3GPP TSG-RAN WG2 Meeting #110-e [R2-2005731](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005731.zip)

**Electronic, 1 – 12 June 2020**

**Agenda Item: 8.1**

**Source: Vice Chairman (Nokia)**

**Title: Report on** **LTE legacy, LTE TEI16 and NR/LTE Rel-16 Mobility topics**

General

RAN2 110 electronic has full decision power, i.e. full decision power to make agreements and approvals according to RAN WG2 terms of reference, without any need to ratify decisions at a later RAN2 or other meeting.

Scope

R17 will not be handled. R16 and earlier will be handled, all tdoc types, see also instructions for each agenda item.

The specific objectives of this meeting includes to finish all open Rel-16 Work Items, to finish the Rel-16 ASN.1 review, and conclude the Rel-16 UE capabilities work.

Specific methodology

R2 110e is expected to be conducted by email and by web conferences by GoToWebinar, in three parallel sessions. To facilitate easy treatment, some AIs may be summarized in summary tdoc.

Tdoc Limitation for some R16 items

Tdoc Limitation applies as indicated for an Agenda Item for all types of documents. As usual Rapporteur input (email discussion, WI rapporteur, TS rapporteur, assigned CR editor, assigned summary rapporteur etc) do not count. Corrections acknowledged but not addressed/resolved in email discussion, or acknowledged by TS rapporteur also do not count. For RRC, for accepted RIL issues, the proponent company may provide a discussion doc with annex TP (if needed) that do not count towards the tdoc limitation. Note that Contributions should be reserved for more complicated issued and minor issues are expected to be resolved in RRC email discussions or by CR rapporteur without any tdoc.

Endorsed or in-principle agreed CRs

CRs that were endorsed or in-principle agreed at previous bis-meeting, need to be provided for final agreement at this meeting

Rel-16 CRs

CRs for ongoing Rel-16 WIs, that were started last meeting, possibly endorsed, are expected to be updated to include agreements from R2-110-e, before final approval.

Note: Time Budget Comments remain in this document only for reference. They are not applicable for R2 110e.

**List of offline email discussions:**

**NOTE: the email discussion deadlines are meant to allow at least all regions to have one day to comment (other than weekend) and also give rapporteurs time to update their proposals before the meeting)**

**Organizational**

* [AT110-e][200] Organizational Tero – LTE legacy, LTE Rel-16 and LTE/NR mobility

Scope:

* + - Share plans for the meetings and list of ongoing email discussions for the sessions
    - Share meetings notes and agreements for review and endorsement
    - Flag LSs for presentation

Intended outcome (for LS discussion):

* + - General information sharing about the sessions

Deadline for providing comments to LSs:

* + - Deadline: Friday 2020-06-12 1000 UTC

**LTE Legacy**

* [AT110-e#201][LTE] LTE Rel-15 TDD/FDD capability differentiation (Huawei)

Scope:

* + - Discuss the matter of Rel-15 TDD/FDD capability differentiation as per CRs in [R2-2005083](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005083.zip) and [R2-2005084](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005084.zip) (late Tdoc [R2-200574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003841.zip)3 also submitted to further explain the details)
    - Determine what needs to be done and whether there are also earlier release capabilities for which differentiation is not clear.
    - Inform RAN1/4/P (exact groups TBD during discussion) about conclusions made on these.

Intended outcome:

* + - Discussion summary in [R2-2005741](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005741.zip) (by email rapporteur)
    - If agreeable, LS to RANx (exact groups TBD) informing on the outcome of RAN2 in [R2-200574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005742.zip)2
    - Revised CRs (if agreeable, exact contents and release TBD during discussion)

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Thursday 2020-06-04 10:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005741](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005741.zip)): Friday 2020-06-05 03:00 UTC
    - Deadline for CR finalization: Wednesday 2020-06-10 07:00 UTC
* [AT110-e][202][LTE15] LTE non-contiguous CA capabilities (Nokia)

Scope:

* + - Determine what can be agreed based on the Nokia CRs in [R2-2005186](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005186.zip), [R2-2005187](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005187.zip), [R2-2005188](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005188.zip), [R2-2005189](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005189.zip) and [R2-2005190](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005190.zip) and Huawei CRs in [R2-2005481](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005481.zip), [R2-2005482](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005482.zip), [R2-2005483](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005483.zip), [R2-2005484](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005484.zip), [R2-2005485](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005485.zip), [R2-2005486](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005486.zip) and [R2-2005487](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005487.zip)
    - Determine from which release onwards a correction should be provided

Intended outcome:

* + - Discussion summary in [R2-2005744](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005744.zip) (by email rapporteur)
    - Agreeable CRs

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Thursday 2020-06-04 10:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005744](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005744.zip)): Friday 2020-06-05 03:00 UTC
* [AT110-e][203][LTE15] LTE legacy CRs (RAN2 VC)

Scope:

* + - Discuss which CRs under 4.5.1 (that are not handled in [201] or [202]) are agreeable and whether modifications are needed..

Intended outcome:

* + - Discussion summary in [R2-2005747](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005747.zip) (by email rapporteur).
    - Agreeable CRs (by each CR proponent)

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Thursday 2020-06-04 10:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005747](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005747.zip)): Friday 2020-06-05 03:00 UTC
    - Deadline for CR finalization: Wednesday 2020-06-10 07:00 UTC

**LTE Rel-16**

* [AT110-e#204][LTE] Handling of SA5 LS replies on QoE Measurement Collection (Ericsson)

Scope:

* + - Discuss the LS replies received from SA5 in [R2-2004381](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004381.zip) and [R2-2004382](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004382.zip)
    - Discuss the input documents in [R2-2004623](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004623.zip) and [R2-2005385](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005385.zip) to determine what RAN2 needs to do
    - Discuss whether to send reply LS to SA5 (CC: TBD) and, if agreeable, provide updated LS according to discussion in

Intended outcome:

* + - Discussion summary in [R2-200574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005741.zip)8 (by email rapporteur)
    - If agreeable, LS to RANx (exact groups TBD) informing on the outcome of RAN2 in [R2-200574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005742.zip)9

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Thursday 2020-06-04 10:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005741](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005741.zip)): Friday 2020-06-05 03:00 UTC
* [AT110-e#205][LTE] LTE contributions in AIs 7.6, 7.8 and 7.9 (RAN2 VC)

Scope:

* + - Handle the contributions in AIs 7.6.0, 7.8 and 7.9

Intended outcome:

* + - Discussion summary in [R2-2005750](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005750.zip) (by email rapporteur)

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline for companies' feedback: Thursday 2020-06-04 10:00 UTC
    - Initial deadline for rapporteur's summary in [R2-2005750](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005750.zip): Friday 2020-06-05 03:00 UTC
    - Deadline for CR finalization: Wednesday 2020-06-10 07:00 UTC

**LTE/NR ASN.1 review**

* [AT110-e][206][LTE ASN1] LTE general ASN.1 discussion (Samsung)

Scope:

* + - Flag issues to be discussed online (including specifics of each issue)

Intended outcome:

* + - Discussion summary (including list of flagged topics and proposed resolutions) in [R2-2005752](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005752.zip) (by email rapporteur).

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Wednesday 2020-06-03 11:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005752](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005752.zip)): Thursday 2020-06-04 11:00 UTC
    - Whether to continue the discussion after this TBD during Thursday 2020-06-04 online session

**NR Mobility**

* [AT110-e][207][NR MOB] ASN.1 review for NR mobility (Intel)

Scope:

* + - Flag issues with proposed resolution to ASN.1 review issues as per [R2-2004661](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004661.zip) in and [R2-2004672](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004672.zip) for online discussion.

Intended outcome:

* + - Discussion summary in [R2-2005751](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005751.zip) (by email rapporteur).

Deadline for providing comments and for rapporteur inputs:

* + - Deadline for flagging: Tuesday 2020-06-02 08:00 UTC
    - Deadline for rapporteur's summary of flagging (in [R2-2005751](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005751.zip)): Tuesday 2020-06-02 13:00 UTC

**LTE/NR Mobility**

* [AT110-e][208][LTE/NR MOB] User plane issues for DAPS (NN)

Scope:

* + - Discuss issues remaining after DAPS UP session (TBD if needed)

Intended outcome:

* + - Discussion summary in [R2-2005753](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005753.zip) (by email rapporteur).

Deadline for providing comments and for rapporteur inputs:

* + - TBD
* [AT110-e][209][MOB] CHO and CPC issues (NN)

Scope:

* + - Discuss the contributions [R2-2005344](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005344.zip), [R2-2005682](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005682.zip), [R2-2005681](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005681.zip), [R2-2005380](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005380.zip), [R2-2005456](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005456.zip) in AI 6.9.2 and the contributions [R2-2005345](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005345.zip), [R2-2005381](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005381.zip), [R2-2005279](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005279.zip) in AI 6.9.3
    - Determine what (if anything) can be agreed based on the handled contributions

Intended outcome:

* + - Discussion summary in [R2-2005754](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005754.zip) (by email rapporteur).

Deadline for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Friday 2020-06-05 10:00 UTC
    - Deadline for rapporteur's summary (in [R2-2005754](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005754.zip)): Monday 2020-06-08 16:00 UTC

**CR finalization**

* [AT110-e][210][NR MOB] NR RRC CR (Intel)

Scope:

* + - NR RRC CR capturing NR DAPS, NR CHO and CPC changes agreed in this meeting

Intended outcome:

* + - Agreed 38.331 CR in [R2-2005755](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005755.zip)

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC
* [AT110-e][211][LTE MOB] RRC CR (Ericsson)

Scope:

* + - LTE RRC CR capturing LTE DAPS, LTE CHO and NR CPC changes agreed in this meeting

Intended outcome:

* + - Agreed 36.331 CR for LTE and NR mobility in [R2-2005757](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005757.zip)

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC
* [AT110-e][212][MOB] PDCP CRs for LTE and NR (Huawei)

Scope:

* + - PDCP CRs for LTE and NR DAPS corrections agreed in this meeting

Intended outcome:

* + - Agreed CR to 38.323 CR in [R2-2005758](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005758.zip) for NR PDCP changes agreed in this meeting
    - Agreed CR to 36.323 in [R2-2005759](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005759.zip) for LTE PDCP changes agreed in this meeting

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC
* [AT110-e][213][MOB] MAC CRs for LTE and NR (vivo)

Scope:

* + - MAC CRs for LTE and NR DAPS corrections agreed in this meeting

Intended outcome:

* + - Agreed CR to 38.321 CR in [R2-2005760](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005760.zip) for NR MAC changes agreed in this meeting
    - Agreed CR to 36.321 in [R2-2005761](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005761.zip) for LTE MAC changes agreed in this meeting

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC
* [AT110-e][214][MOB] UE capability CRs for NR mobility (Intel)

Scope:

* + - 38.306 and 38.331 CRs for LTE capabilities based on agreements in this meeting

Intended outcome:

* + - Agreed CR to 38.331 CR in [R2-2005762](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005762.zip) for NR UE capability signalling
    - Agreed CR to 38.306 in [R2-2005763](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005763.zip) for NR capability descriptions

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC
* [AT110-e][215][MOB] UE capability CRs for LTE mobility (China Telecom)

Scope:

* + - 36.306 and 36.331 CRs for LTE capabilities based on agreements in this meeting

Intended outcome:

* + - Agreed CR to 38.331 CR in [R2-200576](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003853.zip)4 for LTE UE capability signalling
    - Agreed CR to 36.306 in [R2-200576](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003853.zip)5 for LTE capability descriptions

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC
* [AT110-e][216][LTE] LTE Stage-2 updates (China Telecom)

Scope:

* + - Correct Stage-2 text to be according to agreements. Improvements over parts discussed online should also be considered.

Intended outcome:

* + - Agreed CR to 36.300 CR in [R2-2005756](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005756.zip) for LTE UE capability signalling

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC

**Post-meeting email discussions**

* [110-e#xx][LTE] TDD/FDD differentiation or Rel-15 and earlier (Huawei)

Discuss resolution to remaining issues in TDD/FDD capability differentiation for LTE Rel-15 and earlier.

Intended outcome: Report and agreeable CR(s)

Deadline: Long (until next meeting)

* [110-e#xx][LTE] Clarification on non-contigous CA capabilities (Nokia)

Scope: Discuss the exact clarification to be captured in RRC and/or in chairman’s notes.

Intended outcome: Report and Agreeable CR or text to chairman’s notes.

Deadline: Long (until next meeting)

* [Post110-e][LTE/NR] XXX CR (Company)

Intended outcome: Outcome

Deadline: 1-week

* [Post110-e][LTE/NR] Title (Company)

Intended outcome: Outcome

Deadline: 1-week/Short/Long

**Web conference schedule**

Sessions handled by this document highlighted

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Zone UTC** | **Web Conference R2 NR RRC** | **Web Conference R2 NR Other** | **Web Conference R2 BO2** |
| **Tuesday 2** |  |  |  |
| 13:30 – 15:00 | [6.9.5] NR & LTE mobility enhancements NR RRC (Tero)  *- LTE/NR mobility organizational [6.9.1, 7.3.1]*  *- LTE/NR UE capability input from RAN1/4 [6.9.4, 7.3.3]*  *- LTE/NR mobility ASN.1 review [ 7.3.4, 6.9.5]* | Power saving [6.11.1] General, [6.11.2] UP and [6.11.4] RRM (Diana) | [6.4] NR V2X (Kyeongin) (can treat RRC as well) |
| **Wednesd 3** |  |  |  |
| 13:30 – 15:00 | [6.2.3] NR-U CP RRC aspects (Diana)  [6.11.3] PowSav CP RRC aspects (Diana)  [6.13.3] 2-step CP RRC aspects (Diana) | TBD: [5] NR corrections (Johan) or [6.0.2] NR UE capabilities (Johan) | [6.9][7.3] NR & LTE mobility enhancements non-RRC (Tero)  *- DAPS UP [6.9.6, 7.3.2]*  *- LTE mobility other [7.3.5]* |
| **Thursday 4** |  |  |  |
| 13:30 – 15:00 | [6.8.2.2] NR Pos RRC corrections, [6.21] On demand SI in connected (Nathan) | TBD: [6.1] IAB non-RRC (Johan) or [6.0.2] NR UE capabilities | [7.0.1] LTE ASN.1 review (Tero)  *[7.0.2] LTE UE features (if needed)* |
| **Friday 5** |  |  |  |
| 03:30-05:00 | [6.7.2.2] IIOT RRC [6.22.2] URLLC RRC (Johan) | [4.4][5.4][6.8][7.7][6.20] Positioning (Nathan) | [4.5][7] EUTRA misc (Tero)  *- LTE legacy and Rel-16 [4.5.1, 7.5.1, 7.6.1, 7.8, 7.9]* |
| **Tuesday 9** |  |  |  |
| 13:00 – 14:30 | [6.15.2][6.16.2][6.18.2] RRC aspects (Sergio) | [6.20] TEI16 (Johan), [6.19] other (Johan) if needed | [7.0.1] LTE ASN.1 review (Tero)  [6.9] NR Mob UE caps, R2 centric |
| 14:30 – 16:00 | [6.9.5] NR & LTE mobility enhancements NR RRC (Tero)  *- ASN.1 review topics [7.3.4, 6.9.5]*  *- UE capabilities for LTE/NR mobility [6.9.4, 7.3.3]* | TBD (Johan) | TBD [6.4] NR V2X |
| **Wednesd 10** |  |  |  |
| 14:30 – 16:00 | [6.12.4] SONMDT RRC corrections (HuNan) | 50 min: [6.2][6.11][6.13] RRC aspects  (Diana)  40 min: CB (Tero)  NR & LTE mobility enhancements NR RRC (Tero)  *- ASN.1 review topics [7.3.4, 6.9.5]*  *- UE capabilities for LTE/NR mobility [6.9.4, 7.3.3]* | TBD [7.1][7.2] IoT R16 (Brian/Emre) |
| **Thursday 11** |  |  |  |
| 04:00 – 05:30 | TBD Topic (Johan) | [6.4] NR V2X (Kyeongin) | TBD CB Tero  NR & LTE mobility enhancements NR RRC (Tero)  *- ASN.1 review topics [7.3.4, 6.9.5]*  *- UE capabilities for LTE/NR mobility [6.9.4, 7.3.3]* |

# 4 EUTRA corrections Rel-15 and earlier

See Appendix A for reference to Work items, work item codes and WIDs.

