3GPP TSG-RAN WG2 Meeting #113 bis electronic [R2-2104301](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104301.zip)

Online, April 12 – April 20, 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

**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**

* [AT113bis-e][200] Organizational Tero – LTE legacy, LTE Rel-16 and LTE/NR mobility

Scope:

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

 Intended outcome (for LS discussion):

* + - General information sharing about the sessions

 Deadline for providing comments to LSs:

* + - Deadline: 1st week Thu, UTC 0900

**LTE Legacy**

* [AT113bis-e][201][LTE] LTE Miscellaneous R15/16 corrections (Ericsson)

Scope:

* + - Discuss which CRs under AI 4.5 and 7.4 marked for this email discussion are agreeable
		- Provide final CRs

 Intended outcome:

* + - Discussion summary in [R2-2104310](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104310.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 Tue, UTC 1000

**LTE Rel-17**

* [AT113bis-e][202][LTE] UPIP for LTE Rel-17 (Qualcomm)

Scope:

* + - Discuss the UPIP contributions under AI 9.3 and determine whether there is consensus on what RAN2 could reply to SA3.
		- Can provide also draft LS reply to SA3

 Intended outcome:

* + - Discussion summary in [R2-2104325](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104325.zip) (by email rapporteur)

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
		- Initial deadline (for rapporteur's summary and draft LS): 1st week Fri, UTC 0900

**LTE Legacy up to Rel-16 (kicked off after 1st week online session)**

* [AT113bis-e][203][LTE] One-shot configurations (Huawei)

Scope:

* + - Discuss whether something needs to be done for one-shot configurations in 36.331

 Intended outcome:

* + - Discussion summary in [R2-2104323](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104323.zip) (by email rapporteur)

 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

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

* [AT113bis-e][210][MOB] CHO/CPC corrections (Huawei)

Scope:

* + - Discuss which CHO/CPC corrections (for LTE and NR) marked for this discussion are seen agreeable. CRs that are editorial can be merged together

 Intended outcome:

* + - Discussion summary in [R2-2104311](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104311.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

* + - Initial deadline (for company feedback): 1st week Thu, UTC 0900
		- Initial deadline (for rapporteur summary): 1st week Fri, UTC 0900
		- Deadline for CR finalization: 2nd week Tue, UTC 1000
* [AT113bis-e][211][MOB] DAPS corrections (Samsung)

Scope:

* + - Discuss which DAPS corrections (for LTE and NR) marked for this discussion are seen agreeable. CRs that are editorial can be merged together.

 Intended outcome:

* + - Discussion summary in [R2-2104312](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104312.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

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

**LTE/NR Mobility (tentative - to be decided during 1st week Monday online session)**

* [AT113bis-e][212][MOB] CRs UAI/SUI after CHO completion (MediaTek)

Scope:

* + - Finalize CRs for UAI/SUI repetition after CHO based on online decisions.

 Intended outcome:

* + - Agreeable CRs to 36.331 in [R2-2104327](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104327.zip) and to 38.331 in [R2-2104328](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104328.zip)

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Fri, UTC 0900
		- Deadline for CR finalization: 2nd week Mon, UTC 1000
* [AT113bis-e][213][MOB] *RRCReconfiguration* with DAPS source release (Ericsson)

Scope:

* + - Discuss how/whether to capture the agreements on what is allowed to be configured when *daps-SourceRelease* is sent to UE according to online agreements.

 Intended outcome:

* + - Discussion summary in [R2-2104330](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104330.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

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

**LTE/NR Rel-16 DCCA (to be kicked off on Monday August 17th)**

* [AT113bis-e][220][DCCA] Miscellaneous DCCA corrections (Ericsson)

Scope:

* + - Discuss corrections under R16 DCCA WI marked for this discussion to see which CRs could be agreeable. CRs that are editorial or smal can be merged to rapporteur CRs.

 Intended outcome:

* + - Discussion summary in [R2-2104313](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104313.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

* + - Initial deadline (for company feedback): 1st week Thu, UTC 0900
		- Initial deadline (for rapporteur summary): 1st week Fri, UTC 0900
		- Deadline for CR finalization: 2nd week Tue, UTC 1000
* [AT113bis-e][221][DCCA] NR-DC power control signalling (Huawei)

Scope:

* + - Discuss NR-DC PC signalling corrections (for FR2) under R16 DCCA WI marked for this discussion to understand best way forward for RAN2.

 Intended outcome:

* + - Discussion summary in [R2-2104314](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104314.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

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

**NR Rel-17 DCCA (only started after 1st week online session)**

* [AT113bis-e][240][DCCA] RRM relaxations for deactivated SCG (OPPO)

Scope:

* + - Discuss whether the RRM measurements could be relaxed when SCG is deactivated, what kinds of benefits that can provide and what are the downsides.
		- Can draft LS to RAN4 if there is sufficient support for that.

 Intended outcome:

* + - Discussion summary in [R2-2104334](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104334.zip) (by email rapporteur), may include draft LS as annex.

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
		- Initial deadline (for rapporteur's summary): 2nd week Tue, UTC 0900

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

* [AT113bis-e][230][MUSIM] Reply LS to SA2 on paging cause (Intel)

Scope:

* + - Summarize main open issues based on contributions and online agreements.
		- Highlight if there are topics that clearly require online discussion.
		- Identify topics that might benefit from email discussions.

 Intended outcome:

* + - Discussion summary in [R2-2104331](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104331.zip) (by email rapporteur)

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Fri, UTC 0900
		- Initial deadline (for rapporteur's summary): 2nd week Mon, UTC 1200
* [AT113bis-e][231][MUSIM] Impacts of NAS-based busy indication (RAN2 VC)

Scope:

* + - Discuss whether the agreement to only support NAS-based busy indication creates issues with SA2/CT1 and determine whether LS needs to be sent to SA2/CT1.
		- If needed, provide draft LS to SA2/CT1 asking them for feedback

 Intended outcome:

* + - Discussion summary in [R2-2104332](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104332.zip) (by email rapporteur) and (if needed) draft LS in [R2-2104333](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104333.zip)

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
		- Initial deadline (for rapporteur's summary): 2nd week Mon, UTC 1600

**NR Rel-17 RAN Slicing (only started after 1st week online session)**

* [AT113bis-e][251][NR] Slice-specific cell reselection (Intel)

Scope:

* + - Summarize main open issues based on contributions and online agreements.
		- Highlight if there are topics that clearly require online discussion.
		- Identify topics that might benefit from email discussions.

 Intended outcome:

* + - Discussion summary in [R2-2104321](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104321.zip) (by email rapporteur)

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Fri, UTC 0900
		- Initial deadline (for rapporteur's summary): 2nd week Mon, UTC 1200
* [AT113bis-e][252][NR] Slice-specific RACH (CMCC)

Scope:

* + - Summarize main open issues based on contributions and online agreements.
		- Highlight if there are topics that clearly require online discussion.
		- Identify topics that might benefit from email discussions.

 Intended outcome:

* + - Discussion summary in [R2-2104322](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104322.zip) (by email rapporteur)

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Fri, UTC 0900
		- Initial deadline (for rapporteur's summary): 2nd week Mon, UTC 1200

**List of assigned pre-meeting AI summary document responsibles**

Summary of AI 8.2.2.1: Deactivation of SCG (Huawei)

Summary of AI 8.2.2.2: UE measurements and reporting in deactivated SCG (OPPO)

Summary of AI 8.2.2.3: Activation of deactivated SCG (ZTE)

Summary of AI 8.3.2: Paging collision avoidance (Ericsson)

Summary of AI 8.3.3: UE notification on network switching for multi-SIM (Samsung)

Summary of AI 8.3.4: Paging with service indication (vivo)

**Dates and deadlines**

April 1 23.59 PDT (April 2 06.59 UTC) Tdoc number allocation deadline for all tdocs.
General Tdoc Submission Deadline, as usual. Kick off, summaries.

 Late submission up until April 6 06.59 UTC is accepted for CRs (as TSes are late).

April 6 Emails are allowed, 3GPP silent period has ended.

April 8 0700 UTC Tdocs submission deadline for Summaries (baseline version)

April 12 0700 UTC e-Meeting Start (by email) (April 13 0700 UTC is first possible email deadline).

April 16 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.

April 19 0800 UTC Resume decision making in email discussions.

April 19 1800 UTC For AT-meeting email discussions that doesn’t come back on-line: This is the Last Deadline for Technical/Functional Comments, non-agreeable parts are removed from proposed agreements. The last 24h until e-meeting Stop is for checking and during this time only minor wording changes, removals / simplifications are done.

April 20 1800 UTC e-Meeting Stop, no more email comments for AT-meeting email discussions. Decision confirmations announced within 24h. Session notes for email checking.

April 27 Deadline Short Post113bis-e email discussions.

April 28 – May 5 3GPP silent period

May 10 23.59 PDT Deadline long Post113bis-e email discussions and submission deadline next meeting.

**­­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. **No Overtime, Hard stop at UTC 15.55 and UTC 05:10**

|  |  |  |  |
| --- | --- | --- | --- |
| **Time ZoneUTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** |
| **Monday** |  |  |  |
| 12:15-13:05 | NR15 NR16 Main session (Johan)UP [6.1.3.1 MAC]: Email discussion [Post113-e][052][NR16], UP [6.1.3.1 MAC]: Intra-UE prio and UL-skip, LSin: [R2-2102626](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102626.zip), [R2-2102628](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102628.zip). CP [5.4.1.1] RLC bearer Full Config [R2-2104140](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104140.zip) etc. CP [5.4.3] BCS EN-DC at least [R2-2104025](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104025.zip), [R2-2103061](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103061.zip)CP [6.1.4.3] Transp TxD [R2-2102646](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102646.zip)CP [5.4.3] Email discussion [Post113-e][051][NR15]CP [5.4.1.2] MN SN Configuration RestrictionsCP [5.4.2] Email discussion [Post113-e][005][NR15] | NR16 Pos (Nathan) | NR17 NTN (Sergio)[8.10.1] Organizational [8.10.2.1] - [Post113-e][106] outcome[8.10.2.2][8.10.2.3] - [Post113-e][107] outcome |
| 13:05-14:25 | NR16 V2X (Kyeongin) | NR17 NTN (Sergio)[8.10.3.1] [8.10.2.3]- [Post113-e][108] outcome- CHO aspects |
| 14:25-15:45 | NR17 Multicast (Johan)[8.1.1][8.1.3][8.1.2.1] | NR16 DCCA (Tero)- [Post113-e][224] outcome- NR-DC cell groupingNRLTE16 MOB (Tero)- UAI/SUI for CHO- RRC reconfig with DAPS release- RLF/re-establishment and DAPSLTE16e (Tero)- [Post113e][206] outcome- LTE Rel-15 topics- LTE Rel-16 topics | LTE17 IoT (Brian)[9.1.1] Organizational[9.1.3] Carrier selection |
| **Tuesday** |  |  |  |
| 12:15-13:05 | NR17 eNPN (Johan)Briefly: [8.16.1], [8.16.3][8.16.2] | NR17 RAN Slicing (Tero)- Cell reselection- RACH | NR17 SL Relay (Nathan)- Organisational- Discovery- Re/selection (if time) |
| 13:05-14:25 | NR17 ePowSav (Johan) | NR17 Multi-SIM (Tero)- Network switching- Paging collision | NR17 SL enh (Kyeongin) |
| 14:25-15:45 | R17 Other (Johan)NR15 NR 16 continuation (if needed) | NR17 SONMDT (HuNan) | NR17 Small Data Enh (Diana)- email discussions [501][502][503] |
| **Wednesd** |  |  |  |
| 04:00-05:00 | NR17 Multicast (Johan)[8.1.2.2][8.1.2.4] | NR17 RedCap (Sergio)[8.12.1] Organizational [8.12.3.1] - [At113-e][101] outcome- continue on eDRX aspects[8.12.3.2]- [At113-e][102] outcome- continue on RRM relaxations aspects | NR16 SONMDT (HuNan) |
| **Thursday** |  |  |  |
| 04:00-05:00 | NR17 QoE (Johan) | NR17 DCCA (Tero)- SCG deactivation- UE measurements in deactivated SCG- SCG activation | LTE17 IoT (Brian)[9.1.4] Other |
| **Friday** |  |  |  |
| 04:00-05:00 | NR17 eIAB (Johan) | NR17 Pos (Nathan)- Organisational- Latency enhancements- RRC\_INACTIVE | LTE16e IoT (Emre) |

|  |  |  |  |
| --- | --- | --- | --- |
| **Time ZoneUTC** | **Web Conference R2 - Main** | **Web Conference R2 - BO1** | **Web Conference R2 - BO2** |
| **Monday** |  |  |  |
| 12:15-13:05 | NR17 IoT NTN SI (Johan) | NR16 SONMDT / NR17 SONMDT (HuNan) | NR16 V2X / NR17 SL enh (Kyeongin)- 6.2.3, 8.15.2  |
| 13:05-14:25 | NR17 ePowSav CB - Show Of Hands Grouping- Reply LS to R1 (e.g. decision no of subgroups, if applicable)NR17 eIAB (Johan)[8.4.2] [R2-2104491](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104491.zip)If time: [8.4.3] [R2-2103083](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103083.zip) P3 | LTE17 (Tero) (until 14:40)- GSMA LS on Scell attack- SA3 LS on UPIP for LTE + Outcome of [202] (if needed)NR16 DCCA (Tero)- Outcome of [220] (if needed)- Outcome of [221] (if needed)- Checkpoint for RAN4 LS on cell grouping (if arrived)NRLTE16 MOB (Tero)- Outcome of [210] (if needed)- Outcome of [211] (if needed)- Outcome of [212] (if needed)- Outcome of [213] (if needed)LTE16e (Tero)- Outcome of [201], [203] (if needed)NR17 DCCA- Outcome of [Post113-e][234] | NR17 Pos (Nathan)- RRC\_INACTIVE (cont.)- On-demand PRS- Integrity |
| 14:25-15:45 | NR17 Multicast CB- CB [031], decide whether to have reply LS now- [8.1.2.4] R-2104494- [8.1.2.1] [R2-2103963](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103963.zip), [R2-2104501](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104501.zip), [R2-2103188](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103188.zip).NR17 eNPN CB [8.16.2] [R2-2104290](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104290.zip) continuation | From 14:40: CB Sergio [NR-NTN] - Outcome of [104] and [106][RedCap]- Outcome of [101] and [102] | NR17 SL Relay (Nathan)Re/selection (cont.)- Outcome of [610]- Outcome of [611]L2 specific topics- Outcomes of [603] and [604] |
| **Tuesday**  |  |  |  |
| 12:15-13:05 | NR17 Other: CB [035] L1/L2 Mobility eMIMO NR17 Multicast- CB [036]- CB [032] if needed NR17 QoECB [037] Pause resume | CB Diana[SDT]- Outcome of SDT User Plane offline discussion ([AT113bis-e][SDT][501]- outcome of any other offline discussions | CB Sergio[NR-NTN]- Outcome of [103], [105] and [107] |
| 13:05-14:25 | NR1516 UP: - NR16 CB [015] Overlapping UCI Data and SR of equal priority and UL skipping- [6.1.3.5 BAP]: BAP protocol extension principles [R2-2103935](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103935.zip)NR1516 CP: - NR15 CB [009] UE Caps BCS- NR15 CB [012] UE caps IV if needed- NR16 CB [030] Signalling scheme of Transparent TxD- other CB if anyNR17- other CB is any | CB TeroNR17 DCCA - Outcome of [240]- Running CRsMulti-SIM- Outcome of [230] and [231]RAN slicing- Outcome of [251] and [252] | CB NathanRel-16 positioning- Outcome of [605] (if needed)- Outcome of [606]- Outcome of [607]- Outcome of [608] (if needed)- Outcome of [612] (if needed)Rel-17 SL relay- Outcome of [609]- Outcome of [611] (if needed after Monday) |
| 14:25-15:45 | TBD (schedule update to follow) | CB KyeonginOffline discussion comeback (if needed), 8.15.2, next meeting preparation (if needed) | CB Emre- [7.2] Outcome of [401], [402], [403] CB Brian - [9.1.2] Treat RAN4 reply if available, email discussion scope.- [9.1.3] Outcome of [301]. |

# 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.

Purely editorial corrections should be avoided, text enhancements may be deprioritized. Corrections should be taken up with the specification editor before submitting to avoid CR duplication. If this is not done, the contribution may not be treated.

