B
Rel-13 LTE_CA_enh_b5C-Core

[R2-153298](#)

Further Extended Power Headroom Report Nokia Networks CR 36.331 12.6.01862 B
Rel-13 LTE_CA_enh_b5C-Core

- => All CRs are not treated.

BSR

New BSR format

[R2-153651](#)

Extension of BSR for CA enhancements beyond 5 CC Ericsson discussion

- => Noted.

[R2-153588](#)

BSR report for enhanced CA Alcatel-Lucent Shanghai Bell, Alcatel-Lucent discussion

- => Noted.

[R2-153425](#)

BSR format for B5C LG Electronics Inc. discussion

- => Noted.

Discussion: maximum BS value

- Nokia think 25 Gbps is for DL not for UL, we don't need such high bit rate in UL. MediaTek think BS is controlled by eNB, and there would be no drastic change from legacy. MediaTek, Samsung don't see the need for enhancement for BSR.
- => No enhancement for BSR.

[R2-153652](#) New BSR mapping table for Carrier Aggregation enhancements beyond 5 CCs Ericsson CR 36.321 12.6.00792 B Rel-13 LTE_CA_enh_b5C-Core
=> CR is not treated.

L2 header extension

L, SOstart, SOend = 16bit

AM RLC SN = 18bit, 16bit, 13bit

UM RLC SN = 18bit, 13bit

PDPC SN = 23bit

[R2-153171](#) L2 enhancements for eCA SAMSUNG Electronics Co., Ltd. discussion

Discussion: PDPC SN size

- Nokia think that if we increase PDPC SN size, it should be informed to other related WGs, e.g. RAN3, CT4. Nokia think increasing PDPC SN to 23 bits are too much.
- => Take 23bits PDPC SN as a baseline
=> [CBF] Send LS to RAN3, CT4, SA3 to inform that PDPC SN size is increased to 23 bits in [R2-153866](#) (Nokia).

Discussion: L, SOstart, SOend size

=> 16bits L, SOstart, SOend

[R2-153299](#) Extending RLC header Nokia Networks CR 36.322 12.2.00109 B Relates to [R2-153296](#) Rel-13 LTE_CA_enh_b5C-Core

Discussion: AM RLC SN size

- Nokia think 16 bits fit to two full bytes, and looks nice for AMD PDU segment.
- => 16bits AM RLC SN

Discussion: UM RLC SN size

- Samsung think we don't need to extend UM RLC SN. Huawei, Ericsson think it is good to extend UM RLC as well to cope with multiple HARQ operation. Samsung think UM RLC is mostly used for VoIP, which does not have large amount of data.
- => The need for extending UM RLC SN size is FFS.

=> CR is postponed.

[R2-153364](#) Extension of SN and SO field in RLC PDU Huawei, HiSilicon CR 36.322 12.2.00110 B Rel-13 LTE_CA_enh_b5C-Core
=> CR is not agreed.

[R2-153275](#) Layer 2 header size to support CA with up to 32 CCs Intel Corporation discussion

[R2-153296](#) L2 enhancements for more than 5 CCs Nokia Networks discussion

[R2-153362](#) UP impacts due to high peak data rate of 32CCs Huawei, HiSilicon discussion

[R2-153605](#) Impact of carrier aggregation enhancement on L2 UP protocols Ericsson discussion
=> All documents are not treated as already covered by discussion under [R2-153171](#).

R2-153363	Extention of L field in MAC PDU	Huawei, HiSilicon	CR	36.321	12.6.00788	B	
	Rel-13 LTE_CA_enh_b5C-Core						
R2-153365	Extention of SN field in PDCP PDU	Huawei, HiSilicon	CR	36.323	12.4.00141	B	
	Rel-13 LTE_CA_enh_b5C-Core						
R2-153366	Extention due to high data rate	Huawei, HiSilicon	CR	36.331	12.6.01870	B	
	Rel-13 LTE_CA_enh_b5C-Core						
R2-153601	Extending MAC protocol header	Ericsson	CR	36.321	12.6.00791	B	Rel-13
	LTE_CA_enh_b5C-Core						
R2-153602	Extending RLC protocol header	Ericsson	CR	36.322	12.2.00112	B	Rel-13
	LTE_CA_enh_b5C-Core						
R2-153603	Extending PDCP protocol header	Ericsson	CR	36.323	12.4.00142	B	Rel-13
	LTE_CA_enh_b5C-Core						
	=> All CRs are not treated.						

7.2.3.2 PUCCH on SCell

SR

SR prohibit timer

SR failure

[R2-153467](#) Discussion on SR prohibition time and D-SR failure HTC Corporation discussion

Proposal1

- Huawei think SR period based on shorter SR is more reasonable. Samsung agree with Huawei. Ericsson think based on PCell is aligned with legacy. LG support proposal 1 because PUCCH SCell can be deactivated. Nokia wonders how the SR based on PCell works if the SR is not configured on PCell. LG think the only issue is when the SR is configured on both PCell and PUCCH SCell. If there is only one SR configured, it is straightforward that the SR period follows configured SR. Samsung worries about long SR prohibit time.

SR prohibit timer

Option1. based on PCell SR period 4

Option2. based on shorter SR period 13

=> SR prohibit timer is based on shorter SR period, regardless of whether the PUCCH SCell is deactivated.

Proposal2

- Huawei think if there is SR only on PUCCH SCell, it is overkill to release all PUCCH/SRS resource at SR failure. Instead Huawei want to release PUCCH SCell group. HTC think SR failure comes from desynch, and want to release all PUCCH/SRS resource. LG doesn't want to differentiate the cause of SR failure, so support the proposal 2. Panasonic, Samsung, Nokia support the proposal 2.
- => PUCCH/SRS resources should be released for all serving cells when SR_COUNTER reaches dsr-TransMax.

[R2-153368](#) Issues for SR on PUCCH SCell Huawei, HiSilicon discussion

Proposal3

=> When SCell with SR is deactivated, RA on PCell is triggered if there is no valid SR configured on the PCell.

[R2-153228](#) Remaining issues on PUCCH SCell Nokia Networksdiscussion

[R2-153417](#) Remaining issues on interleaved SR Samsung Telecommunications discussion
=> All documents are not treated as already covered by discussion under [R2-153467](#).

Fast activation of PUCCH SCell

Activation + Random Access

SR transmission before activation

[R2-153226](#) PUCCH SCell pre-activation Nokia Networks discussion
=> Noted.

[R2-153369](#) Pre-activation SR Huawei, HiSilicon discussion

Discussion on the need of pre-activation

- Nokia think if PCell SR is short, there is no need to configure SR on PUCCH SCell. LG think we already decided that UL transmission is not possible in deactivated SCell. Nokia explains that the UE autonomously activate the SCell. Intel think the UE has to make DL synchronization on SCell, which may cause additional power consumption. Nokia think the UE activates the SCell later. Ericsson should avoid the UE sends something in deactivated SCell. Samsung think Nokia's proposal is over-optimization.
- => No need for pre-activation.

[R2-153571](#) Activation_deactivation of PUCCH SCell NTT DOCOMO INC. discussion
=> Noted.

[R2-153509](#) PUCCH SCell activation CATT discussion

Discussion on reducing scheduling delay

- Samsung does not want to introduce a new MAC CE to reduce the delay. Moreover, Samsung think there is not so much gain. NTT DCM explains that there would be additional delay when PUCCH SCell is activated. ALU think the frequency of PUCCH SCell out-of-synch is not that high, so does not want to optimize. Nokia think the eNB can send PDCCH order earlier. LG think the eNB can configure PUCCH on the already activated SCell. Panasonic think we can use PDCCH order.
- => No mechanism is introduced to reduce scheduling delay on PUCCH SCell.

[R2-153573](#) Draft LS on PUCCH SCell activation NTT DOCOMO INC. LS out Related to [R2-153571](#)
[R2-153415](#) Reducing use delay on PUCCH SCell III discussion
=> All documents are not treated as already covered by previous discussion.

Time Alignment

SRS resource release at TAT expiry

sCellDeactivationTimer handling

[R2-153367](#) SRS handling for SCells in Secondary PUCCH Group Huawei, HiSilicon discussion
=> When the TAT associated with sTAG not including PUCCH SCell is not running, the SRS resources for the SCell in the sTAG shall be released and SRS transmission on other TAGs shall not be impacted.

- [R2-153154](#) Remaining issue on TAG for CA enhancement LG Electronics Inc. discussion
- LG explains that proposal 3 is not correct and withdrawn.
 - => It is allowed to add a PUCCH SCell or configure PUCCH to an existing SCell in a TAG of which TAT is not running.
 - => It is left up to eNB implementation how to handle the TAT of a TAG if PUCCH SCell is added/configured to a TAG of which TAT is not running.

MAC others

- [R2-153159](#) sCellDeactivationTimer for PUCCH SCell LG Electronics Inc. discussion
- Samsung wonders in case 1 the eNB may not know the exact timing when the valid CQI is reported. Samsung think the eNB should deactivate the SCell first and then configure PUCCH on the deactivated SCell. CATT think we already agreed to allow configuring PUCCH on the already activated SCell. ALU think release/add is used when PUCCH is configured on a SCell. Nokia think we agreed that eNB deactivates the SCell before configuring PUCCH. Chairman think RAN2 agreed to allow configuring PUCCH on a already activated SCell. NTT DCM confirms, but explained RAN2 also agreed to revisit this issue. Huawei explained that even if the SCell is release/add, the activation status is not changed.
 - Ericsson think it would be sufficient to say that "the sCellDeactivationTimer is not applied for PUCCH SCell". Nokia agree with Ericsson, there is no need to specify start/stop of the timer.
- => Come back at the next meeting.

- [R2-153463](#) Managing PUCCH resources on a deactivated PUCCH SCell HTC Corporation discussion
- => Noted.

7.9 WI: Dual Connectivity Enhancements

(LTE_dualC_enh-Core, leading WG: RAN2, started: Mar. 15, target: Dec. 15, WID: [RP-150490](#))

Time budget: 0 TU in main room (+1 TU in stage-3 UP session)

Documents submitted to this AI treated in the UP session

BSR and PDCP data transmission

- [R2-153316](#) PDCP data transmission for UL split bearer Huawei, HiSilicon discussion
- ZTE doesn't want to make PDCP data transmission based on BSR. ZTE think the data transmission should be based on UL data indication from PDCP. Nokia think this is a kind of optimization, and want to stick to the previous agreement. Ericsson agree with Nokia. LG think proposal 1 is not over-scheduling, but waste of UL resource, so LG agree with the intention. Ericsson think fluctuation around threshold should not happen often.
- => PDCP data indication to MAC is based on the amount of data at the time of indication
- => BSR triggering is based on the legacy BSR triggering rule
- => PDCP data transmission is based on the amount of data in PDCP and the threshold at the time of UL grant reception
- LG think the third bullet imposes additional requirement to UE implementation.
 - CATT think we have to discuss how to coordinate between two eNBs to avoid over-scheduling.