Only essential corrections. No documents should be submitted to 4. Please submit to 4.x

## 4.5 Other LTE corrections Rel-15 and earlier

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

### 4.5.0 In-principle agreed CRs

### 4.5.1 Other

By Email

Rel-15: TDD/FDD capabilty differentiation:

[R2-200574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003841.zip)3 [AT110-e#201][LTE] LTE Rel-15 TDD/FDD capability differentiation [Pre-meeting] Huawei, HiSilicon discussion Rel-15 TEI15 Late

* Handled in offline email discussion [201]
* Noted

[R2-2005083](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005083.zip) Correction to the LTE Rel-15 TDD/FDD capability differentiation Huawei, HiSilicon CR Rel-15 36.331 15.9.0 4304 - F TEI15

* Tick Radio Access Network
* Add EN-DC, NGEN-DC, NE-DC as impacted architecture options
* Add OPTIONAL to fields fdd-Add-UE-EUTRA-Capabilities-v15a0 and tdd-Add-UE-EUTRA-Capabilities-v15a0
* Improve inter-operability statement
* Remove comments
* Revised in [R2-2005772](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005772.zip)
* Provide updated drafts via [201], to be agreed over email (by Wednesday)

[R2-2005772](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005772.zip) Correction to the LTE Rel-15 TDD/FDD capability differentiation Huawei, HiSilicon CR Rel-15 36.331 15.9.0 4304 1 F TEI15 [R2-2005083](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005083.zip) Late

* Handled in continuation of offline email discussion [201]

[R2-2005084](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005084.zip) Correction to the LTE Rel-15 TDD/FDD capability differentiation Huawei, HiSilicon CR Rel-16 36.331 16.0.0 4305 - A TEI15

* Tick Radio Access Network
* Add EN-DC, NGEN-DC, NE-DC as impacted architecture options
* Add OPTIONAL to fields fdd-Add-UE-EUTRA-Capabilities-v15a0 and tdd-Add-UE-EUTRA-Capabilities-v15a0
* Improve inter-operability statement
* Remove comments
* Revised in [R2-2005773](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005773.zip)
* Provide updated drafts via [201], to be agreed over email (by Wednesday)

[R2-2005773](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005773.zip) Correction to the LTE Rel-15 TDD/FDD capability differentiation Huawei, HiSilicon CR Rel-16 36.331 16.0.0 4305 1 A TEI15 [R2-2005084](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005084.zip) Late

* Handled in continuation of offline email discussion [201]

Offline email discussion [201] scope:

* [AT110-e#201][LTE] LTE Rel-15 TDD/FDD capability differentiation (Huawei)

Scope:

* + - Discuss the matter of Rel-15 TDD/FDD capability differentiation as per CRs in [R2-2005083](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005083.zip) and [R2-2005084](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005084.zip) (late Tdoc [R2-200574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003841.zip)3 also submitted to further explain the details)
    - Determine what needs to be done and whether there are also earlier release capabilities for which differentiation is not clear.
    - Inform RAN1/4/P (exact groups TBD during discussion) about conclusions made on these.

Intended outcome:

* + - Discussion summary in [R2-2005741](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005741.zip) (by email rapporteur)
    - If agreeable, LS to RANx (exact groups TBD) informing on the outcome of RAN2 in [R2-200574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005742.zip)2
    - Revised CRs (if agreeable, exact contents and release TBD during discussion)

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Thursday 2020-06-04 10:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005741](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005741.zip)): Friday 2020-06-05 03:00 UTC
    - Deadline for CR finalization: Wednesday 2020-06-10 07:00 UTC

By Web Conf (Friday June 5th)

[R2-2005741](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005741.zip) Summary of discussion [201] on missing TDD/FDD differentiation in LTE (Huawei) Huawei discussion TEI15 Late

**Discussion**

- Huawei indicates not many companies have responded.

- Lenovo thinks there’s no need to change Rel-14 status and wonders what we need to do. Normally we do case by case, and old capabilities have no big interest. QC agrees but thinks we just forgot to implement RAN1 changes. Need to check if it’s just FFS/TBD or also missing signalling.

- QC agrees to do Rel-15 ASN.1 change now. Wonders what the dash (“-“) now means in the column. Lenovo agrees with Rel-15.

-Lenovo wonders what we do with RAN4 capabilities as not all are differentiated.

**Agreements**

Rel-14 and earlier

1 Capabilities in Rel-14 and earlier with “FFS/TBD” in the field description for TDD/FDD diff need to be updated. Discuss until next meeting what to do for each FFS/TBD and can discuss if some fields without any FFS/TBD marking have some issues (some were already identified).

Rel-15

5 Correct the Rel-15 ASN.1 by introducing PhyLayerParameters-v1530, v1540, v1550 in UE-EUTRA-CapabilityAddXDD-Mode-v15a0

* [110-e#xx][LTE] TDD/FDD differentiation or Rel-15 and earlier (Huawei)

Scope: Discuss resolution to remaining issues in TDD/FDD capability differentiation for LTE Rel-15 and earlier.

Intended outcome: Report and agreeable CR(s)

Deadline: Long (until next meeting)

[R2-2005742](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005742.zip) Draft LS on missing TDD/FDD differentiation in LTE Huawei LS out Rel-15 TEI15 To:RAN1, RAN4, RAN Late

* Noted

By Email

Rel-10/12: Non-contiguous Intra-band CA capabilities:

[R2-2005186](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005186.zip) Clarification to UE capabilities for non-contiguous intra-band CA Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-12 36.331 12.18.0 4247 1 F LTE\_CA-Core, TEI12 [R2-2003147](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003147.zip)

[R2-2005187](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005187.zip) Clarification to UE capabilities for non-contiguous intra-band CA Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-13 36.331 13.15.0 4248 1 A LTE\_CA-Core, TEI12 [R2-2003148](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003148.zip)

[R2-2005188](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005188.zip) Clarification to UE capabilities for non-contiguous intra-band CA Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-14 36.331 14.14.0 4249 1 A LTE\_CA-Core, TEI12 [R2-2003149](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003149.zip)

[R2-2005189](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005189.zip) Clarification to UE capabilities for non-contiguous intra-band CA Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-15 36.331 15.9.0 4250 1 A LTE\_CA-Core, TEI12 [R2-2003150](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003150.zip)

[R2-2005190](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005190.zip) Clarification to UE capabilities for non-contiguous intra-band CA Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-16 36.331 16.0.0 4251 1 A LTE\_CA-Core, TEI12 [R2-2003151](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003151.zip)

[R2-2005481](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005481.zip) Clarification on UE capability for intra-band non-continuous CA Huawei, Hisilicon CR Rel-10 36.331 10.22.0 4327 - F LTE\_CA-Core

[R2-2005482](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005482.zip) Clarification on UE capability for intra-band non-continuous CA Huawei, Hisilicon CR Rel-11 36.331 11.19.0 4328 - A LTE\_CA-Core

[R2-2005483](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005483.zip) Clarification on UE capability for intra-band non-continuous CA Huawei, Hisilicon CR Rel-12 36.331 12.18.0 4329 - F LTE\_CA-Core

[R2-2005484](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005484.zip) Clarification on UE capability for intra-band non-continuous CA Huawei, Hisilicon CR Rel-13 36.331 13.15.0 4330 - F LTE\_CA-Core

[R2-2005485](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005485.zip) Clarification on UE capability for intra-band non-continuous CA Huawei, Hisilicon CR Rel-14 36.331 14.14.0 4331 - A LTE\_CA-Core

[R2-2005486](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005486.zip) Clarification on UE capability for intra-band non-continuous CA Huawei, Hisilicon CR Rel-15 36.331 15.9.0 4332 - A LTE\_CA-Core

[R2-2005487](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005487.zip) Clarification on UE capability for intra-band non-continuous CA Huawei, Hisilicon CR Rel-16 36.331 16.0.0 4333 - A LTE\_CA-Core

* All of above were handled in offline email discussion [202]

Offline email discussion [202] scope:

* [AT110-e][202][LTE15] LTE non-contiguous CA capabilities (Nokia)

Scope:

* + - Determine what can be agreed based on the Nokia CRs in [R2-2005186](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005186.zip), [R2-2005187](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005187.zip), [R2-2005188](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005188.zip), [R2-2005189](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005189.zip) and [R2-2005190](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005190.zip) and Huawei CRs in [R2-2005481](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005481.zip), [R2-2005482](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005482.zip), [R2-2005483](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005483.zip), [R2-2005484](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005484.zip), [R2-2005485](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005485.zip), [R2-2005486](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005486.zip) and [R2-2005487](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005487.zip)
    - Determine from which release onwards a correction should be provided

Intended outcome:

* + - Discussion summary in [R2-2005744](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005744.zip) (by email rapporteur)
    - Agreeable CRs

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Thursday 2020-06-04 10:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005744](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005744.zip)): Friday 2020-06-05 03:00 UTC

By Web Conf (Friday June 5th)

[R2-2005744](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005744.zip) Summary of discussion [202] on non-contigous CA capabilities (Nokia) Nokia discussion LTE\_CA-Core Late

*Conclusion 1: Companies agreed the order in which UE capabilities are indicated for the band entries can be agnostic, for the CA of the same bandwidth class, but without considering dependencies on paired band entries in UL. There is still no clarity on the necessity to reflect dependency on UL band entries supported by the UE, when signalling capabilities for non-contiguous intra-band CA.*

*Conclusion 2: Two companies agree to Rel-12 to be starting release for the correction, one company proposes Rel-10 to be starting release for the correction.*

*Proposal 1: FFS: if intra-band non-contiguous UE capabilities for downlink carriers can be interpreted as order agnostic only for carriers which are paired with the same uplink carrier(s).*

*Proposal 2: Consider CRs from Rel-12.*

**Discussion**

- Nokia indicates that the points from Huawei has now become clearer and should be clarified.

- QC agrees we need to be clear that we don’t mix UL and DL capabilities with the “swapping”. OPPO agrees with QC.

- OPPO wonders what happens if we have just two subblocks? Nokia thinks network has to follow UE capabilities and the CR allows network to do that. Capability indications need to be clear.

- Nokia thinks also other capabilities need to be consistent. Could also capture clarification in chairman notes.

- Huawei wonders if all UL-carriers are order-agnostic or just the ones with the same uplink carrier.

**Agreements**

2 Consider CRs from Rel-12.

* [110-e#xx][LTE] Clarification on non-contigous CA capabilities (Nokia)

Scope: Discuss the exact clarification to be captured in RRC and/or in chairman’s notes.

Intended outcome: Report and Agreeable CR or text to chairman’s notes.

Deadline: Long (until next meeting)

By Email

Rel-12: Correction to T312:

[R2-2005351](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005351.zip) Correction on t312 timer information ZTE Corporation, Sanechips CR Rel-12 36.331 12.18.0 4316 - F HetNet\_eMOB\_LTE-Core

[R2-2005352](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005352.zip) Correction on t312 timer information ZTE Corporation, Sanechips CR Rel-13 36.331 13.15.0 4317 - A HetNet\_eMOB\_LTE-Core

[R2-2005353](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005353.zip) Correction on t312 timer information ZTE Corporation, Sanechips CR Rel-14 36.331 14.14.0 4318 - A HetNet\_eMOB\_LTE-Core

[R2-2005354](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005354.zip) Correction on t312 timer information ZTE Corporation, Sanechips CR Rel-15 36.331 15.9.0 4319 - A HetNet\_eMOB\_LTE-Core

[R2-2005355](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005355.zip) Correction on t312 timer information ZTE Corporation, Sanechips CR Rel-16 36.331 16.0.0 4320 - A HetNet\_eMOB\_LTE-Core

* All of above were handled in offline email discussion [203]

Discussion

- Lenovo thinks the stop condition has some issues. Procedures were already taking the agreeable parts into account so the timer conditions are not critical.

- Chair wonders if there are inter-operability issues with Rel-16 correction only. ZTE thinks there are no inter-operability issues since this is only informative. Ericsson wonders if we need the CRs if the changes are only informative. QC thinks it’s fine to have the clarification from Rel-15 or Rel-16 onwards. Huawei agrees to do this from Rel-16.

- Ericsson thinks we don’t need the CR at all and the CR is in fact wrong for security parts. Will cause misalignment between procedural text and timer description. Lenovo clarifies that the timer T312 was originally possible to capture without security activation but this was later changed in Rel-12.

* There is support to include the changes for the start and expiry of the timer T312 (but not the stop condition changes) in Rel-16
* Postponed

Rel-13: HARQ-ACK codebook capabilities for more than 5CCs:

[R2-2005191](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005191.zip) Clarification on codebook-HARQ-ACK-r13 capability for CA with more than 5CCs Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-13 36.306 13.12.0 1747 1 F LTE\_CA\_enh\_b5C-Core [R2-2003152](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003152.zip)

* Handled in offline email discussion [203]
* Agreed

[R2-2005192](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005192.zip) Clarification on codebook-HARQ-ACK-r13 capability for CA with more than 5CCs Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-14 36.306 14.11.0 1748 1 A LTE\_CA\_enh\_b5C-Core [R2-2003153](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003153.zip)

* Handled in offline email discussion [203]
* Agreed

[R2-2005193](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005193.zip) Clarification on codebook-HARQ-ACK-r13 capability for CA with more than 5CCs Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-15 36.306 15.8.0 1749 1 A LTE\_CA\_enh\_b5C-Core [R2-2003154](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003154.zip)

* Handled in offline email discussion [203]
* Agreed

[R2-2005194](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005194.zip) Clarification on codebook-HARQ-ACK-r13 capability for CA with more than 5CCs Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-16 36.306 16.0.0 1750 2 A LTE\_CA\_enh\_b5C-Core [R2-2003859](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003859.zip)

* Handled in offline email discussion [203]
* Agreed

Rel-14: PDU generation for latency reduction:

[R2-2005551](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005551.zip) PDU generation for UL spatial multiplexing ASUSTeK discussion Rel-15 LTE\_LATRED\_L2-Core, TEI14

* Handled in offline email discussion [203]
* Noted

[R2-2005552](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005552.zip) Correction on PDU generation for UL spatial multiplexing ASUSTeK CR Rel-14 36.321 14.12.0 1480 - F LTE\_LATRED\_L2-Core, TEI14

* Handled in offline email discussion [203]
* Postponed

[R2-2005553](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005553.zip) Correction on PDU generation for UL spatial multiplexing ASUSTeK CR Rel-15 36.321 15.8.0 1481 - A LTE\_LATRED\_L2-Core, TEI14

* Handled in offline email discussion [203]
* Postponed

[R2-2005554](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005554.zip) Correction on PDU generation for UL spatial multiplexing ASUSTeK CR Rel-16 36.321 16.0.0 1482 - A LTE\_LATRED\_L2-Core, TEI14

* Handled in offline email discussion [203]
* Postponed

*DISC S1\_2: The intent of* [*R2-2005551*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005551.zip) *seems agreeable but companies think the CRs* [*R2-2005552*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005552.zip)*,* [*R2-2005553*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005553.zip) *and* [*R2-2005554*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005554.zip) *are either not needed or not correct. Discuss online whether something is needed.*

- Qualcomm thinks the problem is real so a CR is needed. At least adding a NOTE is needed but is fine with normative text.

- Ericsson thinks that network implementation can handle this. Qualcomm agrees network can handle this but UE cannot rely on it.

* Intent of option 2 is agreeable, but no consensus on what to capture
* Postponed

Rel-15: SRB duplication:

[R2-2004407](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004407.zip) Correction on SRB duplication OPPO, LG Electronics CR Rel-15 36.323 15.5.0 0280 1 F LTE\_HRLLC [R2-2002619](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2002619.zip)

* Handled in offline email discussion [203]
* Remove the first change “for DRBs”
* With this change, the CR is agreed unseen in [R2-2005776](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005776.zip)

[R2-2005776](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005776.zip) Correction on SRB duplication OPPO, LG Electronics CR Rel-15 36.323 15.5.0 0280 2 F LTE\_HRLLC [R2-2002619](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2002619.zip)

* Agreed unseen

[R2-2004408](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004408.zip) Correction on SRB duplication OPPO, LG Electronics CR Rel-16 36.323 16.0.0 0281 1 A LTE\_HRLLC [R2-2002620](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2002620.zip)

* Handled in offline email discussion [203]
* Remove the first change “for DRBs”
* With this change, the CR is agreed unseen in [R2-2005777](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005777.zip)

[R2-2005777](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005777.zip) Correction on SRB duplication OPPO, LG Electronics CR Rel-16 36.323 16.0.0 0281 2 A LTE\_HRLLC [R2-2002620](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2002620.zip)

* Agreed unseen

Discussion ([203])

*Proposal S2\_1: Discuss online how to handle the proposals in* [*R2-2004407*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004407.zip) *and* [*R2-2004408*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004408.zip)*.*

- OPPO thinks changing title is allowed but it’s not allowed to change section numbering. Change is different because the rappporteur thought it should be in the SRB section instead of DRB section.

- Lenovo thinks the intent is to improve readability but removing SRB in the first change is not correct. Nothing is broken as such, so CR may not be needed.