By Email [203] (1)

Ambiguity in Need ON for one-shot configurations:

[R2-2104013](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104013.zip) Discussion on one-shot configuration Huawei, HiSilicon discussion Rel-15 TEI15

* [203] Noted (no CR needed, see [R2-2104323](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104323.zip))

By Email [201] (3)

MDT logging for any cell selection (postponed during RAN2#113e to allow more time for checking):

[R2-2103816](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103816.zip) On the lack of PLMN identity check in case of anyCellSelected state related logging Ericsson discussion

* [201] Noted

[R2-2103813](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103813.zip) On the lack of PLMN identity check in case of anyCellSelected state related logging Ericsson CR Rel-15 36.331 15.13.0 4624 - F TEI15

* [201] Not pursued

[R2-2103814](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103814.zip) On the lack of PLMN identity check in case of anyCellSelected state related logging Ericsson CR Rel-16 36.331 16.4.0 4625 - A TEI15

* [201] Not pursued

By Email [201]

Supported UE category fallbacks:

[R2-2104014](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104014.zip) Correction on category dependency for DL Category 13 Huawei, HiSilicon CR Rel-12 36.306 12.13.0 1806 - F TEI12

* [201] Draft CR “Correction on category dependency for DL Category 13 ([R2-2104014](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104014.zip)) can be revised according to received comments, with the aim to get agreeable Rel-16 CR (no magic sentence).
* [201] Revised in [R2-2104341](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104341.zip)

[R2-2104341](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104341.zip) Correction on category dependency for DL Category 13 Huawei, HiSilicon CR Rel-16 36.306 16.14.0 1806 1 F TEI16

By Email [201]

T325 (frequency deprioritization timer) handling at inter-RAT HO:

[R2-2104248](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104248.zip) Correction on T325 Google Inc. CR Rel-15 36.331 15.13.0 4640 - F LTE-L23, TEI11

* [201] Handled jointly with corresponding CRs for NR in email thread [006]
* [006] TBD The change in [R2-2104254](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104254.zip)/[R2-2104255](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104255.zip) is agreed, and the coversheet should be revised according to comments, e.g. to simply clarify that T325 should not be stopped in case of inter-RAT mobility from NR.

[R2-2104253](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104253.zip) Correction on T325 Google Inc. CR Rel-16 36.331 16.4.0 4641 - F LTE-L23, TEI11

* [201] Handled jointly with corresponding CRs for NR in email thread [006]
* [006] TBD The change in [R2-2104254](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104254.zip)/[R2-2104255](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104255.zip) is agreed, and the coversheet should be revised according to comments, e.g. to simply clarify that T325 should not be stopped in case of inter-RAT mobility from NR.

Email discussions ([201], [203])

* [AT113bis-e][201][LTE] LTE Miscellaneous R15/16 corrections (Ericsson)

Scope:

* + - Discuss which CRs under AI 4.5 and 7.4 marked for this email discussion are agreeable
		- Provide final CRs

 Intended outcome:

* + - Discussion summary in [R2-2104310](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104310.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 Tue, UTC 1000
* [AT113bis-e][203][LTE] One-shot configurations (Huawei)

Scope:

* + - Discuss whether something needs to be done for one-shot configurations in 36.331

 Intended outcome:

* + - Discussion summary in [R2-2104323](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104323.zip) (by email rapporteur)

 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

By Email (summary of [201] and summary of [203])

[R2-2104310](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104310.zip) Summary of [AT113bis-e][201][LTE] LTE Miscellaneous R15/16 corrections (Ericsson) Ericsson discussion Rel-16 LTE-L23, TEI15, TEI16

* [201] Draft CRs “On the lack of PLMN identity check in case of anyCellSelected state related logging” ([R2-2103813](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103813.zip) and [R2-2103814](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103814.zip)) are not pursued.
* [201] Draft CR “Correction on category dependency for DL Category 13 ([R2-2104014](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104014.zip)) can be revised according to received comments, with the aim to get agreeable Rel-16 CR (no magic sentence).
* [201] Further discussion on Draft 36.331 CRs “Correction on T325” ([R2-2104248](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104248.zip) and [R2-2104253](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104253.zip)) are transferred to [AT113bis-e][006][NR15] to be discussed jointly with corresponding 38.331 CRs.
* [201] Draft CR “RETX\_COUNT upon expiry of t-PollRetransmit” ([R2-2102944](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102944.zip)) is not pursued.

[R2-2104323](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104323.zip) Summary of [AT113bis-e][203][LTE] One-shot configurations (Huawei) Huawei discussion Rel-15 TEI15

* [203] Clarifications to LTE one-shot configurations are discussed case-by-case. No general clarification CR is needed.
* [203] UE behaviour for field *reestablishRLC* is clear and no specification changes are needed. The text for Need ON and field description already capture the correct behaviour (i.e. RLC should not be re-established every time a reconfiguration is received without the *reestablishRLC*)

# 6 Rel-16 NR Work Items

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

Tdoc Limitation: 30 tdocs in total for all sub agenda items, or the restriction for each sub-AI, whichever is more restrictive.

NOTE: FOR R2#113bis-e it is expected that ~30% of the input tdocs under this AI will be selected for initial postponement to the next meeting.

## 6.4 NR and LTE mobility enhancements

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

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

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

No documents should be submitted to 6.4. Please submit to 6.4.x

Purely editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication. If this is not done, the contribution may not be treated.

Tdoc Limitation: 8 tdocs, See also tdoc limitation for Agenda Item 6

### 6.4.1 CHO/CPC Corrections

Including incoming LSs related to CHO/CPC (if any).

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 CHO and CPC.

Web Conf (Monday 1st week) (2+4)

UAI/SUI transmission after CHO completion:

[R2-2103215](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103215.zip) Conditional handover and UAI/SUI MediaTek Inc., Ericsson, Sharp, LG Electronics, Qualcomm Incorporated discussion Rel-16

*Proposal 1: After executing a conditional handover, the UE unconditionally sends updated UAI and/or SUI messages to the target cell based on the UE’s current status.*

*Proposal 2: Adopt the draft CR of section 5.*

[R2-2104001](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104001.zip) Discussion on the re-transmission of UL message after CHO execution Huawei, HiSilicon, China Telecom discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

*Proposal 1: If both of the following conditions are met, the UE shall re-transmit the latest transmitted UE information to the target cell after the successful CHO execution:*

*(1) during the time window “from the last 1 second preceding reception of conditionalReconfiguration to the conditional reconfiguration execution”, the UE should initiate at least one transmission of UE information (i.e.UAI or SUI)*

*(2) after successful CHO to the target, the UE is still configured with the reporting of the UE information*

Discussion

- Apple supports the MediaTek proposal. Nokia wonders what "unconditionally" means - is it only about timing and not about configuration? MTK confirms this is only about the timing.

- Huawei would also want to ensure the configuration is followed and (2) is very relevant.

- OPPO thinks MTK proposal this will increase signalling overhead.

- Samsung doesn't think the Huawei proposal is very complex. If the UE never sent any UAI/SUI before CHO, is it now required to send it? MTK clarifies that if the UE is configured with the assistance information, it shall provide the UAI/SUI after CHO based on UE status (i.e. if the UAI/SUI would not trigger, it will not trigger it after CHO either).

- Huawei can accept the MTK proposal. Wonders what happens to previous agreements? MTK clarifies this is not reverting them but adding on top. Intel can also accept MTK proposal.

Agreement

1 After executing a conditional handover,if the UE is still configured with the reporting of the UE information, the UE sends updated UAI and/or SUI messages to the target cell based on the UE’s current status.

* Offline discussion [212] for drafting the CR on this (MTK) - CR for 36.331 provided in [R2-2104327](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104327.zip) and CR for 38.331 provided in [R2-2104328](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104328.zip).

[R2-2104100](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104100.zip) Discussion on UE information transmission in CHO case ZTE Corporation discussion NR\_Mob\_enh-Core, 5G\_V2X\_NRSL-Core

* Noted

[R2-2102875](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102875.zip) CR on UE Information report for CHO (Option-1) OPPO CR Rel-16 38.331 16.4.1 2479 - F 5G\_V2X\_NRSL-Core, NR\_Mob\_enh-Core

* Not pursued

[R2-2102876](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102876.zip) CR on UE Information report for CHO (Option-1) OPPO CR Rel-16 36.331 16.4.0 4608 - F 5G\_V2X\_NRSL-Core, LTE\_feMob-Core

* Not pursued

[R2-2102877](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102877.zip) CR on UE Information report for CHO (Option-2) OPPO CR Rel-16 38.331 16.4.1 2480 - F 5G\_V2X\_NRSL-Core, NR\_Mob\_enh-Core

* Not pursued

[R2-2102878](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102878.zip) CR on UE Information report for CHO (Option-2) OPPO CR Rel-16 36.331 16.4.0 4609 - F 5G\_V2X\_NRSL-Core, LTE\_feMob-Core

* Not pursued

By Email [210] (1+2+1+1+1)

Miscellaneous CHO corrections to Stage-2:

[R2-2104074](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104074.zip) Miscellaneous corrections to 37.340 on mobility enhancement ZTE Corporation (Rapporteur), Sanechips CR Rel-16 37.340 16.5.0 0262 - F NR\_Mob\_enh-Core

* The intention is agreed but needs to be revised with updates based on the [210] comments.
* [210] Revised in [R2-2104339](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104339.zip)

[R2-2104339](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104339.zip) Miscellaneous corrections to 37.340 on mobility enhancement ZTE Corporation (Rapporteur), Sanechips, Ericsson CR Rel-16 37.340 16.5.0 0262 1 F NR\_Mob\_enh-Core [R2-2104074](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104074.zip)

* [210] TBD

CPC configuration via SRB1 after initial SRB3 configuration:

[R2-2104000](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104000.zip) Discussion on cross-SRB CPC reconfiguration Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core

* RAN2 understanding is network ensures UE can respond via the same SRB where the configuration was received. No specification changes needed
* Not pursued

CHO evaluation after DAPS fallback:

[R2-2103046](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103046.zip) Conditional evaluation upon fallback to source cell after DAPS handover Ericsson CR Rel-16 36.331 16.4.0 4613 - F LTE\_feMob-Core

* [210] Postponed

[R2-2103047](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103047.zip) Conditional evaluation upon fallback to source cell after DAPS handover Ericsson CR Rel-16 38.331 16.4.1 2497 - F NR\_Mob\_enh-Core

* [210] Postponed

Procedural text for section on" Inability to comply with RRCReconfiguration":

[R2-2103331](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103331.zip) 38.331 CR: Revised inability to comply with conditional reconfiguration Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.4.1 2507 - F NR\_Mob\_enh-Core

* [210] Postponed

Full config support for CHO:

[R2-2104261](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104261.zip) Full configuration for CHO Google Inc. CR Rel-16 38.331 16.4.1 2565 - F NR\_Mob\_enh-Core

* [210] Only the following change is agreed: in the field description of the fullConfig, use “RRCReconfiguration for SCG” instead of the existing wording “SN RRCReconfiguration”.
* [210] Revised in [R2-2104347](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104347.zip)

[R2-2104347](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104347.zip) Full configuration for CHO Google Inc. CR Rel-16 38.331 16.4.1 2565 1 F NR\_Mob\_enh-Core [R2-2104261](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104261.zip)

* [210] TBD

Email discussions ([210], [212])

* [AT113bis-e][210][MOB] CHO/CPC corrections (Huawei)

Scope:

* + - Discuss which CHO/CPC corrections (for LTE and NR) marked for this discussion are seen agreeable. CRs that are editorial can be merged together

 Intended outcome:

* + - Discussion summary in [R2-2104311](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104311.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

* + - Initial deadline (for company feedback): 1st week Thu, UTC 0900
		- Initial deadline (for rapporteur summary): 1st week Fri, UTC 0900
		- Deadline for CR finalization: 2nd week Tue, UTC 1000
* [AT113bis-e][212][MOB] CRs UAI/SUI after CHO completion (MediaTek)

Scope:

* + - Finalize CRs for UAI/SUI repetition after CHO based on online decisions.

 Intended outcome:

* + - Agreeable CRs to 36.331 in [R2-2104327](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104327.zip) and to 38.331 in [R2-2104328](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104328.zip)

 Deadline for providing comments and for rapporteur inputs:

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

Web Conf 2nd week (CRs from [212])

[R2-2104327](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104327.zip) Transmission of InDeviceCoexistence, UEAssistanceInformation, MBMSInterestIndication or SidelinkUEInformation after conditional handover MediaTek Inc., Ericsson CR Rel-16 36.331 16.4.0 4644 - F 5G\_V2X\_NRSL-Core, LTE\_feMob-Core

* Agreed in principle

[R2-2104328](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104328.zip) Transmission of UEAssistanceInformation or SidelinkUEInformationNR after conditional handover MediaTek Inc., Ericsson, Sharp, LG Electronics, Qualcomm Incorporated CR Rel-16 38.331 16.4.1 2569 - F 5G\_V2X\_NRSL-Core, NR\_Mob\_enh-Core

* Agreed in principle

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

[R2-2104311](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104311.zip) Summary of [AT113bis-e][210][MOB] CHO/CPC corrections (Huawei) Huawei discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

* CRs [R2-2103046](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103046.zip) and [R2-2103047](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103047.zip) are postponed.
* CR [R2-2103331](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103331.zip) is postponed.
* Only the following change CR [R2-2104261](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104261.zip) is agreed: in the field description of the fullConfig, use “RRCReconfiguration for SCG” instead of the existing wording “SN RRCReconfiguration”. With this, the revised CR in [R2-2104347](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104347.zip) can be agreed in principle.
* The intention of CR [R2-2104074](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104074.zip) is agreed but needs to be revised in [R2-2104339](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104339.zip) with updates based on the [210] comments.
* 1: Inter-RAT handover failure can trigger failure recovery via CHO. Failure recovery via CHO in Rel-16 is applicable only to RLF, Intra-RAT Handover Failure or Intra-RAT Conditional Handover Failure or inter-RAT handover failure. CR based on option 1 TP in [R2-2103114](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103114.zip) will be handled in next meeting.

Discussion

- Nokia thinks this is a bit confusing as we initially agreed otherwise but is fine with the proposal. CATT informs there were already some CRs on this.

* 3: Send a LS to RAN3 including the following: "RAN2#109-bis agreed that we will not preclude SCG configuration in RRC Reconfiguration with conditional reconfiguration and limit to cases without RAN3 impact. RAN2 would like to check with RAN3 on scenario 1/2/3/4 in [R2-2103332](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103332.zip). The intention is to see whether there are new RAN3 impacts for these scenarios or not. From RAN2 point of view, if there are new RAN3 impacts for a specific scenario, the scenario will not be supported in Rel-16." Draft LS can be provided in [R2-2104348](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104348.zip).