- [R2-153148](#) PDCP data indication to MAC with threshold LG Electronics Inc. discussion
 - Ericsson think this is a modeling issue, and think there is always PDCP status available in MAC. Nokia agree with Ericsson. LG think if 0 is not indicated, the other MAC entity would not trigger BSR if the amount of data goes above threshold again. Panasonic think the current text already implies that 0 is indicated to the other MAC entity. Samsung think the proposal makes the UE behavior clear. Samsung think the more serious problem is the other MAC entity would report some value other than 0 when the PDCP data amount is below threshold. ALU think indication to the other MAC entity would be helpful for BSR in the other MAC entity. ZTE agree with ALU.
 => If the amount of PDCP data is less than the threshold, the PDCP entity indicates the actual amount of PDCP data to configured MAC and 0 to non-configured MAC.
- [R2-153568](#) Over allocation problem on UL bearer split NTT DOCOMO INC. discussion
 => Already covered by discussion in [R2-153316](#).
- [R2-153318](#) UL data transmission upon SCG-RLF for UL split bearer Huawei, HiSilicon discussion
 - Kyocera think option 3 is a good choice. Samsung think option 1 is a general consequence of what we have discussed. Samsung think optimization for SCG-RLF is not needed.
 => Upon SCG-RLF, the data transfer to the MeNB is maintained, and the data transfer to the SeNB is suspended.
- [R2-153327](#) How to capture uplink split in the relevant specifications Samsung Electronics Co., Ltd discussion
Proposal3
 - Ericsson want to have more larger maximum value. Nokia think 0 should be minimum.
 => ul-DataSplitThreshold is defined as byte-based. Minimum and Maximum value is FFS.
- [R2-153089](#) Stage 3 Details of DC Enhancements Nokia Networks discussion
[R2-153149](#) Buffer status reporting and PDCP data transmission LG Electronics Inc. discussion
[R2-153315](#) Delivery of PDCP PDU to RLC Layer for UL Split Bearer Huawei, HiSilicon discussion
[R2-153319](#) Over-scheduling problem for UL split bearer Huawei, HiSilicon discussion
[R2-153443](#) Remaining Issues of Supporting Uplink Split Bearers ITRI discussion
[R2-153491](#) Clarifications on BSR of UL bearer split ZTE Corporation discussion
[R2-153507](#) Consideration on over-scheduling issue for uplink split CATT discussion
[R2-153520](#) Scheduling coordination between MeNB and SeNB CATT discussion
[R2-153704](#) Discussion on UL bearer split for Dual connectivity: BSR triggers and timers Alcatel-Lucent, Alcatel-Lucent Shanghai Bell discussion
 => All documents are not treated as already covered by previous discussion.
- [R2-153760](#) PDCP data transfer procedure for uplink bearer split Ericsson CR 36.323 12.4.00143 B Rel-13 LTE_dualC_enh-Core
[R2-153329](#) Introducing threshold based uplink split operation into the RRC specification Samsung Electronics Co., Ltd draft CR 36.331 12.5.0 Rel-13 LTE_dualC_enh-Core
[R2-153336](#) Introducing threshold based uplink split operation into the PDCP specification Samsung Electronics Co., Ltd draft CR 36.323 12.4.0 Rel-13 LTE_dualC_enh-Core
[R2-153383](#) Clarification of PDCP behavior for uplink split bearer Kyocera discussion Rel-13 LTE_dualC_enh-Core
 => All CRs are not treated.

PDCP discard

- [R2-153088](#) Further discussion on PDCP discard with split bearers Nokia Networks discussion
 => Noted
- [R2-153157](#) PDCP Discard issue with UL split bearers LG Electronics Inc. discussion
 => Noted
- [R2-153387](#) Discussion on the PDCP discard issue in bear split ZTE Corporation discussion
 => Noted
- [R2-153317](#) PDCP Discard Issue for UL Split Bearer Huawei, HiSilicon discussion
 => Noted

Handling of PDCP discard

- Option1. Header-only PDCP PDU
 - Option2. Leave it up to UE implementation (with a NOTE)
 - Option3. Leave it up to eNB implementation
 - Option4. PDCP Control PDU
- Samsung think the result of SN gap is not that critical, so want to go for simplest option, i.e. option 3. Ericsson think option 2 and 3 are same. Samsung think option 2 requires UE implementation should do something. QC, MediaTek is fine with option2.
- => Go for option 2, i.e. leave it up to UE implementation with a NOTE.

[R2-153394](#) Draft CR_Improvement on the detection of discarded PDCP PDU ZTE Corporation draftCR 36.323 13.0.0
=> CR is not treated.

[R2-153160](#) PDCP SDU discard in split bearers LG Electronics Inc. draftCR 36.323 12.4.0
Rel-13 LTE_dualC_enh-Core

- Ericsson think the NOTE does not say anything about how the UE avoids SN gap after discard. LG think there are couple of ways to avoid SN gap, and it may be difficult to list all the possible UE behaviors in the NOTE. Samsung want to change "prevent" to "minimize". MediaTek want to reword like "It is up to UE implementation to minimize SN gap after SDU discard." DCM propose to add "UL".

=> Add "UL" for split bearer

=> Change the last sentence to "It is up to UE implementation to minimize SN gap after SDU discard."

=> Include in the PDCP running CR with above changes.

=> CR is postponed.

[R2-153162](#) PDCP reordering enhancement LG Electronics Inc. discussion
[R2-153237](#) PDCP Discard MediaTek Inc. discussion
[R2-153330](#) On preventing PDCP SN gap due to discard timer Samsung Electronics Co., Ltd discussion
[R2-153444](#) PDCP Discard Issue of Split Bearer ITRI discussion
[R2-153758](#) PDCP data transfer procedure for uplink bearer split Ericsson discussion
=> All documents are not treated as already covered by previous discussion.

PDCP Control PDU

[R2-153155](#) Transmission of PDCP Control PDU in split bearer LG Electronics Inc. discussion

- Nokia think transmitting to only MeNB may delay the transmission of PDCP status report. Ericsson agree with Nokia. LG think most delay comes from X2 delay. Panasonic agree with LG. Samsung think transmitting PDCP status report only to eNB does not guarantee shorter delay. QC want to avoid special handling of PDCP status report. Panasonic think the MeNB can issue UL grant immediately to avoid delay of PDCP status report. CATT agree with Samsung. Huawei support to restrict the PDCP status report transmission to MeNB. Panasonic think if the PDCP control PDU is sent to SeNB, it may be useless due to long X2 delay. Samsung think SeNB can prioritize PDCP control PDU transmission to MeNB in X2 interface. LG think there is no PDCP in SeNB, so wonders how the SeNB can prioritize. Nokia think PDCP control PDU should be transmitted to both eNBs. CATT think for UL split bearer, the X2 delay should be low. DCM think the problem exist from R12, and wonders whether the optimization is needed.

=> PDCP control PDU is handled same as PDCP data PDU.

[R2-153326](#) PDCP Control PDU for UL Split Bearer Samsung Electronics Co., Ltd discussion
[R2-153090](#) Transmission of PDCP status report at PDCP data recovery Nokia Networks discussion
[R2-153256](#) Transmission of PDCP control PDUs for Split bearers PANASONIC R&D Center Germany discussion
=> All documents are not treated as already covered by previous discussion.

PBR

[R2-153522](#) Considerations on PBR of UL split bearer CATT discussion

- DCM think the PBR is typically configured for non-GBR bearer. CATT think for each RB, there is a PBR. ALU think PBR is for avoiding starvation, and configuring PBR by only one eNB should be sufficient. CATT think PBR configuration is up to eNB implementation. In case two PBRs are configured, the sum of them should be equal to GBR. Nokia think we can just rely on eNB configuration. ALU think if there are two PBRs, the eNB may allocate UL grant more than needed. Samsung think even if the sum of PBRs exceed minimum bit rate, there is no critical problem.

=> For PBR, the UE just follows eNB configuration.

[R2-153703](#) Discussion on UL bearer split for Dual Connectivity: QoS guarantee Alcatel-Lucent, Alcatel-Lucent Shanghai Bell discussion

=> The document is not treated as already covered by discussion in [R2-153522](#).

SFN/subframe offset

[R2-153175](#) Kick off to work on SFN/subframe offset reporting NTT DOCOMO, INC. (Rapporteur) discussion

=> [EMAILDISC] SFN/subframe offset reporting (NTT DOCOMO).

Withdrawn

[R2-153328](#) Introducing threshold based uplink split operation into the PDCP specification Samsung Electronics Co., Ltd CR 36.323 12.4.00140 F Rel-13 LTE_dualC_enh-Core

=> Withdrawn

Summary of the UP ad hoc meeting

Agreed CRs

R2-153862	Correction on Type 2 PH reporting	Intel Corporation	CR	36.321	12.6.00799r1	F
	Rel-12 LTE_CA-Core					
R2-153863	Corrections for reporting and cancellation of SL BSR	Huawei, HiSilicon	CR	36.321		
	12.6.00795r1	F	Rel-12	LTE_D2D_Prox-Core		
R2-153864	Corrections to Sidelink in MAC	Intel Corporation	CR	36.321	12.6.00785r1	F
	Rel-12 LTE_D2D_Prox-Core					
R2-153865	Miscellaneous corrections on Sidelink	ASUSTEK COMPUTER (SHANGHAI)	CR	36.321		
	12.6.00790r1	F	Rel-12	LTE_D2D_Prox-Core		
R2-153230	Corrections for STCH in 36.322	Huawei, HiSilicon	CR	36.322	12.2.00108	F
	Rel-12 LTE_D2D_Prox-Core					

Agreed outgoing LS

None

Comeback on Friday

Send LS to RAN3, CT4, SA3 to inform that PDCP SN size is increased to 23 bits in [R2-153866](#) (Nokia).

E-mail discussion for the next meeting

Rel-13 DC: SFN/subframe offset reporting (NTT DOCOMO, related to [R2-153175](#))

Comeback at the next meeting

New LCID for AD MAC CE with 4 bytes (related to [R2-153418](#))

Handling of sCellDeactivationTimer for PUCCH SCell (related to [R2-153159](#))

Agreements on Rel-13 items

CA enhancements

- => If the highest sCellIndex is less than 8, the AD MAC CE is 1 byte.
- => If the highest sCellIndex is larger than or equal to 8, the AD MAC CE is 4 bytes.
- => It is up to eNB implementation to control the highest sCellIndex is below 8 when the number of configured cells are less than 8.
- => The bitmap in new PHR MAC CE format is followed by Type 2 PHs.
- => The presence of PUCCH SCell Type 2 PH depends on simultaneousPUCCH-PUSCH configuration of the PUCCH cell group.
- => R13 Extended PHR MAC CE format is explicitly configured by RRC
- => New LCID is used for R13 Extended PHR MAC CE
- => If the highest sCellIndex of SCell with configured UL is less than 8, the Ci field of PHR MAC CE is 1 byte.
- => If the highest sCellIndex of SCell with configured UL is larger than or equal to 8, the Ci field of PHR MAC CE is 4 bytes.
- => It is up to eNB implementation to control the highest sCellIndex of SCell with configured UL is below 8 when the number of configured cells are less than 8.
- => No enhancement for BSR.
- => Take 23bits PDCP SN as a baseline

- => 16bits L, SOstart, SOend
- => 16bits AM RLC SN
- => The need for extending UM RLC SN size is FFS.