* Remove the first change “for DRBs”

Rel-15: Correction to AUL HARQ processes:

[R2-2005678](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005678.zip) Correction of AUL HARQ process ASUSTeK CR Rel-15 36.331 15.9.0 4340 - F LTE\_unlic-Core

* Handled in offline email discussion [203]
* Revised in [R2-2006044](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2006044.zip)
* Revise inter-operability analysis
* Intent agreed, provide updated CR over email [203] for agreement in [R2-2005774](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005774.zip)

[R2-2006044](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2006044.zip) Correction of AUL HARQ process ASUSTeK CR Rel-15 36.331 15.9.0 4340 1 F LTE\_unlic-Core

* Revised in [R2-2005774](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005774.zip)

[R2-2005774](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005774.zip) Correction of AUL HARQ process ASUSTeK CR Rel-15 36.331 15.9.0 4340 2 F LTE\_unlic-Core [R2-2006044](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2006044.zip) Late

* Handled in continuation of offline email discussion [203]

Rel-16 shadow of above (if needed, according to conclusion of [203])

[R2-2006045](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2006045.zip) Correction of AUL HARQ process ASUSTeK CR Rel-16 36.331 16.0.0 4343 F LTE\_unlic-Core

* Revise inter-operability analysis
* Intent agreed, provide updated CR over email [203] for agreement in [R2-2005775](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005775.zip)
* Revised in [R2-2005774](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005774.zip)

[R2-2005775](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005775.zip) Correction of AUL HARQ process ASUSTeK CR Rel-16 36.331 16.0.0 4343 1 F LTE\_unlic-Core [R2-2006045](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2006045.zip) Late

* Handled in continuation of offline email discussion [203]

Rel-15: Minor RRC corrections:

[R2-2005283](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005283.zip) Minor changes collected by Rapporteur Samsung Telecommunications CR Rel-15 36.331 15.9.0 4314 - F MBMS\_LTE\_enh2-Core, TEI15 [R2-2003233](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003233.zip) Late

*(moved from 4.5)*

=> Revised in [R2-2005995](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005995.zip)

[R2-2005995](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005995.zip) Minor changes collected by Rapporteur Samsung Telecommunications CR Rel-15 36.331 15.9.0 4314 1 F MBMS\_LTE\_enh2-Core, TEI15 Late

*(moved from 4.5)*

* Handled in offline email discussion [203]

**Discussion**

- Samsung clarifies that [R2-2005018](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005018.zip) from eMTC needs to be backported to the Rel-15 version (but not the Rel-16)

* Wait for eMTC discussion on [R2-2005018](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005018.zip) to converge. Once concluded, can be added to this CR
* Intent of [R2-2005995](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005995.zip) is agreed
* Final CRs to be agreed in continuation of offline email discussion [203]

[R2-2005781](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005781.zip) Minor changes collected by Rapporteur Samsung Telecommunications CR Rel-15 36.331 15.9.0 4314 2 F MBMS\_LTE\_enh2-Core, TEI15 [R2-2005995](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005995.zip) Late

* Final CR to be agreed in continuation of offline email discussion [203]

Rel-16 shadow of above (if needed, according to conclusion of [203])

[R2-2005746](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005746.zip) Minor changes collected by Rapporteur Samsung Telecommunications CR Rel-16 36.331 16.0.0 4342 - A MBMS\_LTE\_enh2-Core, TEI15 Late

* Final CR to be agreed in continuation of offline email discussion [203]

Offline email discussion [203] scope:

* [AT110-e][203][LTE15] LTE legacy CRs (RAN2 VC)

Scope:

* + - Discuss which CRs under 4.5.1 (that are not handled in [201] or [202]) are agreeable and whether modifications are needed..

Intended outcome:

* + - Discussion summary in [R2-2005747](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005747.zip) (by email rapporteur).
    - Agreeable CRs (by each CR proponent)

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Thursday 2020-06-04 10:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005747](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005747.zip)): Friday 2020-06-05 03:00 UTC
    - Deadline for CR finalization: Wednesday 2020-06-10 07:00 UTC

By Web Conf (Friday June 5th)

[R2-2005747](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005747.zip) Summary of discussion [203] on LTE contributions in AI 4.5 Nokia (RAN2 VC) discussion HetNet\_eMOB\_LTE-Core, LTE\_CA\_enh\_b5C-Core, LTE\_LATRED\_L2-Core, TEI14, LTE\_HRLLC, LTE\_unlic-Core, MBMS\_LTE\_enh2-Core, TEI15 Late

Agreements

S1\_1: Agree to CRs in [R2-2005191](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005191.zip), [R2-2005192](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005192.zip), [R2-2005193](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005193.zip) and [R2-2005194](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005194.zip).

S2\_2: Agree to content [R2-2005995](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005995.zip) and discuss if other changes need to be still merged to the rappporteur CR.

DISC S2\_1: Agree to [R2-2005678](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005678.zip).

# 6 Rel-16 NR Work Items

## 6.9 NR mobility enhancements

(NR\_Mob\_enh-Core; leading WG: RAN2; REL-16; started: Jun 18; target; Mar 20; WID: RP-192277). Documents in this agenda item will be handled in a break out session

No documents should be submitted to 6.9. Documents under 6.9 will be treated together with documents in 7.3.

A web conference may be used for handling some of the discussions in this WI, and summary document may be provided for some agenda items under 6.9.

### 6.9.1 Organisational

Including incoming LSs, running CRs, rapporteur inputs, etc.

Including outcome of [Post109bis-e][927][NR MOB] Stage-2 CR (Intel).

By Web Conf (Tuesday June 2nd)

[R2-2004355](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004355.zip) LS on Simultaneous reception of DL signals in intra-frequency DAPS HO (R1-2003058; contact: Intel) RAN1 LS in Rel-16 NR\_Mob\_enh-Core To:RAN4 Cc:RAN2

* Noted

[R2-2004662](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004662.zip) Corrections on NR mobility enhancements (109b-927) Intel Corporation CR Rel-16 38.300 16.1.0 0230 - F NR\_Mob\_enh-Core

* Email discussion [927] outcome
* Agreed

Additional Stage-2 corrections:

[R2-2004518](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004518.zip) Corrections to Mobility Enhancements Nokia, Intel Corporation (Rapporteurs) CR Rel-16 38.300 16.1.0 0211 2 F NR\_Mob\_enh-Core [R2-2003857](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003857.zip)

- Nokia clarifies this is the IPA CR but with some additional clean-up – no functional changes.

* Agreed

Updated version of IPA RRC from RAN2#109bis-e:

[R2-2004670](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004670.zip) Corrections on NR mobility enhancements Intel Corporation CR Rel-16 38.331 16.0.0 1591 1 F NR\_Mob\_enh-Core [R2-2003850](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003850.zip)

- Intel explains there are only some editorials compared to previous version.

* Revised in [R2-2005755](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005755.zip)

Not treated

Text enhancements:

[R2-2004914](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004914.zip) Correction on CHO failure handling OPPO CR Rel-16 38.300 16.1.0 0234 - F NR\_Mob\_enh-Core

*(moved from 6.9.2)*

By Email

Offline email discussion [210] scope:

* [AT110-e][210][NR MOB] NR RRC CR (Intel)

Scope:

* + - NR RRC CR capturing NR DAPS, NR CHO and CPC changes agreed in this meeting

Intended outcome:

* + - Agreed 38.331 CR in [R2-2005755](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005755.zip)

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC

[R2-2005755](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005755.zip) Corrections to Rel-16 NR mobility enhancement Intel Corporation CR Rel-16 38.331 16.0.0 1591 2 F NR\_Mob\_enh-Core

### 6.9.2 Conditional handover

This AI jointly addresses corrections to NR and LTE CHO.

All RRC-related corrections to CHO should be submitted to ASN.1 review agenda items in 6.9.5 (NR RRC) and 7.3.4 (LTE RRC).

Tdoc Limitation per company: 1 tdoc.

By Email

Stage-2 corrections, including CHO evaluation condition stopping during legacy HO:

[R2-2005344](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005344.zip) On stopping evaluating execution condition once triggering the legacy HO ZTE Corporation, Sanechips discussion Rel-16 NR\_Mob\_enh-Core

[R2-2005682](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005682.zip) CHO Evaluating Handling during Legacy HO LG Electronics Inc. discussion Rel-16 NR\_Mob\_enh-Core

*(moved from 6.9.6)*

[R2-2005681](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005681.zip) Stage 2 CR for CHO Evaluating Handling during Legacy HO LG Electronics Inc. CR Rel-16 38.300 16.1.0 0242 - F NR\_Mob\_enh-Core

* Handled in email discussion [209]

Other topics:

[R2-2005380](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005380.zip) Discussion on leftovers for CHO Huawei, HiSilicon discussion Rel-16 LTE\_feMob-Core, NR\_Mob\_enh-Core [R2-2003577](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003577.zip)

[R2-2005456](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005456.zip) Further consideration on CHO in MR-DC operation CMCC discussion Rel-16 NR\_Mob\_enh-Core

* Handled in email discussion [209]

Offline email discussion [209] scope:

* [AT110-e][209][LTE/NR MOB] CHO and CPC issues (Nokia)

Scope:

* + - Discuss the contributions [R2-2005344](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005344.zip), [R2-2005682](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005682.zip), [R2-2005681](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005681.zip), [R2-2005380](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005380.zip), [R2-2005456](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005456.zip) in AI 6.9.2 and the contributions [R2-2005345](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005345.zip), [R2-2005381](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005381.zip), [R2-2005279](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005279.zip) in AI 6.9.3
    - Determine what (if anything) can be agreed based on the handled contributions

Intended outcome:

* + - Discussion summary in [R2-2005754](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005754.zip) (by email rapporteur).

Deadline for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Friday 2020-06-05 10:00 UTC
    - Deadline for rapporteur's summary (in [R2-2005754](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005754.zip)): Monday 2020-06-08 16:00 UTC

By Web Conf (Tuesday June 10th)

[R2-2005754](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005754.zip) Summary of discussion [209] on CHO/CPC Nokia discussion Late

*Proposal 2: Fast MCG recovery and CHO coexistence is not considered anymore in Rel-16.*

*Proposal 3: Changes related to SN release upon CHO execution are not pursued in Rel-16.*

*Proposal 1: Change the CHO-related text in TS 38.300 (section 9.2.3.4.1) and say the evaluation is stopped when ‘handover is triggered’, not when ‘the execution condition is met’ (as proposed in* [*R2-2005344*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005344.zip)*).*

*Proposal 4: TS 37.340 (section 10.6.1, for conditional PSCell change) is modified by stating the UE stops evaluating the execution conditions once ‘PSCell change is triggered’, instead of once ‘the execution condition is met’.*

*Proposal 5: Modify conditionalReconfiguration field description by adding a restriction CPC configuration cannot be provided in the legacy PSCell change command.*

*Proposal 7: In case of SRB3, the UE does not send a CPC (RRC Reconfiguration) complete message to the source PSCell (SN) upon CPC execution.*

*Proposal 6: Discuss further whether the CPC configurations can be kept or are released autonomously by the UE after PCell change completion.*

### 6.9.3 Conditional PSCell change for intra-SN

Including corrections for CPC.

Including outcome of [Post109bis-e][929][NR MOB] Stage-2 CR for CPC (CATT)

Tdoc Limitation per company: 1 tdoc

By Web Conf (Tuesday June 9th)

Outcome of [Post109bis-e][929][NR MOB] Stage-2 CR for CPC (CATT)

[R2-2005071](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005071.zip) Introduction of Conditional PSCell Change for intra-SN without MN involvement CATT draftCR Rel-16 37.340 16.1.0 F NR\_Mob\_enh-Core Late

* Email discussion [929] outcome

By Email

Miscellaneous issues for CPC:

[R2-2005345](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005345.zip) Remaining issues for CPC ZTE Corporation, Sanechips discussion Rel-16 NR\_Mob\_enh-Core

* Handled in email discussion [209]

Optimizations requiring reversal or change in previous agreements:

[R2-2005381](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005381.zip) Discussion on leftovers for CPC Huawei, HiSilicon discussion Rel-16 LTE\_feMob-Core, NR\_Mob\_enh-Core

[R2-2005279](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005279.zip) Corrections on procedure for CPC complete Futurewei discussion Rel-16 NR\_Mob\_enh-Core

* Handled in email discussion [209]

### 6.9.4 UE capabilities for conditional handover, fast handover failure recovery and conditional PSCell change

This AI jointly addresses UE capabilities for features in the NR mobility WI (i.e. DAPS, CHO, CPC, T312). Any input on UE capabilities from RAN1/4 will be handled in this agenda item.

Including outcome of [Post109bis-e][930][NR MOB] UE capabilities for NR mobility (Intel).

Tdoc Limitation per company: 1 tdoc

By Email

Offline email discussion [214] scope:

* [AT110-e][214][MOB] UE capability CRs for NR mobility (Intel)

Scope:

* + - 38.306 and 38.331 CRs for LTE capabilities based on agreements in this meeting

Intended outcome:

* + - Agreed CR to 38.331 CR in [R2-2005762](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005762.zip) for NR UE capability signalling
    - Agreed CR to 38.306 in [R2-2005763](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005763.zip) for NR capability descriptions

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC

[R2-2005762](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005762.zip) UE Capability for Rel-16 NR mobility enhancement Intel Corporation CR Rel-16 38.331 16.0.0 1694 B NR\_Mob\_enh-Core

[R2-2005763](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005763.zip) UE Capability for Rel-16 NR mobility enhancement Intel Corporation CR Rel-16 38.306 16.0.0 0348 B NR\_Mob\_enh-Core

By Web Conf (Tuesday June 9th)

[R2-2005779](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005779.zip) Summary of discussion][214][MOB] UE capability CRs for NR mobility (Intel) Intel Corporation discussion Rel-16 NR\_Mob\_enh-Core

*Proposal 1: Introduce IOT bits for syncDAPS, singleUL-TransmissionDAPS and intraFreqTwoTAGs-DAPS.*

- Qualcomm wonders why we need these bits – aren’t they default capabilities? Intel clarifies that UE might only support asyncDAPS in some cases and not syncDAPS. For singleUL this could be coupled with basic DAPS feature support. Samsung also wonders why the syncDAPS is needed as asyncDAPS-capable UE would still support also syncDAPS. Intel thinks there could be difference between inter- and intra-frequency cases.

- Huawei thinks these are not IOT bits but capabilities. Do we need to send LS to RAN4? Intel thinks there are lot of inconsistencies between RAN124 and RAN2 can decide what to do. We can still inform RAN4 on our decisions. Huawei thinks we should follow latest RAN14 feature lists. Huawei thinks if RAN1/4 do not agree, we will have to revisit the RAN2 agreements. Ericsson thinks we don’t need any IOT bits for these but is fine.

- Intel and Huawei think RAN4 indicated intraFreqTwoTAGs-DAPS as optional but RAN2 agreed it was mandatory. Huawei wonders if we should skip feature groups with FFS. Intel clarifies this was only for cases where no group has conclusion. Huawei thinks inter-frequency DAPS is stable but intra-frequency DAPS has FFS.

- Huawei wonders if the UE capability CR is merged to the mega-CR and do we follow the basic principle. Intel clarifies we merge but there are some different understanding of FFSs. If RAN2 agreed but RAN4 didn’t, is that still FFS. Suggests to keep the CR as it is and discuss the general principle in main session.

Agreements

1 singleUL-TransmissionDAPS can be supported by default (i.e. no bit needed)

2 syncDAPS can be supported by default (i.e. no bit needed)

3 Introduce IOT bit for intraFreqTwoTAGs-DAPS.

* Retain intra-requency DAPS capabilities in the CR.

By Web Conf (Tuesday June 9th)

Outcome of [Post109bis-e][930][NR MOB] UE capabilities for NR mobility (Intel):

[R2-2004663](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004663.zip) [109b#930] UE capabilities for NR mobility Intel Corporation discussion Rel-16 NR\_Mob\_enh-Core

*Proposal 1: the CHO capable UE must support maximum 8 candidate cells;*

*Proposal 4: the CPC capable UE must support maximum 8 candidate cells;*

*Proposal 2: For CHO, introduce additional capability on the support of 2 trigger events for same execution condition;*

*Proposal 5: For CPC, introduce additional capability on the support of 2 trigger events for same execution condition;*

*Proposal 3: Introduce cpc-r16 to indicate the support of CPC;*

*Proposal 6: For CHO, introduce separate capabilities cho-FDD-TDD-r16 and cho-FR1-FR2-r16;*

DAPS-related proposals in the general UE capability discussion [963]:

[R2-2005311](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005311.zip) Report of email discussion [Post109bis-e][963][NR16] UE capabilities Intel Corporation, NTT DoCoMo discussion Rel-16 NR\_UE\_pow\_sav, NR\_IAB-Core, NR\_eMIMO-Core, NR\_IIOT-Core, NR\_2step\_RACH-Core, 5G\_V2X\_NRSL-Core, NR\_Mob\_enh-Core, NR\_pos-Core, NR\_unlic-Core, LTE\_NR\_DC\_CA\_enh-Core, NR\_SON\_MDT-Core, NR\_CLI\_RIM, NG\_RAN\_PRN-Core, TEI16, NR\_L1enh\_URLLC-Core Late

- Intel clarifies these are mainly due to RAN1/4 decisions.

- Intel also now thinks P12 is not correct for number of TAGs – since we only have source/targe PCell, no need for additional TAGs. UE needs to support source and target TAGs (=2 TAGs) but not more. If UE supports only one TAG, it only supports collocated case.

- Qualcomm thinks the TAG has to be mandatory for all UEs supporting DAPS. This was not clear in LTE CA, which caused problems.

- MediaTek thinks we don’t need single- and multi-UL capabilities. Intel clarifies RAN2 allowed single UL earlier, this intends to allow multiple UL in addition. LGE wonders if the same applies for sync and async DAPS – is sync the baseline and async optional?

- Huawei agrees single UL and sync can be the default UE capabilities.

- Ericsson thinks we could just reuse legacy TAG capability.

- Intel clarifies we agreed TAG support is mandatory, but RAN4 wants different capabilities for intra- and inter-frequency DAPS.

- OPPO wonders if we ever discussed collocated case for intra-frequency DAPS? Thinks UE would always support two TAGs for intra-frequency case. Intel clarifies TAG=1 means TA value is the same for source and target. This comes from RAN4. OPPO thinks typical mobility scenario is between two nodes. Intel thinks 2 TAGs is mandatory with IOT bit.

- vivo wonders why the intra-frequency is per band, per BC, could be per band. Intel clarifies per BC is needed since different combinations use different BW classes. It’s also more future-proof.

**Agreements (NR)**

12a introduce separate capabilities for intraFreq and interFreq as below:

Per Band/per BC (for intraFreq capabilities), I.e. put under BandParameters-v16xy:

intraFreqDiffSCS-DAPS-r16;

intraFreqAsyncDAPS-r16

intraFreqMultiUL-TransmissionDAPS-r16

Per BC (for interFreq capabilities), i.e. put under CA-ParametersNR-v16xy:

interFreqDiffSCS-DAPS-r16

interFreqAsyncDAPS-r16

interFreqMultiUL-TransmissionDAPS-r16.