Discussion

- QC thinks e.g. "e.g." is confusing. The main issue is about configuration and execution part: If UE gets configuration via SRB3, can it reply via SRB1 (or vice versa)? Ericsson thinks specification is clear in this already and if NW removes SRB3, that will be network error. Nokia agrees. ZTE also agrees.

* RAN2 understanding is network ensures UE can respond via the same SRB where the configuration was received. No specification changes needed.

Web Conf 2nd week and By Email [210] (1+1)

Ambiguity in WI agreements and captured text:

[R2-2103114](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103114.zip) Discussion on Applicable Cases for Failure Recovery via CHO CATT discussion Rel-16 NR\_Mob\_enh-Core

*Observation 1: The agreement made in RAN2#113e allows the UE to perform failure recovery via CHO upon inter-RAT handover failure.*

*Observation 2: Agreement made in RAN2#109e clarified that failure recovery via CHO in Rel-16 is applicable only to RLF, intra-RAT handover failure or intra-RAT Conditional handover failure which is not applicable for inter-RA handover failure.*

*Proposal 1:RAN2 to confirm which of the following agreement is valid:*

*- Confirm the agreement made in #109e meeting is still valid, i.e. Failure recovery via CHO in Rel-16 is applicable only to RLF, Intra-RAT Handover Failure or Intra-RAT Conditional Handover Failure. Inter-RAT handover failure can’t trigger failure recovery via CHO. TP option 2 should be adopted.*

*- Confirm the agreement made in #113e is valid, Inter-RAT handover failure can trigger failure recovery via CHO. The agreement made in #109e meeting should be revised as following: Failure recovery via CHO in Rel-16 is applicable only to RLF, Intra-RAT Handover Failure or Intra-RAT Conditional Handover Failure or inter-RAT handover failure. TP option 1 should be adopted.*

* Inter-RAT handover failure can trigger failure recovery via CHO. Failure recovery via CHO in Rel-16 is applicable only to RLF, Intra-RAT Handover Failure or Intra-RAT Conditional Handover Failure or inter-RAT handover failure.
* CR based on option 1 TP in [R2-2103114](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103114.zip) postponed

Is CHO with SCG configuration allowed in (MR-)DC?

[R2-2103332](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103332.zip) Clarification on SCG configuration in CHO Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_Mob\_enh-Core

*Observation 1: CHO to a target PCell candidate configuring an SCG is allowed in Rel. 16 in case there is no RAN3 impact.*

*Observation 2: There might be RAN3 impact if CHO with SCG configuration is allowed in (MR-)DC.*

*Proposal 1: RAN2 to clarify the scenarios for which CHO with SCG configuration shall be supported in Rel. 16.*

*Proposal 2: RAN2 to send an LS describing the RAN2 understanding on the support of CHO with SCG configuration and asking RAN3 to work on the specification changes, if needed.*

* Send a LS to RAN3 including the following: "RAN2#109-bis agreed that we will not preclude SCG configuration in RRC Reconfiguration with conditional reconfiguration and limit to cases without RAN3 impact. RAN2 would like to check with RAN3 on scenario 1/2/3/4 in [R2-2103332](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103332.zip). The intention is to see whether there are new RAN3 impacts for these scenarios or not. From RAN2 point of view, if there are new RAN3 impacts for a specific scenario, the scenario will not be supported in Rel-16."
* LS can be provided in [R2-2104348](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104348.zip).

[R2-2104348](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104348.zip) Draft LS on Conditional Handover with SCG configuration scenarios RAN2 LS out NR\_Mob\_enh-Core To:RAN3

- Ericsson thinks intra-vendor case could also work and we could mention this. Samsung thinks the previous agreement did not consider intra-vendor cases specifically.

* LS is approved

### 6.4.2 DAPS handover Corrections

Including incoming LSs related to DAPS handover (if any).

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 LTE/NR control and user plane specifications (e.g. 3x.331, 3x.323, 3x.321) for DAPS HO.

Web Conf (Monday 1st week) (1)

Handling of RRC reconfiguration that includes DAPS source cell release:

[R2-2102820](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102820.zip) Reconfiguration during DAPS HO Ericsson discussion Rel-16 [R2-2100488](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2100488.zip)

*Observation 1 The restriction to have UDC or EHC configured during a DAPS handover is missing in the Stage-2 specifications.*

*Observation 2 It is not clear from the LTE specifications when the target node can configure the UE with SCG, SCells, uplinkDataCompression, ethernetHeaderCompression and/or conditional handover at a DAPS handover.*

*Observation 3 It is not clear from the NR specifications when the target node can configure the UE with SCG, SCells, multi-TRP configuration, SUL, sidelink, ethernetHeaderCompression and/or conditional handover at a DAPS handover.*

*Observation 4 Since the daps-SourceRelease indication is handled in the beginning of the procedure in 5.3.5.3 (in both 36.331 and 38.331), it is possible to include configuration of features not supported together with DAPS HO in the same RRC Reconfiguration message.*

*Observation 5 The explicit source cell indication (daps-SourceRelease) in the RRC Reconfiguration message is included to allow the network to reconfigure the UE before completion of the DAPS HO.*

*Observation 6 If it would be required for the network to include the explicit daps-SourceRelease in the first RRC Reconfiguration message after successful DAPS HO, it would instead be an implicit release. The daps-SourceRelease indication would then only trigger a failure when not set correctly, which is not the intention.*

*Observation 7 Conditional reconfigurations are included within an RRC Reconfiguration message that is built by the serving node. They can thus be included in the same message that contains the daps-SourceRelease set by the serving node.*

*Proposal 1 Clarify in the specifications that the first possible addition of SCG or SCells and configuration of multi-TRP, UDC, EHC, SUL, sidelink or conditionalReconfiguration (CHO) in the target cell at a DAPS HO is in the RRC Reconfiguration message that includes daps-SourceRelease.*

*Proposal 2 Correct field descriptions for parameters that can be configured in the RRC Reconfiguration message with daps-SourceRelease but where it now says that they cannot be configured if there is a DAPS bearer configured.*

*Proposal 3 The Text Proposals in section 3 should be introduced in the specifications.*

Discussion

- MTK supports P1. Huawei also agrees but thinks this is already clear in our specifications as it's a normal reconfiguration. Nokia agrees with Huawei.

- Intel agrees with P1 but thinks it would be good to clarify this in specifications to avoid ambiguities. QC agrees since order of UE implementations can differ.

Agreement

1 RAN2 confirms that the first possible addition of SCG or SCells and configuration of multi-TRP, UDC, EHC, SUL, sidelink or conditionalReconfiguration (CHO) in the target cell at a DAPS HO is in the RRC Reconfiguration message that includes *daps-SourceRelease*.

* Discuss in offline [213] how and whether to capture these in the specifications (Ericsson)

By Email [211] (1+1)

RLF and re-establishment after RA success to target cell but before source cell release:

[R2-2103626](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103626.zip) Clarification on RLF detection of source Pcell Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

*Observation 1: It was agreed for UE to stop all the RLF related detection of the source link after the successful completion of the RACH to the target cell.*

*Observation 2: According to current stage-2 specification, the UE only stops RLM detection after the successful completion of the RACH to the target cell.*

*Observation 3: According to current stage-3 specification, how to deal with RLF detection of source cell after successful RACH towards target cell is missing.*

*Proposal 1: Clarify that UE stops RLF detection of the source PCell after the successful completion of the RACH to the target cell in TS 38.331 and TS 36.331.*

*Proposal 2: Clarify the UE behaviour to only continue RA failure detection and RLF re-transmission failure detection of the source PCell until the successful completion of the RACH to the target cell in TS 38.300 and TS 36.300.*

* [211] The proposed modification is agreeable, CRs provided in [R2-2104337](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104337.zip) (36.300) and [R2-2104338](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104338.zip) (38.300)

[R2-2104337](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104337.zip) Clarification on RLF detection of source Pcell Huawei, HiSilicon CR Rel-16 36.300 16.5.0 1339 - F LTE\_feMob-Core

* [211] Agreed in principle (unseen)

[R2-2104338](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104338.zip) Clarification on RLF detection of source Pcell Huawei, HiSilicon CR Rel-16 38.300 16.5.0 0368 - F NR\_Mob\_enh-Core

* [211] Agreed in principle (unseen)

[R2-2103625](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103625.zip) Correction on RRC re-establishment for DAPS Huawei, HiSilicon discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

*Proposal 1: Add the case for initialling RRC re-establishment upon detecting radio link failure of target MCG while source cell is not released during DAPS handover in TS 38.331 and TS 36.331.*

* [211] Noted (CR is not pursued)

By Email [211] (8)

LCP handling for source cell in DAPS HO:

[R2-2103291](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103291.zip) CR on LCP of the source MAC entity Samsung CR Rel-16 38.321 16.4.0 1079 - F NR\_Mob\_enh-Core

* [211] Agreed in principle

[R2-2103292](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103292.zip) CR on LCP of the source MAC entity Samsung CR Rel-16 36.321 16.4.0 1522 - F NR\_Mob\_enh-Core

* [211] Agreed in principle

Stage-2 Description of UL switching for DAPS:

[R2-2103333](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103333.zip) 38.300 CR: Transmissions to the source that continue upon DAPS UL switching Nokia, Nokia Shanghai Bell CR Rel-16 38.300 16.5.0 0353 - F NR\_Mob\_enh-Core

* [211] Revise the CR according to underlined parts: "Even after switching its UL data transmissions towards the target gNB, the UE continues to send UL layer 1 CSI feedback, HARQ feedback, layer 2 RLC feedback, ROHC feedback, HARQ data (re-)transmissions, and RLC data (re-)transmission to the source gNB."
* [211] Revised in [R2-2104336](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104336.zip)

[R2-2104336](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104336.zip) Transmissions to the source that continue upon DAPS UL switching Nokia, Nokia Shanghai Bell CR Rel-16 38.300 16.5.0 0353 1 F NR\_Mob\_enh-Core [R2-2103333](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103333.zip)

* [211] Agreed in principle (unseen)

Miscellaneous RRC corrections for DAPS:

[R2-2104072](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104072.zip) Handling of physicalCellGroupConfig in DAPS handover MediaTek Inc. CR Rel-16 38.331 16.4.1 2544 - F NR\_Mob\_enh-Core

* [211] Not pursued

[R2-2104075](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104075.zip) CR on T312 handling in DAPS HO ZTE Corporation, Sanechips CR Rel-16 36.331 16.4.0 4627 - F LTE\_feMob-Core

* [211] Agreed in principle

[R2-2104125](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104125.zip) Configuration for UDCEHC and DAPS LG Electronics Inc. CR Rel-16 36.331 16.4.0 4632 - F LTE\_feMob-Core

* [211] Not pursued

[R2-2104128](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104128.zip) Configuration for EHC and DAPS LG Electronics Inc. CR Rel-16 38.331 16.4.1 2554 - F NR\_Mob\_enh-Core

* [211] Not pursued

Email discussions ([211], [213])

* [AT113bis-e][211][MOB] DAPS corrections (Samsung)

Scope:

* + - Discuss which DAPS corrections (for LTE and NR) marked for this discussion are seen agreeable. CRs that are editorial can be merged together.

 Intended outcome:

* + - Discussion summary in [R2-2104312](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104312.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

* + - Initial deadline (for company feedback): 1st week Thu, UTC 0900
		- Initial deadline (for rapporteur summary): 1st week Fri, UTC 0900
		- Deadline for CR finalization: 2nd week Tue, UTC 1000
* [AT113bis-e][213][MOB] *RRCReconfiguration* with DAPS source release (Ericsson)

Scope:

* + - Discuss how/whether to capture the agreements on what is allowed to be configured when *daps-SourceRelease* is sent to UE according to online agreements.

 Intended outcome:

* + - Discussion summary in [R2-2104330](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104330.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

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

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

[R2-2104312](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104312.zip) Summary of [AT113bis-e][211][MOB] DAPS corrections (Samsung) Samsung discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

* [R2-2103291](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103291.zip) and [R2-2103292](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103292.zip) are agreed in principle
* Revision of [R2-2103333](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103333.zip) (according to comments) in [R2-2104336](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104336.zip) is agreed in principle
* [R2-2104072](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104072.zip) is not pursued.
* [R2-2104075](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104075.zip) is agreed in principle
* [R2-2104125](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104125.zip) and [R2-2104128](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104128.zip) are not pursued.
* The CRs containing modification from [R2-2103626](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103626.zip) are agreed in principle in [R2-2104337](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104337.zip) (36.300) and [R2-2104338](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104338.zip) (38.300).
* [R2-2103625](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103625.zip) is not pursued.
* Discuss online whether the second change of [R2-2104076](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104076.zip) is agreeable.
* Discuss online the changes in [R2-2102821](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102821.zip) and [R2-2102822](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102822.zip).

Web Conf 2nd week (CRs affected by [211])

Addition/release of bearers during DAPS:

[R2-2102821](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102821.zip) Addition and release of DRBs in DAPS HO Command Ericsson CR Rel-16 36.331 16.4.0 4607 - F LTE\_feMob-Core

- Rapporteur thinks we can either go with the CRs or have clarification on non-DAPS bearer.

- Ericsson clarifies this is to handle what happens if UE falls back to source while target added non-DAPS bearers. QC thinks Ericsson is correct but likely UEs will not implement it this way. Could just add a NOTE. Huawei thinks the CR is not needed and we would have 3 types of non-DAPS DRBs with this. There's no real risk of errors.

- Ericsson wonders why we wouldn't capture this in specification.

* The intent is correct (UE only does fallback to non-DAPS bearers configured by source) but CR is not needed.

[R2-2102822](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102822.zip) Addition and release of DRBs in DAPS HO Command Ericsson CR Rel-16 38.331 16.4.0 2478 - F NR\_Mob\_enh-Core

* The intent is correct (UE only does fallback to non-DAPS bearers configured by source) but CR is not needed.

[R2-2104076](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104076.zip) CR on configuration release in DAPS HO ZTE Corporation, Sanechips CR Rel-16 36.331 16.4.0 4628 - F LTE\_feMob-Core

- Rapporteur clarifies that release source MAC is not clear to all. Compromise is "2> release the MAC entity for the source Pcell;" ZTE agrees. LGE agrees. Huawei thinks thnis is OK but the first change is not.

* The first change is not agreed
* Modify 2nd change to be "2> release the MAC entity for the source Pcell;"
* Revised in [R2-2104350](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104350.zip).

[R2-2104350](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104350.zip) CR on configuration release in DAPS HO ZTE Corporation, Sanechips CR Rel-16 36.331 16.4.0 4628 1 F LTE\_feMob-Core [R2-2104076](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104076.zip)

* [210] CB: To be agreed in principle when available

Web Conf 2nd week or By Email (summary of [213])

[R2-2104330](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104330.zip) Summary of [AT113bis-e][213][MOB] *RRCReconfiguration* with DAPS source release (Ericsson) Ericsson discussion Rel-16 NR\_Mob\_enh-Core, LTE\_feMob-Core

* Clarify in stage-2 (38.300 and 36.300) that non-DAPS compatible features (CA, DC, multi-TRP, UDC, EHC, SUL, sidelink, and CHO) can be configured in the same RRC reconfiguration message containing the daps-SourceRelease indication.
* CRs implemeting the above are postponed

### 6.4.3 Other corrections

Including incoming LSs related to LTE/NR mobility capabilities (if any). Corrections related to CHO/CPC/DAPS inter-operability with other features should be submitted to 6.1.4.3.

Including corrections to UE capability aspects of LTE/NR mobility WI (i.e. corrections to 3x.331 and 3x.306).