DC enhancements

- => PDCP data indication to MAC is based on the amount of data at the time of indication
- => BSR triggering is based on the legacy BSR triggering rule
- => PDCP data transmission is based on the amount of data in PDCP and the threshold at the time of UL grant reception
- => If the amount of PDCP data is less than the threshold, the PDCP entity indicates the actual amount of PDCP data to configured MAC and 0 to non-configured MAC.
- => Upon SCG-RLF, the data transfer to the MeNB is maintained, and the data transfer to the SeNB is suspended.
- => ul-DataSplitThreshold is defined as byte-based. Minimum and Maximum value is FFS.
- => SN Gap handling is left up to UE implementation with a NOTE.
- => PDCP control PDU is handled same as PDCP data PDU.
- => For PBR, the UE just follows eNB configuration.

Annex H: LTE ProSe and eDRX session

On Wed of RAN2 #91, in parallel to the main LTE session, an LTE ProSe and eDRX session was held in room Function Room 12 (Level 1 Floor) chaired by RAN2 vice-chairman Diana (InterDigital) addressing:

On Wednesday:

7.10 LTE: Rel-13: WI: RAN enhancements for extended DRX in LTE
7.5 LTE: Rel-13: WI: ProSe enhancements

The corresponding report of this session [R2-153885](#) was presented and agreed on Fri in the joint session and the contents is provided in this Annex H for convenience reasons.

7.5 WI: ProSe enhancements

(LTE_eD2D_Prox-Core, leading WG: RAN2, started: Dec. 14, target: Dec. 15, WID: [RP-150441](#))

Time budget: 3 TU

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

[R2-153734](#) Running stage 2 CR TS 36.300 to capture agreement on eD2D Qualcomm Incorporated
 draftCR 36.300 13.0.0 Rel-13 LTE_eD2D_Prox-Core

Email discussion

- ☒ **[91#16][LTE/eD2D] - Running stage 2 CRs**
- Capture agreements on eD2D up to RAN2#91
- Outcome: endorse the running stage CR
- Deadline: 2 weeks after the meeting

7.5.1 UE-to-Network Relays

Including output of email discussion [90#25][LTE/ProSe] Relay UE initiation, discovery and selection/re-selection (ZTE)

[R2-153764](#) Report of email discussion [90#25][LTE/ProSe] Relay UE initiation, discovery and selection/re-selection ZTE (rapporteur) report

Proposal 1b: Take a final decision whether the relay discovery model is known/controlled or not by the eNB.

- ZTE thinks that discovery model network control is not desirable by a majority of companies
- LG, OPPO, doesn't think that the eNB doesn't need to be aware as there isn't much to control from the eNB side and there is no gain.
- ZTE thinks that the information can be used by the eNB to decide how many relay UE can be configured, for example if Model B is being used we can configure more relay UEs as they will utilize less resources.
- ZTE thinks that this information can be made available in an easy way.
- Nokia Net thinks that there was no majority of companies wanting to have awareness and in Rel-12 we decided to keep the type of discovery transparent to the eNB.
- Huawei wonders if the UE can use one or both models. Qualcomm thinks that both options are allowed and the ProSe function can configure both. ZTE thinks that both can be used and this is one of the reasons why the eNB shouldn't control which type of model to use.
- Ericsson thinks that there is a benefit of eNB knowing this information as it impacts the amount of resources the eNB needs to allocate.
- Qualcomm thinks that we should continue using the Rel-12 modelling. Qualcomm also wonders how idle mode UEs would provide this information. ALU agrees with Qualcomm.

- CATT thinks that the eNB can determine what type of discovery the UE is using by the Rel-12 mechanism.

Proposal 2a: If UEs are configured as Relay UE via broadcast signalling, the eNB may broadcast a minimum and/or a maximum Uu link quality (RSRP/RSRQ) thresholds that UEs need to respect to autonomously start acting as relay UEs.

- Huawei wonders what autonomously starting to act as a relay means. ZTE thinks that this is for the case that the UE can start acting as a relay by dedicated signaling.
- ALU thinks that we shouldn't put a restriction with a minimum and maximum.

Proposal 3: UEs can be configured as Relay UE either via dedicated or via broadcast signalling.

- ZTE thinks that if we allow broadcast signalling then the UE can start sending discovery message when the thresholds are met.
- Motorola solutions thinks that the minimum quality makes sense however we should not have a maximum threshold. Ericsson thinks that this solution can be realized by configuration options.
- Samsung wonders why we need the threshold for the dedicated signalling case. ZTE thinks that for the dedicated case we can use the thresholds to limit the amount of relay requests.
- ALU wonders what is the motivation for using dedicated signalling to control the initiation of a relay UE.
- Chair thinks that given that we will be using a separate pool for relay discovery and therefore the eNB needs to be aware that the UE is a relay UE.
- Huawei thinks that we shouldn't allow Model A UEs to start transmitting without dedicated signalling. LG thinks that if that is the concern that the network has the option to not configure a pool for transmissions.
- Nokia Net wonders if the eNB can override the UE autonomous initiation
- US Gov wonders where the policy of which UE can become a relay is defined for the broadcast case. ZTE - Policy control is done at the ProSe function.
- Ericsson thinks that the SIB would indicate whether the UE can start autonomously to be a relay or whether the UE has to request resources to become a relay, similar to Rel-12.
- Samsung indicates that in Rel-12 the UE cannot use the broadcast information if it is in RRC connected. Ericsson thinks that maybe we need to think about this for the next meeting.
- Samsung wonders if the discussion is for both the rx and tx. ZTE thinks that at least these procedures are applicable for transmission pools.

Proposal 4: If Relay UEs are initiated by broadcast signaling, they can also perform relay discovery when in idle. If Relay UEs are initiated by dedicated signaling, they need to stay in connected to perform relay discovery (e.g. to allow the network to de-activate them if needed).

- Huawei thinks that a UE doing Model A shouldn't be allowed to do discovery in idle. ZTE thinks that the UE should be allowed to transmit any type of discovery messages in idle mode.
- Nokia Net thinks that SA2 already has the understanding that relay announcements can be done in idle mode.

Proposal 7: A sidelink discovery resource pool specific for relay discovery shall be defined.

- US gov wonders if the pools is only for relay discovery or also for other PS discovery purposes. QC thinks it should be only relay discovery as we shouldn't have other services interfering.
- Huawei wonders if the pool is referring to transmitting and/or receiving pool. Ericsson thinks that the pool should be at least for PS operation and who is allowed to transmit on that pool can be discussed further. ZTE thinks that we need to configure at least a rx and a tx pool for PS need to be different than the pools for commercial services.

Proposal 5a: Remote UEs can only start transmitting relay discovery solicitation messages while in RRC Connected.

- Intel, LG, ALU, BlackBerry doesn't think that we should have such limitation and if the discovery resource is broadcast the UE should be allowed to send a solicitation message. Intel thinks that we can minimize specification impact by following Rel-12 relay discovery.
- Qualcomm, Ericsson, Huawei supports ZTE

- Samsung wonders why we would now restrict the UE from transmitting if there are resources being broadcasted in idle mode. ZTE doesn't see a need for the UE to transmit a solicitation message in idle.
- LG thinks that it is inefficient for the UE to move to connected mode for a solicitation message, as there may be no relay there.
- ZTE thinks that if we allow the UE in idle to send a messages then we should introduce the threshold
- Qualcomm thinks that we should also take the load of the eNB into account before the UE starts to look for a relay.
- Ericsson wonders why a UE in idle needs to look for a relay if it doesn't have any data.

Proposal 6: A remote UE may only transmit relay discovery solicitation messages if the Uu link quality at the UE is below a network configured threshold.

- Samsung wonders what this means for the spec as we don't mention solicitation in our specs. ZTE thinks that we would capture the UE can transmit in the relay discovery, without mentioning solicitation.
 - Sony: should the UE also consider the neighbour cell measurement. ZTE and Ericsson thinks that we should just use the serving cell to keep the UE implementation simple.
 - Huawei thinks the UE may also base monitoring of discovery messages based on this threshold (e.g. model A).
- => Noted

Agreements:

Relay UE initiation

- A sidelink discovery resource pool specific for at least relay discovery will be defined. FFS if the pool is for only relay operation or other PS discovery services can use the pool. FFS whether this pool is used by both remote UE and relay UEs or only relay UEs.
- If the eNB doesn't broadcast any information associated to relay operation then relay operation is not supported.
- The reception pools for relay discovery are provided by broadcast signalling.
- The eNB can broadcast that relay operation is supported and broadcasts tx resource pool(s) for relay discovery. The eNB may broadcast a minimum and/or a maximum Uu link quality (RSRP/RSRQ) thresholds that UEs need to respect to autonomously start/stop the relay discovery procedure using the broadcasted information. The network has the option to configure none, one or both thresholds. FFS if the eNB can control the UEs on an individual basis if it is broadcasting relay discovery resources. FFS if a UE in connected mode can use the broadcast relay discovery resources.
- The eNB can broadcast that relay operation is supported and but does not broadcast a tx resource pool for relay discovery. In this case the UE can initiate a request for relay discovery resources, by dedicated signalling and the eNB can configure the UE to become a relay by dedicated signalling. FFS if the eNB can optionally broadcast a minimum and/or a maximum Uu link quality (RSRP/RSRQ) thresholds that UEs need to respect to before requesting tx relay discovery resources and if a differentiation of behavior between Model A and Model B.
- If Relay UEs are initiated by broadcast signaling, they can also perform relay discovery when in idle. If Relay UEs are initiated by dedicated signaling, they can perform relay discovery as long as they are in connected mode.

Relay discovery for in-coverage remote UE

- UEs can transmit relay discovery solicitation messages while in RRC Connected and RRC idle (if network configured)
- A remote UE may only transmit discovery solicitation messages if the Uu link quality at the UE is below an optional network configured threshold.

