3GPP TSG-RAN WG2 Meeting #113 electronic [R2-2101951](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101951.zip)  
Online, Jan 25 – Feb 5, 2021

**Agenda item: 10.1**

**Source: Vice Chairman (Nokia)**

**Title:** **Report on LTE legacy, Mobility, DCCA, Multi-SIM and RAN slicing**

**Document for: Approval**

# Organizational

General

This meeting is electronic and 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.

Specific methodology

This meeting is conducted by email, ftp and by on-line web conferences by GoToWebinar + Torhu, in three parallel sessions.

R16 raising the bar

For Rel-16 there should now be smaller and smaller efforts spent on text enhancements. Only essential corrections should be agreed. To still allow some text enhancements, pre-coordination is requested (see below).

Tdoc Limitation

Tdoc Limitation limits the number of allowed input tdocs for a company as indicated for an Agenda Item for all types of documents. A multi-sourced document is counted towards the limit of the first company. Rapporteur input (email discussion, WI rapporteur, TS rapporteur, assigned CR editor, assigned summary rapporteur etc) and at-meeting decided tdocs, revisions etc, do not count towards a tdoc limitation. For an LS to RAN2 with action, the contact company is allowed one document that doesn’t count towards the tdoc limitation.

Note that there is now a tdoc limitation for NR R16 (See agenda item 6). Each document is counted, so it is recommended to not have both a CR and a discussion tdoc (e.g. skip the discussion doc). It is also possible to attach draft CRs as appendix to a discussion doc.

Rel-16 text enhancements and miscellaneous corrections CRs

Rapporteurs are asked to, if needed, be ready to prepare (at the meeting) a miscellaneous corrections CR for their WI/TS. Companies shall coordinate with the Rapporteur for small changes, clarifications, text enhancements etc. The Rapporteur is asked to develop an opinion on the need for the particular change. Text enhancements (no behavioural change) with no support from the Rapporteur might not be treated.

In this context the Rapporteur for a TS for a WI = Editor of the Rel-16 WI Cat B CRs (or other person assigned by the session chair when applicable).

Rel-16 NR UE capabilities

Corrections to R16 NR UE capabilities are in a common session under Agenda item 6.1.2. There may be exceptions, e.g. for WIs that may require substantial discussions. Tdocs will be reallocated between Agenda Items if needed (as usual).

**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**

* [AT113-e][200] Organizational Tero – LTE legacy, Mobility, DCCA, Multi-SIM and RAN slicing

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 (where applicable)

Intended outcome:

* + - General information sharing about the sessions

Deadline for providing comments:

* + - Deadline: EOM

**Inclusive language (kicked off on 1st meeting week Monday)**

* [AT113-e][201][Inclusive] Inclusive language CRs (Nokia)

Scope:

* + - Determine affected RAN2 specifications and decide on terminology used
    - Check CRs according to agreed terminology for each required specification

Intended outcome:

* + - Discussion summary in [R2-2101961](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101961.zip) (by email rapporteur).
    - Endorsed CRs (by each affected 36.xxx/37.xxx/38.xxx specification rapporteur under RAN2 responsibility)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Deadline for companies' feedback: Thursday morning 1st week
    - Deadline for rapporteur's summary: Thursday evening 1st week (8h after the initial deadline)
    - Deadline for endorsed CRs: Thursday morning 2nd week

**LTE Legacy** **(kicked off on 1st meeting week Monday)**

* [AT113-e][202][LTE] LTE Miscellaneous corrections (RAN2 VC)

Scope:

* + - Discuss which CRs under AI 4.5, 7.1.X and 7.5 marked for this email discussion are agreeable
    - Provide final CRs

Intended outcome:

* + - Discussion summary in [R2-2101962](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101962.zip) (by email rapporteur)
    - Agreeable CRs by proponents (if revised versions are required, proponents should obtain Tdoc numbers from session chair or RAN2 secretary to provide those)

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000
* [AT113-e][203][LTE] LTE RRC editorial corrections (Samsung)

Scope:

* + - Discuss the CRs under AI 4.5, 7.1.X and 7.5 marked for this email discussion. intent is to merge all CRs into one rapporteur CR.

Intended outcome:

* + - Agreeable CRs for 36.331 (if any) by specification rapporteurs

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Deadline for CR finalization: 2nd week Wed, UTC 1000

**LTE/NR Mobility (to be kicked off on 1st meeting week Monday)**

* [AT113-e][210][MOB] CHO/CPC corrections (Intel)

Scope:

* + - Discuss which CHO/CPC corrections (for LTE and NR) marked for this discussion are seen agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101963](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101963.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000
* [AT113-e][211][MOB] DAPS corrections (Huawei)

Scope:

* + - Discuss which DAPS corrections (for LTE and NR) marked for this discussion are seen agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101964](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101964.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000
* [AT113-e][212][MOB] UE capability corrections for LTE and NR mobility (Nokia)

Scope:

* + - Discuss which UE capability corrections (for LTE and NR) marked for this discussion are seen agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101965](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101965.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000

**LTE/NR Mobility (to be kicked off after 1st or 2nd Web Conf session)**

**TBD**

**LTE/NR Rel-16 DCCA (to be kicked off on 1st meeting week Monday)**

* [AT113-e][220][DCCA] Stage-2, Fast Scell activation and early measurements (Nokia)

Scope:

* + - Discuss corrections under 6.8.x marked for this discussion to see which CRs could be agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101966](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101966.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000
* [AT113-e][221][DCCA] Other DCCA corrections (Ericsson)

Scope:

* + - Discuss corrections under 6.8.x marked for this discussion to see which CRs could be agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101967](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101967.zip) (by email rapporteur).
    - Agreeable CRs (if any)

dline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000

**LTE/NR Rel-16 DCCA (kicked off after 1st meeting week Web Conf session)**

* [AT113-e][222][DCCA] Serving cell measurements and EMR requirements (NN)

Scope:

* + - Discuss corrections under 6.8.x marked for this discussion to see which CRs could be agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101968](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101968.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000
* [AT113-e][223][DCCA] Asynchronous and synchronous NR-DC cell grouping (MediaTek)

Scope:

* + - Attempt to resolve NR-DC cell grouping **at least** for asynchronous NR-DC. Can try also to consider the synchronous NR-DC, but if it doesn't progress well, it may be postponed to next meeting
    - Discuss contributions related to all 3 alternatives.

Intended outcome:

* + - Discussion summary in [R2-2101980](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101980.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 2nd week Thu, UTC 1700

**NR Rel-17 DCCA (kicked off after 1st week Web Conf session)**

* [AT113-e][230][eDCCA] Solution alternatives for SCG activation and deactivation (NN)

Scope:

* + - Summarize main solution directions based on alternative approaches submitted to 8.2.2: Which combined solutions have the most support? What are the main solution approaches to consider in Rel-17?

Intended outcome:

* + - Discussion summary in [R2-2101969](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101969.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Wed, UTC 0900
    - Initial deadline (for rapporteur's summary): 2nd week Thu, UTC 1000
* [AT113-e][231][eDCCA] Solution alternatives for CPAC (NN)

Scope:

* + - Summarize main solution directions based on contributions submitted to 8.2.3
    - Attempt to identify the main open issues to progress in this meeting

Intended outcome:

* + - Discussion summary in [R2-2101970](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101970.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Wed, UTC 0900
    - Initial deadline (for rapporteur's summary): 2nd week Thu, UTC 1000

**NR Rel-17 Multi-SIM (only kicked off after 1st meeting week online session)**

* [AT113-e][242][NR][Multi-SIM] NAS vs. RRC signalling for paging collision and network switching (vivo)

Scope:

* + - Collect views which companies support NAS or RRC signalling, including technical reasons **why** NAS/RRC should be used. Should consider contributions submitted to this meeting to highlight technical analysis.

Intended outcome:

* + - Discussion summary in [R2-2101981](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101981.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
    - Initial deadline (for rapporteur's summary): 2nd week Tue, UTC 1200

**NR Rel-17 RAN Slicing (only kicked off after 1st online session)**

* [AT113-e][250][Slicing] LS replies to SA2 and RAN3 (Nokia)

Scope:

* + - Ascertain which LS replies to SA2/RAN3 are needed (based on the LSs received so far), including what to answer to each required LS

Intended outcome:

* + - Discussion summary in [R2-2101973](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101973.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Fri, UTC 0900
    - Initial deadline (for rapporteur's summary): 2nd week Mon, UTC 1200
* [AT113-e][251][Slicing] Conclusions on slice-based cell (re)selection (Huawei)

Scope:

* + - Determine agreeable additional conclusions on slice-based cell reselection/selection for the SI, including technical justification of each and open issues not handled during the SI.

Intended outcome:

* + - Discussion summary in [R2-2101974](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101974.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
    - Initial deadline (for rapporteur's summary): 2nd week Tue, UTC 1200
* [AT113-e][252][Slicing] Conclusions on slice-based RACH configuration (CMCC)

Scope:

* + - Determine agreeable additional conclusions on slice-based RACH configuration for the SI, including technical justification of each and open issues not handled during the SI.

Intended outcome:

* + - Discussion summary in [R2-2101975](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101975.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
    - Initial deadline (for rapporteur's summary): 2nd week Tue, UTC 1200

**Dates and deadlines**

Jan 14 23.59 PDT (Jan 15 06.59 UTC) Tdoc number allocation deadline for all tdocs (e.g. including summary tdocs).  
General Tdoc Submission Deadline, as usual. Kick off, summaries.

Jan 19 0700 UTC Tdocs submission deadline for Summaries (baseline version)

Jan 25 0700 UTC e-Meeting Start (by email) (Jan 26 0700 UTC is first possible email deadline).

Jan 29 1000 UTC Suspend decision making in email discussions (= no deadlines etc)

It should be possible for a delegate to take the weekend off, rejoin and not miss decisions.

Feb 01 1000 UTC Resume decision making in email discussions.

Feb 05 1100 UTC e-Meeting Stop, no more email comments for AT-meeting email discussions. Decision confirmations   
 announced within 24h. Session notes for email checking.

Feb 08 – Feb 22 3GPP silent period

Mar 02 1100 UTC Deadline Short Post113-e email discussions.

**Web Conference Schedule**

Note that this schedule is indicative and can change. Changes to the schedule will be announced with notice of at least 24h.

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Zone UTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** |
| **Monday** |  |  |  |
| 12:45 – 13:55 | NR15 NR16 NR17 Main session (Johan)  Q&A  [8.17] R17 handling (no tdoc)  [6.1.1][6.1.2] Initial discussions  [6.15] DC location reporting  [6.16] Overheating stop, RRC processing time w segm (if time) | NR16 SONMDT (HuNan)  -only 6.10.3 | LTE17 IoT (Brian)  Initial treatment of summary documents an d scoping of email discussions.  9.1.1 Organizational  9.1.2 measurements + RLF  9.1.3 carrier selection |
| 13:55 – 15:05 | NR17 Multicast (Johan)  [8.1.1] Stage-2 CR  [8.1.2.1] email disc UP reliability  [8.1.3] email disc Deliv. mode 2 | NR16 DCCA (Tero)  - 6.8.1: LSs from RAN1/4, miscellaneous corrections  - 6.8.3: Email discussion [255] outcome  - 6.8.2: TCI state for direct SCell activation  - Other corrections in 6.8.2 (if time allows) | NR17 NTN (Sergio)  - 8.10.1: LSs and report from  [Post112-e][150]  - reports from [Post112-e][151][152][153] |
| 15:05 – 16:15 | NR16 V2X (Kyeongin)  6.4.1, 6.4.2  6.4.4 (if we still have time) | NRLTE16 MOB (Tero)  - 6.7.2: Email discussion [254] outcome  - 6.7.1/7.4.2: LS on SUL during DAPS  - Other 7.4.2/6.7.2 topics (if time allows) | NR17 IoT NTN  [9.2.1], [9.2.2], [9.2.3] as far as time allows. |
| **Tuesday** |  |  |  |
| 12:45 – 13:55 | NR17 RAN Slicing SI (Tero)  - 8.8.1: Outcomes of [252] and [253]  - 8.8.3: Slice-specific RA support, MO vs. MT  - 8.8.2: Broadcasting of slice information | NR17 RedCap SI (Sergio)  - 8.12.1  - reports from [Post112-e][154][155]  - 8.12.2 (if time allows) | NR17 Sl enh (Kyeongin)  8.15.1, 8.15.2.1 |
| 13:55 – 15:05 | NR17 Multi-SIM (Tero)  - 8.3.1: RAN3 LS on multi-SIM  - 8.3.2: Solution alternatives, NAS vs. RRC  - 8.3.3: Outcome of [256], Busy indication details (if time allows) | NR17 Small Data Enh (Diana) | NR17 SL Relay SI (Nathan)  - 8.7.1 Organizational  - 8.7.2.1 L2  - 8.7.2.2 L3 |
| 15:05 – 16:15 | NR17 QoE SI (Johan) | NR17 IIOTURLLC (Diana) | NR17 Pos SI (Nathan)  - 8.11.1 Organizational  - 8.11.2.1 Latency  - 8.11.2.2 Accuracy/efficiency |
| **Wednesd** |  |  |  |
| 04:45 – 06:15 | NR17 ePowSav (Johan) | LTE16e (Tero) - 4.5: Rel-8 S1 handover issue, topics postponed in RAN2#112e  - 7.1.1: DRX cycle correction  - 7.5: Fallback definition, UDC correction  - 9.3: SCell tracking attack (GSMA LS)  - Other topics in 4.5 or 7.5 (if time allows) | NR16 CP items (Sergio) - 6.12  NR16 R1 items and eMIMO (Sergio) - 6.14 |
| **Thursday** |  |  |  |
| 04:45 – 06:15 | NR17 eIAB (Johan)  [8.4.1],  [8.4.3],  [8.4.2], | NR17 DCCA (Tero)  - 8.2.2: Random access and TAT, MAC vs. RRC signalling, impacts to RAN1/4, MN/SN control of (de)activation  - 8.2.3: Leftovers from RAN2#112e, impacts to RAN3 signalling, CPAC execution | LTE16e IoT (Emre/Brian)  4.1  7.3  4.2  7.2 |
| **Friday** |  |  |  |
| 04:45 – 06:15 | NR16 V2X (Kyeongin)  6.4.3, 6.4.4  Comebacks (if needed) | NR17 SONMDT (HuNan)  8.13.2  8.13.3  8.13.4: Only email discussion and summary | TBD |

|  |  |  |  |
| --- | --- | --- | --- |
| **Time Zone UTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** |
| **Monday** |  |  |  |
| 12:45 – 13:55 | NR16 IIOT (Johan) | NRLTE16 MOB (Tero)  - Outcome of [210]  - Outcome of [211]  - Outcome of [212]  - Other topics as needed and time allows | LTE17 IoT (Brian)  Email discussion outcomes.  9.1.2 measurements + RLF  9.1.3 carrier selection |
| 13:55 – 15:05 | NR17 Multicast (Johan) | NR16 DCCA (Tero)  - Outcome of [220]  - Outcome of [221]  - Outcome of [222] (if needed)  - Other topics as needed and time allows | NR16 Pos (Nathan)  - Email checkpoint for issues with 4.4 and 5.5  - 6.6 Rel-16 positioning |
| 15:05 – 16:15 | NR17 Multicast (Johan) | NR16 (Diana) | NR16 SONMDT (HuNan) |
| **Tuesday** |  |  |  |
| 12:45 – 13:55 | NR17 RAN Slicing SI and NR17 Multi-SIM (Tero)  - Outcome of [240] (if assigned)  - 8.8.2: Broadcasting of slice information  - 8.3.2: Paging collision handling (if time allows) | NR17 RedCap SI (Sergio)  - 8.12.2  - 8.12.3 | NR17 SL Relay SI (Nathan)  - Checkpoint for email discussions  - 8.7.3 Discovery  - 8.7.4 Other |
| 13:55 – 15:05 | TBD (Tero / Johan) | NR17 NTN (Sergio)  - 8.10.2 | NR17 Pos SI (Nathan)  - Any overflow from first week session  - Checkpoint for email discussions  - 8.11.3 Integrity |
| 15:05 – 16:15 | NR16 Main Session (Johan) | NR17 NTN (Sergio)  - 8.10.3 | NR17 TBD (Nathan)  - Rel-17 positioning overflow  - Rel-17 relay overflow (if needed) |
| **Wednesd** |  |  |  |
| 12:45 – 13:55 | NR17 eNPN (Johan) | NR17 Small Data Enh (Diana) | NR17 SL Enh (Kyeongin)  8.15.2.1, 8.15.2.2, 8.15.2.3 |
| 13:55 – 15:05 | NR17 QoE SI (Johan) | NR17 IIOTURLLC (Diana) | NR17 SL Enh (Kyeongin)  8.15.2.2, 8.15.2.3, 8.15.3 |
| 15:05 – 16:15 | NR17 IoT NTN (Johan) | TBD (Diana) | CB Sergio  - R16 comebacks from AI 6.12, AI 6.14  - R17 comebacks from RedCap (if time allows) |
| **Thursday** |  |  |  |
| 04:45 – 06:15 | CB Johan | CB Sergio  - R17 comebacks from RedCap and NTN | CB Nathan  - Comebacks from SL relay and positioning (order TBD) |
| **Friday** |  |  |  |
| 04:30 – 05:30 | CB Tero  - Comebacks from all sessions (at least RAN slicing, R17 DCCA, Multi-SIM, LTE (if needed)) | CB HuNan  - Focus on R16 SON/MDT. Target is to conclude all the corrections so far on the table | CB Brian, Emre |
| 05:30 – 06:30 | CB | CB Kyeongin | CB |

# 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.

Editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication.

Including discussion on whether MAC reset also flushes recommended bit rate query (postponed in RAN2#112, see R2-2010153, R2-2010154, R2-2010155)

Including discussion on inter-node signalling field conditions for resume and re-establishement (postponed in RAN2#112, see R2-2009257 and R2-2009258)

Email discussions ([202], [203])

* [AT113-e][202][LTE] LTE Miscellaneous corrections (RAN2 VC)

Scope:

* + - Discuss which CRs under AI 4.5 and 7.5 marked for this email discussion are agreeable and provide final CRs.
    - CRs may be merged to the RRC rapporteur CRs under [203] if seen necessary

Intended outcome:

* + - Discussion summary in [R2-2101962](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101962.zip) (by email rapporteur)
    - Agreeable CRs by proponents (if revised documents are required, proponents should obtain Tdoc numbers from session chair or RAN2 secretary to provide those)

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000
* [AT113-e][203][LTE] LTE RRC editorial corrections (Samsung)

Scope:

* + - Discuss the CRs under AI 4.5 and 7.5 marked for this email discussion. Intent is to decide whether to agree on the CRs and whether to merge them into one rapporteur CR.

Intended outcome:

* + - Agreeable CRs for 36.331 (if any) by proponents (if revised documents are required, proponents should obtain Tdoc numbers from session chair or RAN2 secretary to provide those)

Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Wed, UTC 1000

Web Conf 2nd week or By Email (summary of [202])

[R2-2101962](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101962.zip) Summary of [AT113-e][202][LTE] LTE Miscellaneous corrections (RAN2 VC) Nokia (RAN2 VC) discussion Rel-15 LTE\_MDT\_BT\_WLAN-Core, LTE\_5GCN\_connect-Core, TEI16

Web Conf 1st week (1+2+3)

Potential Rel-8 issue for S1 handover:

[R2-2100778](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100778.zip) Discussion on ciphering key discrepancy issue for legacy S1-handover NTT DOCOMO INC. discussion

*Observation1: After consecutive HO failure, if UE consecutively sends measurement report to source eNB, and source eNB consecutively sends HO required message to MME, the NCC kept at MME would wrap around.*

*Observation2: If NCC value wrapped around, target eNB could correctly compute K\_eNB based on {NH, NCC} pair received in S1 HO request message and target PCI and its EARFCN-DL.*

*Observation3: If NCC value wrapped around, UE cannot perceive the wrap around when receiving NCC value in HO command. Thus, UE computed K\_eNB\* without considering NCC wrap around and the consequence is K\_eNB\* derived by UE may be different from the K\_eNB kept by target eNB.*

*Observation4: NCC value wrap around is a rare case, while this problem occurred in operator’s UAV UE S1 Handover test. Standardization solution is needed to solve this issue.*

*Proposal1: Standardization solution is needed to solve ciphering key discrepancy issue caused by NCC value wrapped around in the S1-handover*

*Propsal2: RAN2 to discuss the three candidate solutions above and adopt solution1.*

*Proposal3: RAN2 to discuss and agree the draft CR attached in the ANNEX.*

- Ericsson thinks this was known during LTE design. Can be resolved via NAS rekeying and can be left to network implementation. QC agrees and this seems like a rare case. Existing solutions can cover it.