12b All UEs supporting DAPS support these capabilities (can discuss signalling details and naming):

SyncDAPS-r16

SingleUL-TransmissionDAPS-r16

intraFreqTwoTAGs-DAPS-r16 (with 2 TAGs)

(for interFreq since RAN2 agreed to “Reuse CA capability “supportedNumberTAG” for DAPS handover.)

8a Remove UplinkPowerSharingDAPS-HO

8b Add separate capabilities for 21-2, 21-2a, 21-2b as semiStaticPowerSharingDAPS-Mode1, semiStaticPowerSharingDAPS-Mode2 and dynamicPowersharingDAPS.

8c RAN2 thinks that these apply only for multiple UL supporting UEs,

10 Remove pdcch-BlindDetectionSource and pdcch-BlindDetectionTarget from RAN2 agreed capabilities.

11 Add syncDAPS and simultaneous UL transmission based on RAN4 latest capability table.

13 Introduce separate capabilities for intraFreq and interFreq for power sharing capabilities.

* Wait for RAN1 conclusion on ul-TransCancellationDAPS.

[R2-2004664](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004664.zip) UE Capability for Rel-16 NR mobility enhancement Intel Corporation draftCR Rel-16 38.331 16.0.0 F NR\_Mob\_enh-Core

[R2-2004665](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004665.zip) UE Capability for Rel-16 NR mobility enhancement Intel Corporation draftCR Rel-16 38.306 16.0.0 F NR\_Mob\_enh-Core

NR DAPS capabilities:

[R2-2005061](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005061.zip) Discussion on UE capabilities for NR DAPS Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

*Proposal 1: remove singleUL-TransmissionDAPS-r16 in baseline TP.*

*Proposal 2: specify separate UE capabilities for all three power sharing modes.*

*Proposal 3: remove pdcch-BlindDetectionDAPS-r16 in baseline TP.*

*Proposal 4: Add separate supportedNumberTAG UE capability for intra-frequency DAPS handover.*

* Noted

Additional input on CHO and CPC capabilities:

[R2-2005160](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005160.zip) UE capabilities for Mobility Enhancements WI Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_Mob\_enh-Core

* Noted

[R2-2005457](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005457.zip) Discussion on the maxinum CPC candidates CMCC discussion Rel-16 NR\_Mob\_enh-Core

*(moved from 6.9.3)*

* Noted

[R2-2004917](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004917.zip) Discussion on UE capability for CHO and CPC OPPO discussion Rel-16 NR\_Mob\_enh-Core

* Noted

[R2-2005684](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005684.zip) Consideration on Conditional mobility capability LG Electronics Inc. discussion Rel-16 NR\_Mob\_enh-Core [R2-2002902](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2002902.zip)

* Noted

### 6.9.5 ASN.1 review of mobility WIs for NR RRC

This agenda item focuses on NR RRC aspects of NR mobility W – LTE RRC aspects of both LTE and NR mobility WIs should be submitted to 7.3.4. Do not submit contributions on WI-specific open issues that are not captured in the current NR RRC to this agenda item.

All ASN.1 issues should be raised in RILs first – contributions where no RIL issue exists may not be treated.

Including contributions/TPs on RRC corrections based on review issues. For these, no individual company CRs should be submitted: please consult with the rapporteur of NR RRC CR first ([yi.guo@intel.com](mailto:yi.guo@intel.com)).

By Email

Offline email discussion [207] scope:

* [AT110-e][207][NR MOB] ASN.1 review for NR mobility (Intel)

Scope:

* + - Flag issues with proposed resolution to ASN.1 review issues as per [R2-2004661](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004661.zip) in and [R2-2004672](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004672.zip) for online discussion.

Intended outcome:

* + - Discussion summary in [R2-2005751](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005751.zip) (by email rapporteur).

Deadline for providing comments and for rapporteur inputs:

* + - Deadline for flagging: Tuesday 2020-06-02 08:00 UTC
    - Deadline for rapporteur's summary of flagging (in [R2-2005751](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005751.zip)): Tuesday 2020-06-02 13:00 UTC

By Web Conf (Tuesday June 2nd)

[R2-2005751](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005751.zip) Summary of discussion [207] on NR mobility ASN.1 review Intel discussion Late

**Bulk agreement**

I103: Agree I103 to add “2> release source PCell configuration;”in 5.3.5.3.

I107: Agree I107, to combine the conditions “If any DAPS bearer is configured:” and “2> for each SRB:” together in 5.3.5.6.3:

I109: Agree I109, to remove “the S-KgNB key, the S-KeNB key,” from 5.3.5.8.3:

I111: Agree I111 to add the field description for configRestrictInfoDAPS: “Includes fields for which souce cell explictly indicates the restriction to be observed by target cell during DAPS handover.”

***Online discussion:***

**I101:**

- LGE would like to leave the existing text as it is. Intel clarifies that procedural text already captures this. Nokia agrees.Huawei thinks it’s not clear that UE performs CHO failure handling if all entries have been removed.

**I105:**

- CATT thinks the text clarified that this applies to PCell only, not CPC. Intel thinks network only configures the attemptCondReconfig is CHO is configured, so there’s no ambiguity. LGE agres wuith CATT. OPPO thinks the sentence could be reworded.

**Agreements**

I101: Agree I101 to remove the note “This step is performed so the UE only performs conditional reconfiguration execution while timer T311 is running once for a given failure detection .” from 5.3.5.3.

I105: Agree I105, to move the NOTE3 together with Note 1, 2 in 5.3.5.5.2:

I100: Change to ConcReject.

By Web Conf (Tuesday June 9th)

**Agreements**

I104: Change to ConcReject.

S303: Change to ConcAgree: Use Cond PCell for field attemptCondReconfig-r16 with

“The field is optional present, need N, if conditionalReconfiguration is added for CHO. Otherwise the field is not present.”

- Intel thinks we can reject I104. For S303, we shuld go for Alt.1 as Alt.2 is not correct.

*Proposal on I104: to discuss whether to clarify same configuration is the configuration from the same DRB in 5.3.5.5.2:*

*3> establish an RLC entity or entities for the target, with the same configurations of the same DRB as for the source;*

*3> establish the logical channel for the target PCell, with the same configurations of the same DRB as for the source;*

*Proposal on S303: Agree S303:Use Cond PCell for field attemptCondReconfig-r16 with*

*Alt 1 “The field is optional present, need N, if conditionalReconfiguration is added for CHO. Otherwise the field is not present.” Or*

*Al2 “The field is optional present in Reconfiguration message embedded in condRRCReconfig that concerns PCell, need N. Otherwise the field is not present.”*

**Bulk Agreement**

Z274: ConcAgree. To capture the changes based on Z274.

E231: ConcAgree.

M201: ConcAgree ; follow RRC Rapporteur’s view

Z275: ConcAgree. To capture the changes based on Z275.

H458:ConcReject.

Z276: ConcAgree. But double check the proposed changes.

G103: ConcReject.

J031: ConcReject.

B105: ConcReject.

E038: ConcReject.

B107: Not related to MOB WI.

H455: ConcReject.

Z278: CPC cannot be configure in PSCell change command.

C210: leave the discussion to SON/MDT WI.

S309: ConcAgree.

S305: ConcReject.

E234: ConcAgree.

O201: ConcReject.

H462: ConcAgree.

X007: ConcReject.

S308: ConcReject.

***Online discussion:***

**Agreements**

J030: Change to PropAgree

G104: ConcConcReject

I113: Remove the below EN, and keep current CR as it is.

Editor's note: It is FFS if the whole handling on release of spcellConfig, MCG SCells, etc shall be moved to under 1> else: in 5.3.7.3, i.e. release when reestablishment is triggered.

S304: ConcReject

Z277: ConcAgree based on Alt. 1: The UE stops conditional reconfiguration evaluation for CPC upon submission of MCGFailureInformation, if configured.

Z273: Change to ConcReject : Do not introduce the definition of Non-DAPS bearer or changes to DAPS bearer definition.

*Proposal on J030: PropReject2.* [*R2-2005430*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005430.zip)

- Intel clarifies this was already agreed.

*Proposal on G104: PropReject2.* [*R2-2005529*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005529.zip)

*Proposal on I113: Remove the below EN, and keep current CR as it is.*

*Editor's note: It is FFS if the whole handling on release of spcellConfig, MCG SCells, etc shall be moved to under 1> else: in 5.3.7.3, i.e. release when reestablishment is triggered.*

*Proposal on S304: DiscMeet2.* [*R2-2005668*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005668.zip)

*Proposal on Z277: PropAgree2.* [*R2-2005347*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005347.zip)

* Alt. 1: The UE stops conditional reconfiguration evaluation for CPC upon submission of MCGFailureInformation, if configured, and re-starts conditional reconfiguration evaluation for CPC upon successful completion of fast MCG recovery, if there is any stored CPC configuration.*

*Proposal on I112: When resume SRB upon DAPS HO failure, the RLC entities of RRC bearers are re-established.*

* Already handled earlier

*Proposal on Z273: partially PropAgree2. Do not introduce the definition of Non-DAPS bearer, and change the definition of DAPS bearer as*

*“DAPS bearer: a bearer whose radio protocols are located in both the source SpCell and the target SpCell during DAPS handover to use both source SpCell and target SpCell resources”* [*R2-2005997*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005997.zip) *(LTE CR)?*

*Proposal on E232: DiscMeet2.*

* See below.

*Proposal on J033: DiscMeet2.*

* Already handled (see AI 7.3.2)

*Proposal on I114: DiscMeet2.*

* To be discussed based on LTE session contribution [R2-2004695](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004695.zip)

H460 (release of source cell after DAPS HO completion):

- Huawei thinks that clarification is needed that source cell must be released during DAPS handover. Intel thinks DAPS HO completes when RA is completed but Huawei interprets this is only when source cell is released. LGE agrees with Intel but also thinks there could be ambiguity since the definition is different. Could use “after synchronization”. Nokia thinks we agreed earlier that DAPS HO is successful after RA. Huawei thinks we agreed that network has to release source before doing anything else. OPPO agrees.

- Intel clarifies this will impact the CR as we have to check how to capture “during DAPS HO”, “after DAPS HO”, “at DAPS HO success”.

* RAN2 understanding is that DAPS HO is considered successful after RA completion. DAPS HO is considered complete after source release. Update conclusion of H460 accordingly.

**Agreements (no document was submitted)**

J032: ConcReject.

S307: ConcAgree.

S306: ConcReject.

X004: ConcAgree: Intent is agreeable, but need to discuss how to clarify the wording (current condition may cover this)

X005: ConcAgree (add MAC reset)

*NEC comments:*

*X004*

*The rapporteur’s comment is “the detection of RLF is handled in section 5.3.10.1. And do not see the need to add “T304 is running here””. However, section 5.3.10.1 is about radio link monitoring, while section 5.3.10.3 is about radio link failure detection, wherein the RLF detection condition includes not only physical layer problems, but also RLC retransmission failure and RACH failure, thus we need “T304 is running” in section 5.3.10.3.*

- NEC thinks T304 needs to be added since DAPS handover is ongoing. Intel explains that this is for before DAPS completion with radio link problem in source. But we might need to word this differently.

- Intel changes their mind and thinks “any DAPS bearer is configured” covers this. Lenovo agrees with intent but the change is not correct. 2nd and 3rd trigger completion will not happen.

*X005*

*The rapporteur’s comment is “should not “suspend the transmission of all DRBs in the source ;” be sufficient?” We don’t think the all data transmission and reception towards the source can be stopped by just suspension of all DRBs. For example there will still be preamble transmission and RAR reception if there is ongoing random access procedure, therefore we need to reset source MAC entity to stop those ongoing MAC procedures.*

- NEC thinks we need to reset source MAC to stop any ongoing procedures. QC agrees with intent that “release source” is ambiguous. Intel agrees we could add this to be consistent. Samsung wonders what can go wrong if we suspend the source cell? Intel thinks we only suspend bearers but not the entire cell, which is not very clear.

By Web Conf (Wednesday June 10th)

Phase 1 issue resolution:

[R2-2004661](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004661.zip) Phase 1 class 2 issues on MOB WI (I101, I103, I104, I105, I107, I109, I100, S303, I111) Intel Corporation discussion Rel-16 NR\_Mob\_enh-Core

* Covered by ASN.1 summary discussion

Phase 2 issue resolution

[R2-2004672](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004672.zip) Phase 2 MOB RIL issues Intel Corporation discussion Rel-16 NR\_Mob\_enh-Core Late

* Covered by ASN.1 summary discussion

[J033] RoHC handling without key changes:

[R2-2005512](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005512.zip) [J033] RoHC handling with and without key change at the UE SHARP Corporation discussion Rel-16 LTE\_feMob-Core [R2-2003665](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003665.zip)

* Covered by discussion under 7.3.2

[H223] TAG configuration:

[R2-2004427](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004427.zip) Clarification on tag-Config for DAPS (subject to [H223]) Samsung discussion Rel-16 NR\_Mob\_enh-Core

*Proposal 1: Network is allowed to configure tag-Config even during DAPS HO, and if configured, it is applied to the MAC entity of the target cell.*

*Proposal 2: Update the running CR as proposed above, and remove the text 'The field is not present if any DAPS bearer is configured.' from the field description of tag-Config.*

- Huawei thinks that this was rejected since there were no other SCells. But network can still provide this configuration early.

- QC thinks we agreed to allow two TAG groups so what is this adding?

* Noted (keep as ConcReject)

S350: Reconfiguration procedure in DAPS and I112: RLC re-establishment upon fallback:

[R2-2004666](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004666.zip) Phase 1 open issue on DAPS CP (S350, I112) Intel Corporation discussion Rel-16 NR\_Mob\_enh-Core

[R2-2005064](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005064.zip) [I112] discussion on RLC re-establishment upon fallback Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

[R2-2005708](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005708.zip) [S350] Discussion on radio bearer handling during DAPS Samsung Electronics discussion NR\_Mob\_enh-Core

[R2-2005062](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005062.zip) [S350] Discussion on reconfiguration procedure in DAPS Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

* Covered by discussion under 7.3.2

Z255: Handling of stored CPC configuration:

[R2-2004668](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004668.zip) Phase 1 Open issue on CPC (Z255) Intel Corporation discussion Rel-16 NR\_Mob\_enh-Core

*Proposal on Z255: stick to current specification, UE autonomous removes CPC upon PCell change.*

[R2-2005348](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005348.zip) [Z255] Further discussion on the handling of stored CPC configuration ZTE Corporation, Sanechips discussion Rel-16 NR\_Mob\_enh-Core

*Proposal 1: Remove the requirement on autonomous release of stored CPC configuration after successful execution of PCell change. And it is up to the NW to configure the release of CPC configuration in case of PCell change with SN involved.*

*Proposal 2: Select one of the following two alternatives for the handling of conditional reconfiguration evaluation for CPC in case of PCell change:*

* Alt. 1: The UE stops conditional reconfiguration evaluation for CPC upon triggering the execution of PCell change, and re-starts conditional reconfiguration evaluation for CPC upon successful completion of random access to the target PCell, if there is any stored CPC configuration.*

* Alt. 2: The UE continues conditional reconfiguration evaluation for CPC. However, the UE should finalise the ongoing PCell change execution before triggering the CPC execution even if the CPC execution condition is met during the execution of PCell change.*

[R2-2004620](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004620.zip) Remaining issues for conditional PSCell change Ericsson discussion NR\_Mob\_enh-Core

*(moved from 6.9.3)*

*Proposal 1: Keep the existing procedure text in rel-16, i.e. the UE autonomously deletes CPC configurations upon PCell change.*

**Discussion (Above documents discussed together)**

**-** LGE supports the proposal as it unifies all cases. OPPO agrees.

- ZTE wonders if PSCell knows about PCell change so might need to inform SCG about PCell change when this occurs. This could require RAN3 signalling. Nokia agrees but thinks this was also discussed in [209] and the views were split. QC agrees wtih ZTE as we might just do key refresh.

- Ericsson thinks nothing is broken. Nokia disagrees and thinks we have to handle this case eventually. UE shouldn’t release CPC if it’s not needed. Ericsson thinks network has to know.

**Agreements**

1 UE autonomously deletes CPC configurations upon PCell change in Rel-16 (i.e. no change to CR)

I113: Field release during re-establishment procedure:

[R2-2004667](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004667.zip) Phase 1 open issue on CHO (I113) Intel Corporation discussion Rel-16 NR\_Mob\_enh-Core

[R2-2005065](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005065.zip) [I113] Discussion on handling CHO candidate cells upon RRC re-establishment Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

[R2-2004619](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004619.zip) Re-establishment initiation and CHO Ericsson discussion NR\_Mob\_enh-Core

*(moved from 6.9.2)*

- Ericsson thinks the 4619 is simpler. Intel wonders if there is a test case that could impact legacy UE as well. Ericsson thinks the test case shouldn’t be changed as the cell selection doesn’t change, just what UE stores before receiving re-establishment. ZTE agrees with Ericsson proposal.

- OPPO also thinks it’s better to retain legacy procedure to avoid changing those for UEs not supporting CHO. Current CR is correct. Shouldn’t affect re-establishment procedure due to introduction of CHO. LGE agrees.

- Nokia wonders if this is only cleaning up the specification or does it help with the procedure? If it’s only about cleaning, would like to retain existing text. Ericsson thinks both choices work but the proposal is just much simpler. Doesn’t think legacy is affected. QC thinks there would be a small change to UE.

* Since both solutions are seen equivalent, we keep existing text in the CR.