7.5.1.1 Relay UE initiation/discovery

Relay UE initiation (e.g. network control / criteria for initiation / supported RRC modes)

Relay UE discovery (in coverage): The level of eNB control of discovery transmission initiation (Model B) (if any)

Not treated

- [R2-153672](#) Relay Initiation CATT discussion
- [R2-153765](#) Discussion on relay initiation and discovery ZTE, Ericsson, Intel, Interdigital discussion
- [R2-153572](#) Consideration on relay UE initiation and release process SHARP Corporation discussion
- [R2-153239](#) Considerations on Relay initiation Huawei, HiSilicon discussion
- [R2-153254](#) Discussion on relay initialization procedure Shenzhen Coolpad Technologies discussion
- [R2-153351](#) Consideration of initiation of ProSe UE-to-Network Relays Kyocera discussion
- [R2-153426](#) Network control on relay UE initiation and activation ITRI discussion
- [R2-153462](#) Initiation of ProSe UE-to-Network relay Ericsson discussion
- [R2-153476](#) Considerations on supported RRC modes for relay discovery Potevio Company Limited discussion
- [R2-153550](#) Discussion on UE-to-Network Relay initiation General Dynamics UK Limited discussion
- [R2-153552](#) Behaviour of the UE-to-Network relay General Dynamics UK Ltd discussion
- [R2-153626](#) Relay initiation and (re)selection for Public Safety UE Alcatel-Lucent, Alcatel-Lucent Shanghai Bell discussion
- [R2-153675](#) Signalling considerations for relay UE initiation Intel Corporation discussion
- [R2-153678](#) Further discussion on some relay related aspects Samsung discussion
Late
- [R2-153732](#) *Relay UE initiation and discovery Qualcomm Incorporated discussion*
- [R2-153744](#) MCPTT service over relays: In-coverage to Out-of-coverage transition BlackBerry UK
Limited discussion
- [R2-153747](#) MCPTT service over relays: Out-of-coverage to In-coverage transition BlackBerry UK
Limited discussion
- [R2-153749](#) In coverage MCPTT UEs and UE-to-Network relaying BlackBerry UK Limited discussion
- [R2-153786](#) Initiation of relay function LG Electronics Inc. discussion
- [R2-153826](#) Inter-cell relay selection LG Electronics Inc. discussion

7.5.1.2 Relay UE selection/re-selection

Relay UE selection / re-selection (in coverage): The level of eNB control in relay selection (if any).

Is Uu link quality used for selection/reselection purposes? Criteria for selection/reselection.

Can the relay UE trigger reselection?

Level of eNB control for in-coverage UEs relay selection?

- [R2-153766](#) Discussion on Remote UE's Relay discovery, selection and reselection ZTE, Ericsson, Interdigital, Telecom Italia discussion

Proposal 8: *In case remote UE autonomous relay UE selection is preferred, the remote shall UE inform the eNB and receive an authorization from the eNB before initiating the secure layer-2 link association with the relay UE.*

- LG indicates that if the UE follows existing Rel-12 procedures the UE can perform communication without notifying the eNB. ZTE thinks that even when the eNB broadcasts resources the UE is mandated to send the UESidelink information.
- Sony thinks that we should discuss if an idle mode UE has to move to RRC connected to perform the selection
- ZTE thinks that we can also provide additional information, e.g. relay node ID. Qualcomm thinks that we can provide the relay information using the existing field, layer-2 destination ID, in UESidelinkinformation.
- Samsung, ALU doesn't see the need to tell the eNB the communication request is for relay. Ericsson, QC, LG and ZTE, TIM thinks that there is need to indicate to the eNB. The eNB needs to know what the UE plan to do. LG thinks that how we use the resources for relay UEs may be different so it would be important for the eNB to know.
- Nokia Net and ALU think that we should down prioritize the in-coverage scenario.

- Intel wonders if the UE has already resources in connected mode then is the UE still expected to perform this procedure. Qualcomm explains that in Rel-12, as soon as the UE has data for a new destination ID it is required to send the request. Intel wonders if the UE has received mode 2 resources, does it still send the request. Huawei thinks that regardless of the mode of resources the UE has to send the request for every new destination ID.

Proposal 9: *The possible triggers for relay UE re-selection are:*

- *The remote UE detects that the PC5 link quality for the currently selected relay UE is lower than a threshold*
 - *The remote UE receives a PC5 connection release message or similar indication from the relay UE*
 - LG thinks that these triggers are a minimum but a higher layer criteria should also be taken into account
 - Nokia Net thinks that SA2 doesn't support reselection and the UE has to perform connection establishment. Qualcomm thinks that RAN can reselect and the SA2 would just initiate a new connection establishment to the new UE
 - Sony wonders why we are not considering the quality of the target cell. ZTE thinks that the target relay should be taken into account but we also need to consider having a minimum threshold. Sony thinks that the threshold could be a trigger to initiate measurements.
 - Samsung thinks that we need to define what a relay re-selection is. Intel thinks it is the process in which a UE is already connected to a relay and based on some criteria it decides to connect to a new relay.
 - Motorola solutions thinks it is important to ensure that reselection takes application information into account.
 - Intel wonders if the PC5 release message is a higher layer message. Qualcomm confirms that this is the understanding. Intel wonders if this message is proved to the lower layers.
 - Ericsson wonders if Uu is taken into account in selection.
 - Intel thinks that for next meeting we should clearly define what we mean by selection and reselection.
- => Noted

Relay Selection/re-selection for in-coverage remote UE

- An in-coverage remote UE performs relay selection (using the same selection criteria as out-of-coverage)
- In connected mode, after selecting a relay, the remote UE informs the eNB using the *UESidelinkInformation* similar to Rel-12. The remote UE indicates in the message that the request is for relay one-to-one communication purposes. The eNB similar to rel-12 can choose to provide or not provide resources for relay communication.

Relay selection/reselection for all remote UEs

- No other RAN2-specified criteria, except radio link quality, shall be considered for relay UE selection/re-selection.
- A relay UE is considered as suitable if the PC5 link quality exceeds a configured signal strength threshold.
- The detailed criteria to select a new relay and the ranking of relays is FFS.
- The remote UE can also trigger a selection of a new relay when it receives a release message from the relay UE (as defined by SA2).

Email discussion

- ✉ **[91#31][LTE/D2D] – Relay selection and reselection - Qualcomm**
 - Define relay selection/reselection terminology
 - Define the detailed criteria to select a new relay and whether/how to perform the ranking of relays
 - **Deadline** – 2 stages
 1. Sept. 11 - Company opinions provided
 2. Sept. 18 - Rapporteur provides way forward

Not treated

- [R2-153751](#) Relay UE Selection and Reselection Mechanisms Qualcomm Incorporated discussion
- [R2-153830](#) Relay Selection Process and Radio Condition Evaluation LG Electronics Inc. discussion
- [R2-153282](#) Measurement on PSDCH Intel Corporation discussion
- [R2-153482](#) Sidelink measurements for Relay Selection Ericsson discussion
- [R2-153106](#) Considerations on trigger condition for relay reselection Fujitsu discussion
- [R2-153107](#) The remote UE access to relay from neighbor cell Fujitsu discussion
- [R2-153128](#) Relay Measurements and Selection/Reselection Sony discussion
- [R2-153283](#) Radio quality criteria for the (re)selection of the relay UE Intel Corporation discussion
- [R2-153403](#) Procedure of Relay-UE selection and reselection Huawei, HiSilicon discussion
- [R2-153475](#) Discussion on relay UE selection and re-selection Potevio discussion
- [R2-153481](#) Relay UE selection in coverage Ericsson discussion
- [R2-153488](#) Discussions on L3-based UE-to-Network Relays communication procedure CATT discussion
- [R2-153554](#) Relay selection for the in-coverage remote UE General Dynamics UK Ltd discussion
- [R2-153597](#) Relay selection criteria for public safety discovery Ericsson discussion
 - uu/pc5 rules and no reselection in coverage
- [R2-153598](#) Transport channel for public safety discovery Ericsson discussion
 - include radio layer parameters in the MAC
- [R2-153714](#) Relay Selection while in E-UTRAN coverage Nokia Networks discussion
- [R2-153808](#) Relay Selection Issues CATT discussion

Withdrawn

- [R2-153487](#) Discussions on L3-based UE-to-Network Relays communication procedure CATT other

7.5.1.3 Connection establishment

Once relay selection is performed, what is the level of eNB control for connection establishment for out-of-coverage UEs (e.g. does the eNB authorise remote UEs)? What information is required to be transmitted to the eNB?

For in-coverage UEs, when is relay connection establishment done and what is eNB involvement?

AS involvement (UE and/or eNB) with NAS in deciding "when" to switch "allowed traffic" (as determined by higher layers) between Uu and PC5 (if any).

Connection establishment

- [R2-153241](#) UE-to-Network Relay connection establishment Huawei, HiSilicon discussion
 - Proposal 3: After receiving a connection request from a remote UE, the relay UE should send a connection request message to the eNB for admission control.*
 - Ericsson supports the proposal.
 - Qualcomm thinks that when the relay receives a connection from a new relay as per Rel-12 procedures, the UE will trigger a *UESidelinkInformation*.
 - Motorola solutions is wondering what the admission control is based on. Huawei thinks that if we don't notify the eNB of the new remote UE then the eNB may not provide enough resources for the relay UE.
 - Ericsson thinks that it is important for the eNB to know so it can send it's QCI parameters correctly. Other reasons can be to know how many UEs are connected.
 - Motorola solutions thinks that admission control should also have some form of service guarantee. Qualcomm thinks that informing the eNB is a tool to ensure that the relay UE can provide the required service.

Agreements on connection establishment

- Authorization of remote UEs is done by higher layers
- A relay UE performing relay communication has to be in RRC connected mode.
- After receiving a layer-2 link establishment request from a remote UE, the relay UE informs the eNB using *UESidelinkInformation*. The relay UE indicates in the message that the request is for relay one-to-one communication purposes. The eNB similar to rel-12 can

- chose to provide or not provide resources for relay communication.
- RAN2 will not define any layer-2 link establishment messages.