## 6.5 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 6.5. Please submit to 6.5.x

Editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication. If this is not done, the contribution may not be treated.Tdoc Limitation: 8 tdocs, See also tdoc limitation for Agenda Item 6

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

Including corrections to TS38.331, 36.331, 38.306, 36.306 and 38.321 related to Fast SCell activation and Early measurement reporting.

By Email [220] (4)

Miscellaneous corrections:

[R2-2103110](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103110.zip) Addition of early measurement in idle/inactive UE behavior description in 38.331 CATT CR Rel-16 38.331 16.4.1 2509 - F LTE\_NR\_DC\_CA\_enh-Core

* Replace “early measurements” with “idle/inactive measurements”.
* Merged to rapporteur CR in [R2-2104342](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104342.zip)

[R2-2103111](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103111.zip) Addition of early measurement in idle/inactive UE behavior description in 36.331 CATT CR Rel-16 36.331 16.4.0 4615 - F LTE\_NR\_DC\_CA\_enh-Core

* Replace “early measurements” with “idle/inactive measurements”.
* With this, merged to rapporteur CR in [R2-2104343](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104343.zip)

[R2-2103803](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103803.zip) Misc corrections for Rel-16 DCCA Ericsson CR Rel-16 38.331 16.4.1 2534 - F LTE\_NR\_DC\_CA\_enh-Core

* Fix typos on cover page
* Remove 1st sentence in NOTE1
* Fix formatting of NOTE3.
* [220] Revised in [R2-2104342](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104342.zip)

[R2-2104342](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104342.zip) Misc corrections for Rel-16 DCCA Ericsson CR Rel-16 38.331 16.4.1 2534 1 F LTE\_NR\_DC\_CA\_enh-Core [R2-2103803](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103803.zip)

* [220] TBD: Can agreed in principle after CR revision deadline.

[R2-2103804](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103804.zip) Misc corrections for Rel-16 DCCA Ericsson CR Rel-16 36.331 16.4.0 4622 - F LTE\_NR\_DC\_CA\_enh-Core

* [220] Revised in [R2-2104343](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104343.zip)

[R2-2104343](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104343.zip) Misc corrections for Rel-16 DCCA Ericsson CR Rel-16 36.331 16.4.0 4622 1 F LTE\_NR\_DC\_CA\_enh-Core [R2-2103804](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103804.zip)

* [220] TBD: Can agreed in principle after CR revision deadline.

Email discussions ([220])

* [AT113bis-e][220][DCCA] Miscellaneous DCCA corrections (Ericsson)

Scope:

* + - Discuss corrections under R16 DCCA WI marked for this discussion to see which CRs could be agreeable. CRs that are editorial or smal can be merged to rapporteur CRs.

 Intended outcome:

* + - Discussion summary in [R2-2104313](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104313.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

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

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

[R2-2104313](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104313.zip) Summary of [AT113bis-e][220][DCCA] Miscellaneous DCCA corrections (Ericsson) Ericsson discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

* Changes in [R2-2103110](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103110.zip) are added to rapporteur CR on miscellaneous DCCA corrections. Replace “early measurements” with “idle/inactive measurements”.
* Changes in [R2-2103111](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103111.zip) are added to rapporteur CR on miscellaneous DCCA corrections. Replace “early measurements” with “idle/inactive measurements”.
* [R2-2103803](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103803.zip) is agreed in principle
* [R2-2103804](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103804.zip) can be agreed in principle agreed in , with following revisions:

- fix typos on cover page

- remove 1st sentence in NOTE1

- fix formatting of NOTE3.

* [R2-2103981](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103981.zip) is not pursued. FFS if we capture "The network will release T316 if there is no split SRB1 and SRB3, no special UE handling is needed." in chairman’s notes.
* [R2-2103270](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103270.zip) is not pursued.
* [R2-2104044](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104044.zip) is agreed in principle
* [R2-2103031](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103031.zip) can be agreed in principle in [R2-2104344](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104344.zip) with the following revisions:

- 3GPP styles are missing

- In the 1st new figure, the entities S-GW - MME - AMF should rather be SN - S-GW – MME.

* Split [R2-2103031](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103031.zip) (with cover page corrections) to two sets of CRs: One for SCG suspend in EN-DC (Rel-16 CatF CR, [R2-2104344](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104344.zip)) and Rel-15/16 CRs (in [R2-2104345](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104345.zip) and [R2-2104346](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104346.zip)) covering the SCG release case (with cover page corrections)

### 6.5.2 Other DCCA corrections

Including corrections to NR-NR DC, MCG SCell and SCG configuration with RRC resume, Fast MCG link recovery on all specifications.

Including outcome of [Post113-e][224][DCCA] TCI state indication at direct SCell activation (MediaTek)

Reply LS on NR-DC power control:

[R2-2102648](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102648.zip) Further Reply LS on power control for NR-DC (R4-2103373; contact: vivo) RAN4 LS in Rel-16 LTE\_NR\_DC\_CA\_enh-Core To:RAN2, RAN1 Cc:-

*(moved from 6.5.1)*

* Noted (input contributions handled in [221])

Reply LS on TCI stae indication for direct SCell activation:

[R2-2102613](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102613.zip) Reply LS on TCI state indication at Direct SCell activation (R1-2102015; contact: MediaTek) RAN1 LS in Rel-16 LTE\_NR\_DC\_CA\_enh-Core To:RAN4, RAN2

*(moved from 6.5.1)*

* Noted (already handled in email discussion [Post113-e][224][DCCA])

Web Conf (Monday 1st week) (2)

Outcome of [Post113-e][224][DCCA] TCI state indication at direct SCell activation (MediaTek)

[R2-2104036](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104036.zip) Report of [Post113-e][224][DCCA] TCI state indication at direct SCell activation (MediaTek) MediaTek Inc. discussion LTE\_NR\_DC\_CA\_enh-Core

Agreements

1 Adding TCI state in RRC for direct SCell activation is not pursued in Rel-16.

2 Send reply LS to RAN4/RAN1 and inform them that RAN2 decides not to add TCI state in RRC for direct SCell activation in Rel-16.

Discussion

- ZTE would like to understand what is the alternative to this: Only 1 TCI state? MTK confirms that this is the main possibility and will limit the usage of the feature. ZTE thinks if there is a way for network to configure a list of TCI states but the first one would be used and this wouldn't require ASN.1 change. MTK clarifies this was discussed in RAN1 but not agreed. QC prefers to add RRC but can accept the rapporteur proposal.

- QC wonders how the TCI state activation latency work in this case? MTK clarifies RAN4 will discuss this after RAN2 replies and this will have no RAN2 impact.

[R2-2104040](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104040.zip) Reply LS on TCI state indication at Direct SCell activation MediaTek Inc. LS out LTE\_NR\_DC\_CA\_enh-Core To:RAN4, RAN1

* Revised in [R2-2104326](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104326.zip) (with usual updates to source and removal of "draft" from title).

[R2-2104326](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104326.zip) Reply LS on TCI state indication at Direct SCell activation RAN2 LS out LTE\_NR\_DC\_CA\_enh-Core To:RAN4, RAN1

* Approved

Web Conf (Monday 1st week) (2)

NR-DC cell grouping:

[R2-2103805](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103805.zip) Cell grouping for asynchronous NR-DC Ericsson discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

*Observation 1 Including intra FR cell group NR-DC signalling will increase overhead for UE capability signalling.*

*Observation 2 The increased overhead in UE capability reporting is unnecessary in FR1-FR2 NR-DC network deployments and may restrict the UE from reporting relevant capabilities.*

*Proposal 1 Await RAN4 input before deciding the cell grouping granularity.*

*Proposal 2 Introduce a new field includeNRDC-SameFR in UE-CapabilityRequestFilterCommon for requesting NR-DC band combinations with cells within the same FR in both MCG and SCG.*

Discussion

- AT&T wonders if P2 allows more than 5 BCs? Ericsson confirms this is the case for FR1-FR2.

- AT&T would like to ensure >5 band cases are covered.

- Apple thinks we already discussed this. Should wait for RAN4 input. QC agrees with Apple even though likes the P2. Intel and Samsung also agree to wait. Nokia agrees that we need to wait for RAN4 for CR agreement but there seems to be demand from operators to support >5 bands. So would be good to consider in RAN2 how this is done.

- ZTE thinks that for FR1-FR1 with >5 bands, there could be some problems.

[R2-2103273](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103273.zip) NR DC Cell Grouping Nokia, Nokia Shanghai Bell discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

*Observation: Increasing number of bands in the endorsed CR style of signaling is not feasible*

*Observation: From signaling point of view it is feasible to support more than 5 bands with carrier type of signaling (i.e. one used for two PUCCH group capability signaling)*

*Proposal: It is proposed to discuss from RAN2 point of view how to realize more than 5 bands support for capability signaling*

- Chair wonders if we need to progress already now. AT&T thinks we do. Apple thinks we still need RAN4 input on e.g. grouping.

- ZTE is open to discuss candidate solutions during the meeting. Does not agree with the first observation. LGE is also open to discuss before RAN4 input. MTK thinks it's better to wait for RAN4. PUCCH grouping is the only one under discussion and that could work. QC thinks RAN already decided that RAN4 starts the work and RAN2 follows.

* If RAN4 LS arrives during the meeting, can start offline discussion. Otherwise we discuss this in post-meeting email discussion.

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* If the RAN4 LS is sent, will have post-meeting email discussion on solutions based on RAN4 LS (Nokia)

By Email [220] (2+2)

T316 handling:

[R2-2103981](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103981.zip) T316 handling when the split SRB1 or SRB3 is released Huawei, HiSilicon discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

- Huawei clarifies it's unclear what to do if UE still has T316 from previous SRB3 when SRB3 is configured again. There might be different UE behaviours if some UEs release and some don't.

* RAN2 understanding is that the network will release T316 if there is no split SRB1 and SRB3, no special UE handling is needed.
* [220] Not pursued

[R2-2103270](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103270.zip) Set-up and release of T316 in procedures Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.4.1 2503 - F LTE\_NR\_DC\_CA\_enh-Core

* [220] Not pursued

SCG handling with RRC resume:

[R2-2104044](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104044.zip) Clarification on NR SCG configuration within RRC Resume MediaTek Inc. CR Rel-16 38.331 16.4.1 2543 - F LTE\_NR\_DC\_CA\_enh-Core

* [220] Agreed in principle

[R2-2103031](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103031.zip) CR on SCG release and suspend in EN-DC ZTE Corporation, Sanechips CR Rel-16 37.340 16.5.0 0257 - F LTE\_NR\_DC\_CA\_enh-Core

* Use 3GPP styles
* In the 1st new figure, the entities S-GW - MME - AMF should rather be SN - S-GW – MME.
* Split to two sets of CRs: One for SCG suspend in EN-DC (Rel-16 CatF CR, [R2-2104344](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104344.zip)) and Rel-15/16 CRs (in [R2-2104345](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104345.zip) and [R2-2104346](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104346.zip)) covering the SCG release case (with cover page corrections)

[R2-2104344](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104344.zip) CR on SCG suspend in EN-DC ZTE Corporation, Sanechips CR Rel-16 37.340 16.5.0 0257 1 F LTE\_NR\_DC\_CA\_enh-Core

* [220] to be agreed in principle over email

[R2-2104345](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104345.zip) CR on SCG release in EN-DC ZTE Corporation, Sanechips CR Rel-15 37.340 15.12.0 0263 - F NR\_NewRAT-Core

* [220] to be agreed in principle over email

[R2-2104346](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104346.zip) CR on SCG release in EN-DC ZTE Corporation, Sanechips CR Rel-16 37.340 16.15.0 0264 - A NR\_NewRAT-Core

* [220] to be agreed in principle over email

By Email [221] (5)

[R2-2104139](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104139.zip) Clarification on intra-FR2 NR-DC power control Huawei, HiSilicon discussion Rel-16 LTE\_NR\_DC\_CA\_enh

[R2-2103271](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103271.zip) NR DC power control signaling Nokia, Nokia Shanghai Bell discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

[R2-2103272](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103272.zip) NR DC power control signaling Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.4.1 2504 - F LTE\_NR\_DC\_CA\_enh-Core

[R2-2102874](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102874.zip) Correction on FR2 NR-DC power control parameter vivo, MediaTek Inc. draftCR Rel-16 38.331 16.4.1 F LTE\_NR\_DC\_CA\_enh-Core

[R2-2103806](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103806.zip) Correction on p-UE-FR2 and p-NR-FR2 for NR-DC power control Ericsson CR Rel-16 38.331 16.4.1 2535 - F LTE\_NR\_DC\_CA\_enh-Core

Email discussions ([221])

* [AT113bis-e][221][DCCA] NR-DC power control signalling (Huawei)

Scope:

* + - Discuss NR-DC PC signalling corrections (for FR2) under R16 DCCA WI marked for this discussion to understand best way forward for RAN2.

 Intended outcome:

* + - Discussion summary in [R2-2104314](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104314.zip) (by email rapporteur).
		- Agreeable CRs (if any)

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

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

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

[R2-2104314](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104314.zip) Summary of [AT113bis-e][221][DCCA] NR-DC power control signalling (Huawei) Huawei discussion Rel-16 LTE\_NR\_DC\_CA\_enh-Core

* Wait for RAN1 input on the support of power sharing for FR2+FR2 NR-DC, including changes to UE capabilities.
* RAN2 intends to update the following RRC parameters with “This field is not used in this version of specification”: *p-UE-FR2, p-NR-FR2, p-maxUE-FR2, p-maxNR-FR2-MCG, p-maxNR-FR2-SCG, requestedP-MaxFR2, powerCoordination-FR2*. The same change to be used for UE capabilities if RAN1 input indicates it's needed.
* CRs are postponed (pending RAN1 feedback)

- Chair wonders if we need to endorse CR since we wait for RAN1? Huawei clarifies that we can also wait. Nokia thinks we don't need to agree to CRs now.

# 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

Purely editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication. If this is not done, the contribution may not be treated.

### 7.1.1 Cross WI RRC corrections

### 7.1.2 Feature Lists and UE capabilities

Corrections to UE capabilities should be taken up with the 36.331 and 36.306 specification editors before submitting to avoid CR duplication. If this is not done, the contribution may not be treated.

## 7.4 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)

Purely editorial corrections should be taken up with the specification editor before submitting to avoid CR duplication. If this is not done, the contribution may not be treated.

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

Including outcome of [Post113-e][206][LTE] Clarification to Fallback band combination definition (Nokia)

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Outcome of [Post113-e][206][LTE] Clarification to Fallback band combination definition (Nokia):

[R2-2103546](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103546.zip) Report on [Post113-e][206][LTE] Clarification to Fallback band combination definition (Nokia) Nokia, Nokia Shanghai Bell discussion Rel-16 TEI16

*Proposal 1: RAN2 confirms that fallback band combination supports the carriers’ bandwidth(s) that are the same as the carriers’ bandwidth(s) of the signalled parent band combination.*

*Proposal 2: RAN2 to agree a change of the text in Fallback band combination definition in TS36.306,*

*from: “A fallback band combination and the parent band combination supports the same bandwidths for each band of the fallback band combination.”*

*to: A fallback band combination supports the same channel bandwidths for each carrier as its parent band combination.*

*Proposal 3: Only Rel-16 CR on Clarification on Fallback band combination definition is agreed.*

Discussion

- Lenovo is fine with the proposals but thinks magic sentence could be used. Nokia agrees. QC is not sure magic sentence is needed. Lenovo thinks this was introduced in Rel-13 so that could be the earliest release.

- QC has editorial issue with P2 in the CR ("support" --> "supports").