[O201]: Restricting DAPS + CHO and DAPS + CPC:

[R2-2004915](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004915.zip) [O201] Correction on dapsConfig OPPO discussion Rel-16 NR\_Mob\_enh-Core

[R2-2005349](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005349.zip) Clarification on not supporting CHO+DAPS ZTE Corporation, Sanechips discussion Rel-16 LTE\_feMob-Core

*(moved from 7.3.2)*

* Covered by ASN.1 summary discussion

[E232, Z258] Generic RRC text enhancements for DAPS procedure:

[R2-2004693](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004693.zip) [E232] Source and target entities at DAPS HO Ericsson discussion Rel-16 NR\_Mob\_enh-Core

*Proposal 1 Complete the specification text for DAPS HO in 38.331, where only “source” or “target” is used, with the entities that are referred to.*

*Proposal 2 Include the Text Proposal in Annex A to TS 38.331.*

- Intel wonders if we reuse the same concept in the same section. Should be consistent within a section. Ericsson thinks we should disambiguate where necessary to indicate whether this is per CG, cell or SpCell. QC agrees with Ericsson.

- Intel wonders if we should apply within the same section of RRC configuration: If one section uses cell group, we continue using cell group but could use SpCell in different section.

- LGE wonders if we do the same clarification also to LTE.

**Agreement (NR)**

1 Complete the specification text for DAPS HO in 38.331, where only “source” or “target” is used, with the entities that are referred to.

2 Include the Text Proposal in Annex A to TS 38.331 (can modify to be consistent with terminology)

* Align the same change to LTE where possible

[R2-2005997](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005997.zip) TP on DAPS terminology related ASN.1 review issues (ao Z258) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 TEI16

* Covered by ASN.1 summary discussion

[S304]: Identification of cell according to PCI or SSB?

[R2-2005668](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005668.zip) [S304] Clarification on applicable cell in CHO Samsung R&D Institute UK discussion

*Proposal 1. RAN2 agrees that DL frequency information in ServingCellConfigCommon of candidate target cell configuration is used for identifying the applicable cell for the CHO execution evaluation in addition to the physical cell identity.*

- Ericsson wonders if there is any ambiguity with existing text? Samsung clarifies that the MO already indicates the applicable cell. MO and ServingCellConfigCommon could have different information.

- Nokia thinks the MO information is sufficient as network has to ensure MO includes the information already. This would require UE to decode SIB1 from target cell before CHO. Qualcomm thinks this requires UE to read SIB1 which is not done in legacy.

- Samsung wonders what the difference is for PCI. QC clarifies this comes form PSS/SSS decoding.

* Noted.

C003: Aligning T310 and T312 descriptions:

[R2-2005382](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005382.zip) [C003] T312 discussion Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

*Proposal 1: If RAN2 is to agree on C003-1, changes to T310 are needed for both Rel-15 and Rel-16 38.331 specs.*

[R2-2004669](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004669.zip) Stop condition on T310 (C003)  Intel Corporation        CR       Rel-16 38.331   16.0.0  1619    -           F          TEI16

*(moved from 6.20)*

*For T310, capture the stop condition “upon the reconfiguration of the rlf-TimersAndConstants”.*

[XXXX]: Release of CPC when SCG is released:

[R2-2005683](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005683.zip) Draft CR for Clarification to release CPC when SCG Release LG Electronics Inc. draftCR Rel-16 38.331 16.0.0 F NR\_Mob\_enh-Core

*(moved from 6.9.3)*

*The UE removes all entries of VarConditionalReconfig for SCG when releasing SCG.*

[XXXX] Disabling IioT duplication of >2 legs:

[R2-2004649](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004649.zip) Disabling multi-leg RB for DAPS vivo discussion Rel-16 LTE\_feMob-Core

*(moved from 7.3.2)*

*Proposal: Add in the field description of moreThanTwoRLC that “This field is not present if dapsConfig is configured for any DRB”.*

Not treated (unless flagged)

[J030, J031, G103, G104, B105, H458]: PropReject in [R2-2004672](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004672.zip):

[R2-2005430](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005430.zip) [J030, J031] UE DAPS configuration release upon RLF SHARP discussion Rel-16 NR\_Mob\_enh-Core

[R2-2005529](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005529.zip) [G104] Clarification on DAPS handover failure while the T310 is running Google Inc. discussion 38.331 NR\_Mob\_enh-Core

[R2-2005134](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005134.zip) [B105] TP for DAPS handover with fast MCG link recovery Lenovo, Motorola Mobility discussion Rel-16

[R2-2005383](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005383.zip) [H458] Triggering quantity discussion Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

[R2-2005511](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005511.zip) [G103] Clarification on CHO handling during RRC connection re-establishment procedure Google Inc. draftCR Rel-16 38.331 16.0.0 F NR\_Mob\_enh-Core

* All of above are covered by ASN.1 summary discussion

[Z276, Z277]: PropAgree in [R2-2004672](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004672.zip):

[R2-2005346](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005346.zip) [Z276] Discussion on UE configuration release in RRC re-establishment ZTE Corporation, Sanechips discussion Rel-16 NR\_Mob\_enh-Core

* Covered by ASN.1 summary discussion

[R2-2005347](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005347.zip) [Z277] Discussion on stopping conditional reconfiguration evaluation during fast MCG recovery ZTE Corporation, Sanechips discussion Rel-16 NR\_Mob\_enh-Core

*Proposal 1: Select one of the following two alternatives for the handling of conditional reconfiguration evaluation for CPC during fast MCG recovery:*

* Alt. 1: The UE stops conditional reconfiguration evaluation for CPC upon submission of MCGFailureInformation, if configured, and re-starts conditional reconfiguration evaluation for CPC upon successful completion of fast MCG recovery, if there is any stored CPC configuration.*

* Alt. 2: The UE continues conditional reconfiguration evaluation for CPC. However, the UE should finalise the ongoing fast MCG recovery procedure before triggering the CPC execution even if the CPC execution condition is met during fast MCG recovery, e.g. checking whether T316 is running before triggering the CPC execution.*

- Intel clarifies that the intent was to have same handling as in CHO. This was not discussed before.

- LGE wonders if this is related to CPC discussion. Nokia agrees that if PCell RLF occurs re-establishment is done.

- ZTE slightly prefers alt.2 but is fine with Alt.1. FutureWei agrees with Alt.2 as we didn’t really consider this before. Intel thinks we shouldn’t optimize these in Rel-16.

- Nokia thinks we could just specify nothing. vivo also thinks we don’t need to capture anything. Qualcomm thinks that’s not good for UE. Alt.2 is UE behaviour and Alt.1 was simpler to specify. ZTE thinks alt.1 is better than nothing.

- LGE wonders if this means UE will have to not release the CPC configuration as fast MCG only succeeds if HO is done.

* Go with Alt.1 (to align with CHO)

### 6.9.6 Other

Only corrections not fitting other agenda items.

Including DAPS aspects that are NR-specific without equivalent LTE impacts: Do not use this AI for any DAPS topics that can be discussed jointly for LTE and NR - Contributions on DAPS that apply for both LTE and NR are treated jointly in under 7.3.2.

Tdoc Limitation per company: 1 tdoc.

By Web Conf (Wed, June 3rd)

Correction to MAC on random access procedure:

[R2-2005612](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005612.zip) Draft CR on 38.321 for NR mobility enhancement LG Electronics draftCR Rel-16 38.321 16.0.0 F NR\_Mob\_enh-Core

*(moved from 7.3.5)*

- vivo thinks that it’s already clear the RA is for DAPS HO, so it can only be the target MAC entity so the second change is not needed. First change is also not needed for the same reason. LGE thinks this impacts source MAC entity even when not configured with DAPS HO. vivo thinks source MAC doesn’t know about target MAC – there’s no coordination.

- Intel thinks that LGE’s point is that MAC would have to indicate something to the upper layers regardless of DAPS HO. So the change is needed. CATT agrees.

- vivo thinks it was commentecd that the terminology was considered not clear earlier, but should be consistent.

* Intent of the first change is correct. Exact text can be discussed.
* Second change is clarification but its intent is correct.

**Agreements**

1 Consider whether “target MAC entity” is a good way to indicate and use it consistently.

2 Discuss in the MAC CR email discussion [213] how to capture this.

# 7 Rel-16 LTE Work Items

Documents in these agenda items will be handled in break out sessions

## 7.0 LTE Rel-16 General

### 7.0.1 ASN.1 review

Including documents related to LTE ASN.1 review.

Including outcome of [Post109bis-e][932][LTE/NR/ASN.1] Resolution to review issues S003, S005, B002, S046 (Samsung/Ericsson)

A web conference may be used for handling some of the discussions in this agenda item.

By Email

Offline email discussion [206] scope:

* [AT110-e][206][LTE ASN1] LTE general ASN.1 discussion (Samsung)

Scope:

* + - Flag issues to be discussed online (including specifics of each issue)

Intended outcome:

* + - Discussion summary (including list of flagged topics and proposed resolutions) in [R2-2005752](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005752.zip) (by email rapporteur).

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Wednesday 2020-06-03 11:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005752](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005752.zip)): Thursday 2020-06-04 11:00 UTC
    - Deadline for CR finalization: Tuesday 2020-06-19 11:00 UTC
    - Whether to continue the discussion after this TBD during Thursday 2020-06-04 online session

By Web Conf (Thursday June 4th, Tuesday June 9th)

Flagged issues as per [206]:

[R2-2005752](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005752.zip) [AT110-e][206][LTE ASN1] R16 LTE RRC coordination (Samsung) Samsung Telecommunications discussion Rel-16 Late

Critical extension of FailureInformation message & associated general principles (S004)

Proposal Conclusion 1:

• Do not introduce general requirements concerning ASN.1 comprehension for network but decide on a case by case basis

• Create a regular critical extension of the FailureInformation message i.e. re-use the existing name and ASN.1 section

• Endorse the related parts of [R2-2005282](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005282.zip) with the following changes

o Do not introduce changes to Annex F

o Add the following note

NOTE: The UE may apply the FailureInformation-r16 message to report a failure defined in REL-15, but only if it is configured with a feature incorporating a failure that can only be reported by the FailureInformation-r16 message

**Agreements**

1 Do not introduce general requirements concerning ASN.1 comprehension for network but decide on a case by case basis

2 Create a regular critical extension of the FailureInformation message i.e. re-use the existing name and ASN.1 section

3 Endorse the related parts of [R2-2005282](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005282.zip) with the following changes:

3a) Do not introduce changes to Annex F

3b) Add the following note: “NOTE: The UE may apply the FailureInformation-r16 message to report a failure defined in REL-15, but only if it is configured with a feature incorporating a failure that can only be reported by the FailureInformation-r16 message”

Avoiding critical extension for ULInformationTransfer (S006)

Proposal Conclusion 2:

• Given the limited input, some discussion seems required to take a final decision. I.e. to chose between:

o Option A: Change to using a non-critical extension approach, as reflected by the TP in [R2-2005282](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005282.zip)

o Option B: Continue using the critical extension approach and clarify when UE is allowed to use the R16 message version for signalling legacy fields by adding the following note:

NOTE: The UE may apply the ULInformationTransfer-r16 message to transfer pre-REL-16 information, but only if it is configured to report F1AP information (i.e. configured with a feature involving transfer of information that can only be carried by the ULInformationTransfer-r16 message)

Discussion

- Ericsson would prefer to stick to existing version. Chair wonders if F1AP and NAS information need to be sent together. Samsung is not sure this can happen.

- Ericsson thinks “pre-Rel-16 information” may not be accurate. Huawei wonders if only IAB-DU and IAB-Donor are involved, so nothing is required from UE.

**Agreements**

4 Continue using the critical extension approach and clarify when UE is allowed to use the R16 message version for signalling legacy fields. Can discuss wording of note offline in [206] continuation.

Handling of spares as per [R2-2005996](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005996.zip)

Proposal Conclusion 4:

• Keep the spares defined for establishmentCause in RRCConnectionRequest-5GC-NB

Discussion

- QC thinks this applies also to non-5GC cases. Lenovo thinks we agreed that we normally avoid spares in UL messages. Need to have specified behaviour for handling received UL spare values. QC clarifies there is specified behaviour for E-UTRAN to not reject the connection due to unknown values for establishmentCause.

- Samsung wonders if we need to mention the UL spare handling in agreement.

**Agreements**

5 Keep the spares as defined for establishmentCause in current RRC version where we have defined behaviour for E-UTRAN on handling unknown values.

Encoding of 5G indicator (S191)

Proposal Conclusion 6:

• Revise the CR to avoid per PLMN information for the case of no sharing or if the same EN-DC bands apply for all PLMNs by adopting 0 as lower bound for the list size

• Do not adopt the alternative signalling structure as proposed in [R2-2005292](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005292.zip)

Agreements

6 Revise the CR to avoid per PLMN information for the case of no sharing or if the same EN-DC bands apply for all PLMNs by adopting 0 as lower bound for the list size

7 Do not adopt the alternative signalling structure as proposed in [R2-2005292](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005292.zip)

Approach for extension of failure types introduced in R16

Proposal Conclusion 3:

• As the views have not really converged some further discussion seems required to conclude

• There seem to be two primary options to chose between:

• Option 1:

o Introduce a value other/ unspecified within the legacy field

o Use spares if defined and undefined code point otherwise

o Include all new R16 values in an –v16xy extension

o When signalling the –v16xy extension, the UE will set the legacy field to other/ unspecified

• Option 2:

o Do no introduce a value other/ unspecified

o Use the legacy field to add new R16 values, as long as spares or undefined code points are available

• The main advantage of option 1 is that it enables networks to configure an R16 features even if MN may not comprehend the extension, as long as it is upgraded to comprehend value other/ unspecified. I.e. it allows some additional network flexibility, but implies that any spares available in the legacy field may not be used

Discussion

- QC thinks option 2 doesn’t solve the problem. Lenovo thinks option 2 is enough as all nodes would support this but is fine with option 1 if network vendors require it. Not sure if all features require the flexibility from network. Samsung thinks the main case is for DC when the flexibility is useful. CATT supports option 1 due to the network flexibility for Rel-16 features. Ericsson also thinks option 1 is better. Samsung is fine with option 1 if necessary but this will require using undefined codepoints for the “other”. Network needs to allow this for any of the features.

- Lenovo wonders if this will also apply for NR. Ericsson thinks this is for both LTE and NR.

- Chair wonders if we will leave spares unused. Ericsson thinks this applies case-by-base – if legacy field is optional, we can still fill in the spare values. QC wonders if this can really apply to NR.

**Agreements (for LTE and NR)**

8 For extension of failure types (which have mandatory R15 field) introduced in R16:

- Introduce a value other/ unspecified within the legacy field; Use spares if defined and undefined code point otherwise

- Include all new R16 values in an –v16xy extension

- When signalling the –v16xy extension, the UE will set the legacy field to other/ unspecified

**Agreements**

9 Merge the CR in [R2-2005292](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005292.zip) with the changes suggested by Lenovo to the [R2-2005768](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005768.zip) (done under [206])

**Agreements**

10 B100: In addition, add the R16 extensions to the paging record (accessType, mt-EDT) by a parallel list (include in ASN1 review CR)

11 Capture the same additional change in NB-IoT CR

* Inform the decision to eMTC session.

Discussion

- QC indicates this was a late comment in NB-IoT session but is fine with the approach. Should we include this in eMTC or ASN.1 CR? Huawei indicates this can be done also to the NB-IoT CR.

- (June 9th) Samsung points out that we haven’t decided on S044 (extending the number of measurement objects), e.g. due to V2X, CLI work.

- (June 9th) Qualcomm points that early implementable field (issue Q605, WUS configuration) is not resolved. This is about Rel-16 eMTC feature that could be early-implemented. Does this need a separate extension only for this or do we keep it in the Rel-16 general extension? Huawei thinks we should have just one field since that’s cleaner and similar to 5G indicator between early, SA and late drops. Qualcomm thinks both ways are fine – this is for SIB2 so there is no capability anyway. Samsung thinks we have rarely done additional EAG for early-implementable features only. We have used first extensions for early implementation before. Wonders if this creates a general principle that we do this when possible. Huawei thinks we try to isolate early implementable features but both ways work. Ericsson would like a generic solution rather than exception. Huawei thinks we haven’t allowed early implementation of a single building block of a WI. This is handled in Offline 401. Samsung thinks we removed some EAGs to reduce overhead.

**Agreements**

12 Change S044 to ConcNoAction (i.e. no change for now, can be done later on if needed).

13 Change Q605 (related to offline 401) ConcAgree (i.e. keep the field within the existing group and clarify that UE doing early implementation is only required to comprehend the single field).

ASN.1 review file, RIL and class0/1 issues:

[R2-2005284](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005284.zip) ASN.1 Review file (LTE, Word) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 TEI16 [R2-2003234](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003234.zip) Late

* This document is endorsed and the generic ASN.1 impacts according to the issue resolutions will be captured in [R2-2005768](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005768.zip). Impacts affecting other CRs (e.g. eMTC, NB-IoT) will be captured in the corresponding CRs.
* Update newly found issues from other LTE sessions in the file (by each WI RRC CR rapporteur) as part of [206]
* Update to capture the progress on the issues so far in this meeting in [R2-2005770](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005770.zip)

[R2-2005770](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005770.zip) ASN.1 Review file (LTE, Word) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 TEI16 [R2-2005284](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005284.zip) Late

* Continue discussion under [206]

[R2-2005285](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005285.zip) ASN.1 Review RIL (LTE, Excel) Samsung Telecommunications report Rel-16 TEI16 [R2-2003827](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003827.zip) Late

* This document is endorsed and the generic ASN.1 impacts according to the issue resolutions will be captured in [R2-2005768](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005768.zip). Impacts affecting other CRs (e.g. eMTC, NB-IoT) will be captured in the corresponding CRs.
* Update to reflect updated [R2-2005770](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005770.zip) in [R2-2005771](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005771.zip)

[R2-2005771](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005771.zip) ASN.1 Review RIL (LTE, Excel) Samsung Telecommunications report Rel-16 TEI16 [R2-2005285](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005285.zip) Late

* Continue discussion under [206]

[R2-2005286](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005286.zip) LTE Rel-16 ASN.1 Review, Class 0 and Class 1 issues Samsung Telecommunications report Rel-16 TEI16 [R2-2003235](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003235.zip) Late

- Huawei thinks there is an error between use of NB-IoT vs. eMTC in issue 23.