Not treated

- [R2-153461](#) Management of the PC5 link between the Relay UE and the Remote UE Ericsson discussion
- [R2-153731](#) Connection establishment for relay operation Qualcomm Incorporated discussion
- [R2-153788](#) Connection establishment of remote UE LG Electronics Inc. discussion
- [R2-153676](#) Authorization of out of coverage remote UEs for UE-to-Network relay Intel Corporation discussion
- [R2-153768](#) eNB involvement in remote UEs authorization and connection establishment ZTE discussion
- [R2-153803](#) Analysis on the Knowledge of Remote UE by eNB CATT discussion

Path switch

- [R2-153787](#) When to switch data transmission path LG Electronics Inc. discussion
- [R2-153822](#) Connection Establishment for UE-to-Network Relays INTERDIGITAL COMMUNICATIONS discussion
- [R2-153261](#) Simultaneous Uu and PC5 link and SRB DRB mapping PANASONIC R&D Center Germany discussion
- [R2-153767](#) Discussion on the traffic switch between Uu and PC5 ZTE discussion

7.5.1.4 Other

Resource allocation, one-to-one communication, etc

Not treated

One-to-one communication

- [R2-153098](#) MAC PDU Addressing for Communication with UE-to-Network Relay Samsung Electronics Co., Ltd discussion
- [R2-153287](#) Support of one-to-one communication Intel Corporation discussion
- [R2-153404](#) Addressing for ProSe one-to-one communication Huawei, HiSilicon discussion
- [R2-153555](#) Potential solutions for one-to-one communication addressing General Dynamics UK Ltd discussion
- [R2-153682](#) Considerations on Layer-2 ID Collision CATT discussion
- [R2-153769](#) Considerations on the ProSe Layer-2 ID conflict issue ZTE discussion
Moved from 7.5.1.3
- [R2-153809](#) Layer-2 addressing for ProSe one-to-one communication ETRI discussion
- [R2-153681](#) Considerations on Layer-2 ID Collision CATT discussion
withdrawn

Resource allocation

- [R2-153100](#) Resource Allocation Aspects for UE-to-Network Relay Samsung Electronics Co., Ltd discussion
- [R2-153129](#) Resource Allocation for Remote UE Sony discussion
- [R2-153252](#) Discussion on radio resource allocation for ProSe UE-to-NW relay Shenzhen Coolpad Technologies discussion

Other

- [R2-153235](#) Inter-frequency scenario and requirements for UE-Network relay Huawei, HiSilicon discussion
- [R2-153300](#) Public safety perspectives on GCSE_LTE latency requirements for evaluating UE-Network Relay solutions U.S. Department of Commerce discussion
- [R2-153827](#) NAS operation by remote UE LG Electronics Inc. discussion

7.5.2 ProSe discovery in partial- and outside network coverage

RAN2 aspects of supporting out-of-coverage discovery

Incoming LS

- [R2-153009](#) LS on public safety discovery ([R1-152422](#); contact: Qualcomm) RAN1 LS in Rel-13 LTE_eD2D_Prox
=> Noted
- [R2-153010](#) Reply LS to S3-151524 = on public safety discovery from SA3 ([R1-153555](#); contact: Qualcomm) RAN1 LS in Rel-13 eProSe-Ext-SA3
=> RAN2 is happy with RAN1's response and doesn't need to reply to SA3
=> Noted
- [R2-153011](#) LS on Type 1 discovery for partial and outside network coverage ([R1-153667](#); contact: Qualcomm) RAN1 LS in Rel-13 LTE_eD2D_Prox-Core
=> Noted
- [R2-153035](#) Reply LS to S2-150691 = [R2-151011](#) on public safety discovery (S3-151524; contact: Qualcomm) SA3 LS in Rel-13 eProSe-Ext-SA3
=> No need to reply
=> Noted
- [R2-153025](#) LS reply to S3-151524 = [R2-153035](#) on Public Safety discovery (S2-151813; contact: Qualcomm) SA2 LS in Rel-13 eProSe-Ext-SA2TR
=> Noted
- [R2-153026](#) Reply LS to C1-151597 = [R2-151021](#) on network feature support for ProSe Discovery (S2-152064; contact: Qualcomm) SA2 LS in Rel-12 ProSe
- TIM wonders what procedures we apply for the RAN sharing case, inter-frequency/inter-PLMN or intra-PLMN.
- TIM thinks that in the next meeting we should think of the RAN sharing case.
=> Noted
- [R2-153034](#) LS on ProSe coarse proximity estimation based on path loss (S2-152699; contact: T-Mobile) SA2 LS in Rel-13 eProSe
=> Noted

Not treated

- [R2-153286](#) Support of public safety discovery in partial- and out-of-coverage Intel Corporation discussion
- [R2-153596](#) Out of coverage discovery Ericsson discussion
- [R2-153599](#) Handling collisions between communication and discovery resources Ericsson discussion
- [R2-153742](#) Out-of-Coverage discovery for Public Safety Qualcomm Incorporated discussion
- [R2-153092](#) RAN2 Aspects of ProSe Discovery in Partial & OOC Samsung Electronics Co., Ltd discussion
- [R2-153592](#) Differentiation between PS discovery and non-PS discovery Ericsson discussion
- [R2-153665](#) Discussion on ProSe Discovery in Partial and Outside Network Coverage CATT discussion
- [R2-153771](#) RAN2 aspects of supporting out-of-coverage discovery ZTE discussion

7.5.3 ProSe discovery for inter-carrier and inter-PLMN

- [R2-153715](#) Inter carrier ProSe discovery Nokia Networks discussion
Proposal 1: Serving eNB is not mandated to provide discovery transmission resources for all carriers signalled in its SIB19.
- TIM wonders what this means for the UE, it has to read the SIB19 of the other carrier.
Yes.

Proposal 3: UE is allowed to only perform discovery transmission on carriers listed in SIB19.

- LG thinks that for PS services this restriction is not necessary. Samsung thinks that we already agreed to allow pre-configuration for PS and SIB19 for commercial.
- => Noted

[R2-153242](#) Discovery transmission on inter-carriers of intra-PLMN and inter-PLMN Huawei, HiSilicon discussion

Proposal 1: The serving eNB should control if the served idle UEs are allowed to read discovery TX resource pools from the SIB19 of the inter-carrier cell (for both intra-PLMN and inter-PLMN).

- Ericsson wonders what is meant by control. Huawei indicates that it would be a broadcast signaling per carrier.
 - Samsung thinks that the eNB needs to signal is whether the UE needs to read to SIB19 of the other carrier or if it needs to enter RRC connected mode to acquire the information.
- => Noted

Discussion:

Scenarios

1. Serving SIB19 provides discovery resources of carrier
 2. If there is no serving dedicated resources broadcasted in SIB19 – if the UE is in idle and SIB 19 only provides the carrier information (Options)
 - **Option 1:** The UE always autonomously reads the SIB19 of the other carrier to acquire the information
 - **Option 2:** The UE always moves to connected to request resources
 - **Option 3:** both behaviors are allowed and the serving eNB indicates what the UE behavior is
- Ericsson, ZTE, Nokia Net, Coolpad have a preference for Option 1.
 - Samsung, QC, would prefer option 3
 - Huawei wonders if the UE can autonomously start transmitting on a carrier. Qualcomm thinks that if you don't want a UE to transmit on a given carrier the eNB shouldn't provide the frequency in the allowed list. Nokia Net agrees.
 - CATT wonders what happens in the case that the SIB19 of the other carrier doesn't provide tx resources. Qualcomm thinks that it is important that the UE doesn't move to connected mode in the other PLMN. Qualcomm doesn't think that the UE should move to connected mode on the serving cell to request resources in this case. Samsung agrees.
 - Huawei thinks the UE should move to connected mode to ask for resources for the serving PLMN. Ericsson thinks that if the eNB has the resources information then it can provide the information directly. Samsung and Qualcomm thinks that one possible use case for option 3 is for the case where only type 2B resources are configured by the network. LG thinks that we should allow the UE to move to connected and this should be controlled by the network.

=> We will send an LS to SA2 and CT1 informing them of RAN2 decisions

[R2-153883](#) LS on Inter-PLMN sidelink discovery transmission Huawei LS out from RAN2
to: SA2 and CT1 Rel-13 LTE_eD2D_Prox-Core
[CB]

Agreements:

- Serving eNB is not mandated to provide discovery transmission resources for all carriers signalled in its SIB19.
- If SIB19 doesn't provide discovery transmission resources for the allowed carriers listed in the SIB19, the network can signal whether the UE should autonomously read the SIB19 of the signaled carrier or if the UE is expected to request resources from the serving cell for that carrier.
- The UE is not expected to connect to the other PLMN to perform discovery transmission. The UE should remain connected to the serving PLMN.
- If the UE autonomously reads SIB19 of the other carrier to acquire tx resources and that carrier doesn't provide discovery transmission resources in SIB19, the UE is not allowed to transmit on that

carrier.

Not treated

- [R2-153586](#) Inter-PLMN coordination for discovery transmission TELECOM ITALIA S.p.A. discussion
[R2-153594](#) Direct Discovery on non-PCell carriers Ericsson discussion
- [R2-153456](#) CN Impacts of inter-PLMN sidelink discovery transmission Huawei, HiSilicon discussion
[R2-153848](#) Draft LS on inter-PLMN sidelink discovery transmission Huawei, HiSilicon LS out
- [R2-153094](#) Prioritisation Rule for Inter Carrier Discovery Transmission Samsung Electronics Co., Ltd discussion
[R2-153091](#) Inter Carrier Discovery Samsung Electronics Co., Ltd discussion
[R2-153093](#) Timing Synchronisation for Inter Carrier Discovery Transmission Samsung Electronics Co., Ltd discussion
[R2-153095](#) Handling Power Limitation during Inter Carrier Discovery Transmission Samsung Electronics Co., Ltd discussion
[R2-153097](#) Signaling Aspects of Gap for Discovery Transmission; Samsung Electronics Co., Ltd; discussion;
[R2-153151](#) The uncoordinated and coordinated inter-PLMN ProSe discovery ITRI discussion
[R2-153370](#) Possible issues in intra-PLMN and coordinated inter-PLMN Kyocera discussion
[R2-153424](#) Carrier Prioritization for Type 1 Inter-Carrier Discovery ITRI discussion
- [R2-153668](#) LS on ProSe authorization for inter-PLMN CATT LS out
[R2-153669](#) Discussion on Prose Authorization for Inter-PLMNCATT discussion
[R2-153738](#) Draft LS on Intra-PLMN & Inter-PLMN D2D discovery Qualcomm Incorporated LS out
- [R2-153772](#) On ProSe Discovery for inter-frequency and inter-PLMN ZTE discussion
[R2-153801](#) Inter-carrier and Inter-PLMN Discovery issues CATT discussion
[R2-153824](#) Cell selection and measurements for non-PCel discovery LG Electronics Inc. discussion
[R2-153825](#) Discovery on non-primary frequency LG Electronics Inc. discussion

Gaps

- [R2-153348](#) Sidelink gap details for direct discovery Kyocera discussion
=> Not treated
- [R2-153595](#) On D2D gaps Ericsson discussion
=> Not treated
- [R2-153753](#) Inter Frequency and Inter PLMN Discovery Qualcomm Incorporated discussion
Proposal 3: Gaps introduced for discovery transmitter and reception should apply to both inter-frequency and intra-frequency cases.
- LG wonders if the gap for intra- and inter- frequency would be the same or different gap. Qualcomm thinks that they can be different. LG wonders if this is a gap per frequency or one gap for all the frequency.
 - Huawei wonders why this is needed for intra-frequency case, as this is legacy case. Qualcomm thinks that this is to improve the performance of discovery.
- Proposal 4: The ability of a UE to skip downlink reception and uplink transmission during discovery should be a separate capability.*
- Samsung and Ericsson doesn't think there is a need for a separate capability. The UE is requesting the gap so the eNB can figure it out. Qualcomm thinks that the UE is not necessarily always requesting a gap. Ericsson thinks that this depends on the final solution.
- Proposal 6: The gap created for discovery should take into account additional overhead.*
- More particularly for intra-frequency discovery gap should include*
- Ericsson wonders if this is the same interruption as Rel-12. Samsung thinks that the interruption should be left to RAN4.