Agreements

1 RAN2 confirms that fallback band combination supports the carriers’ bandwidth(s) that are the same as the carriers’ bandwidth(s) of the signalled parent band combination.

2 RAN2 to agree a change of the text in Fallback band combination definition in TS36.306,

from: “A fallback band combination and the parent band combination supports the same bandwidths for each band of the fallback band combination.”

to: A fallback band combination supports the same channel bandwidths for each carrier as its parent band combination.

3 Only Rel-16 CR on Clarification on Fallback band combination definition is agreed.

* Make clear in CR cover page that this is a clarification and nothing changes in existing implementations.

[R2-2103547](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103547.zip) Clarification to Fallback band combination definition Nokia, Nokia Shanghai Bell CR Rel-16 36.306 16.4.0 1782 3 F TEI16 [R2-2100606](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2100606.zip) Late

- Lenovo think the inter-operabiility need changes as there is no impact to that.

* Align with P2 ("support" --> "supports")
* Update inter-operability to make it clear there are no impacts in any case.
* With these changes, the CR is agreed in principle in [R2-2104329](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104329.zip)

[R2-2104329](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104329.zip) Clarification to Fallback band combination definition Nokia, Nokia Shanghai Bell CR Rel-16 36.306 16.4.0 1782 4 F TEI16 [R2-2103547](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103547.zip) Late

* Agreed in principle

By Email [201] (1)

RLC SDU retransmissions:

[R2-2102944](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102944.zip) RETX\_COUNT upon expiry of t-PollRetransmit Nokia, Nokia Shanghai Bell CR Rel-16 36.322 16.0.0 0146 - F LTE-L23, TEI16

* [201] Not pursued

# 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: 0.5 TU

Tdoc Limitation: 3 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 (which do not count against Tdoc limits).

Including outcome of [Post113-e][233][eDCCA] Running Stage-2 CR on eDCCA (Huawei)

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

LS on inter-node RRC container design:

[R2-2102642](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102642.zip) Reply LS on Conditional PSCell Addition/Change agreements (R3-211338; contact: Huawei) RAN3 LS in Rel-17 LTE\_NR\_DC\_enh2-Core To:RAN2 Cc:-

* Short email discussion to try send reply to RAN3. Will try to send LS if possible.

Outcome of [Post113-e][233][eDCCA] Running Stage-2 CR on eDCCA (Huawei)

[R2-2103037](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103037.zip) TS 37.340 CR for SCG deactivation and activation ZTE Corporation, Sanechips draftCR Rel-17 37.340 16.5.0 B LTE\_NR\_DC\_enh2-Core Late

* Not available during 1st week Thu session
* Revised in [R2-2104340](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104340.zip)

[R2-2104340](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104340.zip) TS 37.340 CR for SCG deactivation and activation ZTE Corporation, Sanechips draftCR Rel-17 37.340 16.5.0 B LTE\_NR\_DC\_enh2-Core [R2-2103037](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103037.zip) Late

* CBT

Stage-2 CR for eDCCA:

[R2-2103980](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103980.zip) Introduction of further MRDC enhancements Huawei, HiSilicon CR Rel-17 38.300 16.5.0 0362 - B LTE\_NR\_DC\_enh2-Core

* Endorsed

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

No documents should be submitted to 8.2.2. Please submit to.8.2.2.x

Withdrawn:

[R2-2103982](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103982.zip) SCG activation and deactivation procedure Huawei, HiSilicon discussion Rel-17 LTE\_NR\_DC\_enh2-Core Withdrawn

#### 8.2.2.1 Deactivation of SCG

This agenda item may use a summary document (decision to be made based on submitted tdocs).

Including discussion on how MN/SN request for SCG deactivation works and whether the request can be rejected.

Summary document (pre-meeting effort)

[R2-2104315](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104315.zip) Summary of AI 8.2.2.1: Deactivation of SCG Huawei discussion Rel-17 LTE\_NR\_DC\_enh2-Core

Discussion (P1/P5)

- vivo thinks this is OK for NW-initiated procedures but not for UE-initiated.

- LGE agrees with P1 and P5. OPPO agrees.

Discussion (P7, P8, P9)

- OPPO supports P7-9. LGE agrees to P7-9 but wonders if NW can omit activation status? Huawei agrees that the message design has to be compatible with legacy. If it's not included, it's activated by default. Depends on signalling design. Samsung thinks we could use "set". ZTE thinks we can use "indicate".

- Intel wonders what P8 means: Is the deactivation indication in MN message, or in SN-generated message? Huawei clarifies it's in MN-generated message as per P7.

- Intel wonders why we don't allow SN to set deactivation state? Huawei clarifies that MN and SN coordinate anyway, so this can be just as well included in MN since MN will make the final decision. Intel thinks we could consider different bearer cases. Huawei thinks this is too complex.

Agreements

5 Only the MN can generate an RRC message with SCG (de)activation.

1 Indication of SCG deactivation to the UE via the SCG is not supported.

7 During handover preparation, the target MN can indicate the SCG state in the RRCReconfiguration message to be sent to the UE by the source MN.

8 The MN RRC reconfiguration message used to deactivate SCG and the embedded SN RRC reconfiguration message can reconfigure any parameter (any restriction requires an explicit decision).

9 While the SCG is deactivated, the MN RRC reconfiguration message and the embedded SN RRC reconfiguration message can reconfigure any parameter (any restriction requires an explicit decision).

**UE-initiated SCG deactivation**

*Proposal 2: Further discuss the 5 proposals for UE-initiated deactivation of the SCG.*

**RAN3 interaction**

*Proposal 3: Discuss explanations that could be provided to RAN3 so that RAN3 can make decisions on MN-SN interactions for deactivation of the currently activated SCG.*

*(e.g. whether MN and/or SN can determine that deactivating the currently activated SCG is acceptable from a QoS perspective)*

*Proposal 4: Include the cases of SN addition/change in the explanations to RAN3.*

*Proposal 6: During handover preparation, the source MN sends the current SCG activation state to the target MN. Whether the current SCG activation state is part of the inter-node container or in the XnAP part of the message needs also be discussed in RAN3.*

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[R2-2103977](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103977.zip) SCG deactivation Huawei, HiSilicon discussion Rel-17 LTE\_NR\_DC\_enh2-Core

Discussion

- QC is fine with P1 but wonders how QoS fits in with O2?

- LGE agrees with P1.

- Apple supports P1-3 but would like to indicate that UE indicates UAI to MN (i.e. not to SN).

- ZTE disagrees with the second bullet of observation 1 and observation 4. SN doesn't need to care about all traffic but about the SN data. So activitity notification.

- Nokia agrees with the observations.

*Proposal 1: Inform RAN3 about the following observations.*

*Observation 1: In certain MR-DC configurations:*

*- the MN cannot see (all) the traffic on certain radio bearers using the SCG;*

*- the SN cannot see (all) the traffic on certain radio bearers using the SCG.*

*Observation 2: In such MR-DC configurations, neither the MN nor the SN can appreciate alone whether SCG deactivation is possible while respecting the QoS required for all ongoing services.*

*Observation 3: If SN initiated SN modification supports SCG deactivation, the request for SCG deactivation may be frequently rejected by the MN because the SN is not aware of traffic on the MCG leg of MN-terminated split bearers.*

 *Observation 4: If the SN uses activity notification to inform the MN every time SCG deactivation becomes possible or not possible from SN perspective, the MN can initiate SCG deactivation only when it is possible from the MN and from the SN perspective so the SN is likely to accept it.*

*Proposal 2: The UE can indicate to the network that the UE would like the SCG to be deactivated.*

*Proposal 3: The network replies to the UE indication whether the UE request is accepted or rejected.*

- Nokia thinks the UE indication use case is not so clear and whether we define some network requirements is unclear. Is this about overheating? Huawei clarifies that UE might want to use resources for other SIM. DCM thinks UE power saving or S-RLF could be another use case.

- CATT has concern with P3 since this would mean new message could be needed and this doesn't seem needed. NW can deactivate and UE sees that. Ericsson agrees to reuse UAI framework but the activation or deactivation is the action. NW needs to know why UE wants to deactivate. DCM thinks UAI is not useful and UE could autonomously deactivate.

- BT is fine with P2 but not P3. Vodafone is not OK with P2. Is concerned that this could be rogue UE so this is a security problem. Has strong concerns. AT&T supports network configurability.

- Samsung thinks we already have indications. OPPO thinks there could be duplication with overheating and power saving.

Agreements

2 The UE can indicate to the MN that the UE would like the SCG to be deactivated. FFS on the details (e.g. reusing UAI or existing messages, information included, etc.). Network can configure whether UE is allowed to do the indication.

[R2-2103913](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103913.zip) UE assistance information use case for SCG deactivation Convida Wireless discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Observation 1: Indications of overheating issues or power saving preferences do not necessarily provide any useful information to the network when to deactivate SCG even though deactivation of SCG generally saves power and resolves overheating problems.*

*Observation 2: Combining the traffic and application behaviour related information from the UE side with the (in)activity related information at the network side facilitates more accurate and faster SCG deactivation decisions than without the information from the UE.*

*Proposal 1: The UE may indicate preference for SCG deactivation in UEAssistanceInformation message.*

*Proposal 2: MN can route the SCG deactivation assistance information to SN.*

Discusssion

- QC thinks MN would anyway tell SN so could agree to P2, but thinks this is MN decision. Convida clarifies that it's MN choice but SN could have additional information. QC wonders if there would be some additional information from MN to SN? Convida thinks this would only be the information from UE.

[R2-2103807](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103807.zip) SCG deactivation procedures Ericsson discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Observation 1 During SN addition procedure, the MN can request the SCG to be deactivated and the SN has a possibility to confirm the setting of SCG activation state.*

*Observation 2 The SCG target state can be set to deactivated in those handover cases where reconfigurationWithSync for the SCG is required per legacy (e.g. at AS security key change).*

*Observation 3 Allowing both the MN and the SN to generate the RRC message with (de)activation of the SCG may lead to unnecessary complexity and inconsistency.*

*Observation 4 For an MN generated message, in case of an MN initiated SCG activation where there are no changes to be done to the SCG configuration, the MN can trigger SCG activation towards the UE before receiving the response message from SN.*

*Observation 5 As a result of UE power saving preference for SCG on reduced maximum number of CCs, the network may decide to deactivate the SCG or release the SCG.*

*Observation 6 The UE power saving preference for SCG on reduced maximum number of CCs cannot indicate a preference on deactivating the SCG or releasing the SCG.*

*Proposal 1 The SN may accept or reject the MN request to deactivate SCG.*

*Proposal 2 The MN may accept or reject the SN request to deactivate SCG.*

*Proposal 3 In the SN Addition procedure during PSCell addition/change, the target SN should be able to set the SCG activation state in the response message to the MN.*

*Proposal 4 At PSCell addition/change, if the SCG activation target state is SCG activated, the UE performs random access in target PSCell (as in legacy).*

*Proposal 5 At PSCell addition/change, if the SCG activation target state is SCG deactivated, the UE does not perform random access in target PSCell.*

*Proposal 6 During handover preparation, source MN sends the current SCG activation state to the target MN. Whether the current SCG activation state is part of the inter-node container or in the XnAP part of the message needs also be discussed in RAN3.*

*Proposal 7 During handover preparation, the target MN includes the SCG activation state in the RRCReconfiguration message to be sent to the UE by the source MN.*

*Proposal 8 In the SN Addition procedure during handover preparation, the (target) SN should be able to set the SCG activation state in the response message to the target MN.*

*Proposal 9 At handover when SCG target state is set to deactivated, the UE does not perfom a random access in the target PSCell. This applies also for the handover cases where reconfigurationWithSync for the SCG is required per legacy (e.g. at AS security key change).*

*Proposal 10 SCG deactivation is only transmitted to UE via MCG on SRB1.*

*Proposal 11 On Uu only RRC signalling is used to activate/deactivate the SCG in Rel-17.*

*Proposal 12 Only the MN can generate an RRC message with SCG (de)activation.*

*Proposal 13 UE can be configured to report a preference for SCG deactivation or SCG release.*

*Proposal 14 Only the MN can configure the UE to report a preference for SCG deactivation or SCG release.*

[R2-2102898](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102898.zip) Open issues for SCG deactivation procedure OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 1: only SCG RLC bearer is suspended for SCG deactivation i.e. the PDCP resource of SCG is not suspended.*

*Proposal 2: the SCG leg of split bearer can be suspended for SCG deactivation and only MCG leg of split bearer is used for data transmission if SCG is or will be suspended.*

*Proposal 3: If proposal 2 is not agreed, then for each split bearer, if data volume is lower than the configured threshold, i.e ul-DataSplitThreshold and the primary leg is not in SCG side, then then SCG can be suspended.*

*Proposal 4: if PDCP duplication is configured and when any one below condition is met, the SCG cannot be suspend:*

*- If the primary leg is configured in SCG side;*

*- If the primary leg is configured in MCG side and if at least one SCG RLC leg is activated;*

*Proposal 5: if PDCP duplication is configured and when all the below conditions are met, the SCG can be suspend:*

*- If the primary leg is not configured in SCG side and all SCG RLC legs are deactivated.*

*- If the primary leg is not configured in SCG side and PDCP duplication is deactivated.*

*Proposal 6: RAN2 is kindly asked to confirm that there is no PSCell change alone with SCG reactivation.*

*Proposal 7: No need to introduce extra assistance information for deactivation of SCG.*

*Proposal 8: only MN can make the SCG deactivation decision based on revised SN ACTIVITY NOTIFICATION message or new message from SN, BSR from UE and MN will send the SCG deactivation command to the UE and SN respectively.*

*Proposal 9: It is not supported for UE to request SCG deactivation and there is also no reject case from SN and UE due to SCG deactivation command.*

*Proposal 10: One step RRC signalling is defined for SCG deactivation from MN only.*

*Proposal 11: SCG deactivation command via MAC CE is supported.*

*Proposal 12: UE resume RRC connection from RRC\_INACTIVE state without SCG activation is supported if the SCG deactivation condition is met.*

*Proposal 13: UE will inform MN about MCG resuming only.*

[R2-2103106](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103106.zip) Discussion on Deactivation of SCG CATT discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103153](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103153.zip) Access handling with TAT in SCG fast activation Futurewei discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103274](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103274.zip) Deactivation of SCG Nokia, Nokia Shanghai Bell discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103397](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103397.zip) Discussion on SCG deactivation Lenovo, Motorola Mobility discussion Rel-17

[R2-2103503](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103503.zip) Issues on SCG deactivation procedure NEC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103681](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103681.zip) Activation and Deactivation of SCG InterDigital discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103722](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103722.zip) Discussions on deactivation of SCG CMCC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103890](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103890.zip) Deactivation of SCG Qualcomm Incorporated discussion Rel-17

[R2-2103931](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103931.zip) SCG activation/ deactivation procedure Samsung Telecommunications discussion LTE\_NR\_DC\_enh2-Core

[R2-2104159](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104159.zip) NW-triggered SCG activation and deactivation MediaTek Inc. discussion

[R2-2104237](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104237.zip) Further consideration on SCG activation and deactivation NTT DOCOMO INC. discussion Rel-17 LTE\_NR\_DC\_enh2-Core Late

*(moved from 8.2.2)*

#### 8.2.2.2 UE measurements and reporting in deactivated SCG

This agenda item may use a summary document (decision to be made based on submitted tdocs).