- QC thinks issue 91 (and possibly 92) are not captured and should be.

* Correct issue 23 to be captured in NB-IoT CR (CR4287)
* Capture issue 91 in the CR
* Provide revised version according to above in [R2-2005782](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005782.zip) (Draft version can be found in <ftp://ftp.3gpp.org/Email_Discussions/RAN2/%5BMisc%5D/ASN1%20review/Rel-16%202020-06%20Phase%202/36331/Class0Class1%20issues/>)

[R2-2005782](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005782.zip)   LTE Rel-16 ASN.1 Review, Class 0 and Class 1 issues    Samsung Telecommunications  report   Rel-16   TEI16   [R2-2005286](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005286.zip)      Late

* This document is endorsed and the generic ASN.1 impacts according to the issue resolutions will be captured in [R2-2005768](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005768.zip). Impacts affecting other CRs (e.g. eMTC, NB-IoT) will be captured in the corresponding CRs.

Generic ASN.1 aspects:

[R2-2005287](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005287.zip) General changes resulting from ASN.1 review for LTE RRC REL-16 Samsung Telecommunications CR Rel-16 36.331 16.0.0 4315 - F TEI16 Late

- Qualcomm has some comments on this CR on missing changes to changes to wrong places.

* Continue discussion under [206]
* Revised in [R2-2005768](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005768.zip)

[R2-2005768](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005768.zip) General changes resulting from ASN.1 review for LTE RRC REL-16 Samsung Telecommunications CR Rel-16 36.331 16.0.0 4315 1 F TEI16 Late

- Samsung clarifies all of the changes so far (June 9th) have been incorporated in this

- Qualcomm wonders if we need more revisions for this in this meeting? Samsung thinks at least MCG failure handling needs to be discussed which might require additional changes

* Endorsed
* Additional changes can be incorporated in [R2-2005783](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005783.zip)

[R2-2005783](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005783.zip) General changes resulting from ASN.1 review for LTE RRC REL-16 Samsung Telecommunications CR Rel-16 36.331 16.0.0 4315 2 F TEI16 Late

* Endorsed via email [206]

[R2-2005292](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005292.zip) Adding guidelines for SetupRelease paramterised type (S008) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 TEI16 Late

* Included in [R2-2005768](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005768.zip)

[R2-2005281](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005281.zip) General ASN.1 issues for 36.331 Rel-16 (S004, S006, B102, Q604, B103, X002) Samsung Telecommunications discussion Rel-16 TEI16 [R2-2003231](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003231.zip) Late

* Revised in [R2-2005996](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005996.zip)

[R2-2005996](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005996.zip) General ASN.1 issues for 36.331 Rel-16 (S004, S006, B102, Q604, B103, X002) Samsung Telecommunications discussion Rel-16 TEI16 Late

*Proposal 1 Agree the general principle that, when network supports a critical extension for an UL DCCH message/ IE for one feature, it should also support for this critical extension receipt of legacy values of another feature it supports (i.e. impose additional requirements on network, alike imposed on UE for early implementation)*

*Proposal 2 Create a regular critical extension of the FailureInformation message i.e. re-use the existing name and ASN.1 section*

*Proposal 3 Decide which solution to apply for each failure type introduced in R16. I.e. RAN2 is requested to discuss and conclude whether*

* *If, regardless whether suitalble legacy values exist, it is anyhow fine to use OAM to avoid avoid a legacy node acting as MN receives value an unsupported extension*
* *If so (i.e. solution 1a/ 3 for all)*
  + *While available, use an undefined code points for the R16 extensions (solution 1a)*
  + *Otherwise: use –v16xy and state that network only considers –v16xy i.e. ignores legacy field (solution 3)*
* *If not (i.e. decide per case):*
  + *If a suitable legacy value exist for a case: use–v16xy and specify for each case the value to be set in legacy field (solution 1b)*
  + *Else: solution 1a/ 3 (see previous bullet)*

[R2-2005282](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005282.zip) TP for general ASN.1 issues for 36.331 REL-16 (General ASN.1 issues for 36.331 Rel-16 (S004, S006, B102, Q604, B103, X002) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 TEI16 Late

* Revised in [R2-2005766](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005766.zip)

[R2-2005766](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005766.zip) TP for general ASN.1 issues for 36.331 REL-16 (General ASN.1 issues for 36.331 Rel-16 (S004, S006, B102, Q604, B103, X002) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 TEI16 Late

- Ericsson comments T310 timer is used twice, one should be T312 instead?

- Samsung indicates that the issue on MCG failure information *failureType* still needs discussion: Do we follow the SCG failure information, or make the *failureType* optional?

- Ericsson thinks we should make failureType optional to avoid issues with size increase. Samsung has not strong view, could make the field optional. Lenovo thinks in NR RRC the field is mandatory so we should align.

- Qualcomm wonders if we want all the WI-specific CRs to adopt the “set the failureType to other” or does one CR do it for all. Ericsson thinks this is different for LTE and NR. Samsung clarifies this is included in the LTE common CR.

* Correct one instance t310-Expiry to t312-Expiry in FailureReportMCG
* Make the failureType in FailureReportMCG optional and remove the codepoint “other”. Capture this in the ASN.1 CR for LTE. LTE session thinks the same change should be done also NR RRC (to be indicated to the NR RRC discussion).
* With these changes, the TP is endorsed in [R2-2005780](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005780.zip)

[R2-2005780](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005780.zip) TP for general ASN.1 issues for 36.331 REL-16 (General ASN.1 issues for 36.331 Rel-16 (S004, S006, B102, Q604, B103, X002) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 TEI16 Late

* Endorsed via email [206]
* Should be incorporated in the WI-specific CRs and the generic changes should be incorporated into [R2-2005783](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005783.zip)

Outcome of Email discussion [Post109bis-e][932][LTE/NR/ASN.1] Resolution of review issues S003, S005, B002, S046 (Samsung/Ericsson)):

[R2-2005288](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005288.zip) Report of [Post109bis-e][932][LTE/NR/ASN.1] Resolution of review issues S003, S005, B002, S046 (Samsung/Ericsson)) Samsung Telecommunications report Rel-16 5G\_V2X\_NRSL-Core Late

***Proposal 1: RAN2 is requested to agree the following approach:***

* + *UL DCCH: one LTE message/ procedure for transfer of NR UL DCCH messages. The procedural handling is completely re-using what is already specified in NR. Statements will be added to indicate that network only includes particular NR SL related info. The same applies for the reverse direction*
  + *DL DCCH: NR information is added to the concerned LTE procedure (Reconfiguration), by an octet string carrying the particular NR message (Reconfiguration). The procedural handling is completely re-using what is already specified in NR. Statements will be added to indicate that network only includes particular NR SL related info. The same applies for the reverse direction*

***Proposal 2: RAN2 is requested to endorse the text proposals as reflected in the following draft CRs:***

* + [*R2-2005178*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005178.zip) *CR to NR RRC on Correction on crossRAT signalling for NR V2X (Ericsson)*
  + [*R2-2005289*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005289.zip) *CR to LTE RRC on V2X IRAT signalling (resolution of S003, S005, B002, S046) (Samsung)*

*Summary of concerns that were expressed with option 1:*

*         For UL DCCH information, option 1 seems inconsistent i.e. sometimes using the concerned LTE procedure (CBR measurements) and otherwise using a new procedure (UE Assistance Information, Sidelink UE information)*

*         Why introduce specific procedures in LTE even if there is no specific procedural handling specified in LTE (UE Assistance Information, Sidelink UE information)*

*         Is the approach really future proof i.e. does it mean that we will end up introducing a new LTE message/ procedure for any further case we may come across, although all could simply be covered by a single procedure (as shown in option 3)*

*         For DL DCCH information, why use LTE encoding/ carry specific NR IEs. I.e. it seems much better/ more future proof to carry NR messages. I.e. this avoids problems when small extensions are added in future. I.e. when referring to NR messages such extensions would not require any LTE changes*

*Summary of concerns concerns were raised regarding option 2/ 3:*

*         Some companies indicated that use of embedding is strange/ may introduce problems. Why so i.e. we use this approach all from the start of NR e.g. with EN-DC*

*         Some companies indicated there may be problems related to triggering. Why so i.e. we use this approach all from the start of NR e.g. with transfer of Reconfiguration and Measurements*

*         Some companies indicate that in implementation it is the LTE RRC module that produces/ receives the NR encoded information. To me this seems merely an implementation matter that we don’t need to worry about. I.e. we merely need to focus on the specification aspects*

Discsu

[R2-2005289](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005289.zip) V2X IRAT signalling (resolution of S003, S005, B002, S046) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 5G\_V2X\_NRSL-Core Late

- Huawei wonders what change is to be done to this? Samsung clarifies that one sentence in 5.3.3.2 (“- receiving NR RRCReconfiguration message that includes an embedded RRCConnectionReconfiguration message; ”) will be removed

* Agree to go according to the intent of this CR
* To be discussed with V2X chair how/whether to merge this to existing V2X CR (or somewhere else, e.g. ASN.1 CR)
* LTE ASN.1 session view is that this could be merged to the V2X LTE RRC CR
* Revised in [R2-2005767](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005767.zip)

[R2-2005767](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005767.zip) V2X IRAT signalling (resolution of S003, S005, B002, S046) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 5G\_V2X\_NRSL-Core Late

* Endorsed
* To be captured in the V2X CR. This shall not cause any changes to the existing V2X agreements and intent is only to merge the changes from this draft CR. The CR content shall not be rediscussed in V2X session.

[R2-2005178](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005178.zip) [Post109bis-e][932][LTE-NR-ASN.1] Correction on crossRAT signalling for NR V2X Ericsson CR Rel-16 38.331 16.0.0 1658 - F 5G\_V2X\_NRSL-Core Late

- Ericsson thinks one RAN1 parameter was erroneously deleted and needs to be added again

* Agree to go according to the intent of this CR
* To be discussed with V2X chair how/whether to merge this to existing V2X CR (or somewhere else, e.g. ASN.1 CR)
* LTE ASN.1 session view is that this could be merged to the V2X NR RRC CR
* Revised in [R2-2005769](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005769.zip)

[R2-2005769](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005769.zip) [Post109bis-e][932][LTE-NR-ASN.1] Correction on crossRAT signalling for NR V2X Ericsson CR Rel-16 38.331 16.0.0 1658 1 F 5G\_V2X\_NRSL-Core Late

- Huawei wonders if the only change was to add one parameter back. Ericsson confirms.

* Endorsed
* To be captured in the V2X CR. This shall not cause any changes to the existing V2X agreements and intent is only to merge the changes from this draft CR. The CR content shall not be rediscussed in V2X session.

Specific issue resolutions:

[R2-2004626](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004626.zip) [Q502] [Z302] Merging issues in TS 36.331 subclause 5.3.3.4a Qualcomm Incorporated discussion

**Agreements**

1. Update status of Z302 to ConcNoAct.

2. Update status of Q502 to ConcAgree WI-CR.

3. Adopt the changes shown in section 2.2 to DCCA WI-CR to TS 36.331.

[R2-2005290](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005290.zip) Encoding of 5G indicator (S191) Samsung Telecommunications draftCR Rel-16 36.331 16.0.0 TEI16

*(moved from 7.6.1)*

* To be discussed together with the other 5G indicator contributions under 6.20.1
* LTE ASN.1 specific topics discussed under [206]

### 7.0.2 Features and UE capabilities

Including documents related to LTE UE capabilities based on RAN1/4 input. WI-specific capability contributions should be submitted to the individual WI agenda items.

A web conference may be used for handling some of the discussions in this agenda item.

By Web Conf (Thursday June 4th if needed)

[R2-2004357](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004357.zip) LS on updated Rel-16 RAN1 UE features lists for LTE (R1-2003070;; contact: NTT DOCOMO, AT&T) RAN1 LS in Rel-16 LTE\_eMTC5-Core, NB\_IOTenh3-Core, LTE\_DL\_MIMO\_EE-Core, LTE\_terr\_bcast-Core, 5G\_V2X\_NRSL-Core, TEI16 To:RAN2 Cc:RAN4

* Rapporteur of each WI is expected to provide per-WI CR for capturing capabilities (if not done yet)
* Noted

[R2-2004362](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004362.zip) LS on Rel-16 RAN4 UE features lists for LTE and NR (R4-2005192; contact: NTT DOCOMO) RAN4 LS in Rel-16 To:RAN2 Cc:RAN1

* Rapporteur of each WI is expected to provide per-WI CR for capturing capabilities (if not done yet)
* Noted

By Web Conf (Tuesday June 9th if needed)

[R2-2006096](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2006096.zip) LS on updated Rel-16 RAN1 UE features lists for LTE (R1-2004967; contact: NTT DOCOMO, AT&T) 7.0.2 LTE\_eMTC5-Core, NB\_IOTenh3-Core, LTE\_DL\_MIMO\_EE-Core, LTE\_terr\_bcast-Core, 5G\_V2X\_NRSL-Core, TEI-16

* Late LS
* Rapporteur of each WI is expected to provide per-WI CR for capturing capabilities (if not done yet)
* Noted

## 7.3 Even further mobility enhancement in E-UTRAN

(LTE\_feMob-Core; leading WG: RAN2; REL-16; started: Jun 18; target; Mar 20; WID: RP-190921)

No documents should be submitted to 7.3. Documents under 7.3 will be treated together with documents in 6.9.

A web conference may be used for handling some of the discussions in this WI, and summary document may be provided for some agenda items under 7.3.

### 7.3.1 Organizational

Including incoming LSs and rapporteur inputs (if any).

Including outcome of [Post109bis-e][928][LTE MOB] Stage-2 CR (China Telecom)

By Web Conf (Tuesday June 2nd)

Outcome of [Post109bis-e][928][LTE MOB] Stage-2 CR (China Telecom):

[R2-2005214](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005214.zip) Corrections to even further mobility enhancement in E-UTRAN China Telecommunications CR Rel-16 36.300 16.1.0 1284 - F LTE\_feMob-Core

* Email discussion [928] outcome

**Discussion**

- Samsung wonders what non-DAPS DRB means. Is PDCP re-establishment only triggered upon RA completion at target?

- Intel clarifies that DRB not configured with DAPS is non-DAPS DRB. **No** PDCP re-establishment triggering upon RA completion was agreed last time.

- Samsung clarifies that “Upon successful DAPS handover, UE establishes target cell non-DAPS DRB by re-establishing PDCP and RLC entities.” could be interpreted wrong as DAPS handover completion occurs after RA completion. vivo clarifies for non-DAPS DRBs, legacy behaviour is followed so re-establishment occurs at HO command reception.

- Ericsson thinks “UE fallbacks” could be “UE falls back”.

* Some updates needed, go for offline discussion
* Check if the same issue(s) exists for NR CR
* [AT110-e][216][LTE] LTE Stage-2 updates (China Telecom)

Scope:

* + - Correct Stage-2 text to be according to agreements. Improvements over parts discussed online should also be considered.

Intended outcome:

* + - Agreed CR to 36.300 CR in [R2-2005756](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005756.zip) for LTE UE capability signalling

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC

By Email

[R2-2005756](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005756.zip) Corrections to even further mobility enhancement in E-UTRAN China Telecommunications CR Rel-16 36.300 16.1.0 1284 1 F LTE\_feMob-Core [R2-2005214](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005214.zip) Late

By Email

Offline email discussion [21] scope:

* [AT110-e][211][LTE MOB] RRC CR (Ericsson)

Scope:

* + - LTE RRC CR capturing LTE DAPS, LTE CHO and NR CPC changes agreed in this meeting

Intended outcome:

* + - Agreed 36.331 CR for LTE and NR mobility in [R2-2005757](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005757.zip)

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC

[R2-2005757](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005757.zip) Corrections to Rel-16 LTE mobility enhancement Ericsson Corporation CR Rel-16 38.331 16.0.0 4290 2 F LTE\_feMob-Core

### 7.3.2 Reduction in user data interruption during DAPS handover

This AI jointly addresses corrections to NR and LTE DAPS.

Including corrections to control and user plane for DAPS HO. All RRC-related corrections to DAPS should be submitted to ASN.1 review agenda items in 6.9.5 (NR RRC) and 7.3.4 (LTE RRC).