Proposal 7:

If a UE is going to skip downlink reception and uplink transmission during inter-frequency discovery the UE can inform eNodeB of the resources on which it will participate in inter-frequency discovery.

- Ericsson thinks that should also be applicable to intra-frequency. Qualcomm thinks that for intra-frequency the eNB knows what resources the UE is using so the UE doesn't need to provide this information.
 - Huawei wonders if all UEs have to report the resources or the eNB triggers the reporting. Qualcomm thinks that it could be possible but one UE may not be enough.
 - Samsung and Ericsson thinks that the gaps are separate for UL and DL.
 - LG thinks that there could be signalling overhead if the UE has to request gaps for transmission in different frequencies.
 - Telecom Italia wonder whether the gaps include only the subframes in which the UE intends to transmit or all the subframes in which it can transmit.
- => Noted

Agreements on gaps:

- Gaps introduced for discovery transmitter and reception should apply to both inter-frequency and intra-frequency cases for connected mode UEs
- eNodeB controls the gap configuration on a per UE basis
- The gap created for discovery should take into account additional overhead (for synchronization and subframe offset) and interruption time for retuning. The actual overhead and interruption time depends on RAN4 discussion.
- The UE can request gaps for discovery reception and/or transmissions. In the request the UE can inform the eNB of the subframes (corresponding of the timing of the serving cell) on which the UE needs gaps for transmission and/or reception. FFS on what the transmissions subframes correspond to (all allowed transmission subframes or the subframes in which the UE intends to transmit). FFS when the request is triggered.

7.5.4 Group priorities for ProSe communication

Mapping between the logical channel priority and LCG .

Solutions to address prioritization in case of autonomous resource selection (e.g. solutions other than static one-to-one association between priorities and resource pools).

Need/requirement for pre-emption.

Are multiple transmissions to different destination IDs allowed within one SA period?

Incoming LS

[R2-153024](#) LS reply to [R2-151789](#) on ProSe Priorities (S2-151810; contact: Intel) SA2 LS in Rel-13 LTE_eD2D_Prox-Core
=> Noted

[R2-153030](#) LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay (S2-152695; contact: Qualcomm) SA2 LS in Rel-13 eProSe-Ext-SA2
=> Noted

- => Respond to SA2 - Qualcomm
- Provide information on RAN2 agreements and answer the questions
 - Ask SA2 to inform/confirm to RAN2 whether SA2 requires us to provide the PPP information and in what cases.

[R2-153881](#) Response LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay ([R2-153030](#)/S2-152695; contact: Qualcomm) Qualcomm LS out from RAN2 to: SA2 cc: RAN1 Rel-13 eProSe-Ext-SA2 [CB]

[R2-153047](#) Reply LS reply to S2-151810=[R2-153024](#) on ProSe Priorities (S1-152748; Contact: Qualcomm); SA1; LSin;
=> Not treated

[R2-153480](#) Impact of PPP on user plane Ericsson discussion
Proposal 1 To implement PPP only changes to the PC5 interface are necessary.

- Panasonic thinks that some additional information may be provided in the BSR. Ericsson clarifies that the intention here to make it clear that we don't have to make changes to the Uu.

Proposal 2 If a packet is prioritized on the PC5 interface, it should also be treated with some priority on the Uu interface (if a ProSe UE-to-Network relay is used).

Proposal 3 If a packet is prioritized on the Uu interface, it should also be treated with some priority on the PC5 interface (if a ProSe UE-to-Network relay is used).

Proposal 4 The sidelink logical channel prioritization serves channels in order of strict priority.

- Samsung thinks that the strict prioritization can be done across the same destination ID. Huawei thinks that logical channel is not the right terminology as now we have traffic priority.

Relay priority

Proposal 8 Encode PPP in User plane PDCP Data PDU.

- Qualcomm prefers static mapping of LCID to PPP or something configurable.
- Huawei thinks static configuration is not a good solution and configuring this mapping is a preferred option.
- LG thinks that static mapping is not possible, given the remaining space of LCID. Today we only have 9 remaining LCID and 8 priorities. LG further thinks that multiple services could have the same PPP. Huawei thinks that the configuration can be per cell
- Ericsson agrees and thinks that there should be flexibility. Intel thinks that the priority information is something that higher layers make use of and it would be simpler if the information is carried in the PDCP.
- CATT thinks that we should only respond to SA2. Intel thinks that we should respond to SA2 how we can provide the information.
- Intel thinks that the only case we need to provide information of priority from the transmitter to receiver is for the relay case. ALU wonders if the PPP info in PDCP would only be included for the relay case.
- Nokia Net wonders if the PPP information can be carried in the MAC. Ericsson thinks that using the MAC would result in a higher overhead. LG thinks that including in the MAC header is not a good idea as it includes multiple SDU different priority.
- ALU thinks that RAN1 is also discussing including the information in the SC. Chair indicates that the discussion is different the prioritization of each packet cannot be included.
- ZTE wonders if the PPP is only for the DL. Ericsson thinks it is for both.
- Huawei wonders why we don't include in the RLC PDU. Panasonic thinks that because we have segmentation in the RLC PDU there would more overhead.
- Huawei wonders how the relay UE would use the PPP information.
- Huawei thinks that we should capture that there is some overhead associated to the PDCP.

=> Noted

[R2-153166](#)

BSR and LCP supporting ProSe priorities LG Electronics Inc. discussion

Proposal2: Define LCG per ProSe group, and, within one ProSe group, each sidelink logical channel is mapped to one of four LCGs depending on the PPP of the sidelink logical channel

- Ericsson wonders what is the purposes of the different logical channel group. LG thinks that there can multiple priorities for each ProSe destination. Ericsson thinks that another way can be to provide the information directly using the LCID.
- Panasonic agrees with the proposals and thinks that we can use existing BSR format.
- Samsung wonders how the mapping is done.

Proposal3: When sending a SL BSR, the UE includes BS of all LCGs having SL data among all ProSe groups as many as it can. The BS of LCG having the sidelink logical channel with the highest PPP should be included first.

- Huawei thinks that the order is only important for truncated BSR. Ericsson agrees that the order doesn't matter. Ericsson sees a usefulness to have a priority in the truncated case.

=> Noted

Not Treated

- [R2-153259](#) Multiple SA transmissions during one SC period PANASONIC R&D Center Germany discussion
- [R2-153295](#) Realizing off-network MCPTT priority and associated pre-emption on PC5 U.S. Department of Commerce discussion
- [R2-153628](#) Priority handling for ProSe Communication Alcatel-Lucent, Alcatel-Lucent Shanghai Bell discussion

Agreements

- To implement PPP only changes to the PC5 interface are necessary
- If a packet is prioritized on the PC5 interface, it should also be treated with some priority on the Uu interface (if a ProSe UE-to-Network relay is used).
- If a packet is prioritized on the Uu interface, it should also be treated with some priority on the PC5 interface (if a ProSe UE-to-Network relay is used).
- From RAN2 point of view a static mapping between LCID and PPP is not a feasible solution. The need to provide PPP information from the transmitter to the receiver is only for the relay case (if there is one at all). From a RAN2 point of view, the preferred solution is to provide PPP information by including the information in the PDCP of the sidelink.
- Define LCG per ProSe destination and within one ProSe destination, each sidelink logical channel is mapped to one of four LCGs depending on the PPP of the sidelink logical channel. FFS how the mapping between LCGID and priority is determined.
- The same Rel-12 sidelink BSR format will be used as a baseline. When sending a SL BSR, the UE includes BS of all LCGs having SL data among all ProSe destinations as many as it can (relying on the truncation mechanism of Rel-12).
- FFS how the ProSe BSR is constructed (the order in which BS is provided for each LCGID)
- When the UE receives a SL grant, the UE selects the ProSe group having the sidelink logical channel with the highest PPP among the sidelink logical channels having SL data, and the serves all sidelink logical channels belonging the selected ProSe destination group in a decreasing priority order.

Relay Priority

Not treated

- [R2-153829](#) Prioritization of PC5-S LG Electronics Inc. discussion
Moved from 7.5.1.4
- [R2-153142](#) Consideration of bearer mapping for ProSe UE-to-Network Relays Kyocera Corporation discussion
Moved from 7.5.1.4
- [R2-153284](#) Considerations on relay UE operation for packet relaying Intel Corporation discussion
Moved from 7.5.1.4
- [R2-153575](#) QoS control in sidelink communications Beijing Xinwei Telecom Techn. Discussion
Moved from 7.5.1.4
- [R2-153770](#) Priority in UE-to-Network relay ZTE discussion
Moved from 7.5.1.4
- [R2-153805](#) Missing Packet due to Half-duplex in PC5 CATT discussion
- [R2-153806](#) Protocol Stacks for UE-to-Network Relay CATT discussion
- [R2-153101](#) ProSe Per-Packet Priority for DL traffic relayed by UE-to-Network relay Samsung Electronics Co., Ltd discussion
- [R2-153164](#) Bearer mapping in UE-Network Relay LG Electronics Inc. discussion
- [R2-153165](#) Providing PPP information to Relay UE LG Electronics Inc. discussion
- [R2-153743](#) Draft Response LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay Qualcomm Incorporated LS out
- [R2-153674](#) Reply LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay CATT LS out
Draft reply LS to the LS from SA2 (S2-152695) Rel-13 LTE_eD2D_Prox-Core
- moved from 7.5.5

Priorities

Not treated

- [R2-153238](#) Priority handling based on ProSe Per Packet Priority Huawei, HiSilicon discussion
[R2-153099](#) Priority Handling for D2D Communication Samsung Electronics Co., Ltd discussion
[R2-153257](#) Buffer status reporting/priority handling for ProSe communication PANASONIC R&D Center Germany discussion
[R2-153258](#) LCP procedure for ProSe communication PANASONIC R&D Center Germany discussion
[R2-153260](#) Resource pool selection for the autonomous resource allocation mode PANASONIC R&D Center Germany discussion
[R2-153285](#) Priority handling for UE autonomous resource selection Intel Corporation discussion
[R2-153670](#) Priority for ProSe Communication CATT discussion
[R2-153720](#) Prioritization of sidelink transmissions with pre-emption via resource pools SHARP discussion
[R2-153729](#) Priority handling for Sidelink Direct Communication Qualcomm Incorporated discussion
[R2-153739](#) Priorities and Pre-emption for D2D communications INTERDIGITAL COMMUNICATIONS discussion
[R2-153741](#) Draft response LS on D2D priority handling Qualcomm Incorporated LS out
[R2-153773](#) Issues on Priority Handling ZTE discussion
[R2-153828](#) Support of pre-emption LG Electronics Inc. discussion
[R2-153483](#) Floor control and pre-emption for MCPTT using ProSe Ericsson discussion
Moved from 7.5.5