Including discussion on what UE does when the SCG is deactivated: Does UE do RRM/RLM measurements when the SCG is deactivated? If RLM is used, what is UE behaviour if SCG RLF occurs? How does UE handle TAT when SCG is deactivated? Does UE need to perform L1 measurement (as configured by CSI-MeasConfig) and/or beam monitoring (as configured by RadioLinkMonitoringConfig) when the SCG is deactivated, and is associated reporting needed?

Summary document (pre-meeting effort)

[R2-2104316](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104316.zip) Summary of AI 8.2.2.2: UE measurements and reporting in deactivated SCG OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 2: TA timer for sTAG should stop after SCG deactivation.*

*Proposal 10: RAN2 confirms that RRC signalling can reconfigure SCG RRM configuration if SCG deactivation or reactivation is delivered by RRC signalling.*

*Proposal 11: Send LS to RAN4 and ask RAN4 to study the RRM relax for SCG deactivation and RRM requirement for maintaining DL fine Sync.*

- OPPO thinks we should discuss RRM part to have LS to RAN4.

* Offline [240] (OPPO) on P11: Do we support RRM relaxations and why? Can discuss draft LS to RAN4 if there is sufficient support.

*Proposal 11: Send LS to RAN4 and ask RAN4 to study the RRM relax for SCG deactivation and RRM requirement for maintaining DL fine Sync.*

**TA timer and RACH**

*Proposal 1: TA timer of PSCell is keep running after SCG deactivation, if TA timer is running.*

*Proposal 3: UE does not need to perform any procedure, e.g. RACH, to maintain UL timing alignment with SN if TA timer expires.*

*Proposal 4a: Upon SCG activation, if TA timer of the PSCell has already expired or stop, UE performs RACH on the PSCell to obtain UL timing information.*

*Proposal 4b: RAN2 is kindly asked to discuss whether providing ReconfigurationWithSync by SN is a condition to trigger RACH even if TA timer is running.*

*Proposal 4c: RAN2 confirms that when deactivated SCG PSCell is changed UE does not initiate RACH until there is need to activate SCG.*

**RLM/BFD**

*Proposal 5: RLM is supported after SCG deactivation and legacy SCGFailureInformation message and reporting procedure can be reused after RLM is detected.*

*Proposal 6: RAN2 is kindly asked to discuss whether BFD is supported or not after SCG deactivation.*

*Proposal 7: If Proposal 6 is agreed, when BFD is declared, the UE will stop BFD and report BFD occurrence to SCG via MCG. FFS which RRC message and what will be included in the RRC message.*

*Proposal 8: RAN2 is kindly asked to discuss whether the TA timer will stop due to BFD/RLM detection.*

*Proposal 9: RAN2 is kindly asked to discuss whether CSI measurement on PSCell is supported or not for SCG deactivation. FFS how and when perform CSI report if RAN2 agree to support CSI measurement and send LS to RAN1.*

*Proposal 10: RAN2 confirms that RRC signalling can reconfigure SCG RRM configuration if SCG deactivation or reactivation is delivered by RRC signalling.*

*Proposal 11: Send LS to RAN4 and ask RAN4 to study the RRM relax for SCG deactivation and RRM requirement for maintaining DL fine Sync.*

**Other**

*Proposal 12: it is up to network to perform SCG SCell addition/release/modification while SCG is deactivated.*

*Proposal 13: RAN2 is kindly asked to discuss how to support fast MCG recovery during SCG deactivation.*

*Proposal 14: RAN2 is kindly asked to confirm PSCell state for SCG deactivation, i.e. deactivate state or active state with dormancy behaviour.*

Web Conf (Thursday 1st week) (1)

[R2-2103893](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103893.zip) UE measurements and reporting in deactivated SCG Qualcomm Incorporated discussion Rel-17

**RLM, BFD, and radio link failure recovery in SCG deactivated**

*Proposal 1. UE supports performing RLM on PSCell while in SCG deactivated.*

*Proposal 2. UE supports performing BFD on PSCell while in SCG deactivated.*

*Observation 1. Performing RLM and BFD on PSCell while in SCG deactivated can enable UE to determine upon SCG activation if it has a usable beam for performing RACH or SR, which has the potential to reduce SCG activation delay.*

*Observation 2. In SCG deactivated, UE performing RLM and BFD on the PSCell does not result in significant additional power consumption if RRM measurements on the PSCell are already being performed.*

*Proposal 3. UE transmits RRC SCGFailureInformation message to MN upon detecting RLF on PSCell while in SCG deactivated.*

*Proposal 4. Upon detecting BFD on the PSCell while in SCG deactivated, UE reports the occurrence of BFD to the network via the MCG.*

*Proposal 5. Upon detecting BFD on the PSCell in SCG deactivated UE reports BFD by transmitting SCGFailureInformation to the MN (a new failure type can be introduced in the message for this purpose).*

*Observation 3. Upon receiving SCGFailureInformation, in case MN decides to release the SN or change the PSCell, MN transmits RRC reconfiguration to the UE, and if PSCell is changed, the included SN RRC reconfiguration also indicates whether the activation state of new SCG is deactivated or activated.*

*Proposal 6. Upon receiving SCGFailureInformation, in case MN decides not to change the PSCell, MN and SN may optionally provide a reconfiguration to the UE in response. In particular, SN may provide in an RRC reconfiguration an updated set of beams, RLM RSs, BFD RSs, and additional RSs for UE to measure on the PSCell while in SCG deactivated.*

*Observation 4. In order to assist the SN to determine the configuration of updated beams and RSs as in Proposal 6, UE should report PSCell beam measurement results in SCGFailureInformation.*

*Proposal 7. UE should be configured to report PSCell beam measurement results in SCGFailureInformation while in SCG deactivated.*

*Proposal 8. Upon receiving the RRC reconfiguration message as discussed in Proposal 6, UE resumes performing RLM and BFD on the PSCell as per the provided configuration, while in SCG deactivated.*

*Observation 5. Upon UE detecting BFD or RLM, the option in which UE reports measurements via the MCG and waits for reconfiguration (Proposals 3-8 above) seems more preferable than the option where UE waits for SCG activation and performs RACH on activation, since it is possible and more likely in the former option for UE to have a usable beam upon SCG activation.*

**Handling Time Alignment timer (TAT) of the PSCell in SCG deactivated**

*Observation 6. In general, TA is considered valid when the TA timer is running, and this holds for the TA timer of the PSCell while UE is in SCG deactivated.*

*Proposal 9. Upon UE entering SCG deactivated, if the TA timer of the PSCell is running, UE should keep the timer running.*

*Proposal 10. While in SCG deactivated, UE should not stop the TA timer of the PSCell if it is running when BFD or RLM is detected.*

*Proposal 11. While in SCG deactivated, if TA timer of the PSCell expires, UE does not perform any procedure, e.g., RACH on PSCell, to regain or maintain UL timing alignment with the SN.*

*Proposal 12. Upon SCG activation, if TA timer of the PSCell has already expired, UE performs RACH on the PSCell to obtain UL timing information.*

*CSI-RS measurements and reporting in SCG deactivated*

*Observation 7. Transmission of CSI reports on PSCell UL impacts power savings and if TA timer of the PSCell expires, requires UE to maintain UL timing with SN while in SCG deactivated.*

*Observation 8. CSI-RS measurements and reporting after SCG activation do not contribute significantly to the delay for SN to begin scheduling the UE on the DL.*

*Proposal 13. In SCG deactivated, UE does not perform CSI-RS measurements on the PSCell and CSI reporting based on these measurements.*

**Beam management in SCG deactivated**

*Observation 9. DL and UL beam management procedures involve periodic beam (L1) measurement reports on the UL or SRS transmissions, which could result in increased UE power consumption in SCG deactivated.*

*Proposal 14. In SCG deactivated, UE does not support DL or UL beam management procedures.*

[R2-2102749](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102749.zip) Considerations on RLM during SCG deactivation KDDI Corporation discussion Rel-17

[R2-2102872](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102872.zip) UE behavior when SCG is deactivated vivo discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2102897](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102897.zip) UE measurements and reporting in deactivated SCG OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103036](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103036.zip) Discussion on UE behaviour when SCG is deactivated ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103107](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103107.zip) UE Behavior in Deactivated SCG CATT discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103275](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103275.zip) Measurements for deactivated SCG Nokia, Nokia Shanghai Bell discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103398](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103398.zip) UE behavior when SCG is deactivated Lenovo, Motorola Mobility discussion Rel-17

[R2-2103569](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103569.zip) UE Measurement Aspects in SCG Deactivation LG Electronics discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103682](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103682.zip) Measurements and maintenance of UL synch with a deactivated SCG InterDigital discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103808](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103808.zip) UE measurements and reporting in deactivated SCG Ericsson discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103885](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103885.zip) TA Maintenance and other UE actions in SCG deactivated state Apple discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103978](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103978.zip) UE behaviour in deactivated SCG Huawei, HiSilicon discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2104124](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104124.zip) Discussion for UE behaviour in deactivated SCG SHARP Corporation discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2104160](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104160.zip) UE behavior during SCG deactivation MediaTek Inc. discussion

[R2-2103740](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103740.zip) Discussion on UE behavior in deactivated SCG China Telecommunications discussion Rel-17

*(moved from 8.2.2)*

[R2-2103505](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103505.zip) Further considerations on SCG deactivation NEC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*(moved from 8.2.2.4)*

[R2-2103294](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103294.zip) DC power sharing for deactivated SCG Samsung discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*(moved from 8.2.2.4*

[R2-2103777](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103777.zip) Mobility for deactivated SCG NTT DOCOMO, INC. discussion

*(moved from 8.2.2.4*

Email discussions ([240])

* [AT113bis-e][240][DCCA] RRM relaxations for deactivated SCG (OPPO)

Scope:

* + - Discuss whether the RRM measurements could be relaxed when SCG is deactivated, what kinds of benefits that can provide and what are the downsides.
		- Can draft LS to RAN4 if there is sufficient support for that.

 Intended outcome:

* + - Discussion summary in [R2-2104334](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104334.zip) (by email rapporteur), may include draft LS as annex.

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
		- Initial deadline (for rapporteur's summary): 2nd week Tue, UTC 0900

Web Conf 2nd week (summary of [240])

[R2-2104334](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104334.zip) Summary of [AT113bis-e][240][DCCA] RRM relaxations for deactivated SCG (OPPO) OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

#### 8.2.2.3 Activation of deactivated SCG

This agenda item may use a summary document (decision to be made based on submitted tdocs).

Including discussion on SCG activation details: How does MN/SN/UE request SCG activation and can the request be rejected? Is usage of random access at SCG activation UE or network decision?

Summary document (pre-meeting effort)

[R2-2104317](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104317.zip) Summary of AI 8.2.2.3: Activation of deactivated SCG ZTE discussion Rel-17 LTE\_NR\_DC\_enh2-Core

- ZTE thinks offline may be too short to allowe further progress.

**MN/SN triggered SCG activation**

*Proposal 1: SN can accept or reject the SCG activation request from MN. Detailed signaling is up to RAN3.*

*Proposal 1.1: Confirm MN initiated SCG activation without SN involvement is not supported.*

*Proposal 2: SN can trigger SCG activation. Inform RAN3 that it is possible to use SN-initiated SN modification procedure, and it is also possible to send Activity Notification if SN wants.*

*Proposal 3: MN can accept or reject the SCG activation request from SN. Detailed signaling is up to RAN3.*

**UE triggered SCG activation**

*Proposal 4: SCG bearer is supported while SCG is deactivated.*

*Proposal 5: UE can trigger SCG activation request in following cases.*

*• Arrival of UL data for SCG bearer.*

*• MCG failure while SCG is deactivated.*

*• FFS on arrival of UL data for split bearer with SCG as primary path.*

*• FFS on arrival of UL data for split bearer with total data volume exceeds the threshold.*

*Proposal 6: UE can trigger SCG activation by:*

*• Solution 1: Triggering RACH towards PSCell (if configured by network).*

*o FFS whether SR can be used instead of RACH (e.g. when TAT is running).*

*• Solution 2: Sending indication to MN, and wait for SCG activation command from MN.*

*o Solution 2 is applied when solution 1 is not configured by network.*

*o FFS whether the indication is explicit RRC message, or UP based mechanism.*

*Proposal 7: For solution 1 in Proposal 6, network cannot reject the SCG activation request from UE.*

*Proposal 8: For solution 2 in Proposal 6, network can accept or reject the SCG activation request from UE, FFS on the signaling.*

**Form of SCG activation command**

*Proposal 9.1: Discuss in RAN2 whether to specify reduced RRC processing delay for SCG activation (in case there is no or limited change of SCG configuration).*

*Proposal 9.2: Discuss in RAN2 whether to send LS to RAN4 about the possibility of specifying reduced Tprocessing for SCG activation (in case the cell or frequency of PSCell does not change).*

*Proposal 10: Continue the discussion of MAC CE based approach.*

**Handling of SCG SCell**

*Proposal 11: Continue to discuss the handling of SCG SCell(s) upon SCG activation, e.g.*

*• Solution 1: Network indicates (in RRC signalling) the SCell state and active BWP for SCG SCell(s) in activation command;*

*• Solution 2: UE keeps SCG SCell(s) in deactivated state upon SCG activation (via MAC CE, if supported).*

Web Conf (Thursday 1st week) (2)

[R2-2103276](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103276.zip) Activation of SCG Nokia, Nokia Shanghai Bell discussion Rel-17 LTE\_NR\_DC\_enh2-Core

*Proposal 1: 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 2: MN sends the (MN- or SN-initiated) SCG activation command to the UE.*

*Proposal 3: UE can request SCG activation via UP mechanism (e.g. BSR sent via configured grant).*

*Proposal 4: First try to enhance RRC procedure before defining another way to activate SCG*

*Proposal 5: Specify more strict processing time for activating SCG with reduced set of changed parameters.*

*Proposal 6: Specify reduced physical layer processing delay for SCG activation use case together with RAN4*

*Proposal 7: UE should be able to keep downlink synchronization including SFN for deactivated SCG. Consult with RAN4 if they have concerns with this.*

[R2-2103399](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103399.zip) Discussion on SCG activation Lenovo, Motorola Mobility discussion Rel-17

*Observation 1 At this stage, time alignment towards SCG when SCG is deactivated is not supported. Random access helps to achieve time alignment towards SCG when SCG is activated.*

*Observation 2 SCG RRC reconfiguration can select the SCG activation state (activated/deactivated) at PSCell change*

*Observation 3 PHR is triggered if PSCell is added or changed.*

*Observation 4 When activating the SCG, NW can also configure the SCells states, e.g. if SCells enters activated state, deactivated state or dormant state.*

*Observation 5 All SCells are in deactivated state when SCG is deactivated*

*Observation 6 When fast MCG link recovery is configured, UE sends a MCG failure information to MN via SCG.*

*Proposal 1 Upon SCG deactivation, the relevant TAT continues running.*

*Proposal 2 Upon SCG activation, UE performs random access towards PSCell if the relevant TAT expires.*

*Proposal 3 UE performs random access towards the target PSCell during PSCell change in case the target SCG is configured as deactivated state.*

*Proposal 4 UE enters SCG deactivated state after random access towards the target PSCell if the SCG state is set to be deactivated during PSCell change.*

*Proposal 5 Upon SCG activation, MCG PHR is triggered.*

*Proposal 6 It is upon RAN3 discussion whether MN/SN triggered SCG activation can be rejected by the peer SN/MN.*

*Proposal 7 UE does not reject the SCG activation triggered by NW.*

*Proposal 8 When activating the SCG, explicit SCG activation indicator is not needed if any SCell is configured to enter activated or dormant state.*

*Proposal 9 When UE receives a RRC message to configure a SCell with activated or dormant state while the associated SCG has been deactivated, UE follow the procedures to activate the associated SCG.*

*Proposal 10 UE may trigger SCG activation in the following two scenarios:*

*a. Upon UL data arrival at SCG radio bearer and SCG is deactivated*

*b. Upon MCG failure and fast MCG link recovery is configured*

*Proposal 11 RAN2 supports two ways for UE to trigger SCG activation*

*a. UE provides assisting information to MN requesting SCG activation.*

*b. UE triggers random access to the PSCell if SCG TAT expires, or sends SR to SCG if SCG TAT is still running.*

[R2-2102873](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102873.zip) Activation of deactivated SCG vivo discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2102899](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102899.zip) Open issues for activation of deactivated SCG OPPO discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103035](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103035.zip) Activation and deactivation of SCG ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103108](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103108.zip) Considerations on Activation of Deactivated SCG CATT discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103251](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103251.zip) Discussion on UE behavior when SCG is deactivated Spreadtrum Communications discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103504](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103504.zip) Issues on SCG activation procedure NEC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103570](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103570.zip) Acrivation and Deactivation on SCG LG Electronics discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103723](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103723.zip) Discussions on activation of deactivated SCG CMCC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103809](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103809.zip) SCG activation procedures Ericsson discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103886](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103886.zip) UE initiation of SCG re-activation request Apple discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103895](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103895.zip) Activation of deactivated SCG Qualcomm Incorporated discussion Rel-17

[R2-2103979](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103979.zip) SCG activation Huawei, HiSilicon discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2104164](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104164.zip) UE behaviour upon SCG activation MediaTek Inc. discussion

[R2-2104170](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104170.zip) Discussion on SCG activation SHARP Corporation discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2104231](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104231.zip) Considerations on reactivating SCG Intel Corporation discussion Rel-17 LTE\_NR\_DC\_enh2-Core

Withdrawn:

[R2-2103154](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103154.zip) Measurement report and RLM handling for deactivated SCG Futurewei discussion Rel-17 LTE\_NR\_DC\_enh2-Core Withdrawn

#### 8.2.2.4 Other aspects of SCG activation/deactivation

This agenda item will be deprioritized during this meeting .