- Ericsson thinks a NOTE is not needed for this as network has to resolve other such cases anyway.

**=> The issue may exist but network implementations can handle it. No specification change is needed from RAN2 viewpoint.**

**=> Noted**

Field presence conditions in inter-node messages (Postponed in RAN2#112e):

[R2-2101081](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101081.zip) Correction to RRC resume and re-establishment Google Inc. CR Rel-15 36.331 15.12.0 4457 1 F LTE\_5GCN\_connect-Core R2-2009257

- Huawei thinks the last condition should be only for resume/re-establishemnt with 5GC, not resume/re-establishment with EPC. Google agrees.

**=> Change HO change to " The field is mandatory present in case of handover or UE context retrieval, e.g. in case of resume or re-establishment within E-UTRA; "**

**=> Change HO2 change to " The field is optional present in case of handover or UE context retrieval, e.g. in case of resume or re-establishment within E-UTRA; "**

**=> Change HO4 change to "The field is mandatory present in case of handover or UE context retrieval, e.g. in case of resume or re-establishment within E-UTRA/5GC"**

**=> With these changes the CR is agreed in R2-2101982 (unseen)**

[R2-2101084](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101084.zip) Correction to RRC resume and re-establishment Google Inc. CR Rel-16 36.331 16.3.0 4458 1 A LTE\_5GCN\_connect-Core R2-2009258

**=> Change HO change to " The field is mandatory present in case of handover or UE context retrieval, e.g. in case of resume or re-establishment within E-UTRA; "**

**=> Change HO2 change to " The field is optional present in case of handover or UE context retrieval, e.g. in case of resume or re-establishment within E-UTRA; "**

**=> Change HO4 change to "The field is mandatory present in case of handover or UE context retrieval, e.g. in case of resume or re-establishment within E-UTRA/5GC"**

**=> With these changes the CR is agreed in R2-2101983 (unseen)**

Resetting recommended bit rate query at MAC reset (Postponed in RAN2#112e):

[R2-2101443](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101443.zip) Recommended bit rate query handling at MAC Reset Ericsson CR Rel-14 36.321 14.13.0 1519 - F LTE\_VoLTE\_ViLTE\_enh

- Huawei indicates this has impact to existing devices and they have a CR in NR as well. Would not like to agree to this.

- Huawei clarifies there are some MAC procedures that are cancelled and some that are not. This is triggered by upper layers so it would affect that as well.

- QC thinks this change is needed since we should reset all functionalities. It's not clear if there problems if some UEs reset and some don't. Ericsson thinks that if we don't cancel, the query would be associated to the wrong session or LCID that is no longer valid. Chair wonders if LCID change triggers query reset. QC thinks this is not specified. Huawei thinks UE needs to resend the MAC CE.

- LGE thinks we should reset should be done as with normal. Leaving RBR ongoing would be strange as some procedures would be ongoing in MAC, which could create new problems if e.g. LCID changes.

- Huawei thinks this would not cause IODT problems but might change UE implementation after this. So far we have listed all procedures that are affected. LGE thinks this was simply because we didn't have so many procedures before and wanted to be explicit.

- Huawei could accept Rel-16 CR with magic sentence. Ericsson would accept this. LGE could also accept this as this is only UE assistance information. QC can accept if it means that the changes is allowed from Rel-14 onwards.

- Nokia thinks the RBR query is guarded by timer which is reset at MAC reset. One UE could send the query because the timer was reset but another might not since it reset the query.

* + - * **We agree to CR from Rel-16 with magic sentence from Rel-14. This needs to be also documented in the early implementation table.**

[R2-2101444](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101444.zip) Recommended bit rate query handling at MAC Reset Ericsson CR Rel-15 36.321 15.11.0 1520 - F LTE\_VoLTE\_ViLTE\_enh

[R2-2101445](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101445.zip) Recommended bit rate query handling at MAC Reset Ericsson CR Rel-16 36.321 16.3.0 1521 - F LTE\_VoLTE\_ViLTE\_enh

- QC indicates their comments from last meeting were not taken into account yet.

* Take comments from RAN2#112e into account
* Discuss CR specifics in email [204]
* [AT113-e][204][LTE][ViLTE] Recommended bitrate query reset (Ericsson)

Scope: Agree to Rel-16 CR with magic sentence from Rel-14 onwards.

Intended outcome: Agreed CR

Deadline: 2nd week Thu

By Email [202] (2+2)

MDT-related CRs:

[R2-2101411](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101411.zip) Releasing WLAN-BT configuration upon returning from Inactive Ericsson CR Rel-15 36.331 15.12.0 4575 - F LTE\_MDT\_BT\_WLAN-Core

[R2-2101413](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101413.zip) Releasing WLAN-BT configuration upon returning from Inactive Ericsson CR Rel-16 36.331 16.3.0 4577 - A LTE\_MDT\_BT\_WLAN-Core

[R2-2101410](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101410.zip) On the lack of PLMN identity check in case of anyCellSelected state related logging Ericsson CR Rel-15 36.331 15.12.0 4574 - F TEI15

[R2-2101412](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101412.zip) On the lack of PLMN identity check in case of anyCellSelected state related logging Ericsson CR Rel-16 36.331 16.3.0 4576 - A TEI15

By Email [202] (2)

Overheating assistance information:

[R2-2101658](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101658.zip) CR on overheatingAssistanceConfig release Huawei, HiSilicon CR Rel-15 36.331 15.12.0 4585 - F LTE\_5GCN\_connect-Core

[R2-2101659](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101659.zip) CR on overheatingAssistanceConfig release Huawei, HiSilicon CR Rel-16 36.331 16.3.0 4586 - F LTE\_5GCN\_connect-Core

By Email [203] (2+2)

Rapporteur CRs for semi-editorial corrections:

[R2-2100436](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100436.zip) Minor changes collected by Rapporteur for Rel-15 Samsung CR Rel-15 36.331 15.12.0 4548 - F NR\_newRAT-Core

[R2-2100437](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100437.zip) Minor changes collected by Rapporteur for Rel-16 Samsung CR Rel-16 36.331 16.3.0 4549 - F NR\_newRAT-Core

*(moved from 7.5, shadow CR)*

UAV CRs (declared editorial in cover page):

[R2-2100996](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100996.zip) Miscellaneous corrections on Aerial functionality Samsung CR Rel-15 36.331 15.12.0 4559 - F LTE\_Aerial-Core

[R2-2100997](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100997.zip) Miscellaneous corrections on Aerial functionality Samsung CR Rel-16 36.331 16.3.0 4560 - A LTE\_Aerial-Core

# 6 Rel-16 NR Work Items

Essential corrections. While high maintenance intensity is expected, Rel-16 corrections are treated separately per WI.

Tdoc Limitation: 40 tdocs in total for all sub agenda items, or the restriction for each sub-AI, whichever is more restrictive.

## 6.7 NR mobility enhancements

(NR\_Mob\_enh-Core; leading WG: RAN2; REL-16; started: Jun 18; Completed June 20; WID: RP-192277).

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

Documents under 6.7 will be treated together with documents in 7.4.

No documents should be submitted to 6.7. Please submit to 6.7.x

Editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication.

NR DAPS corrections should be submitted to 7.4.2.

Tdoc Limitation: See tdoc limitation for Agenda Item 6

### 6.7.1 General and Stage-2 Corrections

Including incoming LSs (if any).

Including corrections to TS38.300 and 37.340 related to the NR CPC, NR CHO and NR DAPS

Web Conf 1st week (1)

[R2-2100027](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100027.zip) LS on support of NUL and SUL during DAPS handovery (R1-2009682; contact: Intel) RAN1 LS in Rel-16 NR\_Mob\_enh-Core To:RAN2 Cc:RAN4

* Noted (contributions treated under 7.4.2)

By Email [211] (1)

Corrections to TS38.300 on DAPS release:

[R2-2101519](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101519.zip) Addition of releasing the source part of DAPS DRBS upon DAPS release LG Electronics France CR Rel-16 38.300 16.4.0 0340 - F NR\_Mob\_enh-Core

### 6.7.2 Conditional PSCell change for intra-SN and Conditional handover related corrections

This AI addresses NR CPC and corrections to NR/LTE CHO (i.e. both NR and LTE-specific corrections for CHO should be submitted here).

Including corrections to control and user plane specifications (e.g. 3x.331, 3x.323, 3x.321) for CPC and CHO.

Including discussion on SI reading during CHO recovery (postponed in RAN2#112e, see R2-2010189)

Email discussions ([210])

* [AT113-e][210][MOB] CHO/CPC corrections (Intel)

Scope:

* + - Discuss which CHO/CPC corrections (for LTE and NR) marked for this discussion are seen agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101963](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101963.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000

Web Conf 2nd week (summary of [210])

[R2-2101963](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101963.zip) Summary of [AT113-e][210][MOB] CHO/CPC corrections (Intel) Intel discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

Web Conf 1st week (2)

Outcome of [Post112-e][254][R16 MOB] Issue on failure handling of handover without key change for the UE configured with attemptCondReconfig (Sharp)

[R2-2101900](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101900.zip) Report of [Post112-e][254][R16 MOB] Issue on failure handling of handover without key change for the UE configured with attemptCondReconfig (Sharp) SHARP Corporation discussion Rel-16 NR\_Mob\_enh-Core Late

*Observation 1: It was confirmed a keystream reuse issue might happen for both SRB and DRB in the following case:*

*The UE configured with attemptCondReconfig performs normal handover or CHO without masterKeyUpdate to Cell X and contention based random access is applied for the handover. After the handover fails, during RRC re-establishment procedure, the UE select one of the CHO candidate cell (i.e., CHO based recovery) of which configuration doesn't include masterKeyUpdate.*

*Observation 2: The issue in Observation 1 could be solved by proper network implementation, such as:*

*- The network always sets masterKeyUpdate in condRRCReconfig;*

*- The network never sets attemptCondReconfig in ConditionalReconfiguration if any of condRRCReconfig doesn't include masterKeyUpdate.*

- LGE thinks Stage-2 CR could be fine. Ericsson prefers Stage-3 CR. Sharp agrees.

**Agreements**

1: RAN2 agrees that how to avoid the issue in Observation 1 is left to network implementation.

2: RAN2 agrees to add NOTE to TS 38.331 to inform proper network implementation is necessary for CHO based recovery.

[R2-2101901](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101901.zip) [Post112-e][254][R16 MOB] Clarification of behavior to avoid security risk in CHO based recovery after handover without key change failure SHARP Corporation CR Rel-16 38.331 16.3.1 2450 - A NR\_Mob\_enh-Core Late

* Agreed

Web Conf 1st week (1)

Discussion on whether CHO is supported for eLTE.

[R2-2101263](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101263.zip) Conditional handover for LTE-5GC Ericsson discussion NR\_Mob\_enh-Core

*Observation 1 In order to support CHO with LTE/5GC, the data forwarding for conditional handover, if UE is connected to 5GC, needs to refer to the NG-RAN procedure in 38.300.*

*Observation 2 In order to support CHO with LTE/5GC, the entities in VarConditionalReconfiguration needs to be released when UE is released to RRC\_INACTIVE.*

*Observation 3 As much of the stage-3 for CHO and CPC is common, any agreement and possible corrections we make regarding support for CHO with LTE/5GC should be applied also for CPC.*

*Proposal 1 CHO+CPC for LTE/5GC is to be supported by the specifications. RAN2 is asked to agree the draft CRs provided in 5.1.*

*Proposal 2 If Proposal 1 cannot be agreed, RAN2 is asked to agree the draft CRs in 5.2 to specify that neither CHO nr CPC for LTE/5GC is not supported.*

- MediaTek supports P1. Intel thinks we don't support 5GC since we agreed that last time. Nokia agrees.

- Apple wonders if we need a new capability for this? Intel thinks we would need IOT bit.

* CHO/CPC in LTE/5GC is not support in Rel-16.
* Adopt TP for non-support of LTE/5GC from in [R2-2101978](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101978.zip) (36.300) and [R2-2101979](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101979.zip) (37.340). This can be handled in discussion [210]

By Email [210] (2)

[R2-2101978](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101978.zip) Non-support of CHO/CPC with LTE/5GC Ericsson CR Rel-16 36.300 16.4.0 1335 - F LTE\_feMob-Core, NR\_Mob\_enh-Core

[R2-2101979](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101979.zip) Non-support of CHO/CPC with LTE/5GC Ericsson CR Rel-16 37.340 16.4.0 0251 - F LTE\_feMob-Core, NR\_Mob\_enh-Core

By Email [210] (1)

Including discussion on UE compliance check failure for CHO command (postponed in RAN2#112e, see R2-2009998)

[R2-2101265](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101265.zip) Inability to comply with conditional reconfiguration Ericsson CR Rel-16 38.331 16.3.1 2392 - F NR\_Mob\_enh-Core

By Email [210] (3)

Discussion on repetition of UE information transmission in NR/LTE CHO (postponed in RAN2#112e, see R2-2010253, R2-2010251, R2-2010254, R2-2010252)

[R2-2100680](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100680.zip) UE information transmission in NR CHO case SHARP Corporation, Ericsson discussion NR\_Mob\_enh-Core R2-2010253

[R2-2100681](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100681.zip) UE information transmission in LTE CHO case SHARP Corporation, Ericsson discussion Rel-16 NR\_Mob\_enh-Core R2-2010251

[R2-2100526](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100526.zip) Transmitting SL UE Information after CHO Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.3.1 2331 - F NR\_Mob\_enh-Core

By Email [210] (6)

[R2-2100585](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100585.zip) Clarification regarding CHO following IRAT HO failure Samsung Telecommunications CR Rel-16 38.331 16.3.1 2339 - F NR\_Mob\_enh-Core

[R2-2101264](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101264.zip) Missing release of VarConditionalReconfiguration Ericsson CR Rel-16 36.331 16.3.0 4571 - F NR\_Mob\_enh-Core

[R2-2101266](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101266.zip) Addition of conditional reconfiguration in measurement configuration description Ericsson CR Rel-16 38.331 16.3.1 2393 - F NR\_Mob\_enh-Core

[R2-2101362](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101362.zip) Correction on NR Mobility Enhancement Apple CR Rel-16 38.331 16.3.1 2406 - F NR\_Mob\_enh-Core

[R2-2101363](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101363.zip) Correction on LTE Mobility Enhancement Apple CR Rel-16 36.331 16.3.0 4573 - F NR\_Mob\_enh-Core

[R2-2101691](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101691.zip) Discussion on some issues for CHO and CPC Huawei, HiSilicon, China Telecom discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

### 6.7.3 UE capability corrections

Including UE capability aspects of NR mobility WI (i.e. UE capability corrections to 38.331 and 38.306).

Including corrections based on outcome of "[AT1112e][ 215][NR][MOB] Additional clarification to DAPS capabilities (Nokia)" that were postponed in RAN2#112e (e.g. dummification of field intraFreqMultiUL-TransmissionDAPS from intraFreqDAPS-UL)

Email discussions ([212])

* [AT113-e][212][MOB] UE capability corrections for LTE and NR mobility (Nokia)

Scope:

* + - Discuss which UE capability corrections (for LTE and NR) marked for this discussion are seen agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101965](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101965.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000

Web Conf 2nd week (summary of [212])

[R2-2101965](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101965.zip) Summary of [AT113-e][212][MOB] UE capability corrections for LTE and NR mobility (Nokia) Nokia discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

By Email [212] (6)

UE capability aspects for DAPS:

[R2-2101025](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101025.zip) Dummifying the field intraFreqMultiUL-TransmissionDAPS Nokia, Nokia Shanghai Bell, MediaTek, Intel Corporation CR Rel-16 38.331 16.3.1 2379 - F NR\_Mob\_enh-Core

[R2-2101026](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101026.zip) Dummifying the field intraFreqMultiUL-TransmissionDAPS Nokia, Nokia Shanghai Bell, MediaTek, Intel Corporation CR Rel-16 38.306 16.3.0 0501 - F NR\_Mob\_enh-Core

[R2-2101027](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101027.zip) Dummifying the field intraFreqMultiUL-TransmissionDAPS Nokia, Nokia Shanghai Bell, MediaTek, Intel Corporation CR Rel-16 36.331 16.3.0 4562 - F LTE\_feMob-Core

[R2-2101028](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101028.zip) Dummifying the field intraFreqMultiUL-TransmissionDAPS Nokia, Nokia Shanghai Bell, MediaTek, Intel Corporation CR Rel-16 36.306 16.3.0 1803 - F LTE\_feMob-Core

[R2-2101360](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101360.zip) Clarification on DAPS HO Capability Apple discussion Rel-16 NR\_Mob\_enh-Core

[R2-2101710](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101710.zip) Understanding of DAPS in BWC-A band Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

## 6.8 DC and CA enhancements

(LTE\_NR\_DC\_CA\_enh-Core; leading WG: RAN2; REL-16; started: Jun 18; Target Aug 20; WI RP-200791)

No documents should be submitted to 6.8. Please submit to 6.8.x

Editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication.

Tdoc Limitation: 9 tdocs, See also tdoc limitation for Agenda Item 6

### 6.8.1 General and Stage-2 Corrections

Including incoming LSs.

Including corrections to TS38.300, 36.300 and 37.340 related to DCCA.

Email discussions ([220])

* [AT113-e][220][DCCA] Stage-2, Fast Scell activation and early measurements (Nokia)

Scope:

* + - Discuss corrections under 6.8.x marked for this discussion to see which CRs could be agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101966](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101966.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000

Web Conf 2nd week (summary of [220])

[R2-2101966](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101966.zip) Summary of [AT113-e][220][DCCA] Stage-2, Fast Scell activation and early measurements (Nokia) Nokia discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

Web Conf 1st week (4)

TCI state indication for Direct Scell activation (RAN4):

[R2-2100058](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100058.zip) LS on TCI state indication at Direct SCell activation (R4-2017329; contact: MediaTek) RAN4 LS in Rel-16 LTE\_NR\_DC\_CA\_enh-Core To:RAN2, RAN1

- Huawei wonders if this is only about PDCCH, not PDSCH? MediaTek thinks they didn't differentiate this. Huawei thinks PDCCH is more critical than PDSCH so focusing on that is sufficient. Indicating one TCI state for PDCCH is already possible. Thinks RAN1 can discuss the issue first.

- Apple thinks the UE requirements are not explicitly stated if TCI information is not given to UE. But this would be optional so not all UEs will implement it so not sure we can have a comprehensive solution for all UEs.

* Noted (contributions treated under 6.8.2)

RAN4 agreements in EMR requirements (RAN4):

[R2-2100059](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100059.zip) LS on RAN4 agreements for MR-DC Idle mode CA measurements (R4-2017390; contact: ZTE) RAN4 LS in Rel-16 LTE\_NR\_DC\_CA\_enh-Core To:RAN2

- Apple thinks RAN4 concern is measurement time if network provide lot of carriers for EMR so network shouldn't provide too many frequencies. Nokia thinks RAN4 doesn't have requirements for the beam reporting, so having a fixed value for the timer seems difficult - it could be quite long. ZTE thinks this is not necessarily the case as the number of frequencies also includes carriers for reselection, e.g. 4 for reselection and 3 for EMR.