Tdoc Limitation per company: 2 tdocs

By Web Conf (Tuesday June 2nd)

MAC CRs:

[R2-2004644](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004644.zip) CR on 36.321 for LTE feMob vivo CR Rel-16 36.321 16.0.0 1474 - B LTE\_feMob-Core

[R2-2004645](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004645.zip) CR on 38.321 for NR mobility enhancement vivo CR Rel-16 38.321 16.0.0 0744 - B NR\_Mob\_enh-Core

* Email discussion [AT109bis-e][214] outcome from last meeting

PDCP CRs:

[R2-2005058](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005058.zip) CR on 38.323 for NR mobility enhancement Huawei, HiSilicon, Mediatek Inc., LG Electronics CR Rel-16 38.323 16.0.0 0045 2 C LTE\_feMob-Core [R2-2003853](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003853.zip)

[R2-2005059](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005059.zip) CR on 36.323 for LTE feMob Huawei, HiSilicon, Mediatek Inc., LG Electronics CR Rel-16 36.323 16.0.0 0282 2 C LTE\_feMob-Core [R2-2003854](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003854.zip)

* Email discussion [AT109bis-e][213] outcome from last meeting

By Email

Offline email discussion [212] and [213] scopes:

* [AT110-e][212][MOB] PDCP CRs for LTE and NR (Huawei)

Scope:

* + - PDCP CRs for LTE and NR DAPS corrections agreed in this meeting

Intended outcome:

* + - Agreed CR to 38.323 CR in [R2-2005758](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005758.zip) for NR PDCP changes agreed in this meeting
    - Agreed CR to 36.323 in [R2-2005759](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005759.zip) for LTE PDCP changes agreed in this meeting

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC

PDCP CRs:

[R2-2005758](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005758.zip) CR on 38.323 for NR mobility enhancement Huawei, HiSilicon, Mediatek Inc., LG Electronics CR Rel-16 38.323 16.0.0 0045 3 C LTE\_feMob-Core [R2-2003853](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003853.zip)

[R2-2005759](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005759.zip) CR on 36.323 for LTE feMob Huawei, HiSilicon, Mediatek Inc., LG Electronics CR Rel-16 36.323 16.0.0 0282 3 C LTE\_feMob-Core [R2-2003854](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003854.zip)

* [AT110-e][213][MOB] MAC CRs for LTE and NR (vivo)

Scope:

* + - MAC CRs for LTE and NR DAPS corrections agreed in this meeting

Intended outcome:

* + - Agreed CR to 38.321 CR in [R2-2005760](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005760.zip) for NR MAC changes agreed in this meeting
    - Agreed CR to 36.321 in [R2-2005761](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005761.zip) for LTE MAC changes agreed in this meeting

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC

MAC CRs:

[R2-2005760](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005760.zip) CR on 36.321 for LTE feMob vivo CR Rel-16 36.321 16.0.0 1474 1 B LTE\_feMob-Core [R2-2004644](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004644.zip) Late

[R2-2005761](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005761.zip) CR on 38.321 for NR mobility enhancement vivo CR Rel-16 38.321 16.0.0 0744 1 B NR\_Mob\_enh-Core [R2-2004645](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004645.zip) Late

By Web Conf (Wed, June 3rd)

UE actions upon DAPS failure and other cases

[R2-2004699](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004699.zip) Open issues for control plane aspects of DAPS handover Ericsson discussion Rel-16 LTE\_feMob-Core

*Proposal 1 At DAPS handover failure, upon fallback to source cell, for each SRB, the UE discards any PDCP SDUs along with the PDCP data PDUs.*

*Proposal 2 At DAPS handover failure, upon fallback to source cell the UE performs RLC re-establishment for each SRB.*

*Proposal 3 If the UE receives MobilityFromEUTRACommand (LTE) or MobilityFromNRCommand (NR) after a DAPS handover but before the UE has released the source cell connection, the UE behaviour can be left unspecified.*

*Proposal 4 Add a note in the inter-RAT handover procedure to say that the UE behaviour is unspecified in this case.*

*Proposal 5 When UE enters RRC\_INACTIVE, it releases the previous source cell resources, when applicable.*

*Proposal 6 When UE triggers RRC connection re-establishment, it releases the previous source cell resources, when applicable.*

P1+2

- MediaTek supports both proposals. These are just clarifications how we have already agreed. Intel agrees. Samsung agrees but thinks all buffer data will be discarded. SDU discarding is not needed. vivo thinks we can just use PDCP re-establishment.

- OPPO thinks PDCP re-establishment will reset the COUNT value and could cause COUNT reuse. We can just discard the PDUs and SDUs. QC agrees.

- For P2, LGE thinks RLC re-establishment is not needed as network knows which RLC PDUs are outdated.

- Intel wonders what additional changes P1 would bring to RRC? Ericsson thinks some indication to trigger is sufficient. Intel clarifies that PDCP handles the discard based on RRC indication. OPPO thinks the indication also discards SDUs.

P3+4

- Intel thinks we agreed last time that this can’t happen for intra-RAT handover, so same could be done for inter-RAT. Huawei agrees. Nokia agrees. OPPO agrees.

- Ericsson clarifies this was the intention. Intel clarifies that we already capture something on this on intra-RAT handover.

P5+6

- OPPO thinks similar treatment as in P3 can apply. Intel thinks P6 is not yet agreed.

- Nokia wonders if there is no new behaviour. Ericsson thinks it’s not yet captured.

**Agreements**

1 At DAPS handover failure, upon fallback to source cell, for each SRB, the UE discards any PDCP SDUs along with the PDCP data PDUs.

2 At DAPS handover failure, upon fallback to source cell the UE performs RLC re-establishment for each SRB.

3 Inter-RAT handover during DAPS handover before release of source cell is not allowed in Rel-16.

4 Releasing UE to INACTIVE via RRCRelease during DAPS handover before release of source cell is not allowed in Rel-16.

5 When UE triggers RRC connection re-establishment, it releases the previous source cell resources, when applicable.

[R2-2004896](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004896.zip) Discussion on old stored RRC message handling upon DAPS HO failure OPPO discussion Rel-16 NR\_Mob\_enh-Core

[R2-2005513](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005513.zip) Remaining issues on fallback from DAPS handover failure SHARP Corporation discussion Rel-16 LTE\_feMob-Core

[R2-2005060](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005060.zip) Discussion on DAPS CP remaining issue Huawei, HiSilicon discussion Rel-16 LTE\_feMob-Core

PDCP/RLC re-establishment for source cell SRBs:

[R2-2004648](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004648.zip) Handling of the source SRB at DAPS failure vivo discussion Rel-16 LTE\_feMob-Core

[R2-2005497](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005497.zip) Handling of RLC for SRBs LG Electronics Inc. discussion NR\_Mob\_enh-Core, LTE\_feMob-Core

RoHC feedback for source cell:

[R2-2004697](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004697.zip) RoHC feedback to source cell after UL transmission switch Ericsson discussion Rel-16 LTE\_feMob-Core

*Proposal 1 Apply text proposal to TS 38.323 (as included in appendix) for transmission of RoHC feedback in the source cell. A similar change is also needed for TS 36.323.*

- Huawei thinks this is already captured in PDCP specifications so this is not needed. LGE agrees.

* Intent is agreeable, but is already captured in PDCP CR. Can discuss if something needs to be clarified further.

RoHC handling when security key doesn’t change during DAPS handover (related to [J033] discussed under 6.9.5):

[R2-2004878](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004878.zip) Compromised solutions for ROHC related security issue Samsung discussion LTE\_feMob-Core

*Proposal 1. The security key is always updated for Rel-16 DAPS handover.*

*Proposal 2. If Proposal 1 is not agreeable, the following compromised solution is considered:*

*- One common ROHC instance is used for the source and the target, based on an indicator.*

*- PDCP data recovery-like retransmission is performed based on an indicator upon uplink data switching.*

P1

- Ericsson thinks we shouldn’t force key change. QC agrees. Nokia agrees.

- LGE supports P1. Other options may take a long time. Huawei agrees since DAPS allows for 0ms interruption. OPPO supports this option. Intel thinks we only wanted to avoid delay in Rel-15.

P2

- Ericsson thinks this could be agreeable. Huawei thinks this would require third type of PDCP entity, which would require quite some effort. Nokia agrees.

- QC thinks this is typical intra-CU scenario and would like to support that. NEC supports this. CATT supports this as it improves performance.

- MediaTek agrees with Huawei and QC: While this is useful, it’s a big change.

**Agreements**

1 Do not specify any special handling for RoHC when security key is not updated in DAPS handover in Rel-16. (This means that changing security key ensures no problems occur, but it’s up to network implementation.) Add a NOTE to RRC/PDCP specification on this.

[R2-2004563](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004563.zip) ROHC Handling for DAPS Handover without Key Change MediaTek Inc. discussion

[R2-2004788](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004788.zip) Solutions for security issue in case of DAPS without key change NEC discussion Rel-16 LTE\_feMob-Core

[R2-2005500](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005500.zip) ROHC handling for DAPS HO without security key change LG Electronics Inc. discussion NR\_Mob\_enh-Core, LTE\_feMob-Core

[R2-2004916](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004916.zip) Discussion on ROHC handling in DAPS HO OPPO discussion Rel-16 LTE\_feMob-Core

[R2-2004947](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004947.zip) DAPS handover UP remaining key issues Qualcomm India Pvt Ltd discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

[R2-2004698](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004698.zip) RoHC handling during DAPS handover without key change Ericsson discussion Rel-16 NR\_Mob\_enh-Core [R2-2002589](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2002589.zip)

*(moved from 6.9.6)*

[R2-2005056](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005056.zip) Discussion on ROHC handling in DAPS HO without key change Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

*(moved from 6.9.6)*

IR context maintenaince in target cell:

[R2-2005057](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005057.zip) Discussion on transmitting ROHC IR packets in target during DAPS HO Huawei, HiSilicon, Vivo, Oppo, Apple, China Telecom, Samsung, LG Electronics, CATT, CMCC, Mediatek Inc., LG Uplus discussion Rel-16 LTE\_feMob-Core

*Observation 1: according to RAN3 BL CR, all downlink SDUs should be forwarded to target from source, and source can inform discarding of already successfully transmitted SDUs, which helps target to refresh storage buffer and determine which SDUs should be sent to UE.*

*Observation 2: RAN2 agree to introduce a PDCP status report for DAPS DRB, it can also help target determine the first SDU which should be sent to UE.*

*Observation 3: due to transmission delay of PDCP status report and continuous downlink transmission of data from source, the first several PDCP PDUs will be discarded, which means this duplicate discarding makes ROHC context totally missing in UE side.*

*Observation 4: for U-mode and O-mode ROHC compressor can enter into FO state from IR state without any ACK received, so specification intervention is still needed.*

*Observation 5: if all PDCP PDUs need to be decompressed before duplicate discarding, there should be three reordering functions in DAPS PDCP entity. It is too late to introduce this fundamental modification.*

*Observation 6: it depends on UE ROHC implementation whether and when to send a ROHC acknowledgement to target cell.*

*Observation 7: Even if this acknowledgement is received, we also need to specify a new ROHC compressor behavior, i.e. to allow compressor to operate in higher compression state only after compressor receives an acknowledgement from decompressor.*

*Proposal 1: RAN2 confirm to specify “For downlink, the ROHC protocol of the target cell maintains the IR state if operating in U-mode and O-mode during DAPS handover.”*

*Proposal 2: If companies don’t prefer to get specific ROHC mode involved, RAN2 to specify “For downlink, the ROHC protocol of the target cell maintains the IR state during DAPS handover.”*

[R2-2005161](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005161.zip) Target cell’s ROHC behaviour for DAPS handover Nokia, Nokia Shanghai Bell, Ericsson, Intel Corporation, NEC discussion Rel-16 LTE\_feMob-Core

*Observation 1: It is possible to minimise the ROHC failures by different network implementation options - including maintaining the IR state until source cell release after DAPS handover. Restricting network behaviour for specific implementation for this issue is not needed.*

*Proposal 1: For downlink, maintaining the header compression protocol IR state in U-mode and O-mode during DAPS handover is up to target cell. A corresponding note can be added to the specification (as shown in the Annex).*

- MediaTek wonders that if we don’t specify this, UE behaviour will be different depending on what target cell RoHC does, i.e. whether it maintains the IR state or not. Is this acceptable to networks? FutureWei thinks UE behaviour is clear: If the RoHC context is known, UE decompresses, otherwise there’s RoHC decompression error. Nokia agrees – network just doesn’t know whether UE has the RoHC context. Ericsson agrees and thinks we don’t specify network behaviour.

- QC thinks we need to specify network behaviour as UE will receive many duplicate packets. UE might lose RoHC context. Network should only send IR packets.

- Nokia thinks that inter-node messages may resolve the IR packets.

**Agreements**

1 For downlink, the ROHC protocol of the target cell should maintain the IR state if operating in U-mode and O-mode during DAPS handover. This can be captured in a NOTE in PDCP specification.

Miscellaneous:

[R2-2005448](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005448.zip) Discussion of remaining issues for DAPS HO CMCC discussion Rel-16 LTE\_feMob-Core

[R2-2004787](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004787.zip) Handling of expiry of DataInactivityTimer for DAPS NEC discussion Rel-16 LTE\_feMob-Core

~~By Email (After Wednesday June 4~~~~th~~~~)~~

~~Offline email discussion [208] scope:~~

* ~~[AT110-e][208][LTE/NR MOB] User plane issues for DAPS (NN)~~

~~Scope:~~

* + - ~~Discuss issues remaining after DAPS UP session (TBD if needed)~~

~~Intended outcome:~~

* + - ~~Discussion summary in~~ [~~R2-2005753~~](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005753.zip) ~~(by email rapporteur).~~

~~Deadline for providing comments and for rapporteur inputs:~~

* + - ~~TBD~~

[~~R2-2005753~~](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005753.zip) ~~Summary of discussion [208] on DAPS UP NN discussion Late~~

* Discussion is cancelled (not needed, no more known UP open issues)

### 7.3.3 UE capabilities for conditional handover and DAPS

Including UE capability aspects of LTE mobility WI. Any input on UE capabilities from RAN1/4 will be handled in this agenda item.

Including outcome of [Post109bis-e][931][LTE MOB] UE capabilities for NR mobility (China Telecom)

Tdoc Limitation per company: 1 tdoc.

By Web Conf (Wednesday June 3rd or Tuesday June 9th)

Outcome of [Post109bis-e][931][LTE MOB] UE capabilities for NR mobility (China Telecom):

[R2-2005216](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005216.zip) report of [Post109bis-e][931][LTE MOB] UE capabilities for NR mobility (China Telecom) China Telecommunications discussion Late

*Proposal 1: the conclusions on CHO in NR for the maximum candidate cells that the CHO capable UE must support and whether introducing additional capability on the support of 2 trigger events for same execution condition will be introduce into LTE.*

*Proposal 2: Not to introduce the UE power sharing and UL transmission cancellation capabilities for LTE in RAN2.*

*Proposal 3: Remove pdcch-BlindDetectionSource and pdcch-BlindDetectionTarget from RAN2 agreed capabilities.*

*Proposal 4: The following capabilities are introduced into LTE, which is aligned with NR,*

*-asyncDAPS-r16*

*-interFreqDAPS-r16*

*-interFreqDiffSCS-DAPS-r16*

*-singleUL-TransmissionDAPS-r16*

*-supportedNumberTAG-DAPS(it is not needed for interFreq since RAN2 agreed to “Reuse CA capability “supportedNumberTAG” for DAPS handover.)*

*-MultiUL-TransmissionDAPS*

*-syncDAPS.*

**Agreements (LTE)**

12a introduce separate capabilities for intraFreq and interFreq as below:

Per Band/per BC (for intraFreq capabilities), I.e. put under BandParameters-v16xy:

intraFreqAsyncDAPS-r16

intraFreqMultiUL-TransmissionDAPS-r16

Per BC (for interFreq capabilities), i.e. put under CA-ParametersNR-v16xy:

interFreqAsyncDAPS-r16

interFreqMultiUL-TransmissionDAPS-r16.

12b All UEs supporting DAPS support these capabilities (can discuss signalling details and naming):

SyncDAPS-r16

SingleUL-TransmissionDAPS-r16

intraFreqTwoTAGs-DAPS-r16 (with 2 TAGs)

(for interFreq since RAN2 agreed to “Reuse CA capability “supportedNumberTAG” for DAPS handover.)

10 Remove pdcch-BlindDetectionSource and pdcch-BlindDetectionTarget from RAN2 agreed capabilities.

11 Add syncDAPS and simultaneous UL transmission based on RAN4 latest capability table.

13 Introduce separate capabilities for intraFreq and interFreq for power sharing capabilities.

* Discuss further about P1 over email (discussion [215])
* Wait for RAN1 conclusion on *ul-TransCancellationDAPS*.

[R2-2005217](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005217.zip) UE Capability for Rel-16 LTE even further mobility enhancement China Telecommunications CR Rel-16 36.331 16.0.0 4306 - B LTE\_feMob-Core

[R2-2005218](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005218.zip) UE Capability for Rel-16 LTE even further mobility enhancement China Telecommunications CR Rel-16 36.306 16.0.0 1763 - B LTE\_feMob-Core

Remaining UE capability issues LTE:

[R2-2004691](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004691.zip) Open issues on UE capabilities at DAPS HO Ericsson discussion Rel-16 LTE\_feMob-Core

[R2-2005685](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005685.zip) Consideration on DAPS Capability LG Electronics Inc. discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core [R2-2002905](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2002905.zip)

[R2-2005063](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005063.zip) Discussion on UE capabilities for LTE DAPS Huawei, HiSilicon discussion Rel-16 LTE\_feMob-Core

*(moved from 7.3.4)*

By Email

Offline email discussion [215] scope:

* [AT110-e][215][MOB] UE capability CRs for LTE mobility (China Telecom)

Scope:

* + - 36.306 and 36.331 CRs for LTE capabilities based on agreements in this meeting

Intended outcome:

* + - Agreed CR to 36.331 CR in [R2-200576](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003853.zip)4 for LTE UE capability signalling
    - Agreed CR to 36.306 in [R2-200576](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003853.zip)5 for LTE capability descriptions

Deadlines for providing comments and for rapporteur inputs:

* + - Deadline for companies' feedback: Wednesday 2020-06-10 12:00 UTC
    - Deadline for rapporteur's version for agreement: Thursday 2020-06-11 10:00 UTC

[R2-200576](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003853.zip)4 UE Capability for Rel-16 LTE even further mobility enhancement China Telecommunications CR Rel-16 36.331 16.0.0 4306 1 B LTE\_feMob-Core

[R2-200576](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2003853.zip)5 UE Capability for Rel-16 LTE even further mobility enhancement China Telecommunications CR Rel-16 36.306 16.0.0 1763 1 B LTE\_feMob-Core

### 7.3.4 ASN.1 review of mobility WIs for LTE RRC

This agenda item focuses on LTE RRC aspects of both LTE and NR mobility WIs – NR RRC aspects of both LTE and NR mobility WIs should be submitted to 6.9.5. Do not submit contributions on WI-specific open issues that are not captured in the current LTE RRC to this agenda item.