### 8.2.3 Conditional PSCell change / addition

No documents should be submitted to 8.2.3. Please submit to.8.2.3.x

#### 8.2.3.1 CPAC procedures and signalling flows

This agenda item will be deprioritized in this meeting. The email discussion will be treated.

Including outcome of [Post113-e][234][eDCCA] CPAC procedures (CATT)

Including discussion on CPAC configuration and execution details.

Including discussion on signalling flows for Stage-2 specification.

Web Conf (Tuesday 2nd week)

[R2-2103109](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103109.zip) Summary of [Post113-e][234][eDCCA] CPAC procedures (CATT) CATT discussion Rel-17 LTE\_NR\_DC\_enh2-Core Late

**Candidate generation & execution conditions**

*Proposal 1 Source SN provides the candidate cells and it sets the execution condition per candidate cell.*

- Nokia thinks P1 means we agreed the first part already (SN candidate cells + execution condition) but most companies think this is in "SN change required". Would like to clarify that signalling details are FFS. It's not just step 1.

* 1 Source SN provides the candidate cells and it sets the execution condition per candidate cell. Signalling details are FFS (e.g. which messages and steps).

*Proposal 2 No specification impact is introduced to allow the source SN to trigger inter-SN CPC blindly‎.*

* Blind Inter-SN CPC is not precluded (but we will not optimize it)

- Samsung sees no need to do anything special to enable this.

* 3 FFS whether it is possible for the target SN to come up with alternative candidate cells other than what suggested by the ‎source SN. ‎

**Source SN configuration update**

* We aim to conclude on P4 in next meeting

*Proposal 4 RAN 2 discuss and determine whether/which of the following are valid/necessary scenarios for the source SN configuration update based on the accepted candidate cells by the target SN before the CPAC configuration is sent to UE ‎*

*- gap is not needed according to the response from the target SN*

*- measID related with CPC that are not linked with the selected candidate PSCells.*

*- The target SN determines alternative candidate cells other than what suggested by the ‎source SN (subject to previous FFS) ‎*

- Lenovo would like to remove "before CPC config is sent to UE" as these would only apply to solution 2. Ericsson would like to add "gaps need to be reconfigured" since it's target cell decision what to do.

- Huawei thinks if we don't have alternative candidate cell additions, this is just optmization to remove unnecessary gaps. It could work without any of that. Not sure P3 is needed either. Samsung agrees with Huawei: Network can handle updates to configuration. Nokia thinks all 3 scenarios are relevant and would support all of them. ZTE agrees.

- QC thinks configuration update is needed since MN needs to provide updated configuration to SN and this has also UE impact on e.g throughput. CATT thinks both 3&4 are important.

- Rapporteur indicates both camps have strong opinions so FFSs are needed.

- ZTE thinks some procedures could be optional. vivo thinks that this depends on the solution and would agree to the proposal. Agrees this could have performance impact.

- Ericsson thinks the key question is whether network can wait to reconfigure UE or not so coudl agree wtih ZTE to keep procedures optional. Huawei wonders if candidate target SN can request update in source SN configuration? Ericsson indicates so. Huawei thinks this is something we have never had before. What about if we have multiple target SNs? This could contradict source SN configuration. Ericsson clarifies this is only about target configuration, not source SN configuration.

*Proposal 5 Baseline is no specification impact is needed for removal of the unrequired measurement configuration of the source SN depending on the accepted candidate ‎cells by the target SN.*

*Proposal 5a FFS whether/how to specify that UE does not have to measure measId(s) that are not linked ‎in CPC by a candidate.*

**Procedure details, solution 1**

*Proposal 6 Option 2 is taken as baseline, i.e., SgNB Change Confirm message is transmitted after reception of RRCReconfigurationComplete in response of the CPAC configuration. The reception of SgNB Change ‎Confirmation message does not trigger the source SN to stop data transmission to the UE. Also another message from the MN to the source SN is required upon the execution of ‎CPC to inform the source SN to stop data transmission to the UE. ‎ RAN2 informs this agreement to RAN3.*

**Procedure details, solution 2**

*No proposal is made, as no clear majority is observed from the views.*

**Inter-node message content**

*Proposal 7 The message contents required for step 1, 2 and 3 are：*

*- SN Change Required:*

*o The legacy content as baseline*

*o Execution condition per candidate cell,*

*o FFS whether an indication for CPC should be added.*

*- SN Addition Request :*

*o The legacy content of as baseline,*

*o FFS whether the indication for CPC should be added.*

*- SN Addition Request Acknowledge:*

*o The legacy content as baseline ,*

*o FFS whether accepted cell list should be added.*

**Conditional configuration update by the target SN**

*Proposal 8 RAN2 understand cancellation and modification of conditional configuration initiated by the target ‎SN, source SN and MN are supported. RAN2 wait for RAN3 progress before further discussions on ‎remaining aspects.*

*Coexistence of CHO an CPAC*

*Proposal 9 Baseline is that CHO and CPAC*

Not treated in this meeting

[R2-2102861](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102861.zip) Discussion on the configuration of CPAC vivo discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103155](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103155.zip) Discussion on issues with SN initiated CPC Futurewei discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103158](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103158.zip) Remaining issues for SN initiated inter-SN CPC China Telecommunication discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103354](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103354.zip) Discussion on procedures in CPAC and conventional PSCell change ITRI discussion LTE\_NR\_DC\_enh2-Core

[R2-2103883](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103883.zip) Details in conditional PSCell change and addition Apple discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103932](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103932.zip) CPAC stage 2 flow, progressing remaining issues Samsung Telecommunications discussion LTE\_NR\_DC\_enh2-Core

[R2-2103986](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103986.zip) Discussion on the inter-node message design (RAN3 LS) Huawei Technologies France discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2104073](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104073.zip) Further consideration on CPAC ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_DC\_enh2-Core

#### 8.2.3.2 CPAC coexistence with CHO and CPAC failure handling

This agenda item will not be treated in this meeting.

Including discussion on CPAC failure handling and co-existence with CHO

Not treated in this meeting

[R2-2102950](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102950.zip) Failure handling of Conditional PSCell Addition DENSO CORPORATION discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103355](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103355.zip) Discussion on SCG RLF handling in case CPC is configured ITRI discussion LTE\_NR\_DC\_enh2-Core [R2-2100827](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2100827.zip)

[R2-2103571](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103571.zip) Coexistence and other issues in CPAC LG Electronics discussion Rel-17 LTE\_NR\_DC\_enh2-Core [R2-2100728](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2100728.zip)

[R2-2103683](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103683.zip) Coexistence of CHO and CPC InterDigital, Nokia discussion Rel-17 LTE\_NR\_DC\_enh2-Core

[R2-2103721](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103721.zip) Combination of CPAC and CHO CMCC discussion Rel-17 LTE\_NR\_DC\_enh2-Core

#### 8.2.3.3 Other CPAC aspects

This agenda item will not be treated in this meeting.

Not treated in this meeting

[R2-2103253](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103253.zip) CPC configuration number restriction Spreadtrum Communications discussion Rel-17 LTE\_NR\_DC\_enh2-Core

## 8.3 Multi SIM

(LTE\_NR\_MUSIM-Core; leading WG: RAN2; REL-17; WID: RP-210316)

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 (Tuesday 1st week) (1)

[R2-2102664](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102664.zip) LS on System support for Multi-USIM devices (S2-2102039; contact: Intel) SA2 LS in Rel-17 LTE\_NR\_MUSIM-Core To:RAN2 Cc:RAN3, SA3

* Noted (handled in offline discussion [230]

Web Conf (Tuesday 1st week) (2)

[R2-2103343](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103343.zip) Running CR to 36300 for Multi-USIM devices support vivo draftCR Rel-17 36.300 16.5.0 LTE\_NR\_MUSIM-Core

* Endorsed as running CR

[R2-2103344](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103344.zip) Running CR to 38300 for Multi-USIM devices support vivo draftCR Rel-17 38.300 16.5.0 LTE\_NR\_MUSIM-Core

* Endorsed as running CR

### 8.3.2 Paging collision avoidance

This agenda item may use a summary document (decision to be made based on submitted tdocs).

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]

Inclduing discussion on RAN2 impacts of the paging collision solution (e.g. whether UE assistance information is needed, whether of solution 1+2b or solution 1+3 is supported for NR, etc.)

Including discussion on whether RAN2 can make the UE behaviour predictable for paging collision avoidance

Summary document (pre-meeting effort)

[R2-2104318](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104318.zip) Summary of AI 8.3.2: Paging collision avoidance Ericsson discussion Rel-17 LTE\_NR\_MUSIM-Core

**Simpler proposals (could be attempted to be confirmed by e-mail during RAN2#113bis-e)**

*Proposal 2 No additional modification is needed on the EPS solution for paging collision for the eDRX case.*

*Proposal 3 Paging repetition as a solution for paging collision issue (Option 3) is not considered.*

*Proposal 5 RAN2 to confirm that E-UTRAN connected to 5GC scenario is also in the WID scope for paging collision avoidance. NR solution is the baseline for this case.*

**Proposals that may require more discussion (roughly sorted based on possible controversy and/or priority).**

*Proposal 4 To select a baseline solution for paging collision for 5GS between 5G-GUTI reassignment (Solution 1) or inclusion of offset to PO formulas (Solution 2b).*

*Proposal 7 RAN2 to discuss whether a UE assistance information is introduced to avoid paging collision.*

*Proposal 6 The paging collision avoidance solution is equally applicable for IDLE and INACTIVE state UEs. Additional aspects related to only RRC\_IDLE or RRC\_INACTIVE are not precluded.*

*Proposal 8 RAN2 to decide whether the UE behaviour for paging collision avoidance should be predictable.*

*Proposal 1 Clarify which approach is used in EPS solution for paging collision: an additional offset in the SFN and PO calculation or an addition offset in UE\_ID calculation.*

Web Conf (Tuesday 1st week) (2)

[R2-2104242](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104242.zip) Consideration on the Paging Collision ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_MUSIM-Core

*Observation 1: The below 2 options may lead to different outcomes of i\_s.*

* Option 1: Include the UE\_offset to the SFN and i\_s calculation formula;*

* Option 2: Include the UE\_offset to the UE\_ID calculation formula.*

*Observation 2: At the network side, the PO/PF was calculated based on the Option 2 (Include the UE\_offset to the UE\_ID calculation formula).*

*Observation 3: Even without the assistance information, the network can select a proper new 5G-STMSI, e.g. the AMF select a 5G-STMSI that can shift the original PO with about 16rf.*

*Observation 4: If the RAN paging has the same paging cycle as the CN paging, the Ran paging occasions would be completely overlapped with the CN paging.*

*Proposal 3: The paging collision is a very low probability issue and RAN2 shall make the solution as simple as possible.*

*Proposal 7: It’s hard to make the UE behaviour predictable. On the paging collision detection and reporting, it can be left to the UE implementation.*

Discussion

P1/2

- OPPO would like to clarify P1 is only for EPS but agrees both P1 and P2. ZTE confirms P1 is for EPS. Samsung also supports. Vodafone agrees with P1 and P2.

- Huawei wonders if P2 is only for EPS?

Agreements

1: For the EPS PO/PF calculation, include the UE\_offset to the UE\_ID calculation formula.

2: No additional modification for the EPS eDRX case.

P4/5

- Ericsson indicates opinions were a bit split on these.

- LGE agrees that NAS assistance information is needed but AS information could be included in the NAS signalling. Nokia agrees with LGE. vivo and OPPO agrees with LGE. Apple also agrees. QC thinks this allows UE to request certain paging occasion.

- Xiaomi thinks assistance information is not needed since collision probability is low. Would be simpler to have no assistance information. MediaTek agrees with Xiaomi as this is not guaranteed to solve the problem. Google also agrees and thinks this doesn't really guarantee any power saving. It will need to be updated frequently.