- Ericsson doesn't understand why the EMR requirements are affected by serving cell measurement quality. ZTE agrees but this was due to power consumption. Huawei also agrees that RAN4 tried to avoid increasing power consumption with this. MediaTek also agrees RAN2 shouldn't discuss how RAN4 decided the requirements.

- Huawei thinks that measuring carrier minutes earlier may not reflect its quality anyway or be accurate. ZTE thinks this would mainly apply to cell center UEs so likely UEs would use large periodicity.

- Qualcomm thinks extending the timer is not useful and is not a common case. UE can still continue measurements after T331 if it wishes to.

* Noted (contributions treated under 6.8.2)

RAN4 reply on NR-DC cell grouping (RAN4):

[R2-2100062](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100062.zip) LS response on cell-grouping UE capability for synchronous NR-DC (R4-2017847; contct: Apple) RAN4 LS in Rel-16 LTE\_NR\_DC\_CA\_enh-Core To:RAN2 Cc:RAN1

* Noted (contributions treated under 6.8.3)

HARQ-ACK codebook configuration (RAN1):

[R2-2100021](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100021.zip) LS on HARQ-ACK codebook configuration for secondary PUCCH group (R1-2009631; contact: Nokia) RAN1 LS in Rel-16 LTE\_NR\_DC\_CA\_enh-Core To:RAN2

* Noted (contributions treated under 6.8.3)

By Email [221] (2)

[R2-2101088](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101088.zip) Misc corrections for Rel-16 DCCA Ericsson CR Rel-16 38.331 16.3.1 2385 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2101089](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101089.zip) Misc corrections for Rel-16 DCCA Ericsson CR Rel-16 36.331 16.3.0 4568 - F LTE\_NR\_DC\_CA\_enh-Core

By Email [220] (1+2)

Stage-2 corrections:

[R2-2101400](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101400.zip) CR on support of NR-DC within the same gNB-DU ZTE Corporation, Sanechips CR Rel-16 37.340 16.4.0 0246 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2101479](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101479.zip) Corrections on UL power sharing Huawei, HiSilicon, ZTE Corporation (rapporteur) CR Rel-16 37.340 16.4.0 0248 - F NR\_newRAT-Core, LTE\_NR\_DC\_CA\_enh-Core

[R2-2101728](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101728.zip) Corrections on UL power sharing vivo CR Rel-16 37.340 16.4.0 0250 - F LTE\_NR\_DC\_CA\_enh-Core

### 6.8.2 Corrections to Fast Scell activation and Early measurement reporting

Including corrections to TS38.331, 36.331 and 38.321 related to Fast SCell activation and Early measurement reporting.

Email discussions ([222], kicked off after 1st week Web Conf)

* [AT113-e][222][DCCA] Serving cell measurements and EMR requirements (ZTE)

Scope:

* + - Discuss corrections under 6.8.x marked for this discussion to see which CRs could be agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101968](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101968.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000

Web Conf 2nd week (summary of [222])

[R2-2101968](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101968.zip) Summary of [AT113-e][222][DCCA] Serving cell measurements and EMR requirements (ZTE) ZTE discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

Web Conf 1st week (7)

TCI state indication for Direct Scell activation (RAN4):

[R2-2101695](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101695.zip) Discussion on TCI state indication at direct SCell activation Huawei, HiSilicon discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

*Observation: In current framework, the gNB can by implementation configure only one TCI state in RRCReconfiguration message to gain the full benefit of direct SCell activation.*

*Proposal 1: RAN2 to wait for RAN1 progress on the TCI state indication at direct SCell activation.*

- QC thinks TCI state applies to both PDCCH and PDSCH. If more than 1 TCI is configured, TCI state needs to be activated. Would like to add TCI state in RRC signalling to avoid requesting RAN4 to modify their specifications as they assumed TCI state is obtained at the same time as activation.

- vivo thinks RAN4 requirements are also affected by other factors than TCI state. TCI state may not be major factor and needs more discussion in RAN1 and RAN2. Any enhancements can be done in Rel-17. Nokia agrees that enhancements come in Rel-17 but Rel-16 also has to work, which is not so clear. Some clarification is needed in RAN1, 2 or 4 so best to wait for RAN1. Ericsson agrees.

- ZTE thinks this is not so complex: If TCI state is not indicated, MAC CE needs to be used. Would be fine to have RRC signalling. One TCI state can work but is not flexible for network. We don't need to wait for RAN1.

- Apple thinks not all networks or UEs do not implement this feature. So RAN4 needs to be prepared for that, and we should send LS to RAN4 so that the requirements work in all cases. MediaTek thinks this is correction and not enhancement.

* No conclusion yet on what RAN2 needs to do

Web Conf 2nd week

* **CB: Check in 2nd week Web Conf session what is the RAN1 progress on the matter**

[R2-2101729](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101729.zip) TCI state activation at Direct SCell activation vivo discussion LTE\_NR\_DC\_CA\_enh-Core

[R2-2101851](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101851.zip) TCI state indication for Direct SCell activation MediaTek Inc. discussion

[R2-2101853](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101853.zip) TCI state for direct SCell activation MediaTek Inc. CR Rel-16 38.331 16.3.1 2446 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2101075](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101075.zip) TCI state indication at direct scell activation Nokia, Nokia Shanghai Bell discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

*(moved from 6.8.3)*

[R2-2100121](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100121.zip) Correction for TCI state indication of direct SCell activation Qualcomm Incorporated CR Rel-16 38.331 16.3.1 2304 - F LTE\_NR\_DC\_CA\_enh-Core

Email [222] (4+1)

RAN4 agreements in EMR requirements (RAN4):

[R2-2100563](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100563.zip) Discussion on early measurement requirements ZTE Corporation, Sanechips discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2100566](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100566.zip) Reply LS on MR-DC Idle mode CA measurements ZTE Corporation, Sanechips LS out Rel-16 LTE\_NR\_DC\_CA\_enh-Core To:RAN4

[R2-2101074](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101074.zip) CR on T331 value range Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.3.1 2383 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2100564](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100564.zip) CR to introduce new T331 timer value ZTE Corporation, Sanechips CR Rel-16 38.331 16.3.1 2338 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2100565](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100565.zip) CR to introduce new capability for T331 timer value ZTE Corporation, Sanechips CR Rel-16 38.306 16.3.0 0493 - F LTE\_NR\_DC\_CA\_enh-Core

By Email [222] (5)

Serving cell reporting for EMR (postponed in RAN2#112e):

[R2-2101090](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101090.zip) Serving cell reporting in early measurements Ericsson discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2100567](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100567.zip) Discussion on serving cell reporting for early measurement ZTE Corporation, Sanechips discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2101073](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101073.zip) CR on serving cell reporting Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.3.1 2382 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2101693](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101693.zip) Clarification on deriving and reporting cell level and beam level serving cell results Huawei, HiSilicon discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2101692](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101692.zip) Clarification on beam measurement and reporting based on broadcasted EMR configuration Huawei, HiSilicon discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2100127](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100127.zip) Discussion on serving cell early measurement reporting Qualcomm Incorporated discussion Rel-16 FS\_NR\_SL\_relay

By email [220] (1)

TCI state corrections:

[R2-2101747](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101747.zip) Correction on tci-PresentInDCI ASUSTeK CR Rel-16 38.331 16.3.1 2436 - F LTE\_NR\_DC\_CA\_enh-Core

* Revised in [R2-2101942](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101942.zip)

[R2-2101942](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101942.zip) Correction on tci-PresentInDCI ASUSTeK CR Rel-16 38.331 16.3.1 2436 1 F LTE\_NR\_DC\_CA\_enh-Core [R2-2101747](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101747.zip)

By Email [220] (3)

*Miscellaneous EMR corrections:*

[R2-2101570](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101570.zip) Clarification on sCellState configuration upon SCell modification ZTE Corporation, Sanechips CR Rel-16 38.331 16.3.1 2422 - F LTE\_NR\_DC\_CA\_enh-Core

*(moved from 6.8.3)*

[R2-2100303](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100303.zip) Corrections on condition of idle-inactive measurement configuration update OPPO CR Rel-16 38.331 16.3.1 2318 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2100304](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100304.zip) Clarification on carrier frequency in MeasIdleConfigSIB OPPO CR Rel-16 38.331 16.3.1 2319 - F LTE\_NR\_DC\_CA\_enh-Core

By Email [220] (3)

*BWP-related corrections:*

[R2-2100305](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100305.zip) Clarification on UE behaviour due to entering dormant BWP OPPO CR Rel-16 38.321 16.3.0 1011 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2101500](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101500.zip) Correction on BWP operation Samsung CR Rel-16 38.321 16.3.0 1036 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2101017](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101017.zip) Correction on first active uplink BWP vivo CR Rel-16 38.331 16.3.1 2375 - F LTE\_NR\_DC\_CA\_enh-Core

*Withdrawn:*

[R2-2100377](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100377.zip) Discussion on serving cell early measurement reporting Qualcomm Incorporated discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core Withdrawn

### 6.8.3 Other DCCA corrections

Including UE capability corrections, NR-NR DC, MCG SCell and SCG configuration with RRC resume, Fast MCG link recovery, and corrections that don’t fit under the other headings.

Including outcome of [Post112-e][255][R16 DCCA] Cell grouping for synchronous NR-DC (Ericsson)

Email discussions ([221])

* [AT113-e][221][DCCA] Other DCCA corrections (Ericsson)

Scope:

* + - Discuss corrections under 6.8.x marked for this discussion to see which CRs could be agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101967](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101967.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000

Web Conf 2nd week (summary of [221])

[R2-2101967](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101967.zip) Summary of [AT113-e][221][DCCA] Other DCCA corrections (Ericsson) Ericsson discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

Web Conf 1st week (4)

Outcome of [Post112-e][255][R16 DCCA] Cell grouping for synchronous NR-DC (Ericsson) (also related to RAN4 LS on NR-DC cell grouping):

[R2-2101093](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101093.zip) Summary of [Post112-e][255][R16 DCCA] Cell grouping for synchronous NR-DC Ericsson discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

- Huawei wonders if P2 only confirms previous agreement and MCG is only in FR1 and SCG in FR2. Ericsson indicates that is correct.

**Agreement**

2 For a Rel-16 UE supporting only synchronous NR-DC, absence of possible future cell grouping indication means that it only supports FR1-FR2 NR-DC (with MCG in FR1 and SCG in FR2).

3 Intra-FR power sharing capabilities can be used to indicate inter-CG power sharing support for synchronous NR-DC and implicitly whether UE supports intra-FR DC. Hence, no additional bits are needed to indicate this.

*Proposal 1 RAN2 to investigate how the framework of FG 22-7 could be applied for NR-DC cell group signalling, once RAN1 has solved remaining FFSs. Further analysis and comparison among alternatives is needed, including but not limited to:*

*- LTE-DC style (R2-2010593)*

*- Network filtering (R2-2010029)*

*- Reuse PUCCH grouping framework (R2-2011118)*

*Proposal 4 Way forward for cell grouping of synchronous NR-DC:*

*1. Solve further studies in observations 1 and 2.*

*2. Detailed study of cell grouping alternatives in proposal 1.*

*Observation 1 Further study is needed to conclude how to indicate PUCCH grouping support for synchronous NR-DC, either via a combination of FG 22-7 (once implemented) and other capabilities, or by introducing cell grouping signalling.*

*Observation 2 Further study is needed to conclude how to indicate FR2 MCG support for synchronous NR-DC, either via a combination of existing capabilities or by introducing cell grouping signalling.*

- Chair wonders what we can conclude P1 and P4 in this meeting? Ericsson thinks we need more time. Huawei wonders if we need further input from other groups or further signalling details? RAN4 already provide some input. Ericsson agrees and thinks other groups need not provide further input but RAN4 input may not have been up-to-date.

- Nokia wonders what it means if we delay decision to next meeting? Would it still be Rel-16 capability? MediaTek thinks we could start from asynchronous NR-DC case. Apple agrees we can do the async case in this meeting. Ericsson thinks the RAN4 reasons were related to power sharing which was not correct.

* Email discussion [223]: Attempt to resolve NR-DC cell grouping at least for asynchronous NR-DC. Can try also to consider the synchronous NR-DC.
* [AT113-e][223][DCCA] Asynchronous and synchronous NR-DC cell grouping (MediaTek)

Scope:

* + - Attempt to resolve NR-DC cell grouping **at least** for asynchronous NR-DC. Can try also to consider the synchronous NR-DC, but if it doesn't progress well, it may be postponed to next meeting
    - Discuss contributions related to all 3 alternatives.

Intended outcome:

* + - Discussion summary in [R2-2101980](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101980.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 2nd week Thu, UTC 1700
* **Check on 1st week Fri whether synchronous NR-DC part has progressed to determine if it should be postponed to next meeting**

Web Conf 2nd week Friday (summary of [223])

[R2-2101980](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101980.zip) [AT113-e][223][DCCA] Asynchronous and synchronous NR-DC cell grouping (MediaTek) MediaTek discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

By Email [223] (3)

[R2-2101091](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101091.zip) Cell grouping for asynchronous NR-DC Ericsson discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2101694](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101694.zip) NR-DC cell grouping for async and sync NR-DC Huawei, HiSilicon discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2101799](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101799.zip) Discussion on cell group capability MediaTek Inc. discussion LTE\_NR\_DC\_CA\_enh-Core

By Email [221] (2)

HARQ-ACK codebook configuration (RAN1):

[R2-2101076](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101076.zip) CR on HARQ-ACK codebook configuration for secondary PUCCH group Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.3.1 2384 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2100095](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100095.zip) Clarification on HARQ-ACK codebook for secondary PUCCH group CATT CR Rel-16 38.331 16.3.1 2299 - F LTE\_NR\_DC\_CA\_enh-Core

By Email [221] (3)

Fast MCG recovery:

[R2-2100096](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100096.zip) Clarification on Fast MCG Link Recovery CATT CR Rel-16 36.331 16.3.0 4543 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2100097](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100097.zip) Clarification on Fast MCG Link Recovery CATT CR Rel-16 38.331 16.3.1 2300 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2100438](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100438.zip) T316 handling when rlf-TimersAndConstantsMCG-Failure is received Samsung, ZTE Corporation, Sanechips CR Rel-16 36.331 16.3.0 4550 - F LTE\_NR\_DC\_CA\_enh-Core

By Email [221] (3)

Embedded RRC message handling:

[R2-2100093](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100093.zip) Correction on the Handling of Reconfiguration within RRC Resume CATT CR Rel-16 38.331 16.3.1 2298 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2100094](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100094.zip) Correction on the Handling of Reconfiguration within RRC Resume CATT CR Rel-16 36.331 16.3.0 4542 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2101018](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101018.zip) Correction on the submission of RRCReconfigurationComplete vivo CR Rel-16 38.331 16.3.1 2376 - F LTE\_NR\_DC\_CA\_enh-Core

By Email [221] (2)

NR-DC power control:

[R2-2101016](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101016.zip) Correction on FR2 NR-DC power control parameter vivo CR Rel-16 38.331 16.3.1 2374 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2101092](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101092.zip) Correction on p-UE-FR2 and p-NR-FR2 for NR-DC power control Ericsson CR Rel-16 38.331 16.3.1 2386 - F LTE\_NR\_DC\_CA\_enh-Core

# 7 Rel-16 EUTRA Work Items

Essential corrections

## 7.1 EUTRA Rel-16 General

No documents should be submitted to 7.1. Please submit to.7.1.x

Editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication.

### 7.1.1 Cross WI RRC corrections

Web Conf 1st week (1)

[R2-2101036](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101036.zip) Clarification to the DRX cycle in RRC\_IDLE and RRC\_INACTIVE Huawei, HiSilicon CR Rel-16 36.331 16.3.0 4483 2 F LTE\_eMTC5-Core, NB\_IOTenh3-Core, TEI16 R2-2009738

- Huawei clarifies that this was discussed in eMTC session in RAN2#112e.

- QC thinks there could be inconsistencies with using "eDRX" everywhere since we could have DRX period longer than modification period. Should be handled in eMTC session. Huawei is fine.

- QC is fine with referencing 36.304 but not changing all "DRX" to "eDRX".

- LGE has concern on handling this in MTC session and using "eDRX".

* Do not use "eDRX cycle" to replace "DRX cycle".
* Move the topic to eMTC session (in this meeting) and CR can be decided there (i.e. it's not brought back to general LTE session)

### 7.1.2 Feature Lists and UE capabilities

Web Conf 1st week (1)

[R2-2100005](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100005.zip) LS on updated Rel-16 RAN1 UE features lists for LTE (R1-2009351; 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

* Only changes are to (NR) V2X capabilities related to LTE, which are addressed in V2X session
* Noted (without presentation)

## 7.4 Even further mobility enhancement in E-UTRAN

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

No documents should be submitted to 7.4. Please submit to.7.4.x

Documents under 7.4 will be treated together with documents in 6.7

Editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication.

LTE CHO corrections should be submitted to 6.7.2.

### 7.4.1 General and Stage-2 Corrections

Including incoming LSs (if any)

Including corrections to TS36.300 (for LTE CHO and LTE DAPS)

### 7.4.2 DAPS handover Corrections

This AI jointly addresses corrections to NR and LTE DAPS (i.e. both NR and LTE corrections for DAPS should be submitted here).Including corrections to control and user plane specifications (e.g. 3x.331, 3x.323, 3x.321) for DAPS HO.

Email discussions ([211])

* [AT113-e][211][MOB] DAPS corrections (Huawei)

Scope:

* + - Discuss which DAPS corrections (for LTE and NR) marked for this discussion are seen agreeable
    - Some (or even all) CRs may be merged together if seen needed

Intended outcome:

* + - Discussion summary in [R2-2101964](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101964.zip) (by email rapporteur).
    - Agreeable CRs (if any)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
    - Initial deadline (for rapporteur's summary): 1st week Fri, UTC 0900
    - Deadline for CR finalization: 2nd week Thu, UTC 1000

Web Conf 2nd week (summary of [211])

[R2-2101964](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101964.zip) Summary of [AT113-e][211][MOB] DAPS corrections (Huawei) Huawei discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

Web Conf 1st week (4+3)

*Non-support of SUL during DAPS HO (see* [*R2-2100027*](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100027.zip) *in 6.7.1):*

[R2-2100620](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100620.zip) Support of NUL and SUL during DAPS handover Intel Corporation, Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

- Ericsson thinks we shouldn't use "NUL+SUL" and it's only SUL that's optional. LGE agrees. ZTE agrees that only SUL is optional, NUL is always used. Intel thinks there was no conclusion in RAN1 on this. Huawei agrees with Intel. LGE agrees with proposal.

- Apple wonders if we can allow SUL in source and NUL in target? Intel thinks this was discussed in RAN1 but there was no conclusion.

* From RAN2 perspective, we focus on NUL+SUL case.

**Agreements**

1 NUL+SUL does not operate simultaneously with DAPS HO. This will typically require network to do RRC reconfiguration, i.e. the network releases SUL configuration if NUL+SUL is configured in source before the DAPS HO command is sent to the UE, and the network cannot configure the NUL+SUL in DAPS HO command.

[R2-2100525](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100525.zip) NUL and SUL in DAPS handover Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_Mob\_enh-Core

[R2-2101361](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101361.zip) Clarification on SUL during DAPS HO Apple discussion Rel-16 NR\_Mob\_enh-Core

*(moved from 6.7.1)*

[R2-2100487](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100487.zip) No support of SUL during DAPS handover Ericsson, ZTE, Sanechips CR Rel-16 38.300 16.4.0 0333 - F NR\_Mob\_enh-Core

- Ericsson clarifies that this also corrects that target cannot configure the indicated features for DAPS HO, which was missing earlier.

- QC thinks we should use "released" instead of "deconfigured" but CR is otherwise fine. Nokia agrees. Samsung and ZTE agrees.