All ASN.1 issues should be raised in RILs first – contributions where no RIL issue exists may not be treated.

Including contributions/TPs on RRC corrections based on review issues. For these, no individual company CRs should be submitted: please consult with the rapporteur of LTE RRC CR first (cecilia.eklof@ericsson.com).

By Web Conf (Wednesday June 10th)

[R2-2004621](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004621.zip) Updates for R16 LTE Mobility Enhancements and LTE updates for R16 NR Mobility Enhancements Ericsson CR Rel-16 36.331 16.0.0 4290 1 F LTE\_feMob-Core [R2-2003852](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003852.zip)

[R2-2004695](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004695.zip) [E928][I114] Condition for setting statusReportRequired for RLC UM Ericsson, Intel Corporation discussion LTE\_feMob-Core

*Observation 1 For RLC AM radio bearers the statusReportRequired field is configured at setup of the DRB (PDCP entity) and can then later be reconfigured if needed.*

*Observation 2 The statusReportRequired field is typically configured when the radio bearer is setup and then used at the related events.*

*Observation 3 For RLC UM radio bearers the statusReportRequired field can currently only be configured within the (DAPS) HO Command message.*

*Observation 4 The size of the HO Command message should be kept as small as possible to avoid negative impacts on HO success rate.*

*Based on the discussion in the previous sections we propose the following:*

*Proposal 1 The condition for inclusion of the statusReportRequired field for RLC-UM radio bearers should be changed so that it is not restricted to when the bearer is configured for DAPS. It should instead be restricted to when the UE supports DAPS.*

*Proposal 2 In 36.331, if the statusReportRequired field has not been configured for an RLC-UM radio bearer it should by default have the value FALSE. It should then be optional, need ON.*

*Proposal 3 In 36.331 the name of the struct “rlc-AM”, which includes the statusReportRequired field, should be changed to “rlc-AM-UM”.*

*Proposal 4 Include the Text Proposal in Annex A.1 to TS 38.331.*

*Proposal 5 Include the Text Proposal in Annex A.2 to TS 36.331.*

[R2-2005350](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005350.zip) [Z263] Discussion on UE configuration release in RRC re-establishment ZTE Corporation, Sanechips discussion Rel-16 LTE\_feMob-Core

*Observation 1: According to the current RRC CR, the UE shall perform MR-DC release and release some configured UE configuration (e.g. uplinkDataCompression, UE configuration included in RadioResourceConfigDedicated and UE configuration included in otherConfig except for delayBudgetReportingConfig and overheatingAssistanceConfig) upon initiation of RRC re-establishment, if the UE is not configured with conditionalReconfiguration.*

*Observation 2: In case the UE selects a CHO candidate cell whose matching configuration includes the SCG delta configuration, releasing the SCG configuration upon initiation of RRC re-establishment may cause the reconfiguration failure when applying the stored CHO configuration.*

*Observation 3: Similar to delayBudgetReportingConfig and overheatingAssistanceConfig, releasing UE configuration included in otherConfig, RadioResourceConfigDedicated, and uplinkDataCompression during the RRC re-establishment initiation phase may cause the mismatching of configuration between the UE side and the target side if the UE selects a CHO candidate cell.*

*Proposal 1: The UE does not perform MR-DC release and does not release UE configuration if the UE was configured with conditionalReconfiguration and the selected cell during re-establishment is a CHO candidate cell.*

*Proposal 2: Remove the description about release of UE configuration upon initiation of RRC re-establishment in section 5.3.7.2, and then capture the corresponding description in section 5.3.7.3 in case the selected cell is not a CHO candidate cell.*

### 7.3.5 Other

Only corrections not fitting other agenda items.

Including CHO aspects that are LTE-specific without equivalent NR impacts: Do not use this AI for any item that can be discussed jointly for LTE and NR - Contributions on conditional handover that apply for both LTE and NR are treated jointly in under 6.9.3.

Tdoc Limitation per company: 1 tdoc.

By Web Conf (Wednesday June 10th)

[R2-2004692](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004692.zip) Power coordination at DAPS HO in LTE Ericsson discussion Rel-16 LTE\_feMob-Core

*Observation 1 RAN1 are not working on DAPS HO for LTE in Rel-16. DAPS HO is thus not specified in TS 36.213.*

*Proposal 1 No power coordination information parameters should be specified for DAPS handover in 36.331 (in Rel-16).*

*Proposal 2 No capability for uplink power sharing at DAPS handover should be specified in 36.306 (in Rel-16).*

*Proposal 3 In case of overlapping UL transmissions at DAPS handover in LTE, the UE shall only transmit in the target cell.*

[R2-2005384](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005384.zip) Discussion on LTE specific CHO issues Huawei, HiSilicon discussion Rel-16 LTE\_feMob-Core

*Proposal: It is proposed to agree on the following clarification to TS 36.300 so that LTE CHO is not supported in LTE-5GC:*

*In the text and figure(s) in the following clauses (except for 10.1.2.1a), intra-E-UTRA HO description is applicable for both intra-EPC and intra-5GC cases.*

## 7.4 Further performance enhancement for LTE in high speed scenario

(LTE\_high\_speed\_enh2-Core; leading WG: RAN4; REL-16; started: Jun 18; target; Sep 19; WID: RP-181482)

Including documents related to WI-specific ASN.1 review issues.

A web conference may be used for handling some of the discussions in this agenda item.

## 7.5 Other LTE Rel-16 WIs

This agenda item is to be used for LSs and documents relating to Rel-16 LTE but for which there is no existing RAN WI/SI (e.g. LSs from CT/SA requesting RAN2 action) or for which there is no allocated RAN2 time.

A web conference may be used for handling some of the discussions in this WI.

### 7.5.0 In-principle Agreed CRs

### 7.5.1 Other

By Email

SA5 LSs for QMC:

[R2-2004381](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004381.zip) LS on Reply on QoE Measurement Collection (S5-202304; contact: Ericsson) SA5 LS in Rel-16 QOED To:SA4, CT1, RAN2, RAN3

*(moved from 7.5)*

[R2-2004382](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004382.zip) LS on Reply on QoE Measurement Collection (S5-202305; contact: Ericsson) SA5 LS in Rel-16 QOED To:RAN2, RAN3 Cc:CT1, SA4

*(moved from 7.5)*

* Handled in offline email discussion [204]
* Noted

Discussion on SA5 LSs on QMC

[R2-2004623](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004623.zip) Handling of incoming LS on QoE Measurement Collection Ericsson discussion TEI16

[R2-2005385](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005385.zip) Discussion on QMC regarding incoming SA5 LS Huawei, HiSilicon discussion Rel-16 LTE\_QMC\_Streaming-Core

*(moved from 7.6.1)*

* Handled in offline email discussion [204]
* Noted

Draft CR based on LSs:

[R2-2004624](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004624.zip) QoE Measurement Collection additions Ericsson CR Rel-16 36.331 16.0.0 4297 - C TEI16

* Handled in offline email discussion [204]
* Noted

Draft LS replies:

[R2-2004625](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004625.zip) Draft LS Reply on QoE Measurement Collection Ericsson LS out Rel-16 TEI16 To:SA5 Cc: RAN3, SA4, CT1

[R2-2005386](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005386.zip) Draft reply LS to [R2-2004381](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004381.zip) Huawei discussion Rel-16 LTE\_QMC\_Streaming-Core

*(moved from 7.6.1)*

[R2-2005387](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005387.zip) Draft reply LS to [R2-2004382](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004382.zip) Huawei discussion Rel-16 LTE\_QMC\_Streaming-Core

*(moved from 7.6.1)*

* Handled in offline email discussion [204]
* Noted

Offline email discussion [204] scope:

* [AT110-e#204][LTE] Handling of SA5 LS replies on QoE Measurement Collection (Ericsson)

Scope:

* + - Discuss the LS replies received from SA5 in [R2-2004381](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004381.zip) and [R2-2004382](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004382.zip)
    - Discuss the input documents in [R2-2004623](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004623.zip) and [R2-2005385](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005385.zip) to determine what RAN2 needs to do
    - Discuss whether to send reply LS to SA5 (CC: TBD) and, if agreeable, provide updated LS according to discussion in

Intended outcome:

* + - Discussion summary in [R2-200574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005741.zip)8 (by email rapporteur)
    - If agreeable, LS to RANx (exact groups TBD) informing on the outcome of RAN2 in [R2-200574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005742.zip)9

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): Thursday 2020-06-04 10:00 UTC
    - Initial deadline (for rapporteur's summary in [R2-2005748](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005748.zip)): Friday 2020-06-05 03:00 UTC

By Web Conf (Friday June 5th)

[R2-2005748](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005748.zip) Summary of discussion [204] on Handling of SA5 LS replies on QoE Measurement Collection (Ericsson) Ericsson discussion TEI16, LTE\_QMC\_Streaming-Core Late

-QC thinks we don’t need to say what we do in Rel-17. Nokia agrees as there are technical issues even in SA5. Ericsson thinks we should address the SA5 request. Nokia thinks NR SI covers QMC in Rel-17.

**Agreements**

1 Reply to SA5 in one LS, but address both incoming LS [R2-2004381](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004381.zip) and [R2-2004382](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004382.zip).

2 Reply to SA5 that there is not enough to implement the requested functionality in rel-16.

[R2-2005749](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005749.zip) Draft LS Reply on QoE Measurement Collection Ericsson LS out Rel-16 TEI16, LTE\_QMC\_Streaming-Core To:SA5 Cc: RAN3, SA4, CT1

* Remove “RAN2 may further discuss the requested functionality as part of the work item for QoE Measurement Collection for NR in rel-17.”
* Add RAN as Cc
* With these changes, the LS is agreed in [R2-2005778](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005778.zip)

[R2-2005778](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005778.zip) LS Reply on QoE Measurement Collection RAN2 LS out Rel-16 TEI16, LTE\_QMC\_Streaming-Core To:SA5 Cc: RAN3, SA4, CT1

* Agreed unseen

## 7.6 LTE TEI16 enhancements

Small Technical Enhancements to LTE. TEI should be predominantly within a single WG and fully completed within the same quarter in all affected WGs. RAN2 impact of RAN1/4-led TEI shall be limited to RRC signalling of configuration parameters and UE capabilities (no MAC impact, no RRC procedural impact, etc). Please also see RP-191602 endorsed at RAN#84.

Including documents related to TEI16 ASN.1 review issues.

New TEI16 proposals are discouraged and may be deprioritized in this meeting.

A web conference may be used for handling some of the discussions in this agenda item.

### 7.6.0 In-principle Agreed CRs

By Email

* The following were handled in offline email discussion [205]

[R2-2004818](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2004818.zip) CR on RLC out-of-order delivery configuration Samsung, LG Electronics Inc., Nokia, Nokia Shanghai Bell, Intel, Apple CR Rel-15 36.323 15.5.0 0283 1 F TEI15, LTE\_HRLLC-Core [R2-2003860](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003860.zip)

* Agreed

[R2-2004820](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004820.zip) CR on RLC out-of-order delivery configuration Samsung, LG Electronics Inc., Nokia, Nokia Shanghai Bell, Intel, Apple CR Rel-16 36.323 16.0.0 0284 1 A TEI16 [R2-2003861](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003861.zip)

* Agreed

[R2-2004826](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004826.zip) CR on RLC out-of-order delivery configuration Samsung, LG Electronics Inc., Nokia, Nokia Shanghai Bell, Intel, Apple CR Rel-15 36.331 15.9.0 4288 1 F TEI15, LTE\_HRLLC-Core [R2-2003862](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003862.zip)

* Agreed

[R2-2004827](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004827.zip) CR on RLC out-of-order delivery configuration Samsung, LG Electronics Inc., Nokia, Nokia Shanghai Bell, Intel, Apple CR Rel-16 36.331 16.0.0 4240 2 F TEI16 [R2-2003863](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003863.zip)

* Agreed

### 7.6.1 Other

By Email

Offline email discussion [205] scope:

* [AT110-e#205][LTE] LTE contributions in AIs 7.6, 7.8 and 7.9 (RAN2 VC)

Scope:

* + - Handle the contributions in AIs 7.6.0, 7.8 and 7.9

Intended outcome:

* + - Discussion summary in [R2-2005750](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005750.zip) (by email rapporteur)

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline for companies' feedback: Thursday 2020-06-04 10:00 UTC
    - Initial deadline for rapporteur's summary in [R2-2005750](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005750.zip): Friday 2020-06-05 03:00 UTC
    - Deadline for CR finalization: Wednesday 2020-06-10 07:00 UTC

By Web Conf (Friday June 5th)

[R2-2005750](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005750.zip) Summary of discussion [205] on LTE contributions in AIs 7.6, 7.8 and 7.9 Nokia (RAN2 VC) discussion LTE\_HRLLC-Core, LTE\_DL\_MIMO\_EE-Core, LTE\_terr\_bcast-Core Late

**Agreements**

S1\_1 Agree to CRs in [R2-2004818](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004818.zip), [R2-2004820](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004820.zip), [R2-2004826](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004826.zip) and [R2-2004827](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004827.zip).

S3\_1 Agree to CRs in [R2-2004429](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2004429.zip) and [R2-2005490](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005490.zip).

## 7.8 DL MIMO efficiency enhancements for LTE

(LTE\_DL\_MIMO\_EE-Core; leading WG: RAN1; REL-16;target; March-20; WID: RP-182901)

Including documents related to WI-specific ASN.1 review issues.

A web conference may be used for handling some of the discussions in this agenda item.

By Email

UE capabilities based on latest RAN1 LS:

[R2-2005488](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2005488.zip) Introduction of UE capabilities for DL MIMO efficiency enhancement Huawei, Hisilicon CR Rel-16 36.331 16.0.0 4334 - B LTE\_DL\_MIMO\_EE-Core

[R2-2005489](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005489.zip) Introduction of UE capabilities for DL MIMO efficiency enhancement Huawei, Hisilicon CR Rel-16 36.306 16.0.0 1770 - B LTE\_DL\_MIMO\_EE-Core

* Handled in offline email discussion [205]
* Take latest RAN1 LS into account in the CRs
* Continue checking the updates to the CRs [R2-2005488](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005488.zip), [R2-2005489](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005489.zip) via email discussion [205] until Wednesday, June 10th to come up with agreeable versions.

## 7.9 LTE-based 5G Terrestrial Broadcast

(LTE\_terr\_bcast-Core; leading WG: RAN1; REL-16; target; March-20; WID: RP-182924)

Including documents related to WI-specific ASN.1 review issues.

A web conference may be used for handling some of the discussions in this agenda item.

By Web Config

[R2-2006033](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2006033.zip)  LS on categories for terrestrial broadcast (R1-2004912; contact: Qualcomm) RAN1 LS In Rel-16 LTE\_terr\_bcast-Core To: RAN2 Cc: RAN4

* Already accounted for in CRs [R2-2005224](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005224.zip) and [R2-2006060](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2006060.zip)

By Email

Corrections to subframe allocation:

[R2-2004429](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_110-e\\R2-2004429.zip) Correction on the configuration of subframe #0 and #5 for MCH in MBMS dedicated cell Qualcomm Incorporated CR Rel-16 36.331 16.0.0 4259 2 F LTE\_terr\_bcast-Core [R2-2003866](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2003866.zip)

* Handled in offline email discussion [205]
* Agreed

Corrections to MCCH configuration:

[R2-2005490](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005490.zip) Clarification on MCCH configuration for 0.37kHz SCS Huawei, Hisilicon CR Rel-16 36.331 16.0.0 4335 - F LTE\_terr\_bcast-Core

* Handled in offline email discussion [205]
* Agreed

UE capabilities based on latest RAN1 LS:

[R2-2005224](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005224.zip) MBMS UE capabilities per band for subcarrier spacing of 2.5 kHz and 0.37 kHz Qualcomm Technologies Int CR Rel-16 36.331 16.0.0 4307 - F LTE\_terr\_bcast-Core

* Handled in offline email discussion [205]
* Agreed

[R2-2005227](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2005227.zip) MBMS UE capabilities per band for subcarrier spacing of 2.5 kHz and 0.37 kHz Qualcomm Technologies Int CR Rel-16 36.306 16.0.0 1764 - F LTE\_terr\_bcast-Core

=>revised in [R2-2006060](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2006060.zip)

[R2-2006060](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_110-e\R2-2006060.zip) MBMS UE capabilities per band for subcarrier spacing of 2.5 kHz and 0.37 kHz Qualcomm Technologies Int CR Rel-16 36.306 16.0.0 1764 1 F LTE\_terr\_bcast-Core

* Handled in offline email discussion [205]
* Agreed