7.5.5 Other

MCPTT related, etc

7.10 WI: RAN enhancements for extended DRX in LTE

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

Time budget: 1 TU

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

7.10.1 eDRX for idle mode

Timer based vs. SFN based mechanism and other idle mode impacts

SFN vs. Timer based

- [R2-153108](#) SFN extension vs Timer based solution for extended Idle DRX cycle Fujitsu discussion
Clock drifting
- Sierra doesn't think that clock accuracy is a big issue. If we decide to extend the SIB we are adding an additional requirement for the UE to read the SIB. Ericsson agrees and with a proper design the clock drift can be minimal. Intel thinks that we could compensate the clock drift but given the potential large temperature variations then it could be more different. Additionally with a large TAU of 12 hrs we could see a drift as large as 3s. Qualcomm and Mediatek agrees that we can compensate however we have to keep in mind the use case of low cost UEs.
 - Huawei thinks that clock drifting is not a big issue and the periodic updates with the MME can allow the UE to synchronize.
 - Samsung thinks that we should introduce an extended SFN.
 - Qualcomm thinks that we should stick to the existing requirements and not mandate stricter requirements for low cost devices.
 - ZTE wonders if the clock drift is an issue for low cost devices only or smart phones as well. Qualcomm thinks that the current smart phones use normal DRX and don't go to deep sleep. Intel further thinks that even today with a 2.4s DRX the UEs may still read the SFN to re-synch.

- Intel thinks that the solution should allow the UE to resynchronize without having to generate signalling.
- => Noted

[R2-153620](#) Comparison of eDRX concepts for RRC idle mode Ericsson discussion
=> Noted

[R2-153697](#) Considerations on RAN based and CN based approaches for extended idle mode DRX
QUALCOMM CDMA Technologies discussion
=> Not treated

[R2-153291](#) Analysis of extending DRX cycle solutions for idle mode Intel Corporation discussion

- Qualcomm wonders if this solution requires a coordination between the MME and eNB. Intel agrees that some coordination will be required. Intel thinks that the only some coarse synchronization is needed between the nodes. Ericsson thinks that there can be many MME connected and this would require the MMEs to be connected.
- Ericsson wonders who does the paging MME or eNB. Intel thinks that because the MME knows the eNB timing it knows when the UE is reachable and can page accordingly.
- LG wonders if from the UE perspective there is only one solution and what happens if the eNB doesn't broadcast a H-SFN number. Intel thinks that from the NAS level there would still be a timer.
- ALU wonders if the combined solution is within the decided SA2 endorsed solutions. Intel doesn't think that there is anything news. Qualcomm thinks that SA2 hasn't discussed any of the solutions and would have to re-discuss.

=> Noted

Discussions:

- Intel thinks that we can start by agreeing with the principle that the UE should be able to re-synchronize with the network without sending additional signaling (i.e. H-SFN or time clock broadcast information). Qualcomm agrees.
- Qualcomm thinks that the design should target minimizing wake up time.
- Ericsson want to have an understanding of the core network aspects and a discussion on the eNB impacts of storing paging. Intel and QC thinks we should focus on the radio access aspects. Mediatek thinks that storing of the paging should be avoided, but we can avoid this issue by some coordination with MME.
- ALU wonders how the repetition of the MME paging can be stopped. Qualcomm thinks that this can be done once we decide on the solution and we can send an LS to SA2.
- Ericsson thinks that SA2 discussed the eNB storing problem but didn't solve it. Qualcomm thinks that SA2 was aware of the problem.
- Ericsson thinks that with H-SFN solution, additional SA2 work may be required.
- ALU wonders how long the eNB would be required to store the paging message. Mediatek thinks that if we assume some lose synchronization then it could be up to 10s.
- Huawei thinks that we should analyse the power saving gains and core network aspects.
- Huawei thinks the H-SFN solution would require synchronization between eNBs and MMEs and we should avoid adding such requirements. Qualcomm doesn't think there is a requirement of sync between eNB and MME. It would be nice to have it and but is not required.
- Samsung wonders for the timer based solution how the UE and MME can start the reference timer at the same time. Huawei thinks that the timing doesn't have to be exact and we can compensate by having a larger window. Qualcomm and Intel thinks that this clearly results in the UE waking up for longer periods of time and therefore the power saving gains are lower. Huawei thinks that the larger window doesn't impact power saving of the UE. Qualcomm thinks that the main difference is that the eNB doesn't know exactly when the UE will wake up.
- Samsung thinks that timer based solution would be efficient for a very long time sleep time, but if we are considering lower sleep cycles then H-SFN would be more efficient. ALU thinks that we are designing for long DRX cycles. QC thinks we are designing that we are still design for cycle times lower than PSM.
- CATT thinks that the UE doesn't need to wake up during the full window.

- Huawei thinks that in both solutions the UE has to wake up ahead of time. Qualcomm thinks that the difference is how much more in advance the UE has to wake up. The UE just has to re-synchronize the eNB but it cannot re-synchronize with the MME.
 - Mediatek wonders if it is possible to avoid sending additional signalling to synchronize with the MME. Ericsson thinks that one possibility is to use SIB16.
 - Nokia Net agrees that synchronization without UL signalling should be a baseline.
 - Qualcomm thinks that objective of the WI is to have more power saving than PSM. With timer based this cannot be achieved.
 - Huawei thinks that the UE has to do TAU anyways for both solutions. Qualcomm thinks that the TAU can be up to 24hrs. Verizon supports the proposal to optimize power saving.
- => To improve power saving gains, the UE should be able to re-synchronize over Uu with the RAN without sending uplink signalling (i.e. H-SFN or time clock broadcast information).
- Qualcomm thinks for the H-SFN based solution the wake up time is very clear, however for the time broadcast solution it is not clear when the UE wakes up.
- => From a RAN2 point of view it would be desirable to minimize or avoid storing paging messages in the RAN

After comeback

- Qualcomm thinks that the requirement on minimizing storing paging messages in the eNB can be address by a lose synchronization in the case of H-SFN and in the case of absolute timer then this can be easily done by the MME.
- Qualcomm thinks that with the broadcast mechanism the solution on when the UE wakes up hasn't been discussed yet.
- Ericsson thinks that a synchronization requirement is not desirable especially since the eNB can be connected to multiple MMEs.
- Huawei wonders how the synchronization can be done between the eNB and MME.
- Qualcomm thinks that given that now with both solutions we need to broadcast something, the H-SFN solution is simpler. Mediatek thinks that the answer is not very clear as the H-SFN is simpler but the absolute timer has the advantage that the UE doesn't have to synchronize often.
- NTT Docomo indicate that they have a preference to not have a tight synchronization, however some network don't have the absolute timer (GPS) available. Qualcomm indicates that if the network doesn't want to avoid storing then they can chose to not do it and therefore won't have to synchronize.
- Sierra Wireless thinks that they would have a preference for the H-SFN solution, since SIB acquisition would be easier, and would like to avoid reading large SIBs especially for LC MTC devices.

Agreements

- To improve power saving gains, the UE should be able to re-synchronize over Uu with the RAN without sending uplink signalling (i.e. H-SFN or time clock broadcast information).
- H-SFN based paging will be adopted in the RAN
- RAN2 has agreed that it would be desirable to minimize or avoid storing paging messages in eNB. To avoid storing of paging message would require the MME to have some awareness of approximate time of when the UE will become reachable. It is up to SA2 how this is achieved.
- For paging robustness purposes for mobile UEs, some lose H-SFN synchronization between cells may be required

- => Send an LS to SA2 and RAN3 (Qualcomm)
- clarify paging robustness and loose H-SFN synchronization
 - provide overview of discussion

[R2-153853](#) Reply LS to S2-152698 extended connected mode DRX Qulacomm LS out
from RAN2 to: SA2Rel-13 FS_eDRX
[CB]

- => Send an LS to RAN4 (Mediatek)
- Indicate for LTE range of connected mode eDRX up to 10.24s. For idle mode RAN2 has decided to extend the range past 10.24s in the order of minutes.
 - Capture the intention that RAN2 doesn't not plan to do any mobility optimizations

[R2-153882](#) LS on eDRX MediaTek Inc. LS out from RAN2 to: RAN4 Rel-13
LTE_extDRX-Core
[CB]

Email discussion

- ☒ **[91#32][LTE/eDRX] – eDRX aspects – Intel**
- Agree on an acceptable eDRX range and values for idle mode
 - Agree on the range of H-SFN
 - Discuss how to handle system information update
- Deadline one week before contribution deadline

Not treated

[R2-153224](#) *Analysis on IDLE mode extended DRX cycle solutions* Nokia Networks discussion

[R2-153339](#) Extending DRX Cycle in Idle Mode HuaWei Technologies Co., Ltd discussion

[R2-153437](#) How to apply the extended DRX in the idle mode *Samsung Telecommunications* discussion

[R2-153700](#) Discussion on solutions for extended idle mode DRX Alcatel-Lucent, Alcatel-Lucent Shanghai Bell discussion

[R2-153793](#) Hyper-SFN vs Timer based eDRX MediaTek Inc. discussion

Solutions/considerations

[R2-153440](#) SI update in the extended IDLE DRX Samsung Telecommunications discussion

[R2-153240](#) Operator requirements for Idle-eDRX solution NTT DOCOMO INC. discussion

[R2-153173](#) Paging Robustness for Extended Idle Mode DRX in LTE MediaTek Inc. discussion

[R2-153250](#) Impacts on system change acquisition for eDRX LG Electronics Inc. discussion

[R2-153385](#) Idle mode UE behaviour with Extended DRX Kyocera discussion

[R2-153422](#) Some Design Needs for extended DRX cycle China Unicom discussion

[R2-153432](#) On the length of eDRX in the Idle mode Samsung Telecommunications discussion

[R2-153435](#) On the ETWS/CMAS support in Rel-13 eDRX Samsung Telecommunications discussion

[R2-153442](#) Signalling for Rel-13 eDRX support Samsung Telecommunications discussion

[R2-153680](#) Considerations for establishing a maximum idle mode eDRX time Sierra Wireless, S.A. discussion

[R2-153684](#) Considerations for Paging Occasion Change Indication in eDRX Sierra Wireless, S.A. discussion

[R2-153735](#) Design Aspects of IDLE Mode eDRX INTERDIGITAL COMMUNICATIONS discussion

Measurements and cell reselection

[R2-153083](#) Extended DRX impact on idle mode UE measurement and cell reselection Acer Incorporated discussion

[R2-153124](#) UE preferred eDRX behaviour Sony discussion

Withdrawn

[R2-153214](#) Impacts on system change acquisition for eDRX LG Electronics Inc. discussion

[R2-153225](#) Analysis on IDLE mode extended DRX cycle solutions Nokia Networks discussion
Late

7.10.2 eDRX for connected mode

RAN2 issues related to extending DRX up to 10.24s in connected mode.