- Huawei is not sure "target cell" is needed since it's apparent from UE capabilities. MediaTek agrees but since SUL needs the target it's not wrong to add it.

- Intel thinks summary of change should reflect the target cell change for all features

* Use "released" instead of "deconfigured"
* Reflect the target cell part in summary of change.
* Use correct 38.331 CR number
* Revised in [R2-2101976](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101976.zip)

[R2-2101976](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101976.zip) No support of SUL during DAPS handover Ericsson, ZTE, Sanechips CR Rel-16 38.300 16.4.0 0333 1 F NR\_Mob\_enh-Core

* Agreed (unseen)

[R2-2100628](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100628.zip) 38.300 CR on support of NUL and SUL during DAPS handover Intel Corporation, Huawei, HiSilicon CR Rel-16 38.300 16.4.0 0334 - F NR\_Mob\_enh-Core

* Not pursued

[R2-2100627](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100627.zip) 38.331 CR on support of NUL and SUL during DAPS handover Intel Corporation, Huawei, HiSilicon CR Rel-16 38.331 16.3.0 2346 - F NR\_Mob\_enh-Core

- LGE thinks we should use "SUL" instead of "NUL+SUL" to avoid ambiguities. QC agrees and we don't use NUL in 38.331. Ericsson thinks we should use "SUL" in the change.

* Use exact Stage-3 field name in condition, e.g. "supplementaryUplink is not configured"
* Use correct 38.300 CR number
* Use correct specification version number (16.3.1)
* Revised in [R2-2101977](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101977.zip)

[R2-2101977](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101977.zip) 38.331 CR on support of NUL and SUL during DAPS handover Intel Corporation, Huawei, HiSilicon CR Rel-16 38.331 16.3.0 2346 1 F NR\_Mob\_enh-Core

* Agreed (unseen)

[R2-2101569](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101569.zip) Clarification on no support of SUL with DAPS ZTE Corporation, Sanechips, Ericsson CR Rel-16 38.331 16.3.1 2421 - F NR\_Mob\_enh-Core

* Not pursued

Web Conf 1st week (2+1+2)

*DAPS HO without key change (postponed in RAN2#112e):*

[R2-2100619](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100619.zip) Support of DAPS handover without key change Intel Corporation, Ericsson discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core R2-2009275

- Intel clarifies that DAPS HO without key change might still work of RoHC is not used.

- MediaTek agrees but would like to confirm whether we have any specification changes? Intel confirms that we don't capture anything in specifications but could capture the agreement in chairman's notes. QC agrees. Sharp also agrees.

- Samsung has concerns on "any bearer" as non-DAPS bearers could still use RoHC.

**Agreements**

1: To confirm, the changes on DAPS handover without key change in MAC and RRC specifications are still valid considering the network may configure DAPS handover without key change when for example ROHC is not used for any DAPS bearer of the UE. No specification changes are needed for this.

[R2-2101579](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101579.zip) DAPS HO without security key change LG Electronics Inc. discussion LTE\_feMob-Core R2-2010328

* Noted

*Source cell release after DAPS HO completion (postponed in RAN2#112e):*

[R2-2101711](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101711.zip) Discussion on source release indication Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

- Ericsson thinks we had the explicit indicator already so this is not needed. MediaTek thinks this is reasonable network behaviour but how to capture such thing in specifications? Nokia thinks we have already captured what cannot be done before DAPS release so this is not needed and agrees with Ericsson. This is the most likely network behaviour anyway. QC agrees but since we have Stage-3 text this may not be needed. Intel agrees.

- Huawei wonders if the target cell can send RRC reconfiguration before sending source release indicator or not? Apple thinks UE is required to store multiple configurations already so would be beneficial to restrict. LGE also agrees.

- Ericsson thinks RRC reconfiguration is used for everything so this would be unnecessary restriction that could create issues in the future and create new failure cases. Nokia thinks source reconfiguration is not possible. Huawei clarifies UE implementation becomes too complicated.

- Apple wonders which UE capabilities apply while source is not released? Intel thinks this is still during DAPS so it's the DAPS capabilities.

* Noted

Web Conf 2nd week or Postponed (2)

*Feature interworking (CHO and DAPS, DAPS + many other features)*

[R2-2100617](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100617.zip) Handling of CHO configuration during DAPS HO Intel Corporation CR Rel-16 38.331 16.3.0 2344 - F NR\_Mob\_enh-Core

[R2-2100488](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100488.zip) Reconfiguration during DAPS HO Ericsson discussion Rel-16 NR\_Mob\_enh-Core

By email [211] (4+1)

*Bearer handling during DAPS HO:*

[R2-2100626](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100626.zip) Miscellaneous corrections for Mobility Enhancements Intel Corporation (Rapporteur), Ericsson CR Rel-16 38.331 16.3.0 2345 - D NR\_Mob\_enh-Core

[R2-2101101](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101101.zip) Handling of non-DAPS bearers during DAPS HO MediaTek Inc. discussion

[R2-2101533](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101533.zip) Corrections for DAPS Handover MediaTek Inc. CR Rel-16 38.331 16.3.1 2417 - F NR\_Mob\_enh-Core

[R2-2101534](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101534.zip) Corrections for DAPS Handover MediaTek Inc. CR Rel-16 36.331 16.3.0 4580 - F LTE\_feMob-Core

[R2-2101568](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101568.zip) Corrections to DAPS handover in LTE ZTE Corporation, Sanechips CR Rel-16 36.331 16.3.0 4583 - F LTE\_feMob-Core

By email [211] (3+2)

*UP topics:*

[R2-2101498](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101498.zip) Handling of unforeseen protocol data during DAPS handover Samsung discussion Rel-16 NR\_Mob\_enh-Core

[R2-2101497](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101497.zip) CR for handling of unforeseen protocol data during DAPS HO Samsung CR Rel-16 38.321 16.3.0 1035 - F NR\_Mob\_enh-Core

[R2-2101499](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101499.zip) Correction on PDCP transmit operation Samsung CR Rel-16 38.323 16.2.0 0064 - F NR\_Mob\_enh-Core, NR\_IIOT-Core

*DAPS security concerns:*

[R2-2101501](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101501.zip) Views on several security concerns for DAPS handover Samsung discussion Rel-16 NR\_Mob\_enh-Core

[R2-2101902](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101902.zip) Potential security issue on DAPS handover with key change failure SHARP Corporation discussion Rel-16 NR\_Mob\_enh-Core R2-2010209

By email [212] (3)

*Capability coordination for DAPS:*

[R2-2100618](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100618.zip) DAPS capability coordination between source and target Intel Corporation discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

[R2-2101712](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101712.zip) Discussion on inter-node signalling for DAPS UE capability coordination Huawei, HiSilicon, MediaTek Inc., Qualcomm Incorporated, China Telecom, China Unicom discussion Rel-16 NR\_Mob\_enh-Core

[R2-2100486](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100486.zip) Inter-node signalling for UE capability coordination in DAPS handover Ericsson discussion Rel-16 TEI16

*(moved from 6.7.3)*

### 7.4.3 UE capability corrections

Including UE capability aspects of LTE mobility WI (i.e. UE capability corrections to 36.331 and 36.306).

## 7.5 LTE Other WIs

(LTE\_terr\_bcast-Core, LTE\_DL\_MIMO\_EE-Core, LTE\_high\_speed\_enh2-Core; LTE TEI16 Non-positioning)

(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)

Editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication.

Including TEI16 corrections and issues that do not fit under any other topic.

Web Conf 1st week (2)

*Fallback definition (postponed in RAN2#112e):*

[R2-2100606](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100606.zip) Clarification to Fallback band combination definition Nokia, Nokia Shanghai Bell CR Rel-16 36.306 16.3.0 1782 2 F TEI16 R2-2009433

- QC thinks this is correct interpretation but the CR is not needed. Apple agrees. Ericsson agrees.

- Huawei wonders if this is relevant for NR session discussion. Chair clarifies this would only impact LTE.

- Ericsson thinks the CR is not needed and is confused by RAN4 specification reference in cover page. Nokia clarifies this is because RAN4 uses "band" instead of "band entry". Ericsson is not sure since the cover page is confusing.

- OPPO is not sure about the intention of the CR. Nokia thinks this means there could be different interpretations on "band": Is it "band entry" or "one carrier" since RAN4 specifications consider "band" to be one CC whereas in RAN2, "band entry" can have multiple carriers. Which is the correct interpretation in RAN2: Band entry or one carrier?

- Nokia thinks this is important to clarify since it's quite fundamental.

- QC thinks alt.1 could be correct but is now confused since others think differently.

- Lenovo thinks that if the definition refers to the signalling the CR is Ok, but if it refers to how RAN4 defines channel BW combinations there is no contradiction.

Alternatives

1) From RAN2 viewpoint, "band" means "band entry" - Nokia, LGE

2) From RAN2 viewpoint, "band" means "one carrier" - OPPO, Ericsson

* [Post113-e][2xx][LTE] Clarification to Fallback band combination definition (Nokia)

Scope: Clarify what is the right interpretation of fallbacks in RAN2. Should clarify if this can impact also NR.

Intended outcome: Discussion report + agreeable LTE CRs (if any)

Deadline: Short/Long

*TEI16 for UDC agreed in RAN2#107bis (but forgotten afterwards):*

[R2-2100443](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100443.zip) BufferSize reconfiguration for UDC after RRC connection re-establishment MediaTek Inc. CR Rel-16 36.331 16.3.0 4551 - C TEI16

- MediaTek indicates this was agreed earlier but was not submitted. CATT agrees with the CR intention but the CR could be simpler. The same restriction is also present in another field. Should be Cat F instead of Cat C. Lenovo agrees that we should just remove restriction in bufferSize field. Ericsson is not sure how this would work.

* [AT113-e][205][LTE][UDC] BufferSize reconfiguration for UDC after RRC connection re-establishment (MediaTek)

Scope: Discuss CR wording to provide agreeable version.

Intended outcome: Agreed CR (via email)

Deadline: 2nd week Thu

By Email [202] (1)

*Overheating (see also contributions in 4.5):*

[R2-2101665](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101665.zip) Correction on SCG overheating configuration release Google Inc. CR Rel-16 36.331 16.3.0 4587 - F TEI16

# 8 Rel-17 NR Work Items

## 8.2 MR DC/CA further enhancements

(LTE\_NR\_DC\_enh2-Core; leading WG: RAN2; REL-17; WID: RP-201040)

Time budget: 1 TU

Tdoc Limitation: 4 tdocs

Email max expectation: 3 threads

No documents should be submitted to 8.2. Please submit to.8.2.x

### 8.2.1 Organizational, Requirements and Scope

Including LSs, and any rapporteur inputs.

Web Conf 1st week (1)

[R2-2101480](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101480.zip) Work plan for Rel-17 Further Multi-RAT Dual-Connectivity enhancements Huawei Work Plan Rel-17 LTE\_NR\_DC\_enh2-Core Late

### 8.2.2 Efficient activation / deactivation mechanism for one SCG and SCells

Email discussions ([230] , kicked off after 1st week Web Conf)

* [AT113-e][230][eDCCA] Solution alternatives for SCG activation and deactivation (Huawei)

Scope:

* + - Summarize main solution directions based on alternative approaches submitted to 8.2.2: Which combined solutions have the most support? What are the main solution approaches to consider in Rel-17?

Intended outcome:

* + - Discussion summary in [R2-2101969](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101969.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Wed, UTC 0900
    - Initial deadline (for rapporteur's summary): 2nd week Thu, UTC 1000

Web Conf 2nd week (summary of [230])

[R2-2101969](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101969.zip) Summary of [AT113-e][230][eDCCA] Solution alternatives for SCG activation and deactivation (Huawei) Huawei discussion Rel-17 LTE\_NR\_DC\_enh2-Core

Web Conf 1st week (4)

*TAT handling and random access:*

[R2-2101884](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101884.zip) Signallings of SCG activation and deactivation CMCC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 1: SCG activation/deactivation can be triggered by MN/SN/UE.*

*Proposal 2: MN makes the decision and transmits the transition indication to UE and notification to SN.*

*Proposal 3: RRC signalling is the baseline for the inter-node interaction between UE, MN and SN in SCG activation/deactivation.*

*Proposal 4: The UE perform RACH procedure on the PSCell while SCG state transits from deactivation to activation if the corresponding TAT expires.*

[R2-2100647](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100647.zip) Considerations on Time Alignment Timer for SCG deactivation KDDI Corporation discussion

*Proposal 1: RAN2 agrees to assume that after SCG is deactivated, UL TA is still accurate until TA timer expires.*

*Proposal2: RAN2 agrees to keep the TA timer running when SCG is deactivated.*

*Proposal3: RAN2 agrees to resume normal SCG operation (resume UL transmission) without RACH if the SCG is activated while the TAT is still running.*

[R2-2100589](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100589.zip) Progressing SCG deactivation and resumption for R17 Samsung Telecommunications discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 1 UE always performs RA upon SCG activation*

*Proposal 2 As baseline, allow any modification of SCG configuration while SCG is deactivated, including configurations used upon or after SCG re-activation. UE applies such configurations when relevant i.e. upon/ following receipt of SCG re-activation command*

*• No need for timer based UE autonous release of CFRA resources*

*Proposal 3 Introduce neither RLM/ RLF/ SCG failure reporting, nor optimise RRM measurements (e.g. no reduced performance)*

*Proposal 4 MN coordinates SCG deactivation i.e. MN collects status of all relevant triggers e.g activity of all DRBs using SCG resources. SN provides assistance (MN and SN terminated)*

*Proposal 5 As baseline use RRC signalling for UE initiated SCG resumption. FFS whether to also support UE initiated resumption by RA on PSCell*

*Proposal 6 Use of UE autonomous actions should be avoided i.e. explicit network signalling is baseline for configurations changes that are required upon change of SCG activation state*

*Proposal 7 RRC signalling is used SCG (de-)activation and MN initiates the signalling (procedure) towards UE*

*Proposal 8 Decide whether to adopt UE autonomous for DRBs/ RLC bearers after review of detailed stage 3 specification changes*

*• Investigate UE actions upon suspension of SCG RLC bearer, for SCG and split DRB*

*• For DRBs using UL split, baseline is to leave triggering of resumption up to network*

*Proposal 9 As baseline, avoid specifying restrictions regarding RRM operations while SCG is deactivated. Also for measurements UE autonomous actions are not required upon change of SCG activation state*

*Proposal 10 Regarding the enhancements for resumption, consider the option to keep SCG/ SCells until the first subsequent reconfiguration as the main candidate*

[R2-2101095](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101095.zip) On the need for random access during SCG activation Ericsson discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

*Observation 1 The RRC and physical layer processing and the time required to establish downlink fine synchronization are the biggest delay components, especially for FR2 SCG activation, where long SMTC is desirable.*

*Observation 2 SCG activation with random access is needed for the case where the UE has lost uplink synchronization for the deactivated SCG.*

*Observation 3 In addition to SCG activation with random access, activation via Scheduling Request can provide lower latency for the case where UL synchronization and beam relations are maintained.*

*Observation 4 Reducing processing times and maintaining DL timing information for deactivated SCG allows an 80% reduction in SCG activation delay.*

*Observation 5 Maintaining UL sync allows a further 50% reduction.*

*Observation 6 In the case random access is performed during activation, further delays exists due to beam refinement and link adaptation until efficient transmissions/receptions can be performed.*

*Observation 7 Reducing processing times and maintaining DL timing information for deactivated SCG allows a 40% reduction in MCG subband utilization.*

*Observation 8 Maintaining UL sync allows a further 20% reduction in MCG subband utilization.*

*Observation 9 If the TA timer is still running upon SCG activation, the UE assumes it is UL synchronized, which enables the UE to access the PSCell without the need of random access.*

*Observation 10 If none of BFD, beam management, CSI are supported, UE always requires random access upon SCG activation which increases the activation delay.*

*Proposal 1 The UE maintains DL sync while the SCG is deactivated (e.g. including SFN timing and SSB selection) such that the UE is ready to transmit in next PRACH or SR occasion having processed the SCG activation command.*

*Proposal 2 Define a reduced processing time for RRC reconfiguration for activating SCG with limited changes to the SCG configuration.*

*Proposal 3 Send LS to RAN4 to confirm whether Tprocessing = 0ms could be assumed for SCG activation, without cell or frequency change.*

*Proposal 4 Random access on PSCell is not always needed when SCG is to be activated.*

*Proposal 5 When the SCG is deactivated the TA timer is not stopped.*

*Proposal 6 If TA timer has expired upon SCG activation, the UE performs random access in the PSCell.*

*Proposal 7 The UE performs BFD monitoring for deactivated SCG. FFS Discuss actions upon BFD while SCG is deactivated.*

*Proposal 8 When the SCG is to be activated, if TA timer is still running and BFD was not declared, the UE activates the PSCell without random access.*

*Proposal 9 If BFD is declared while SCG is deactivated, FFS whether the UE:*

*a. performs BFR on PSCell;*

*b. reports BFR via MCG;*

*c. waits until it needs to activate SCG and perform random access.*

*Proposal 10 Discuss the possibilities to support SCG CSI reporting while SCG is deactivated. FFS how reporting can be enabled e.g. via SCG or MCG.*

*Proposal 11 If SCG is deactivated, UE performs some level of S-RLM and SCG failure information procedure is supported to report the failure. Exact behaviour to be discussed after beam management and CSI for deactivated SCG is defined.*

Web Conf 1st week (1)

*MAC vs. RRC signalling:*

[R2-2100568](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100568.zip) Further consideration on SCG deactivation and activation ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 1: Network triggers SCG deactivation/activation by sending indication to UE, the indication is carried in DL RRC messages.*

*Proposal 2: When SCG is deactivated, all SCG SCells should be in deactivated state. Do not support SCell dormancy in this case.*

*Proposal 3: When UE is configured to keep SCG in deactivation state upon PSCell change, UE can just store the configured SCG configuration without performing RACH procedure towards target PSCell.*

*Proposal 4: SCG SCell can be added/reconfigured/released when SCG is in deactivated. In this case, the SCell maintains its state (remains in deactivated state).*

*Proposal 5: For fast SCG activation, RAN2 should focus on how to reduce the latency of entire procedure, not only discuss how to reduce the latency in Uu interface.*

*Proposal 6: For fast SCG activation, RAN2 to discuss:*

* Whether/How to support SCG activation procedure directlly initiated by SN (not through sending Activity Notification to MN).*

* Whether/How to support UE directly initiate RACH procedure towards PSCell (upon arrival of of UL data for SCG bearer).*

Web Conf 1st week (1)

*SCG deactivation details:*

[R2-2101481](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101481.zip) UE behaviour on deactivated SCG Huawei, HiSilicon discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Observation 1: The SCG activation delay components of TRRC\_delay, Tprocessing, Tsearch and T∆ can be reduced or eliminated based on RRM measurement or RLM on PSCell.*

*Proposal 1: Confirm that there is no PUSCH and PUCCH transmission on deactivated SCG.*

*Proposal 2: Confirm that there is no PDCCH monitoring on PSCell of the deactivated SCG.*

*Proposal 3: Confirm that there is no support of SCell dormancy within a deactivated SCG.*

*Proposal 4: Maintain TA timer after SCG is deactivated, and upon reception of SCG activation command,*

*- If the TA timer does not expire or is not stopped, UE can activate SCG transmission without RACH using the last serving DL control beam.*

*- Otherwise, the UE should initiate RACH on PSCell.*

*Proposal 5: Confirm that the contention based random access can be used on PSCell if RACH is needed upon SCG is activated.*

*Proposal 6: Support beam failure detection on PSCell when SCG is deactivated, and upon beam failure detection, the UE reports the failure to SN via MCG.*

*Proposal 7: When SCG is deactivated,*

*- 7A: Upon beam failure detection, the UE stops TA timer.*

*- 7B: Upon expiry of TA timer, the UE stops beam failure detection on PSCell.*

*Proposal 8: No support of L1 measurement and reporting for DL beam management purpose on PSCell of deactivated SCG.*

*Proposal 9: Legacy SN reconfiguration message can be sent to the UE embedded in MN RRC reconfiguration message when SCG is deactivated for:*

*- SCell addition/release/reconfiguration*

*- RRM measurement/reporting reconfiguration*

*Proposal 10: RLM should be maintained on the PSCell after SCG is deactivated. After RLF is detected, the existing SCG failure reporting procedure should be initiated by the UE.*

[R2-2101807](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101807.zip) Discussion on SCG deactivation MediaTek Inc. discussion LTE\_NR\_DC\_enh2-Core

*Observation 1: For power saving purpose and for thermal protection, PSCell deactivation (as SCell deactivation behaviour) is simple and efficient.*

*Proposal 1: While the SCG is deactivated, the UE shall deactivate all SCG SCell(s) (i.e. SCG SCell(s) cannot be in dormant or activate state).*

*Proposal 2: When a PSCell is deactivated*

*• The UE does not perform RLM/BFD on that PSCell*

*• The UE does not maintain the TA value for the SCG*

*• The UE does not report CSI on the PSCell or for the PSCell*

*Proposal 3: SCG SCell could be added/reconfigured/released while SCG is in deactivated state. However, SCG SCell could not be activated via RRC direct SCell activation while adding.*

*Proposal 4: Reconfiguration of SCG RRM is supported while SCG in deactivated. The UE does not release RRM configuration automatically while go into the SCG deactivate state.*

*Proposal 5: While the PSCell is activated from deactivated state, the UE shall*

*• Trigger RACH to the PSCell if TA timer is expires*

*• Resume the SCG transmission for all radio bearers*

Web Conf 1st week (3)

*MN and SN roles and SCG deactivation procedure:*

[R2-2100641](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100641.zip) SCG (de)activation initiation NEC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 1: RAN2 to agree that both the MN and the SN can initiate SCG (de)activation, while the final decision is made by the MN.*

*Proposal 2: RAN2 to discuss a need of an LS to RAN3 to inform the agreement on SCG (de)activation initiation and possibly others related to RAN3 scope.*

[R2-2101078](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101078.zip) MN and SN responsibilities for SCG deactivation Nokia, Nokia Shanghai Bell discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Observation 1: The SCG deactivation is mainly aimed for a case when there is little traffic to be served from the SN.*

*Observation 2: The SCG activation is likely triggered by data arrival for a bearer served by SCG.*

*Observation 3: MN is always required to perform some actions when SCG deactivation occurs.*

*Observation 4: Since the PDCP may be hosted by MN or SN, neither node has always perfect knowledge of the UE traffic situation.*

*Proposal 1: Both MN and SN can initiate SCG deactivation and the responding node can reject the request. The signalling details of this are up to RAN3.*

*Proposal 2: MN sends the SCG deactivation command to the UE.*

*Proposal 3: Both MN and SN can initiate SCG activation. SN can reject the activation request, but MN cannot. The signalling details of this are up to RAN3.*

*Proposal 4: MN sends the SCG activation command to the UE.*

*Proposal 5: Send LS to RAN3 informing them of the RAN2 decisions on MN/SN roles in SCG deactivation according to Annex A.*

[R2-2101483](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101483.zip) Selection of SCG activation state at mobility and resume Huawei, HiSilicon discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 1: At PSCell addition, the MN decides whether the SCG will be activated or deactivated (provided the SN supports the SCG deactivated state). Related details of MN-SN interaction are to be worked out by RAN3.*

*Proposal 2: At handover, the target MN decides whether the SCG will be activated or deactivated (provided the SN supports the SCG deactivated state). Related details of MN-SN interaction are to be worked out by RAN3.*

*Proposal 3: In case of MN-initiated SN change, the MN decides whether the SCG will be activated or deactivated (provided the SN supports the SCG deactivated state). Related details of MN-SN interaction are to be worked out by RAN3.*

*Proposal 4: In case of SN-initiated SN change while the SCG is deactivated, the MN determines with the target SN whether the MN can remain deactivated. It is up to RAN3 whether the network procedure is the same like PSCell addition.*

*Proposal 5: In case of SN-initiated intra-SN PSCell change while the SCG is deactivated, there is no need to change the SCG activation state (but if, for some reason, SN-initiated SN modification would support changing the SCG activation state, it could be performed in at SN-initiated intra-SN PSCell change).*

*Proposal 6: In case of SN-initiated SN change while the SCG is activated, the MN determines with the target SN whether the MN can remain deactivated. It is up to RAN3 whether the network procedure is the same like PSCell addition.*

*Proposal 7: The SCG state cannot be changed at SN-initiated intra-SN PSCell change without MN involvement.*

*Proposal 8: In case of SN-initiated intra-SN PSCell change while the SCG is activated, there is no need to change the SCG activation state (but if, for some reason, SN-initiated SN modification would support changing the SCG activation state, it could be performed in at SN-initiated intra-SN PSCell change).*

*Proposal 9: At resume, the MN decides whether the SCG will be activated or deactivated (provided the SN supports the SCG deactivated state). Related details of MN-SN interaction are to be worked out by RAN3.*

Likely not treated this meeting (25)

*SCG (de)activation procedure details:*

[R2-2101096](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101096.zip) SCG (de)activation procedure Ericsson discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2101077](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101077.zip) Deactivated SCG handling Nokia, Nokia Shanghai Bell discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100640](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100640.zip) Further considerations on SCG deactivation NEC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101883](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101883.zip) Considerations on SCells in SCG deactivation CMCC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101121](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101121.zip) General issues on SCG activation and deactivation Lenovo, Motorola Mobility discussion Rel-17

[R2-2101122](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101122.zip) [Draft] LS on SCG activation and deactivation Lenovo, Motorola Mobility LS out Rel-17 LTE\_NR\_DC\_CA\_enh-Core To:RAN3

[R2-2100426](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100426.zip) Discussion on SCG deactivation China Telecom discussion

[R2-2100136](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100136.zip) Discussion on SCG deactivation and activation OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100632](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100632.zip) Further discuss the issues with SCG fast activation Futurewei discussion Rel-17 LTE\_NR\_DC\_enh2-Core R2-2009284

[R2-2101014](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101014.zip) UE behavior for SCG deactivation vivo discussion LTE\_NR\_DC\_enh2-Core

[R2-2100729](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100729.zip) Power-efficient SCG (De)activation mechanism LG Electronics discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100730](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100730.zip) Time-fficient SCG (De)activation mechanism LG Electronics discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100667](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100667.zip) Discussion on efficient activation mechanism for one SCG and SCells Spreadtrum Communications discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101015](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101015.zip) Signaling aspect of SCG activation and deactivation vivo discussion LTE\_NR\_DC\_enh2-Core

[R2-2101094](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101094.zip) Mobility and RRM for deactivated SCG Ericsson discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2101123](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101123.zip) SCell states configuration in the same RRC message to activate/deactivate SCG Lenovo, Motorola Mobility discussion Rel-17

[R2-2101235](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101235.zip) Further Considerations on Efficient SCG Activation/Deactivation CATT discussion Rel-17 LTE\_NR\_DC\_enh2-Core R2-2009357

[R2-2101312](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101312.zip) On Support of Activation/Deactivation for SCG InterDigital discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101464](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101464.zip) Remaining open items on SCG deactivation feature Apple Inc discussion Rel-17 LTE\_NR\_DC\_enh2-Core R2-2009531

[R2-2101482](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101482.zip) SCG activation and deactivation procedure Huawei, HiSilicon discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101541](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101541.zip) Consideration for some remaining FFSes Intel Corporation discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101871](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101871.zip) UE behaviour in SCG deactivated state Qualcomm Incorporated discussion Rel-17

[R2-2101876](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101876.zip) Further discussion for SCG deactivation SHARP Corporation discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101915](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101915.zip) Further consideration on SCG activation and deactivation NTT DOCOMO INC. discussion LTE\_NR\_DC\_enh2-Core Late

*TRS-based activation (related to ongoing RAN1 work):*

[R2-2100137](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100137.zip) Discussion on TRS activation for fast SCell activation OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Unsorted*

*Withdrawn:*

[R2-2101865](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101865.zip) LS RAN2 decisions for SCG deactivation Nokia, Nokia Shanghai Bell LS out Rel-17 LTE\_NR\_DC\_enh2-Core To:RAN3 Withdrawn

### 8.2.3 Conditional PSCell change / addition

Email discussions ([231] , kicked off after 1st week Web Conf)

* [AT113-e][231][eDCCA] Solution alternatives for CPAC (NN)

Scope:

* + - Summarize main solution directions based on contributions submitted to 8.2.3
    - Attempt to identify the main open issues to progress in this meeting

Intended outcome:

* + - Discussion summary in [R2-2101970](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101970.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Wed, UTC 0900
    - Initial deadline (for rapporteur's summary): 2nd week Thu, UTC 1000

Web Conf 2nd week (summary of [231])

[R2-2101970](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101970.zip) Summary of [AT113-e][231][eDCCA] Solution alternatives for CPAC (CATT) CATT discussion Rel-17 LTE\_NR\_DC\_enh2-Core

Web Conf 1st week (1)

[R2-2101238](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101238.zip) Handling leftovers from email discussion [Post111-e][920] Conditional PSCell Change and Addition CATT discussion Rel-17 LTE\_NR\_DC\_enh2-Core R2-2009360

*Proposal 1: In SN initiated CPC with MN involvement, the source SN transfers the execution condition(s) to the MN. The MN does not need to comprehend the execution condition set by the source SN. FFS on stage-3 detail of coding of execution condition in the final message.*

*Proposal 2: Only SRB1 can be used in CPA and Inter-SN CPC scenarios in Rel-17. The complete message upon CPAC execution for CPA and Inter-SN CPC in Rel-17 should be provided to the MN via SRB1.*

*Proposal 3: If SRB1 is used for the transmission of CPAC configuration, upon reception of RRCReconfiguration/RRCConnectionReconfiguration message with CPAC configuration, the UE shall reply the RRCReconfigurationComplete/RRCConnectionReconfigurationComplete message to the MN to inform that the message has been received. The message shall not include an embedded RRC complete message to the SN.*

*Proposal 4: UE checks the validity of CPAC execution criteria configuration immediately on receiving the CPAC Reconfiguration message.*

*- Compliance check for embedded RRCReconfiguration may be delayed until execution (up to UE implementation). Introduce no specification changes regarding compliance checking of embedded Reconfiguration message containing configuration of conditional PSCell candidate.*

*Proposal 5: Following two options should be discussed for the transmission of RRC complete message upon the CPAC execution.*

*Option 1: If SRB1 is used for the transmission, in CPA and Inter-SN CPC, upon execution of CPAC, the UE shall reply the RRCReconfigurationComplete/RRCConnectionReconfigurationComplete message to the MN including an embedded RRC complete message to the SN, and then the MN informs the target SN. This assumes the scenario where the MCG configuration is/can be changed upon triggering the CPA and/or inter-SN CPC.*

*Option 2: If SRB1 is used for the transmission, in CPA and Inter-SN CPC, upon execution of CPAC, the ULInformationTransferMRDC should be used to transfer the complete message (as for intra-SN CPC). This assumes the scenario where the MCG configuration is not changed upon triggering the CPA and/or inter-SN CPC.*

*Proposal 6: Baseline that the configurations of all candidates PSCell configurations for CPA and Inter-SN PSCell change are released upon the successful completion of CPAC, conventional PSCell change or conventional PSCell addition.*

*Proposal 7: SCGFailureInformation procedure can be taken as the baseline for CPAC failure handling in Rel-17 scenarios. FFS on message content.*

Web Conf 1st week (1)

*Procedural details, including discussion on input to RAN3:*

[R2-2100531](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100531.zip) On Rel-17 Basic CPAC procedures Nokia, Nokia Shanghai Bell discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Observation 1: Source SN cannot set beforehand in SN/SgNB Change Required message (sent to MN) the CPC execution condition for each PSCell that is prepared later by the target SN.*

*Proposal 1: For SN-initiated inter-SN CPC, the source SN may provide in SN/SgNB Change Required message one CPC execution condition (identified by a measurement ID(s)) to be associated with RRC Reconfiguration(s) of the PSCells that are prepared by target SN. Details of the signalling are to be discussed in RAN3.*

*Proposal 2: For SN-initiated inter-SN CPC, the source SN may inform the MN in SN/SgNB Change Required message to indicate the IDs of the PSCells that are prepared by the target SN. Upon receiving this information from MN, source SN provides the MN with the CPC execution condition for each prepared PSCell. Details of the signalling are to be discussed in RAN3.*

*Proposal 3: RAN2 to send an LS informing RAN3 about the aforementioned procedures for configuring CPC execution condition in SN initiated inter-SN CPC.*

*Observation 2: There is no necessity to define early and late data forwarding for CPAC procedure as on-time data forwarding is possible.*

*Proposal 4: UE indicates to MN the target PSCell when the CPAC execution condition is met. Stage 3 details of this indication are to be discussed in RAN2, e.g., indication as a part of RRC Reconfiguration Complete sent by the UE to MN when CPAC condition is met, UL Information Transfer MRDC or separate message.*

*Proposal 5: RAN2 to inform RAN3 about the decision to support on-time data forwarding for CPAC procedures instead of early and late data forwarding mechanisms. X2/Xn signalling to perform on-time data forwarding and release of other, non-accessed target PSCells, are to be discussed in RAN3.*

[R2-2101484](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101484.zip) Conditional PSCell change/addition Huawei, HiSilicon discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 1: For the CPA, the MN RRC Reconfiguration message#1 includes the CPA configuration. The CPA configuration includes the MN RRC reconfiguration message #2, SN RRC reconfiguration message #1 and the execution condition.*

*Proposal 2: For the CPA*

*- Upon reception of MN RRC Reconfiguration message#1 with CPA configuration, the UE shall reply the MN RRC Reconfiguration Complete message#1 not including the SN RRC Reconfiguration Complete message to inform MN that the RRC Reconfiguration message has been received. Then the MN indicates the candidate SN(s) that the UE has received the CPA. FFS via inter-node message or RAN3 Xn/X2 message.*

*- Upon the execution condition is satisfied, the UE shall send the MN RRC Reconfiguration Complete message#2 including the SN RRC Reconfiguration Complete message#1 to the MN. Then the MN forwards the SN RRC Reconfiguration Complete message#1 to the selected SN.*

*Proposal 3: For CPA, the selected SN does not send the success message to the MN after the UE successfully accesses the selected PSCell.*

*Proposal 4: For MN initiated inter-SN CPC, the MN RRC Reconfiguration message#1 includes the CPC configuration. The CPC configuration includes the MN RRC reconfiguration message #2, SN RRC reconfiguration message #1 and the execution condition.*

*Proposal 5: For the MN initiated inter-SN CPC*

*- Upon reception of MN RRC Reconfiguration message#1 with CPC configuration, the UE shall reply the MN RRC Reconfiguration Complete message#1 not including the SN RRC Reconfiguration complete message to the MN to inform that the message has been received. Then the MN indicates the candidate SN that the UE has received the CPC. FFS via inter-node message or RAN3 Xn/X2 message.*

*- Upon the execution condition is satisfied, the UE shall reply the MN RRC Reconfiguration message #2 including the SN RRC Reconfiguration Complete message#1 to the MN. Then the MN forwards the SN RRC Reconfiguration Complete message#1 to the selected target SN.*

*Proposal 6: For the MN initiated inter-SN CPC, the selected target SN does not send the success message to the MN after the UE successfully accesses the selected PSCell.*

*Proposal 7: For the SN initiated inter-SN CPC, the source SN sends the suggested PSCell IDs to the candidate SN via the MN.*

*Proposal 8: For the SN initiated inter-SN CPC, the source SN sends the execution condition to the candidate SN via the MN. The candidate SN provides the SN RRC reconfiguration of candidate PSCell and the associated execution condition to the MN.*

*Proposal 9: For SN initiated inter-SN CPC, the MN RRC Reconfiguration message#1 includes the CPC configuration. The CPC configuration includes the MN RRC reconfiguration message #2, SN RRC reconfiguration message #1 and the execution condition.*

*Proposal 10: For the SN initiated inter-SN CPC*

*- Upon reception of MN RRC Reconfiguration message#1 with CPC configuration, the UE shall reply the MN RRC Reconfiguration Complete message#1 not including the SN RRC Reconfiguration complete message to the MN to inform that the message has been received. Then the MN indicates the candidate SN that the UE has received the CPC. FFS via inter-node message or RAN3 Xn/X2 message.*

*- Upon the execution condition is satisfied, the UE shall reply the MN RRC Reconfiguration Complete message#2 including the SN RRC Reconfiguation complete message #1 to the MN. Then the MN forwards the SN RRC Reconfiguration complete message #1 to the selected target SN.*

*Proposal 11: For the SN initiated inter-SN CPC, the selected target SN does not send the success message to the MN after the UE successfully accesses the selected PSCell.*

*Proposal 12: Deprioritize the scenario of SN initiated intra-SN CPC with MN involvement.*

Web Conf 1st week (if time allows) (1)

*CPAC configuration:*

[R2-2100463](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100463.zip) Discussion on the configuration of CPAC vivo discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100464](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100464.zip) Discussion on CPAC configuration scenarios vivo discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100532](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100532.zip) On Rel-17 Further CPAC functionalities Nokia, Nokia Shanghai Bell discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100590](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100590.zip) Progressing conditional configuration for R17 Samsung Telecommunications discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100633](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100633.zip) CPAC failure handling discussion Futurewei discussion Rel-17 LTE\_NR\_DC\_enh2-Core R2-2009285

Web Conf 1st week (if time allows) (1)

*CHO+CPAC:*

[R2-2100727](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100727.zip) Support for CHO and CPAC coexistence LG Electronics discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 1. Support the coexistence of CHO and CPAC configurations in UE.*

*Proposal 2. UE supports up to 16 candidate cells for conditional mobility*

[R2-2101313](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101313.zip) Coexistence of CHO and CPAC InterDigital, Nokia, Nokia Shanghai Bell, ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_DC\_enh2-Core

Likely not treated in this meeting (24)

*CPAC configuration and execution details:*

[R2-2101886](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101886.zip) Discussions about CPA and MN initiated inter-SN CPC procedures CMCC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101872](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101872.zip) CPA and MN initiated Inter-SN CPC procedures: preparation and execution phases Qualcomm Incorporated discussion Rel-17

[R2-2101875](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101875.zip) SN initiated Inter-SN CPC procedure: preparation and execution phases Qualcomm Incorporated discussion Rel-17

[R2-2100292](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100292.zip) Considerations on failure handling for CPAC China Telecommunication discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100875](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100875.zip) Details in conditional PSCell change and addition Apple discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100642](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100642.zip) Candidate PSCell selection in CPAC NEC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100672](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100672.zip) CPC configuration number restriction Spreadtrum Communications discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100728](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100728.zip) Consideration on further enhancements in CPAC LG Electronics discussion Rel-17 LTE\_NR\_DC\_enh2-Core R2-2010282

[R2-2100827](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100827.zip) SCG RLF handling in case CPC is configured ITRI discussion LTE\_NR\_DC\_enh2-Core

[R2-2100847](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100847.zip) Discussion on conditional PSCell addition OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2100848](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100848.zip) Discussion on conditional PSCell change OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101124](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101124.zip) Discussion on CPAC Lenovo, Motorola Mobility discussion Rel-17

[R2-2101236](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101236.zip) Further Discussion on CPAC CATT discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101270](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101270.zip) Conditional PSCell Change / Addition Ericsson discussion LTE\_NR\_DC\_enh2-Core

[R2-2101566](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101566.zip) Discussion on conditional PSCell addition and change ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101567](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101567.zip) Further consideration on conditional PSCell addition and change ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101765](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101765.zip) Discussion on CPAC Execution ETRI discussion Rel-17 LTE\_NR\_DC\_enh2-Core R2-2010248

[R2-2101885](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101885.zip) Considerations on CPAC CMCC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2101916](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101916.zip) Further consideration on Conditional PSCel change and addition NTT DOCOMO INC. discussion LTE\_NR\_DC\_enh2-Core Late

Not treated in this meeting (3)

*Draft CRs:*

[R2-2101237](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101237.zip) Introduction of CPA and Inter-SN CPC for 37 340 CATT draftCR Rel-17 37.340 16.4.0 B LTE\_NR\_DC\_enh2-Core

[R2-2101402](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101402.zip) Introducing MR DC/CA further enhancements concerning CPAC Samsung Telecommunications draftCR Rel-17 38.331 16.3.1 B LTE\_NR\_MUSIM-Core

[R2-2101403](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101403.zip) Introducing MR DC/CA further enhancements concerning CPAC Samsung Telecommunications draftCR Rel-17 36.331 16.3.0 B LTE\_NR\_DC\_enh2-Core

*Withdrawn:*

[R2-2100783](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100783.zip) New timer for SDT failure detection LG Electronics discussion Rel-17 NR\_SmallData\_INACTIVE-Core Withdrawn

## 8.3 Multi SIM

(LTE\_NR\_MUSIM-Core; leading WG: RAN2; REL-17; WID: RP-202895)

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

Email max expectation: 3 threads

### 8.3.1 Organizational, Requirements and Scope

Including LSs and any rapporteur input.