Note: RAN-68 agreed that extended connected mode DRX cycle beyond 10.24 seconds is no longer pursued in this WI

Not treated

- [R2-153427](#) How to apply the extended DRX in the connected mode Samsung Telecommunications discussion
- [R2-153836](#) Extended DRX in connected mode QUALCOMM CDMA Technologies discussion
- [R2-153085](#) RLF prevention without mobility enhancement for Connected Mode eDRX Acer Incorporated discussion
- [R2-153172](#) Remaining Issues for Extended Connected Mode DRX in LTE MediaTek Inc. discussion
- [R2-153174](#) [DRAFT] LS on extended connected mode DRX MediaTek Inc. LS out
- [R2-153341](#) Extending DRX Cycle in Connected Mode HuaWei Technologies Co., Ltd discussion
- [R2-153576](#) the issues on the C-eDRX Beijing Xinwei Telecom Techn. Discussion

Summary of the break-out session (ProSe) meeting

Agreed in principle CRs

None

Agreed outgoing LS

None

Comeback on Friday

- [R2-153881](#) Response LS on usage of ProSe Per-Packet Priority in ProSe UE-Network Relay ([R2-153030](#)/S2-152695; contact: Qualcomm) Qualcomm LS out from RAN2
to: SA2 cc: RAN1 Rel-13 eProSe-Ext-SA2
- [R2-153883](#) LS on Inter-PLMN sidelink discovery transmission Huawei LS out from RAN2
to: SA2 and CT1 Rel-13 LTE_eD2D_Prox-Core
- [R2-153853](#) Reply LS to S2-152698 extended connected mode DRX Qualcomm LS out
from RAN2 to: SA2Rel-13 FS_eDRX
- [R2-153882](#) LS on eDRX MediaTek Inc. LS out from RAN2 to: RAN4 Rel-13 LTE_extDRX-Core

Discuss/agree whether we should send an LS to RAN4

- ☒ **[91#07][LTE/eD2D] – LS to RAN4**
- Agree on LS to RAN4 notifying them of RAN2 agreements related to gaps for inter-frequency/inter-PLMN discovery
- Deadline – one week after the meeting

E-mail discussion for the next meeting

- ☒ **[91#16][LTE/eD2D] - Running stage 2 CRs**
- Capture agreements on eD2D up to RAN2#91
- Outcome: endorse the running stage CR
- Deadline: 2 weeks after the meeting
- ☒ **[91#31][LTE/D2D] – Relay selection and reselection - Qualcomm**

- Define relay selection/reselection terminology
 - Define the detailed criteria to select a new relay and whether/how to perform the ranking of relays
 - **Deadline** – 2 stages
 1. Sept. 11 - Company opinions provided
 2. Sept. 18 - Rapporteur provides way forward
- ☒ **[91#32][LTE/eDRX] – eDRX aspects – Intel**
- Agree on an acceptable eDRX range and values for idle mode
 - Agree on the range of H-SFN
 - Discuss how to handle system information update
- Deadline one week before contribution deadline

Comeback at the next meeting

None

Summary of Agreements on Rel-13 ProSe

ProSe enhancements

UE-to-NW Relays

Relay UE initiation

- A sidelink discovery resource pool specific for at least relay discovery will be defined. FFS if the pool is for only relay operation or other PS discovery services can use the pool. FFS whether this pool is used by both remote UE and relay UEs or only relay UEs.
- If the eNB doesn't broadcast any information associated to relay operation then relay operation is not supported.
- The reception pools for relay discovery are provided by broadcast signalling.
- The eNB can broadcast that relay operation is supported and broadcasts tx resource pool(s) for relay discovery. The eNB may broadcast a minimum and/or a maximum Uu link quality (RSRP/RSRQ) thresholds that UEs need to respect to autonomously start/stop the relay discovery procedure using the broadcasted information. The network has the option to configure none, one or both thresholds. FFS if the eNB can control the UEs on an individual basis if it is broadcasting relay discovery resources. FFS if a UE in connected mode can use the broadcast relay discovery resources.
- The eNB can broadcast that relay operation is supported and but does not broadcast a tx resource pool for relay discovery. In this case the UE can initiate a request for relay discovery resources, by dedicated signalling and the eNB can configure the UE to become a relay by dedicated signalling. FFS if the eNB can optionally broadcast a minimum and/or a maximum Uu link quality (RSRP/RSRQ) thresholds that UEs need to respect to before requesting tx relay discovery resources and if a differentiation of behavior between Model A and Model B.
- If Relay UEs are initiated by broadcast signaling, they can also perform relay discovery when in idle. If Relay UEs are initiated by dedicated signaling, they can perform relay discovery as long as they are in connected mode.

Relay discovery for in-coverage remote UE

- UEs can transmit relay discovery solicitation messages while in RRC Connected and RRC idle (if network configured)
- A remote UE may only transmit discovery solicitation messages if the Uu link quality at the UE is below an optional network configured threshold.

Relay Selection/re-selection for in-coverage remote UE

- An in-coverage remote UE performs relay selection (using the same selection criteria as out-of-coverage)

- In connected mode, after selecting a relay, the remote UE informs the eNB using the *UESidelinkInformation* similar to Rel-12. The remote UE indicates in the message that the request is for relay one-to-one communication purposes. The eNB similar to rel-12 can choose to provide or not provide resources for relay communication.

Relay selection/reselection for all remote UEs

- No other RAN2-specified criteria, except radio link quality, shall be considered for relay UE selection/re-selection.
- A relay UE is considered as suitable if the PC5 link quality exceeds a configured signal strength threshold.
- The detailed criteria to select a new relay and the ranking of relays is FFS.
- The remote UE can also trigger a selection of a new relay when it receives a release message from the relay UE (as defined by SA2).

Connection establishment

- Authorization of remote UEs is done by higher layers
- A relay UE performing relay communication has to be in RRC connected mode.
- After receiving a layer-2 link establishment request from a remote UE, the relay UE informs the eNB using *UESidelinkInformation*. The relay UE indicates in the message that the request is for relay one-to-one communication purposes. The eNB similar to rel-12 can choose to provide or not provide resources for relay communication.
- RAN2 will not define any layer-2 link establishment messages.

ProSe discovery for inter-carrier and inter-PLMN

- Serving eNB is not mandated to provide discovery transmission resources for all carriers signalled in its SIB19.
- If SIB19 doesn't provide discovery transmission resources for the allowed carriers listed in the SIB19, the network can signal whether the UE should autonomously read the SIB19 of the signaled carrier or if the UE is expected to request resources from the serving cell for that carrier.
- The UE is not expected to connect to the other PLMN to perform discovery transmission. The UE should remain connected to the serving PLMN.
- If the UE autonomously reads SIB19 of the other carrier to acquire tx resources and that carrier doesn't provide discovery transmission resources in SIB19, the UE is not allowed to transmit on that carrier.

Gaps

- Gaps introduced for discovery transmitter and reception should apply to both inter-frequency and intra-frequency cases for connected mode UEs
- eNodeB controls the gap configuration on a per UE basis
- The gap created for discovery should take into account additional overhead (for synchronization and subframe offset) and interruption time for retuning. The actual overhead and interruption time depends on RAN4 discussion.
- The UE can request gaps for discovery reception and/or transmissions. In the request the UE can inform the eNB of the subframes (corresponding of the timing of the serving cell) on which the UE needs gaps for transmission and/or reception. FFS on what the transmissions subframes correspond to (all allowed transmission subframes or the subframes in which the UE intends to transmit). FFS when the request is triggered.

Group priorities for ProSe communication

- To implement PPP only changes to the PC5 interface are necessary
- If a packet is prioritized on the PC5 interface, it should also be treated with some priority on the Uu interface (if a ProSe UE-to-Network relay is used).
- If a packet is prioritized on the Uu interface, it should also be treated with some priority on the PC5 interface (if a ProSe UE-to-Network relay is used).

- From RAN2 point of view a static mapping between LCID and PPP is not a feasible solution. The need to provide PPP information from the transmitter to the receiver is only for the relay case (if there is one at all). From a RAN2 point of view, the preferred solution is to provide PPP information by including the information in the PDCP of the sidelink.
- Define LCG per ProSe destination and within one ProSe destination, each sidelink logical channel is mapped to one of four LCGs depending on the PPP of the sidelink logical channel. FFS how the mapping between LCGID and priority is determined.
- The same Rel-12 sidelink BSR format will be used as a baseline. When sending a SL BSR, the UE includes BS of all LCGs having SL data among all ProSe destinations as many as it can (relying on the truncation mechanism of Rel-12).
- FFS how the ProSe BSR is constructed (the order in which BS is provided for each LCGID)
- When the UE receives a SL grant, the UE selects the ProSe group having the sidelink logical channel with the highest PPP among the sidelink logical channels having SL data, and the serves all sidelink logical channels belonging the selected ProSe destination group in a decreasing priority order.

RAN enhancements for extended DRX in LTE

- To improve power saving gains, the UE should be able to re-synchronize over Uu with the RAN without sending uplink signalling (i.e. H-SFN or time clock broadcast information).
- H-SFN based paging will be adopted in the RAN
- RAN2 has agreed that it would be desirable to minimize or avoid storing paging messages in eNB. To avoid storing of paging message would require the MME to have some awareness of approximate time of when the UE will become reachable. It is up to SA2 how this is achieved.
- For paging robustness purposes for mobile UEs, some lose H-SFN synchronization between cells may be required

Annex I: History

Document history		
Date	TSG RAN WG2 Tdoc	Subject
13.08.2015	-	Skeleton report for RAN WG2 #91 provided before the meeting.
19.08.2015	-	First update of skeleton report for RAN WG2 #91 provided before the meeting
31.08.2015	-	Draft report v0.1 of RAN WG2 #91 provided after RAN WG2 #91
25.09.2015	R2-154002	Draft report v1.0 of RAN WG2 #91 provided after RAN WG2 #91
08.10.2015	R2-154031	Draft report v2.0 of RAN WG2 #91 provided after RAN WG2 #91
09.10.2015	R2-154032	Report v3.0 of RAN WG2 #91 provided after RAN WG2 #91
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