Web Conf 1st week (1)

*RAN3 LS on system support of multi-SIM:*

[R2-2100042](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100042.zip) Reply LS on System support for Multi-USIM devices (R3-207207; contact: vivo) RAN3 LS in Rel-17 LTE\_NR\_MUSIM-Core To:SA2, RAN2 Cc:SA3

*- Q1: Please confirm the feasibility and overhead of sending a Paging Cause in [Uu] Paging message for EPS and for 5GS. [RAN2, RAN3]*

*A1: From RAN3 point of view, it is feasible to include paging cause over network interfaces, assuming that the size of paging cause is limited. The final decision about whether to introduce paging cause can be decided by other groups.*

*- Q3: Please indicate how the paging cause is expected to be supported in RAN nodes (e.g. per PLMN, per TA, per RAN node, per cell) (For NR and E-UTRA) [RAN2, RAN3]*

*A3: There is no consensus on how the paging cause is expected to be supported in RAN node (For NR and E-UTRA). RAN3 will continue to discuss the granularity of paging cause in RAN node.*

*- Q5: Please provide feedback if it is feasible (and secure) that the Busy Indication is sent as RRC message instead (no NAS message to the CN) i.e. as a RRC response to paging without requiring an RRC connection [RAN2, RAN3, SA3]*

*A5: It is out of RAN3 scope and can be left to RAN2/SA2/SA3 to make decision.*

*- Q6: Please indicate whether it is feasible to define an RRC-based leaving and returning procedure in 5GS/NR. [RAN2, RAN3]*

*A6: It is mainly in RAN2 scope and RAN3 shall wait for RAN2 progress on the detailed solution.*

*- Q7: Please let us know whether changes to 5GS/E-UTRA (Option 5) to support RRC-based leaving is part of RAN Work Item. [RAN2, RAN3].*

*A7: RAN2 is the leading group on the multi-USIM WI, thus this question should be discussed in RAN2 WG.*

*- Q9: SA2 would like to ask RAN2 and RAN3 to take these solutions into consideration and provide feedback including proposals from RAN that SA2 may have not yet considered.*

*A9: RAN3 will wait until RAN2 decides on which solution to resolve paging collision.*

*- Q10: Some companies in SA2 believe that the RAN plenary decision on “No E-UTRA impact” restriction is only related to layers RRC and below. Other companies in SA2 believe that the restriction also includes no impact to S1\_AP and NG\_AP. It would be helpful for SA2 to get the correct definition of the WI restriction from RAN WGs.*

*A10: RAN3 has no consensus on whether “no E-UTRA impact” restriction should also be applied for S1\_AP and NG\_AP.*

* Noted

Post-meeting Email [24x] (2)

*Running CRs:*

[R2-2100471](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100471.zip) Running CR to 36300 for Multi-USIM devices support vivo draftCR Rel-17 36.300 16.4.0 B LTE\_NR\_MUSIM-Core

[R2-2100472](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100472.zip) Running CR to 38300 for Multi-USIM devices support vivo draftCR Rel-17 38.300 16.4.0 B LTE\_NR\_MUSIM-Core

* Handled in post-meeting email discussion, to be updated based on agreements in this meeting
* [Post113-e][24x][Multi-SIM] Stage-2 running CRs (vivo)

Scope: Capture meeting agreements in running Stage-2 CRs (at least for NR - if needed also LTE)

Intended outcome: Running Stage-2 CRs for multi-SIM

Deadline: Short

*Withdrawn:*

[R2-2101634](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101634.zip) Report of [Post112-e][253][RAN slicing] Prioritized solutions for RAN slicing CMCC discussion Rel-17 FS\_NR\_slice Withdrawn

[R2-2101632](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101632.zip) Revised Work Plan for RAN Slicing CMCC Work Plan Rel-17 FS\_NR\_slice Withdrawn

[R2-2101633](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101633.zip) Draft TR 38.832 v0.4.0 CMCC draft TR Rel-17 38.832 0.4.0 FS\_NR\_slice Withdrawn

[R2-2101635](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101635.zip) Draft TP for TR 38.832 v0.4.0 CMCC discussion Rel-17 38.832 FS\_NR\_slice Withdrawn

### 8.3.2 Paging collision avoidance

Including discussion on enhancement(s) to address the collision due to reception of paging when the UE is in IDLE/INACTIVE mode in both the networks associated with respective SIMs [RAN2]

Web Conf 1st/2nd week (3+3+2)

*Which overall solution direction to choose for paging collision avoidance:*

[R2-2100473](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100473.zip) Evaluation on Paging Collision Solutions vivo discussion LTE\_NR\_MUSIM-Core

*Observation 1: The paging repetition solution leads to at least 100% increasing of paging overhead.*

*Observation 2: Since the probability of paging collision reoccur after cell reselection is low, solutions 1/2a/2b may work well in most cases.*

*Proposal 1: Solution 1 is preferred for 5GS to solve paging collision issue.*

*Proposal 2: Solution 2a/2b are preferred for EPS to solve paging collision issue.*

*Proposal 3: UE can include assistant information when requesting the new 5G-S-TMSI or an alternative UE\_ID/UE\_ID offset.*

P1/P3

- Samsung agrees with P1. Huawei and ZTE also agrees.

- QC thinks this is not complete solution by itself and needs P3. It could have also problem if repeated many times. 1+3 is not preferred but could perhaps work. Charter agrees with QC P1 can't be the only solution. Apple agrees and unified solution would be good.

- LGE thinks P1 has issues with GUTI reallocation due to other reasons. 2b is needed in addition and it will be used for EPS anyway so would be good to align. Ericsson agrees. MITRE also agrees.

- Xiaomi wonders if P1 has any RAN2 impacts? If not, shouldn't it be SA2 decision? We shouldn't discuss SI but WI scope. OPPO thinks this only impacts NAS. UEs have already solved this so better have simple solution.

- Huawei thinks assistance information is not needed. P1 is enough. MTK agrees and thinks EPS and 5GC are different: GUTI is not permanent, unlike in EPS. CATT agrees and thinks 2b is needed for EPS. Apple disagrees since otherwise collisions are not resolved.

* There is support for solution 1 (for 5GS) with something else, either solution 3 or 2b.

[R2-2101097](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101097.zip) On Paging Collision Avoidance Huawei, HiSilicon discussion

*Proposal 1: Option 2b is the preferred solution to address paging collision for “LTE + LTE”.*

*Proposal 2: Option 1 is the preferred solution to address paging collision for “NR + NR”.*

*Proposal 3: It is up to UE implementation to use Option 2b or Option 1 to address paging collision for “NR + LTE”.*

- MTK is not sure the offset works for NR since GUTI is reassigned. vivo thinks we don't need to align LTE and NR. QC thinks AMF may not know which GUTI to give unless UE tells someting that allows avoiding paging collision. Nokia agrees that assistance information is needed.

- QC wonders if RAN2 can decide on NAS solution with SA2 input.

**Agreement**

1 Option 2b is the preferred solution to address paging collision for “LTE + LTE”.

[R2-2100434](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100434.zip) Paging Collision Avoidance for Multi-RAT MUSIM UE Samsung discussion

*Observation 1: Maintaining UE context for idle mode UE at RAN to support paging collision avoidance is drastic change and have undesired impact.*

*Proposal 1: MUSIM UE determines potential paging collision on two networks and triggers actions on potential paging collision avoidance.*

*Proposal 2: It is left to UE implementation as to how it selects one of the two RATs/networks for paging collision avoidance.*

*Proposal 3: MUSIM UE may provide assistance information to network to resolve paging collision since involved networks are not coordinated. Access Stratum in the MUSIM UE builds assistance information for paging collision avoidance.*

*Proposal 4: MUSIM UE utilizes NAS signaling to request potential paging collision avoidance to the network.*

*Proposal 5: Changing UE\_ID via NAS signalling is taken as a baseline for paging collision avoidance solution (for both EPS and NR).*

*Proposal 6: UE-requested 5G-GUTI reassignment (i.e. option 1) for 5GS and Offset based approach (i.e. option 2 b) for EPS is selected for paging collision avoidance. Assistance information from UE is kept optional.*

P1/P2:

- QC suggests we take these as baseline. Google thinks we need to first choose a solution for 5GC.

- Vodafone thinks we can't leave this to UE implementations to avoid different behaviours. Predictable behaviour is necessary.

- Ericsson thinks these could be reasonable baseline. Nokia agrees. Apple also agrees.

**Agreements**

1 MUSIM UE determines potential paging collision on two networks and triggers actions on potential paging collision avoidance.

2 It is left to UE implementation as to how it selects one of the two RATs/networks for paging collision avoidance.

* FFS if we can make the UE behaviour predictable for paging collision avoidance

*NAS vs. RRC signalling for paging collision avoidance:*

[R2-2100445](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100445.zip) Solutions for paging collisions Qualcomm Incorporated discussion

*Proposal 1: RAN2 work for paging collision resolution or avoidance should impact only NR and 5GC specifications.*

*Proposal 2: RAN2 should work on solutions which rely on action taken by NW nodes (gNB, AMF, or both) to avoid or eliminiate paging collisions.*

*Proposal 3: The UE will inform the NW of an existing or possible paging collision. The signaling can also include more information about the collision and UE suggestions to resolve it.*

*Proposal 4: The signaling to report the paging collision (and possibly additional information and suggestions) will be done at NAS layer.*

*Proposal 5: The paging collision avoidance solution should be robust to new GUTI allocation due to CN paging on one USIM.*

*Proposal 6: The paging collision avoidance solution should aim to minimize the signaling from the UE for this purpose (e.g. not requiring UE signaling with every cell change).*

[R2-2101543](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101543.zip) “Effective” solution for paging collision avoidance for 5GS Intel Corporation discussion Rel-17 LTE\_NR\_MUSIM-Core

*Proposal 1: Given than neither of RAN2 based solutions is effective, RAN2 to endorse a NAS based solution as a baseline for 5GS.*

*Proposal 2: RAN2 to endorse Solution 1 (5G-GUTI re-assignment), which is effective and suffices for NAS-based solutions.*

[R2-2101748](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101748.zip) UE indication of paging collision for Multi-SIM ASUSTeK discussion Rel-17 LTE\_NR\_MUSIM-Core

*Proposal 1: The UE should provide an indication to inform the network about the paging collision when paging collision is detected.*

*Proposal 2: The message to carry the indication should depend on the selected solution. If NAS solution is selected, RAN2 should specify the required NAS-AS interaction corresponding to the solution.*

*EPS solution:*

[R2-2101542](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101542.zip) Support for SA2 agreed NAS based IMSI offset signaling in EPS Intel Corporation discussion Rel-17 LTE\_NR\_MUSIM-Core

*Proposal 1: RAN2 to confirm the SA2 agreed NAS based IMSI offset signaling solution for EPS.*

*Proposal 2: RAN2 to update 36.304 for calculating PF/PO based on UE-ID provided by MME during Tracking Area Update.*

[R2-2101428](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101428.zip) Paging collision avoidance Ericsson discussion

*Proposal 1 Based on the SA2 agreement, an additional offset is included in the SFN and PO calculation for LTE in TS 36.304.*

*Proposal 2 RAN2 to decide if to include the offset in the SFN and PO formulas or alternatively in the UE\_ID formula.*

*Proposal 3 In order to have a common solution to the paging collision problem, the same approach as decided for EPS should be used to 5GS case, as well. That is, an offset is included to the SFN and PO or UE\_ID calculation in TS 38.304.*

Likely not treated this meeting (13)

*Paging collision handling details:*

[R2-2100900](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100900.zip) Discussion on paging collision avoidance in Multi-SIM Sony discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100732](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100732.zip) Consideration on Options for Paging Collision LG Electronics discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2101222](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101222.zip) Definition and solution for paging collision, RRC Inactive, SI change Lenovo, Motorola Mobility discussion LTE\_NR\_MUSIM-Core

[R2-2100280](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100280.zip) Further Consideration on Paging Collision Avoidance CATT discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100428](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100428.zip) Consideration on the Paging Collision ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100507](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100507.zip) RAN impacts of solutions for paging collision avoidance Nokia, Nokia Shanghai Bell discussion Rel-17

[R2-2101536](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101536.zip) Multi-SIM Devices - Paging Collision MediaTek Inc. discussion

[R2-2100244](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100244.zip) Paging collision avoidance OPPO discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100849](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100849.zip) Methods of MUSIM Page Collision Avoidance Apple discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100250](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100250.zip) Multi-SIM Paging Collision Solution MITRE Corporation discussion

=> Revised in [R2-2101296](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101296.zip)

[R2-2101296](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101296.zip) Multi-SIM Paging Collision Solution MITRE Corporation discussion [R2-2100250](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100250.zip)

[R2-2100724](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100724.zip) Considerations for Paging Collision for Multi-SIM UEs Charter Communications, Inc discussion

[R2-2101304](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101304.zip) Discussion of the paging collision problem Xiaomi Communications discussion

*Withdrawn:*

[R2-2101636](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101636.zip) Discussion on SA2 LS, potential solutions and draft TP for slice-based cell (re)selection CMCC discussion Rel-17 FS\_NR\_slice Withdrawn

### 8.3.3 UE notification on network switching for multi-SIM

Including discussion on mechanism for UE to notify Network A of its switch from Network A (for MUSIM purpose)

Including outcome of [Post112-e][256][Multi-SIM] Network switching details (vivo)

Web Conf 1st/2nd week (1)

Outcome of [Post112-e][256][Multi-SIM] Network switching details (vivo):

[R2-2100474](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100474.zip) [post112-e][256][Multi-SIM] Network switching details (vivo) vivo discussion LTE\_NR\_MUSIM-Core

=> Revised in [R2-2102262](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2102262.zip)

[R2-2102262](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2102262.zip) [post112-e][256][Multi-SIM] Network switching details (vivo) vivo discussion LTE\_NR\_MUSIM-Core

*4: The UE is allowed to perform switching to RRC\_IDLE if it does not receive RRCRelease message within a certain time period configured by network. FFS for RRC\_INACTIVE state.*

*IF we have busy indicator:*

*9: the general RRC procedure of sending Busy Indication in RRC\_INACTIVE state includes: UE sends busy indication in the RRCResumeRequest message, and the network confirms the reception of busy indication via RRCRelease message. (pending confirmation from SA3 on security issue)*

*10: UE may keep RRC\_CONNECTED in network A if sending busy indication in network B.*

*11: Switching for receiving the paging and sending busy indication is up to UE implementation in one-step or two steps.*

- LGE thinks RRCRelease or timer is best way to handle. Xiaomi think HARQ ACK is needed before switching. Huawei is fine with P4 but P9-11 would be better to unify procedure for all RRC states. Shuldn't require two RRC connections at the same time. Ewould be better to use "UE can" instead of "UE shall" in P10.

- QC thinks P4 is fine for long-term switching. P11 is also good but we shuld leave it up to UE implementation as SA2 did. If we have busy indication, RRC is better than NAS.

- ZTE is fine with P4/10/11 but P9 has security issue. Msg3 has IP so it could work. For P4, HARQ ACK is sufficient.

- Samsung thinks P4 is not good and network should control it. Msg3-based solution is fine for INACTIVE.

- Nokia thinks P10 should use shall so UE stays in CONNECTED.

P1-3:

- Charter thinks P3 is premature until we decide on NAS vs. RRC signalling. Huawei thinks we should first clarify long- and short-time switching. MTK agrees.

**Agreements**

1 Switching procedure can be used to notify network A that the UE has a preference to leave RRC\_CONNECTED state in network A.

2 The switching procedure can be used to notify network A that the UE has a preference to be kept in RRC\_CONNECTED state in network A while temporarily switching to network B.

*Proposal 3: If RRC based switching Notification is used, the RRC Switching Notification Message for long-time switching includes preferred RRC state as baseline, FFS whether other information is needed, e.g. duration of switching.*

*Proposal 5: The periodic short-time switching procedure contains the switching notification message and RRC Reconfiguration procedure to configure gaps. the switching notification message is triggered if the existing gap cannot meet the Multi-SIM Network Switching Requirement.*

*Proposal 6: the RRC switching notification message for periodic short-time switching includes Gap pattern request. FFS other information, e.g. Indication of Need for Gap.*

*Proposal 7: The switching notification message for one-shot short-time switching carries gap pattern request information. FFS use the common switching notification message for the one-shot and periodic short-time switching.*

*Proposal 8: A Return message from the UE to the network is not needed for one-shot short-time switching in case of the early return.*

* [AT113-e][242][NR][Multi-SIM] NAS vs. RRC signalling for paging collision and network switching (vivo)

Scope:

* + - Collect views which companies support NAS or RRC signalling, including technical reasons **why** NAS/RRC should be used. Should consider contributions submitted to this meeting to highlight technical analysis.

Intended outcome:

* + - Discussion summary in [R2-2101981](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101981.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
    - Initial deadline (for rapporteur's summary): 2nd week Tue, UTC 1200

Web Conf 2nd week (1)

[R2-2101981](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101981.zip) Summary of [AT113-e][242][NR][Multi-SIM] NAS vs. RRC signalling for paging collision and network switching (vivo) vivo discussion Rel-17 LTE\_NR\_MUSIM-Core

By email [242] (5)

*NAS vs. RRC for network switching:*

[R2-2100446](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100446.zip) Network switching mechanisms for Multi-SIM Qualcomm Incorporated discussion

*Observation 1: SA2 has not concluded whether to use NAS or RRC based switching mechanism for concurrent operation.*

*Proposal 1: RAN2 to confirm that the only scenario of interest for RAN2 work is leaving from and returning to USIM A in Connected Mode while being Idle/Inactive in USIM B.*

*Proposal 2: RAN2 should only focus on only NR/5GC for both USIMs regarding concurrent operation and network switching solutions.*

*Observation 3: The UE suspending DL and UL activity by itself in RRC Connected mode is not compliant with current specifications and thus will be considered an error case.*

*Proposal 3: The UE should coordinate with gNB any upcoming suspension of DL and UL transmission (due to activity on another link) when it is in RRC Connected mode.*

*Observation 4: Short-term switching is suitable for events with deterministic upper bounds for the leave such as paging reception.*

*Proposal 4: For short term switching, AS level signaling is feasible. RAN2 can further discuss whether to use RRC, MAC, or a combination for signaling.*

*Proposal 5: RAN2 to discuss and coordinate with SA2 on using AS or NAS based solution for long-term switching.*

[R2-2100475](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100475.zip) Discussion on Switching Notification Procedure vivo discussion LTE\_NR\_MUSIM-Core

*Proposal 1: A new gap configuration for Multi-SIM purpose should be introduced.*

*Proposal 2: Preferred gap pattern is included in the One-shot short-time switching notification message. Network A can configure gap to the UE for the activity in network B. UE should respect the configured gap in network A, i.e. UE is expected to back to network A before the end of the gap even if the activity in network B is not completed.*

*Proposal 3: Common switching notification message with gap pattern request is used for both periodic and one-shot short-time switching.*

*Proposal 4: RRC-based solution is preferred for long-time switching notification procedures.*

[R2-2101427](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101427.zip) Graceful leaving for a MultiSIM device Ericsson discussion

*Observation 1 If the MultiSIM UE interrupts abruptly the connection with the current PLMN, the network KPI might be affected negatively.*

*Observation 2 SA2 group agreed to use NAS-level leaving procedure for the E-UTRA/EPS scenario, then it is reasonable to use the same procedure for the other scenarios as well (NR/5GS and E-UTRA/5GS), to keep the specification complexity on reasonable level.*

*Observation 3 Limited RAN impacts and no RAN2 specs impact are expected if the UE uses NAS signaling to notify the current PLMN about the imminent leaving. This makes the solution applicable to both NR and LTE accesses with minor changes.*

*Proposal 1 In case of long UE absence, it is recommended to specify only a common procedure for the graceful leaving indication based on NAS signaling.*

*Proposal 2 It would be beneficial from a RAN2 point of view if the MultiSIM UE includes the leaving information and the additional assistance information in the NAS Service Request message and that such information is signaled from CN to the gNB.*

*Proposal 3 The UE leaves RRC CONNECTED (e.g. to establish an RRC connection with another network) only when receiving the RRCRelease message from the current network.*

[R2-2100725](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100725.zip) Network Switching for Multi-SIM UEs Charter Communications, Inc discussion

*Proposal 1: RAN2 should consider using existing procedures, such as measurement gaps, to address short-time switching. FFS possibility to enhance the gap length, periodicity and offset.*

*Proposal 2: To address various tasks for short-time switching, a UE may be configured with multiple measurement gaps with various attributes. Each measurement gap may be activated/activated via MAC CE.*

*Proposal 3: Similar to periodic short-time switching procedure, measurement gap may be used for one-shot/aperiodic short-time switch (where the periodicity attribute is set accordingly, e.g. infinite).*

*Proposal 4: In order to evaluate if a scheduling gap on a first network is sufficient for transmission of a busy indication on a second network, RAN2 should consider the total duration required and the expected behaviour from the UE given the paging cause on the second network.*

*Proposal 5: UE automatously transitioning to RRC idle state impacts the first network negatively, hence RAN2 should aim for solutions that properly transition a UE to RRC idle for a long-time switch.*

*Proposal 6: RAN2 should debate the effectiveness and applicability of RRC- vs NAS-based solutions for long-time switching.*

*Proposal 7: For a selective suspension of PDU sessions in the first network in a long-time switch, NAS-based solution is preferred. Hence, we suggest that RAN2 to send an LS to SA2 and indicate such preference.*

[R2-2101305](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101305.zip) Discussion of the UE notification on network switching for multi-SIM Xiaomi Communications discussion

*Proposal 1: Reuse the existing RRC-based UE Assistance Information procedure to solve the UE switching problem for all types of switch procedures.*

Web Conf 2nd week (1) (if time allows)

*Additional scenarios and solutions:*

[R2-2100482](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100482.zip) Open issues on network switching scenarios Samsung Electronics Co., Ltd discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100509](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100509.zip) On Additional scenarios for switching notification Nokia, Nokia Shanghai Bell discussion Rel-17

[R2-2101276](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101276.zip) On coordinated switching from NW for MUSIM device Huawei, HiSilicon discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100851](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100851.zip) Handling of BUSY indication in RRC INACTIVE state Apple discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100763](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100763.zip) Short-time and Long-time Switching Notification Sharp discussion

Web Conf 2nd week (1) (if time allows)

*Solutions for busy indication:*

[R2-2100429](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100429.zip) Consideration on the Switching Notification Procedure ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100245](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100245.zip) UE notification on network switching for multi-SIM OPPO discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100281](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100281.zip) Further Consideration on Network Switching CATT discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100290](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100290.zip) Discussion of network switching for Multi-SIM China Telecommunication discussion Rel-17

[R2-2100508](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100508.zip) Switching notification procedure for basic switching scenarios for Single RX UE Nokia, Nokia Shanghai Bell discussion Rel-17

[R2-2100654](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100654.zip) Discussion on the transmission of busy indication Spreadtrum Communications discussion Rel-17 LTE\_NR\_MUSIM

[R2-2100731](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100731.zip) Consideration on Scheduling gap for SIM Switching LG Electronics discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100750](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100750.zip) UE notification procedure for short time switching NEC discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100901](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100901.zip) Discussion on Busy Indication and Leaving in Multi-SIM Sony discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2101106](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101106.zip) Switching Notification in MUSIM Lenovo, Motorola Mobility discussion Rel-17

[R2-2101537](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101537.zip) Multi-SIM Devices - Notification upon Network Switching MediaTek Inc. discussion

[R2-2101544](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101544.zip) Busy indication signaling for Multi-SIM Intel Corporation discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2101749](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101749.zip) MUSIM Release Assistance Info for network switching ASUSTeK discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2101780](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101780.zip) Analysis on various scenarios of UE switching China Telecomunication Corp. discussion Rel-17

[R2-2101789](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101789.zip) Discussion on Scheduling gap for Periodic short-time switching China Telecomunication Corp. discussion

[R2-2101842](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101842.zip) Consideration on Busy Indication LG Electronics Finland discussion Rel-17

[R2-2101937](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101937.zip) Considerations for MSIM UE notification on network switching Futurewei Technologies discussion

[R2-2100850](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100850.zip) Methods of MUSIM Network Switching Apple discussion Rel-17 LTE\_NR\_MUSIM-Core

*Withdrawn:*

[R2-2101637](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101637.zip) Solutions analysis and draft TP for slice-based RACH configuration CMCC discussion Rel-17 FS\_NR\_slice Withdrawn

### 8.3.4 Paging with service indication

Including discussions on mechanism for an incoming page to indicate to the UE whether the service is voLTE/VoNR (pending SA2 feedback).

This agenda item may be deprioritized in this meeting (depending on whether SA2 input is received).

Not planned to be treated in this meeting (10)

[R2-2100200](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100200.zip) Discussion on support of paging cause for Multi-SIM devices Samsung Electronics Co., Ltd discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100246](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100246.zip) Paging with service indication OPPO discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100430](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100430.zip) Consideration on the Paging Service Indication ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2100447](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100447.zip) Service Type in Paging and Busy Indication Qualcomm Incorporated discussion

[R2-2100476](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100476.zip) Discussion on Supporting of Paging Cause vivo discussion LTE\_NR\_MUSIM-Core

[R2-2100655](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100655.zip) Discussion on the transmission of paging cause Spreadtrum Communications discussion Rel-17 LTE\_NR\_MUSIM

[R2-2101098](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101098.zip) Discussion on the paging with service indication Huawei, HiSilicon discussion

[R2-2101307](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101307.zip) Discussion of the paging cause support for MUSIM Xiaomi Communications discussion

[R2-2101429](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101429.zip) Introduction of a Paging cause indication Ericsson discussion

[R2-2101538](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101538.zip) Multi-SIM Devices - Paging Cause MediaTek Inc. discussion R2-2009791

## 8.8 RAN slicing SI

(FS\_NR\_slice; leading WG: RAN2; REL-17; WID: RP-193254)

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

Email max expectation: 3 threads

### 8.8.1 Organizational

Including LSs, TR updates and any other rapporteur input.

Including outcome of [Post112-e][253][RAN slicing] Prioritized solutions for RAN slicing (CMCC)

Including outcome of [Post112-e][252][RAN slicing] Capture RAN slicing agreements into TR 38.832 (CMCC)

Email discussions ([250] , kicked off after 1st week Web Conf)

* [AT113-e][250][Slicing] LS replies to SA2 and RAN3 (Nokia)

Scope:

* + - Ascertain which LS replies to SA2/RAN3 are needed (based on the LSs received so far), including what to answer to each required LS

Intended outcome:

* + - Discussion summary in [R2-2101973](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101973.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 1st week Fri, UTC 0900
    - Initial deadline (for rapporteur's summary): 2nd week Mon, UTC 1200

Web Conf 2nd week (summary of [250])

[R2-2101973](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101973.zip) Summary of [AT113-e][250][Slicing] LS replies to SA2 and RAN3 (Nokia) Nokia discussion Rel-17 FS\_NR\_slice

Web Conf 1st week (1)

Revised work plan:

[R2-2101800](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101800.zip) Revised Work Plan for RAN Slicing CMCC Work Plan Rel-17 FS\_NR\_slice

* Endorsed

Web Conf 1st week (2)

Outcome of [Post112-e][252][RAN slicing] Capture RAN slicing agreements into TR 38.832 (CMCC)

[R2-2101801](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101801.zip) Draft TR 38.832 v040 CMCC draft TR Rel-17 38.832 0.4.0 FS\_NR\_slice

* Endorsed

Post-meeting Email [25x]

* [Post113-e][25x][Slicing] Updated TR 38.832 (CMCC)

Scope: Provide TP to 38.832 according to SI conclusions

Intended outcome: Endorsed TR 38.832

Deadline: Short

Web Conf 1st week (3)

*LSs from SA2:*

[R2-2100035](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100035.zip) Reply LS on Cell Configuration within TA/RA to Support Allowed NSSAI (R3-207147; contact: Nokia) RAN3 LS in Rel-17 FS\_eNS\_Ph2 To:SA2 Cc:RAN2, CT1

* Noted (RAN2 only in Cc, decisions on reply LS handled in email discussion [250])

[R2-2100048](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100048.zip) Response to restricting the rate per UE per network slice (R3-207230; contact: ZTE) RAN3 LS in Rel-17 FS\_NR\_slice To:SA2, RAN2

* Noted (decisions on reply LS handled in email discussion [250])

[R2-2100050](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100050.zip) Response to LS Reply on Enhancement of RAN Slicing (R3-207236; contact: CMCC, ZTE) RAN3 LS in Rel-17 FS\_NR\_slice To:SA2, SA5 Cc:RAN2

* Noted (without presentation - RAN2 only in Cc)

By Email [250] (10)

[R2-2100546](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100546.zip) Discussion on slicing related reply LSs (R2-2008759 and R2-2010694) Nokia, Nokia Shanghai Bell discussion Rel-17 FS\_NR\_slice

[R2-2100766](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100766.zip) Cell configuration within TA/RA to Support Allowed NSSAI LG Electronics UK discussion Rel-17

[R2-2100893](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100893.zip) Discussion on SA2 LS OPPO discussion Rel-17 FS\_NR\_slice

[R2-2101061](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101061.zip) Considerations on scenarios and solution space of RAN slicing enhancements Lenovo, Motorola Mobility discussion Rel-17 FS\_NR\_slice R2-2009669

[R2-2101293](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101293.zip) UE slice MBR enforcement in RAN Ericsson discussion Rel-17 FS\_NR\_slice

[R2-2101487](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101487.zip) Rel-15/16 Status of Cell Configuration on Network Slicing Futurewei discussion Rel-17 FS\_NR\_slice

[R2-2101488](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101488.zip) DRAFT Reply LS on Cell Configuration within TA/RA to Support Allowed NSSAI Futurewei LS out Rel-17 FS\_NR\_slice, FS\_eNS\_Ph2 To:SA2, RAN3, CT1

[R2-2101933](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101933.zip) Draft reply LS on Cell Configuration within TARA to Support Allowed NSSAI ZTE corporation, Sanechips LS out Rel-17 FS\_NR\_slice To:SA2 Cc:CT1, RAN3

[R2-2101700](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101700.zip) Discussion on the SA2 incoming LS on Cell Configuration within TA/RA to Support Allowed NSSAI Huawei, HiSilicon discussion Rel-17 FS\_NR\_slice

*(moved from 8.8.2)*

[R2-2101294](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101294.zip) Network slice support in cells Ericsson discussion Rel-17 FS\_NR\_slice

*(moved from 8.8.2)*

* All discussed as part of email discussion [250]. Content from other contributions related to email discussion can also be considered in the discussion (as part of company feedback).

Web Conf 1st week (1)

Outcome of [Post112-e][253][RAN slicing] Prioritized solutions for RAN slicing (CMCC)

[R2-2101802](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101802.zip) Report of [Post112-e][253][RAN slicing] Prioritized solutions for RAN slicing CMCC discussion Rel-17 FS\_NR\_slice

P1/2.1/2.2

- Lenovo thinks agreeing to P1 and P2.1 means network can still use them for some scenarios.

- Apple thinks in heterogeneous scenarios may mean changes to these. Intel thinks we could remove the sentence on "specification impact". Nokia is not sure what this would mean since these are legacy mechanisms. CMCC explains this is about solution1 complexity.

**Agreements**

1: Solution 1 (i.e. Legacy dedicated priority via RRCRelease message) cannot address issue 2&3.

2.1: Capture into the TP “Solution 2 is legacy solution. With solution 2, the UE is still unaware of the slices supported in different cell or frequencies and the HO, CA, DC and redirection can be used to compensate for such loss with increased signalling overhead and latency. HO, CA, DC, redirection are applicable only for connected mode UE.”

2.2: There is no complexity to support solution 2.

P3.1/3.2/3.3

- Lenovo thinks RAN2 is not the group to decide on security issues and can't solve any such cases. Also large payload can increase delay in applying the solutions. Nokia agrees. We shouldn't slow down cell selection due to SIB size for UEs that do not concern slicing at all. We shouldn't also mix cell selection and reselection. Google thinks security is SA3 matter but has no strong opion on whether problems exist. SIB segmentation is also not used currently so would be a big change.

- QC supports the proposals and thinks these are only related to slices. Security issues can be considered in WI phase. On payload, these are all options but WI can further downscope to have the best solution.

- Nokia thinks P3.2 is contingent on P3.3 being resolved. Huawei thinks the SIB size issue is not fully known yet. ZTE thinks we should highlight the security aspects. Ericsson thinks we haven't evaluated these so we can't recommend them for normative work. We also don't know what to broadcast. Intel thinks achieving fast access is still not solved. FutureWei has concern on removing recommendation on mechanisms to pursue for WI.

**Agreements**

3.1: Capture into the TR “Solution 3 can address issue 1/2/4”

3.2: There is benefit to broadcast slice related cell selection info in SIB.

3.3: The concerns on security and SIB payload size for broadcasting slice related cell selection info need to be resolved in WI phase(e.g. providing only SST, on-demand SIB, SIB segmentation, slice grouping or slice associated UAC information).

4.1: Capture in the TR that “solution 4 can address the issue 1/2/3/4”.

4.2: There is benefit to broadcast slice related cell reselection info in SIB. FFS whether to contain slice related cell reselection info in RRCRelease message.

4.3: The concerns on security and SIB payload size for broadcasting slice related cell reselection info need to be resolved in WI phase (e.g. providing only SST, on-demand SIB, SIB segmentation, slice grouping or slice associated UAC information).

* Some companies have concerns (e.g. due to lack of detailed discussions) but majority supports recommending these for normative work. Discuss how to capture the solutions and concerns in the TR as part of TR update email discussion.

P5/6:

- Lenovo thinks these are similar as before: We need details on these, e.g. 2-step/4-step RACH etc.

- ZTE agrees with these proposals and we can discuss these in the WI phase. Nokia thinks P6 is fine but P5 is not clear at all: It could be existing methods or new methods.

* Decisions on P5/6 Postponed to the 2nd week session

*Proposal 5: For Solution 1 (i.e. Slice-specific separate RACH resources pool can be configured per slice or per slice group)*

*- solution 1 can meet both intention 1 and intention 2*

*- the complexity is low.*

*- recommended for normative work.*

*Proposal 6: For Solution 2 (Slice-specific RACH parameters prioritization can be configured per slice or per slice group)*

*- solution 2 can meet intention 2.*

*- the complexity is low.*

*- recommended for normative work.*

[R2-2101803](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101803.zip) Draft TP for TR 38.832 v040 CMCC discussion Rel-17 FS\_NR\_slice

### 8.8.2 Slice based cell reselection under network control

Including discussion on proposals to address the issues for cell reselection identified in email discussion and whether or to which extent existing mechanisms can address them

Email discussions ([251] , kicked off after 1st week Web Conf)

* [AT113-e][251][Slicing] Conclusions on slice-based cell (re)selection (Huawei)

Scope:

* + - Determine agreeable additional conclusions on slice-based cell reselection/selection for the SI, including technical justification of each and open issues not handled during the SI.

Intended outcome:

* + - Discussion summary in [R2-2101974](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101974.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
    - Initial deadline (for rapporteur's summary): 2nd week Tue, UTC 1200

Web Conf 2nd week (summary of [251])

[R2-2101974](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101974.zip) Summary of [AT113-e][251][Slicing] Conclusions on slice-based cell (re)selection (Huawei) Huawei discussion Rel-17 FS\_NR\_slice

Web Conf 2nd week (1+1)

*Cell reselection and RRCRelease:*

[R2-2100928](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100928.zip) Slice related cell reselection info in RRCRelease Samsung Electronics discussion Rel-17 FS\_NR\_slice

*Proposal 1: RRCRelease message can contain the slice info related to cell reselection.*

*Proposal 2: The slice info in RRCRelease message can include frequency list of slice(s) and the priority of frequency for slice related cell reselection.*

*SIB broadcast of S-NSSAI information:*

[R2-2100767](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100767.zip) Broadcast information for slice aware cell selection/cell reselection LG Electronics UK discussion Rel-17

*Observation 1: Broadcasting S-NSSAI may incur security concern from network point of view.*

*Proposal 1. For slice aware cell selection, a RAN node broadcasts Slice/Service type (SST) in SIB1.*

*Proposal 2. For slice aware cell reselection, a RAN node broadcasts S-NSSAIs of neighbor cells in a short and encoded manner.*

Web Conf 2nd week (2+2)

*Validity area for slice-based cell (re)selection:*

[R2-2100876](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100876.zip) Discussion on slice based cell selection and re-selection Apple discussion Rel-17 FS\_NR\_slice

*Observation 1: Current dedicated priority mechanism does not work properly since the dedicated priority configuration is only valid in a small area, and UE may move out of the area when T320 is still running.*

*Proposal 1: RAN2 to discuss whether the validity issue in dedicated priority mechanism should be solved.*

*Proposal 2: Suggest to discuss that NW to broadcast slice type related information such as slice types supported by current cell and neighbor cells, slice type specific cell selection and re-selection parameters.*

[R2-2100661](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100661.zip) Discussion on slice based cell (re)selection Spreadtrum Communications discussion Rel-17 FS\_NR\_slice

*Observation 1: Legacy dedicated priority via RRCRelease message has limitation for slice based cell (re)selection.*

*Observation 2: It is unavailable to UE prior to first RRC connection establishment and only valid before T320 expires if slice related cell (re)selection info is indicated in RRC Release message.*

*Observation 3: The payload size of slice related cell (re)selection info and slice info of serving cell and neighboring cells should be considered if broadcast in SIB.*

*Proposal 1: The valid area of dedicated frequency priority for cell (re)selection is introduced.*

*Proposal 2: Slice related cell (re)selection info and slice info of serving cell and neighboring cells should be provided in system information.*

*Proposal 3: The valid area is introduced for slice related cell reselection info provided in RRCRelease message.*

*Proposal 4: Slice related cell (re)selection info and/or slice info of serving cell and neighboring cells could associate with SST.*

*Does UE need to know the intended slice for MT access?*

[R2-2100964](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100964.zip) Slice based Cell Reselection under Network Control CATT discussion FS\_NR\_slice

*Observation 1: In current NR spec, MT service will never be barred during UAC procedure. More addition, mt-Access is an independent cause value in MSG3 during connection establishment procedure, so the network may never reject the UE in MSG4 if mt-Access is indicated in MSG3.*

*Proposal 1: For MT service, there is no need for UE AS to use intended slice for slice based RACH resource selection.*

*Proposal 2: UE does not need to know the intended slice for MT service*

[R2-2100894](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100894.zip) Consideration on slice-specific cell (re)selection OPPO discussion Rel-17 FS\_NR\_slice

*Proposal 1 RAN2 confirms slice related information can be indicated by SIB, including e.g. slice identity and per-slice frequency priority.*

*Proposal 2 If RAN2 agrees to resolve security concern on S-NSSAI exposure, slice identity can be represented by slice index or slice group index.*

*Proposal 3 RAN2 confirms slice related cell reselection info can be indicated in RRCRelease message, including e.g. slice identity and per-slice frequency priority.*

*Proposal 4 RAN2 considers to indicate the “restricted area” for the usage of per-slice frequency priority indicated in RRCRelease message.*

*Proposal 5 RAN2 considers to indicate the intended slice for MT service in paging message.*

*Proposal 6 If RAN2 agrees to resolve security and payload concern on S-NSSAI in paging message, the intended slice for MT service can be represented by slice index or slice group index.*

*Proposal 7 Slice identity and/or per-slice frequency priority are taken into account in cell (re)selection.*

By Email [251] (4)

*TPs to capture the SI conclusions:*

[R2-2101804](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101804.zip) Discussion on SA2 LS, potential solutions and draft TP for slice-based cell (re)selection CMCC discussion Rel-17 FS\_NR\_slice

*Proposal 2: Broadcasting slice related cell (re)selection info for solution 3 and solution 4 are recommended for normative work.*

*Proposal 3: Capture the attached TP into TR 38.832.*

[R2-2101295](C:\\Users\\terhentt\\Documents\\Tdocs\\RAN2\\RAN2_113-e\\R2-2101295.zip) TP: Solution 1 and 2 for fast access to slice Ericsson discussion Rel-17 FS\_NR\_slice

[R2-2100547](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100547.zip) Discussion on cell selection and reselection for slicing Nokia, Nokia Shanghai Bell discussion Rel-17 FS\_NR\_slice

[R2-2101699](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101699.zip) Slice based Cell (re)selection under network control Huawei, HiSilicon discussion Rel-17 FS\_NR\_slice

May not be treated in this meeting (15)

[R2-2100768](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100768.zip) Further discussion on intended slices LG Electronics UK discussion Rel-17

[R2-2100660](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100660.zip) Discussion on the awareness of intended slice for MT service Spreadtrum Communications discussion Rel-17 FS\_NR\_slice

[R2-2100704](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100704.zip) Remaining issues on slice-based (re)-selection vivo discussion Rel-17 FS\_NR\_slice

[R2-2100877](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100877.zip) RAN slicing in shared network Apple discussion Rel-17 FS\_NR\_slice

[R2-2100128](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100128.zip) Discussion on candidate solutions of slice-based cell (re)selection Qualcomm Incorporated discussion Rel-17 FS\_NR\_slice

[R2-2100362](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100362.zip) Different slice availability in registration area Intel Corporation discussion Rel-17 FS\_NR\_slice

[R2-2100489](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100489.zip) Cell (re)selection based on preferred frequency(s) per slice Beijing Xiaomi Software Tech discussion Rel-17

[R2-2100646](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100646.zip) Considerations on contents of slice related cell selection info KDDI Corporation discussion

=> Revised in [R2-2102231](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2102231.zip)

[R2-2102231](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2102231.zip) Considerations on contents of slice related cell selection info KDDI Corporation discussion

[R2-2100762](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100762.zip) Discussion on slice based cell selection and reselection China Telecommunications discussion Rel-17

[R2-2100927](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100927.zip) Clarification for slice related cell selection info in SIB Samsung Electronics discussion Rel-17 FS\_NR\_slice

[R2-2101194](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101194.zip) Consideration on slice specific cell selection and reselection ZTE corporation, Sanechips discussion Rel-17 FS\_NR\_slice

[R2-2101394](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101394.zip) Slice-specific system information for cell selection and reselection Google Inc. discussion Rel-17 FS\_NR\_slice

[R2-2100249](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100249.zip) 5G RAN Slicing Framework During Cell Selection / Reselection Phases MITRE Corporation discussion

[R2-2101212](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101212.zip) Access to an Intended Slice Lenovo, Motorola Mobility discussion FS\_NR\_slice

### 8.8.3 Slice based RACH configuration or access barring

Including discussion on proposals to address the issues for RACH/access barring identified in email discussion and whether or to which extent existing mechanisms can address them

Email discussions ([252], kicked off after 1st week Web Conf)

* [AT113-e][252][Slicing] Conclusions on slice-based RACH configuration (CMCC)

Scope:

* + - Determine agreeable additional conclusions on slice-based RACH configuration for the SI, including technical justification of each and open issues not handled during the SI.

Intended outcome:

* + - Discussion summary in [R2-2101975](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101975.zip) (by email rapporteur).

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
    - Initial deadline (for rapporteur's summary): 2nd week Tue, UTC 1200

Web Conf 2nd week (summary of [252])

[R2-2101975](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101975.zip) Summary of [AT113-e][252][Slicing] Conclusions on slice-based RACH configuration (CMCC) CMCC discussion Rel-17 FS\_NR\_slice

Web Conf 1st/2nd week (4)

[R2-2100424](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100424.zip) Considerations on the solutions of slice based RACH configuration Beijing Xiaomi Software Tech discussion Rel-17

- Lenovo thinks we address initial access in IDLE/INACTIVE and wonders what is the issue in CONNECTED? Xiaomi clarifies that RACH can be used for CONNECTED as well. QC thinks network can allocate dedicated preambles in CONNECTED so it's not an issue. Should focus on IDLE/INACTIVE. FutureWei thinks SR is one use case.

- Futurewei thinks that security concerns do not relate to broadcast in general but to broadcast of cleartext without encryption. ZTE thinks SA3 made it clear that broadcast of NSSAI in cleartext is not good. Google thinks P3 not useful to if we don't know which solution is applies.

**Agreements**

3 Slice based RACH configuration can be applied to idle/inactive UE.

4 The association between slices and slice-specific RACH resources can be configured and provided to UE in SIB and dedicated signalling.

*Proposal 1：Solution1 can be considered as baseline solution of slice based RACH configuration.*

*Proposal 2: Solution2 can be considered as supplemental solution of solution1 when some slices share the same slice-specific RACH resources.*

*Proposal 4：The association between slices and slice-specific RACH resources can be configured and provided to UE in SIB and dedicated signalling.*

*Proposal 5: The slice info should be implicitly indicated (e.g. access category) to UE in SIB which has minor impact on spec and has no security concern. For dedicated signalling, there is no security concern, the slice info can be either explicitly indicated or implicitly indicated.*

*Proposal 6: To support slice-specific RACH configuration, for MT traffic, the intended slice (e.g. implicitly indicated by access category) should be indicated in paging message.*

*Proposal 7: For connected UE, how UE can get the intend slice for the random access triggered by DRB should be discussed.*

*Proposal 8: RAN2 considers to configure separated PRACH transmission occasions of time-frequency domain and preambles per slice or per slice group.*

*Proposal 9: RAN2 considers to resolve the collision of RA-RNTI if slice-based RACH resources are configured in addition to the existing common RACH resources.*

*Proposal 10: Existing RACH parameters prioritization (i.e. scalingFactorBI and powerRampingStepHighPriority ) can be supported as baseline for slices.*

[R2-2100129](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100129.zip) Discussion on candidate solutions of slice-based RACH Qualcomm Incorporated discussion Rel-17 FS\_NR\_slice

*Observation 1: RAN2 has specified RACH prioritization for MPS and MCS in NR Rel-16 TEI, which can be easily extended to slice based RACH parameter prioritization*

*Observation 2: When slice number is large, it will cause issues for both Solution 1 and Solution 2, i.e. resource fragment for RACH resource isolation and too many prioritized parameters for the UE.*

*Observation 3: 2-step RACH was introduced in NR Rel-16 to reduce RACH latency, where whether to select 2-step RACH or 4-step RACH only depends on RSRP measurement against configured threshold.*

*Observation 4: For slice-specific RACH, it makes sense to introduce new approach to select 2-step RACH, e.g. 2 step RACH is preferred for URLLC related slice(s) to reduce RACH access latency.*

*Observation 5: Fallback mechanism was specified for 2-step RACH in NR Rel-16: when the number of msgA transmission failure is beyond the configured threshold, the UE will use 4-step RACH instead.*

*Observation 6: With slice-specific RACH prioritization introduced, if some slice/slice group (e.g. URLLC) are configured with another set of RACH parameters for a MPS/MCS UE, it is not clear how the UE’s AS selects corresponding RACH parameters with both access identity (MPS/MCS) and slice info as input.*

*Proposal 1: For the slice-based RACH, Solution 2 (i.e. slice-specific RACH parameters prioritization) serves as baseline. Solution 1 (i.e. slice-specific RACH resources pool) for some slice with urgent requirement can also be considered.*

*Proposal 2: RAN2 is kindly suggested to discuss how to configure slice group(s).*

*Proposal 3: RAN2 is kindly suggested to discuss how to select RACH type (i.e. 4-step slice-based RACH or 2-step slice-based RACH) in slice-based RACH.*

*Proposal 4: RAN2 is kindly suggested to discuss fallback mechanism for below different types of RACH:*

*• 2-step slice-based RACH*

*• 4-step slice-based RACH*

*• 2-step common RACH*

*• 4-step common RACH*

*Proposal 5: If slice-specific RACH prioritization is agreed, RAN2 is kindly suggested to discuss how the MPS/MCS UE’s AS selects corresponding RACH parameters with both access identity (MPS/MCS) and slice info as input*

[R2-2100599](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100599.zip) RACH prioritisation for slices Nokia, Nokia Shanghai Bell discussion Rel-17 FS\_NR\_slice

*Observation 1: Scenario for random access resources isolation or prioritisation concern when multiple slices are available in one cell.*

*Observation 2: Common slice-based RACH configurations cannot support large number of slices due to SIB1 size limitation and fragmentation of RACH resources.*

*Observation 3: Since UAC is performed before initiating RA, intended slice is known to the UE before initiating Random Access by means of Access Category.*

*Observation 4: For mobile originated calls, the categorization for slice-specific access attempt can be easily achieved based on Access Categories.*

*Proposal 1: RACH configurations for slices should not impact System Information capacity extensively.*

*Proposal 2: For slice-based RACH isolation and prioritisation, the gNB provides RACH configuration for one or more Access Categories from the set of Operator-defined Access Categories.*

*Proposal 3: For mobile terminated calls, RAN2 recommends a general mechanism for RA priority indication that can also be used to isolate or prioritize RA for certain slices or group slices.*

*Proposal 4: Agree TP in the Annex.*

[R2-2101805](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101805.zip) Solutions analysis and draft TP for slice-based RACH configuration CMCC discussion Rel-17 FS\_NR\_slice

*Observation 1: Solution 1 can provide isolated and guaranteed RA resources for some slices, which can meet some industrial customers’ requirement of radio resource isolation. And such requirement cannot be meet by solution 2.*

*Proposal 1: Both solution 1 and solution 2 for slice-based RACH configuration is recommended for normative work.*

*Proposal 2: Capture the attached TP into TR 38.832.*

Likely not treated in this meeting (10)

[R2-2100363](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100363.zip) Consideration of slice based RACH Intel Corporation discussion Rel-17 FS\_NR\_slice

[R2-2100662](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100662.zip) Consideration on slice based RACH configuration Spreadtrum Communications discussion Rel-17 FS\_NR\_slice

[R2-2100705](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100705.zip) Remaining issues on RACH configuration vivo discussion Rel-17 FS\_NR\_slice

[R2-2100878](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100878.zip) Discussion on slice based RACH and cell barring Apple discussion Rel-17 FS\_NR\_slice

[R2-2100895](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100895.zip) Consideration on slice-specific RACH OPPO discussion Rel-17 FS\_NR\_slice

[R2-2100929](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100929.zip) Consideration on slice-specific separate RACH resources pool Samsung Electronics discussion Rel-17 FS\_NR\_slice

[R2-2101062](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101062.zip) Considerations on solutions for slice-specific RACH configuration Lenovo, Motorola Mobility discussion Rel-17 FS\_NR\_slice

[R2-2101195](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101195.zip) Consideration on the slice specific RACH configuration ZTE corporation, Sanechips discussion Rel-17 FS\_NR\_slice

[R2-2101405](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101405.zip) RSRP Thresholds for RACH separation and prioritisation for numerous slice configurations NEC Telecom MODUS Ltd. discussion

[R2-2101701](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101701.zip) Slice based RACH configuration Huawei, HiSilicon discussion Rel-17 FS\_NR\_slice

# 9 Rel-17 EUTRA Work Items

## 9.3 EUTRA R17 Other

Time budget: 0 TU

Tdoc Limitation: X tdocs

Email max expectation: X threads

Web Conf 2nd week (3)

User location tracking attack LS from GSMA:

[R2-2100003](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100003.zip) User location identification from Carrier Aggregation secondary cell activation messages (FSAG Doc 88\_009; contact: GSMA) GSMA LS in To:RAN2, SA3

*(moved from 3)*

* Noted (without presentation, discussed with contributions)

[R2-2100483](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100483.zip) UE location attack based on SCell activation Ericsson discussion Rel-17

[R2-2101831](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101831.zip) Discussion on user location identification from SCell Activation message Huawei, HiSilicon discussion Rel-16 NR\_pos-Core

Postponed (6)

TEI17: Event-based trigger for MDT

[R2-2100939](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100939.zip) Introduction of event-based trigger for LTE MDT logging KDDI Corporation discussion

* Revised in [R2-2101808](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101808.zip)

[R2-2101808](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101808.zip) Introduction of event-based trigger for LTE MDT logging KDDI Corporation, CMCC, Samsung discussion [R2-2100939](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100939.zip)

* Postponed (TEI17 topic, can be resumitted when TEI17 AI is included in agenda)

TEI17: Event-based trigger for MDT CRs

[R2-2100818](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100818.zip) Introduction of event-based trigger for LTE MDT logging KDDI Corporation, Samsung draftCR Rel-16 36.331 16.3.0 TEI16

[R2-2100819](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100819.zip) Introduction of event-based trigger for LTE MDT logging KDDI Corporation, Samsung draftCR Rel-17 36.331 16.3.0 TEI17

[R2-2100821](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100821.zip) Introduction of event-based trigger for LTE MDT logging KDDI Corporation, Samsung draftCR Rel-16 37.320 16.3.0 TEI16

[R2-2100823](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100823.zip) Introduction of event-based trigger for LTE MDT logging KDDI Corporation, Samsung draftCR Rel-17 37.320 16.3.0 TEI17

* Postponed (TEI17 topic, can be resumitted when TEI17 AI is included in agenda)

*Withdrawn:*

[R2-2100645](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100645.zip) Introduction of event-based trigger for LTE MDT logging KDDI Corporation, Samsung draftCR Rel-16 36.331 16.3.0 TEI16 Withdrawn

## 9.4 NR and EUTRA Inclusive language

Time budget: N/A

TS rapporteurs to provide CRs for Inclusive languange according to RP-202179. It is expected that this is handled mostly by email. CRs are to be endorsed/agreed-in-principle and will be submitted to RP for information. Final approval is expected when R17 TSes are to be created.

Email discussions ([201])

* [AT113-e][201][Inclusive] Inclusive language CRs (Nokia)

Scope:

* + - Determine affected RAN2 specifications and decide on terminology used
    - Check CRs according to agreed terminology for each required specification

Intended outcome:

* + - Discussion summary in [R2-2101961](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101961.zip) (by email rapporteur).
    - Endorsed CRs (by each affected 36.xxx/38.xxx specification rapporteur)

Deadline for providing comments, for rapporteur inputs, conclusions and CR finalization:

* + - Deadline for companies' feedback: Thursday morning 1st week
    - Deadline for rapporteur's summary: Thursday evening 1st week (8h after the initial deadline)
    - Deadline for endorsed CRs: Thursday morning 2nd week

By Email (201 summary)

[R2-2101961](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101961.zip) Summary of [AT113-e][201][Inclusive] Inclusive language CRs (Nokia) Nokia discussion Rel-17 TEI17

By Email [201] (1)

LS from SA on inclusive language in 3GPP:

[R2-2100081](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100081.zip) LS on Use of Inclusive Language in 3GPP (SP-201143; contact: Intel) SA LS in Rel-17 To:SA1, SA2, SA3, SA4, SA5, SA6, RAN1, RAN2, RAN3, RAN4, RAN5, CT1, CT3, CT4, CT6 Cc:RAN, CT

*(moved from 3)*

* Handled in email discussion [201]
* Noted

By Email [201] (2)

Discussion documents on inclusive language terminology in RAN2:

[R2-2100691](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100691.zip) Inclusive Language Handling Nokia, Nokia Shanghai Bell discussion Rel-17 TEI17

[R2-2101472](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101472.zip) Introduction of inclusive language in RAN2 specifications Intel Corporation discussion Rel-17 TEI17

* Handled in email discussion [201]

By Email [201] (5)

(Draft) CRs for specifications, LTE:

[R2-2100956](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100956.zip) Inclusive language in 36.300 Nokia (Rappporteur) CR Rel-17 36.300 16.4.0 1333 - D TEI17

[R2-2101079](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101079.zip) Inclusive language in 36.304 Nokia, Nokia Shanghai Bell CR Rel-17 36.304 16.3.0 0822 - D TEI17

* Handled in email discussion [201]

(Draft) CRs for specifications, NR:

[R2-2100689](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2100689.zip) Inclusive Language Review Nokia (Rapporteur) draftCR Rel-17 38.300 16.4.0 D TEI17

[R2-2101287](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101287.zip) Inclusive language Ericsson draftCR Rel-16 38.331 16.3.1 D TEI16

* Handled in email discussion [201]

(Draft) CRs for specifications, joint LTE/NR :

[R2-2101454](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101454.zip) Inclusive language in 37.320 Nokia (Rapporteur) draftCR Rel-17 37.320 16.3.0 D TEI17

* Handled in email discussion [201]

# Summary

**Agreed CRs**

*LTE legacy (Rel-16 and earlier, except for LTE Rel-16 mobility)*

*Rel-16 LTE/NR mobility*

[R2-2101901](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101901.zip) [Post112-e][254][R16 MOB] Clarification of behavior to avoid security risk in CHO based recovery after handover without key change failure SHARP Corporation CR Rel-16 38.331 16.3.1 2450 - A NR\_Mob\_enh-Core Late

[R2-2101976](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101976.zip) No support of SUL during DAPS handover Ericsson, ZTE, Sanechips CR Rel-16 38.300 16.4.0 0333 1 F NR\_Mob\_enh-Core

[R2-2101977](file:///C:\Users\terhentt\Documents\Tdocs\RAN2\RAN2_113-e\R2-2101977.zip) 38.331 CR on support of NUL and SUL during DAPS handover Intel Corporation, Huawei, HiSilicon CR Rel-16 38.331 16.3.0 2346 1 F NR\_Mob\_enh-Core

*Rel-16 DCCA*

**Endorsed documents**

*Inclusive language CRs:*

**Approved LS out**

**Post-meeting email discussions (1-week)**

**Post-meeting email discussions (short)**

* [Post113-e][24x][Multi-SIM] Stage-2 running CRs (vivo)

Scope: Capture meeting agreements in running Stage-2 CRs (at least for NR - if needed also LTE)

Intended outcome: Running Stage-2 CRs for multi-SIM

Deadline: Short

* [Post113-e][25x][Slicing] Updated TR 38.832 (CMCC)

Scope: Provide TP to 38.832 according to SI conclusions

Intended outcome: Endorsed TR 38.832

Deadline: Short

**Post-meeting email discussions (long)**