*Proposal 4: From RAN2 side, the AS level assistance information is not needed, whether NAS level Assistance information was needed shall be determined by SA2/CT1.*

*Proposal 5: From paging occasion perspective, if the NAS-based scheme can solve the Idle+Idle state collision, it can also be used for the Idle+Inactive/Inactive+Inactive paging collision scenario.*

*Proposal 6: For the NAS based procedure, the RAN can get the updated UE\_ID for the RAN paging occasion calculation with the legacy signaling and procedure.*

[R2-2103830](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103830.zip) MUSIM Page Collision Avoidance Apple discussion LTE\_NR\_MUSIM-Core

*Observation 1: There are some inherent differences in the way the PO determination happens in EPS and 5GS, primarily based on the input UE\_ID being used.*

*Observation 2 : The UE\_ID used for EPS case is based on a permanent subscription identifier which do not change over time.*

*Observation 3 : The UE\_ID used for 5GS case is based on a temporary identifier which can potentially be reassigned over time by the Network.*

*Observation 4 : Irrespective of EPS or 5GS, the MUSIM paging collision avoidance problem finally maps to a requirement to achieve uniqueness of the computed PO index value based on the input values of UE\_ID, N and Ns.*

*Proposal 1: MUSIM UE can provide suitable assistance information to its Network which can help the Network to provide a non-conflicting paging configuration.*

*Proposal 2: RAN2 to discuss the actual content of the assistance information that can be provided by UE to NW to help resolve MUSIM paging collision.*

[R2-2102792](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102792.zip) Paging Collision Avoidance OPPO discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2102939](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102939.zip) Considerations for Paging Collision Avoidance Solution Samsung discussion

[R2-2102948](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102948.zip) Further Consideration on Paging Collision Avoidance CATT discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103160](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103160.zip) Paging collision solution of Multi-SIM China Telecommunication discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103185](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103185.zip) RAN Impacts for paging collision avoidance solutions for Multi-SIM Nokia, Nokia Shanghai Bells discussion Rel-17

[R2-2103193](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103193.zip) 5G-S-TMSI re-assignment is enough for paging collision avoidance in 5GS Intel Corporation discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103225](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103225.zip) Options for paging collision avoidance Qualcomm Incorporated discussion

[R2-2103345](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103345.zip) Paging Collision Solution for 5GS vivo discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103451](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103451.zip) UE indication of paging collision for Multi-SIM ASUSTeK discussion Rel-17 LTE\_NR\_MUSIM-Core [R2-2101749](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2101749.zip)

[R2-2103480](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103480.zip) Paging Collision Avoidance Open Issues Huawei, HiSilicon discussion Rel-17

[R2-2103544](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103544.zip) Discussion on paging collision avoidance in Multi-SIM, and proposal for response to SA2. Sony Europe B.V. discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103572](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103572.zip) Considerations on Paging Collision LG Electronics discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103677](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103677.zip) Solutions for Paging Collision Avoidance for Multi-SIM Charter Communications, Inc discussion Rel-17

[R2-2103743](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103743.zip) Definition and solution for paging collision, RRC Inactive, SI change Lenovo, Motorola Mobility discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103757](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103757.zip) Paging collision avoidance Ericsson discussion

[R2-2104151](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104151.zip) Paging collision avoidance for MUSIM device MediaTek Inc. discussion

[R2-2104168](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104168.zip) Discussion of the paging collision problem in 5GS Xiaomi Communications discussion

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

This agenda item may use a summary document (decision to be made based on submitted tdocs).

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

Including details of signalling from UE to network for the network switching for MUSIM purpose.

Summary document (pre-meeting effort)

[R2-2104319](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104319.zip) Summary of AI 8.3.3: UE notification on network switching for multi-SIM Samsung discussion Rel-17 LTE\_NR\_MUSIM-Core

**Decision between two switching procedures**

*Proposal 1: RAN2 to discuss whether the UE should use the switching procedure for leaving RRC\_CONNECTED state in network A in case the UE needs to establish the RRC connection in network B.*

*Proposal 2: RAN2 to discuss whether the decision between switching procedures for leaving and without leaving RRC\_CONNECTED state is up to UE implementation or based on network configuration (e.g. a max gap duration).*

**Switching procedure without leaving RRC\_CONNECTED**

*Proposal 3: RRC signalling is used for switching procedure without leaving RRC\_CONNECTED state in network A for UE temporarily switching to network B as a baseline. FFS on additional need of MAC signalling.*

*Proposal 4: RAN2 to discuss whether common switching procedure is used for periodic and one-shot/aperiodic activities on network B without leaving RRC\_CONNECTED state in network A.*

*Proposal 5: Introduce dedicated scheduling gap configuration to support switching procedure without leaving RRC\_CONNECTED in network A for UE temporarily switching to network B.*

*Proposal 6: Configuration of one or multiple gap pattern(s) is supported. FFS on the details of gap pattern.*

*Proposal 7: Network configures one or multiple scheduling gap(s) based on reception of scheduling gap assistance information (e.g. preferred gap pattern(s)) from UE.*

**Switching procedure for leaving RRC\_CONNECTED:**

*Proposal 8: RAN2 to discuss whether RRC signalling and/or NAS signalling is used for switching procedure for leaving RRC\_CONNECED state in network A.*

*Proposal 9: During switching procedure for leaving RRC\_CONNECTED state in network A, UE is allowed to enter RRC\_IDLE state if it does not receive response message from network A within a certain configured time period. FFS for RRC\_INACTIVE state.*

**Busy indication:**

*Proposal 10: Busy indication procedure is supported in RRC\_INACTIVE state.*

*Proposal 11: RAN2 to discuss how to send busy indication in RRC\_INACTIVE*

*- Option 1: Send AS based busy indication via RRCResumeRequest/1. If agreed, send an LS to SA3 to check whether there is no security issue.*

*- Option 2: Send NAS based busy indication via NAS message, carried by RRCResumeComplete.*

Web Conf (Tuesday 1st week) (3)

[R2-2103545](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103545.zip) Discussion on Busy Indication and Leaving in Multi-SIM Sony Europe B.V. discussion Rel-17 LTE\_NR\_MUSIM-Core

*Observation 1: In RRC\_INACTIVE state in 5GS/NR, and in LTE, if it is agreed to make changes in 36.331, a RAN-based busy indication would optimize the time the UE is away from the other network. The latency would change from the estimated time of up to 100ms for the NAS based to a about 10 ms for the RAN based proposal [2]*

*Observation 2: There is no reason to have different solution for the MuSIM leaving procedures in 5GC compared to what is decided for EPC, where it is decided to be NAS based,. This signalling for leaving is not time critical.*

*Proposal 1: Specify a RAN based busy indication as a response to RAN paging when in RRC\_ Inactive state.*

- QC thinks busy indication is not so useful to UE. SA2 agreed to use NAS but allowed UE to not send it to avoid disrupting e.g. emergency calls. vivo agrees with QC. Samsung also agrees and thinks the main importance is that we support busy indication in INACTIVE. Apple also supports RAN-based busy indication and agrees with QC that UE should not be required to do it. LGE agrees with P1. CATT agrees with others and thinsk we should have a similiar procedure for IDLE and INACTIVE. OPPO thinks RAN-based busy indication makes sense. Xiaomi agrees with QC. MediaTek thinks busy indication is not useful but if we do it, agree with QC clarification. Lenovo also agrees.

- Ericsson thinks that if network cannot rely on it the busy indication is not useful. Huawei agrees and thinks busy indication is not useful at all. Nokia thinks we should specify cases when UE is not allowed to send it. ZTE thinks this is useful for network to reduce paging resources but prefers NAS-based procedure as for IDLE. Ericsson clarifies they would fine not to have a busy indication. Nokia thinks RAN paging comes from RAN so busy indication in AS makes more sense. Samsung thinks that SA2 agreed UE doesn't need to send busy always in IDLE.

- Google thinks we could just not do RAN-based busy indication at all. Apple thinks we agreed we should aim to have predictable behaviour. QC thinks it will be impossible to specify in which cases UE is allowed to skip so we could just not do it. Ericsson agrees with QC. Samsung thinks majority wants to support RAN-based busy indication. FutureWei thinks RAN-based approach only reduces latency but doesn't help otherwise. Could just use NAS-based approach. Huawei agrees with QC on specifying use cases being difficult. Nokia thinks that we need a procedure at RAN level since we have NAS level.

Agreements

1 Only support NAS-based busy indication (for IDLE and INACTIVE)

* [200] It was raised that this decision may have unforeseen impacts to SA2/CT1 so session chair declared email discussion [231] to attempt to clarify those.
* [200] discuss over email [231] what are the consequences of this decision, and if there are issues to ask from SA2/CT1, provide a draft reply LS.

[R2-2103756](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103756.zip) Graceful leaving for a Multi-USIM device Ericsson discussion

*Observation 1 If the Multi-USIM UE interrupts abruptly the connection with the current PLMN, the network KPI might be affected negatively.*

*Observation 2 Two types of UE absences in PLMN1 are defined, depending on how long the UE takes to perform the actions in PLMN2:*

*- Very short UE absence, required to perform “quick” actions in PLMN2 which do not need a connection setup/resume. The UE is kept in RRC\_CONNECTED in PLMN1.*

*- Longer UE absence, relevant when the UE perform longer actions in PLMN2, which require the connection setup/resume. The UE is moved to RRC\_IDLE/RRC\_INACTIVE in PLMN1.*

*Observation 3 The “very short UE absence” case can be implemented by:*

*- Specific UE implementation (no standardization is required) or,*

*- Network involvement: the measurement gaps framework can be reused.*

*Observation 4 SA2 group agreed to use NAS-level leaving procedure, for the “longer UE absence” case in 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 5 No issue from timing/delay point of view is expected if NAS signaling is used, considering that delay sensitive services like “emergency fallback” are currently triggered via NAS signaling and that there are no delay requirements on Multi-USIM UEs.*

*Observation 6 NAS signaling is a better candidate to carry the assistance information sent by the UE at leaving, since they are used by the CN.*

*Observation 7 An existing timer (e.g. T3517 or dataInactivityTimer) can already be used to cover failure cases, when the UE does not receive the RRCRelease.*

*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 Multi-USIM 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.*

*Proposal 4: RAN2 to discuss whether common switching procedure is used for periodic and one-shot/aperiodic activities on network B without leaving RRC\_CONNECTED state in network A.*

*Proposal 4 The Busy Indication procedure is not introduced for RRC\_INACTIVE.*

- QC thinks we should talk about leaving CONNCTED and not short and long. Vodafone wonders if we have some priority between NW A and BW B and how long is the "long absence"? Thinks network priorities are equal.

- Vivo thinks we need an RRC procedure for leaving the network regardless of leave length. For NR we can change RRC more than for LTE. Huawei also prefers RRC signallling.

- Apple thinks we are restricting to NAS if we consider only a common procedure.

Agreements

1 RRC signalling is used for switching procedure without leaving RRC\_CONNECTED state in network A for UE temporarily switching to network B as a baseline. FFS on additional need of MAC signalling.

2 During switching procedure for leaving RRC\_CONNECTED state, UE is allowed to enter RRC\_IDLE state if it does not receive response message from network within a certain configured time period. FFS for RRC\_INACTIVE state.

[R2-2103346](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103346.zip) Handling leftovers from email discussion on Switching Notification vivo discussion Rel-17 LTE\_NR\_MUSIM-Core

*(moved from 8.3.1)*

**NAS vs. RRC signalling for network switching**

*Proposal 1: (28/28) AS level signalling is used to support the switching procedure for keeping the UE in RRC\_CONNECTED state.*

*Proposal 2: (18/29) RRC based signaling is used to support switching procedure for leaving RRC\_CONNECTED state to RRC\_IDLE state. FFS if NAS based signalling is also used.*

**Network switching details**

*Proposal 3: (20/26) 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, duration of switching.*

*Proposal 4: (14/25) UE is allowed to perform switching without the reception of RRCRelease message and goes to RRC\_IDLE. FFS for RRC\_INACTIVE state. UE waits in network A for Response Message within a certain time.*

*Proposal 5: (19/26) 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 requirement.*

*Proposal 6: (19/26) 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: (19/26) 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: (17/25) A Return message is not needed for one-shot short-time switching.*

*Proposal 9: (19/26) the general RRC procedure of sending Busy Indication in RRC\_INACTIVE state includes: UE sends busy indication in the RRC connection resume request message, and the network confirms the busy indication via RRCRelease*

**If Busy indication is supported:**

*Proposal 10: (19/25) UE shall keep RRC\_CONNECTED in network A during sending busy indication in network B.*

*Proposal 11: (19/25) Switching for receiving the paging and sending busy indication is up to UE implementation in one-step or two steps.*

[R2-2102793](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102793.zip) UE Notification on Network Switching for Multi-SIM OPPO discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2102811](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102811.zip) Analysis on various scenarios of UE switching China Telecommunications discussion Rel-17

[R2-2102940](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102940.zip) Signalling design on short time switching procedure DENSO CORPORATION discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2102949](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102949.zip) Further Consideration on Network Switching CATT discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103017](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103017.zip) Discussions on various ways to support various of leave scenarios and procedures for Multi-SIM UEs CableLabs discussion Rel-17 Late

[R2-2103184](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103184.zip) Switching notification for basic scenario for Multi-SIM Nokia, Nokia Shanghai Bells discussion Rel-17

[R2-2103194](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103194.zip) Multi-SIM busy indication signaling for INACTIVE Intel Corporation discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103224](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103224.zip) Network switching mechanisms for Multi-SIM Qualcomm Incorporated discussion

[R2-2103247](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103247.zip) Discussion on the transmission of busy indication Spreadtrum Communications discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103300](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103300.zip) UE notification procedure for short time switching NEC discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103347](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103347.zip) Discussion on Switching Notification vivo discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103417](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103417.zip) Switching notification and busy indication Lenovo, Motorola Mobility discussion Rel-17

[R2-2103452](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103452.zip) MUSIM Release Assistance Info for network switching ASUSTeK discussion Rel-17 LTE\_NR\_MUSIM-Core [R2-2101748](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2101748.zip)

[R2-2103573](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103573.zip) Considerations on SIM Swithcing LG Electronics discussion Rel-17 LTE\_NR\_MUSIM-Core [R2-2100731](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2100731.zip)

[R2-2103588](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103588.zip) On coordinated switch from NW for MUSIM device Huawei, HiSilicon discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103678](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103678.zip) Network Switching Solutions for Multi-SIM Charter Communications, Inc discussion Rel-17

[R2-2103831](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103831.zip) MUSIM Network Switching Apple discussion LTE\_NR\_MUSIM-Core

[R2-2103832](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103832.zip) MUSIM Band Conflict and RRC Processing Delay Requirements Apple discussion LTE\_NR\_MUSIM-Core

[R2-2103957](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103957.zip) Procedures for MSIM UE notification on network switching Futurewei Technologies discussion [R2-2101937](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2101937.zip)

[R2-2104154](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104154.zip) Network switching behavior for MUSIM device MediaTek Inc. discussion

[R2-2104169](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104169.zip) Discussion of the UE notification on network switching for multi-SIM Xiaomi Communications discussion

[R2-2104174](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104174.zip) Open issues on network switching for Multi-USIM devices Samsung Electronics Co., Ltd discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2104211](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104211.zip) RNAU Handling in MUSIM SHARP Corporation discussion

[R2-2104215](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104215.zip) Switching Notification for leaving RRC\_CONNECTED SHARP Corporation discussion

[R2-2104243](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104243.zip) Consideration on the Switching Notification Procedure ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2104244](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104244.zip) Consideration on the Busy Indication ZTE Corporation, Sanechips discussion Rel-17 LTE\_NR\_MUSIM-Core

Email discussions ([231])

* [AT113bis-e][231][MUSIM] Impacts of NAS-based busy indication (RAN2 VC)

Scope:

* + - Discuss whether the agreement to only support NAS-basd busy indication creates issues with SA2/CT1 and determine whether LS needs to be sent to SA2/CT1.
		- If needed, provide draft LS to SA2/CT1 asking them for feedback

 Intended outcome:

* + - Discussion summary in [R2-2104332](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104332.zip) (by email rapporteur) and (if needed) draft LS in [R2-2104333](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104333.zip)

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 2nd week Mon, UTC 1200
		- Initial deadline (for rapporteur's summary): 2nd week Mon, UTC 1600

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

[R2-2104332](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104332.zip) Summary of [AT113bis-e][231][MUSIM] Impacts of NAS-based busy indication (RAN2 VC) RAN2 VC discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2104333](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104333.zip) Draft LS on NAS-based busy indication Nokia (RAN2 VC) LS out LTE\_NR\_MUSIM-Core To:SA2, CT1

### 8.3.4 Paging with service indication

This agenda item may use a summary document (decision to be made based on submitted tdocs).

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 will not be treated in this meeting (unless urgent SA2 request is received).

Summary document (pre-meeting effort)

[R2-2104320](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104320.zip) Summary of AI 8.3.4: Paging with service indication vivo discussion Rel-17 LTE\_NR\_MUSIM-Core

*Proposal 1： An IE containing the Paging cause is included in the paging message, only for intended MUSIM UEs.*

*Proposal 6： UE behavior upon reception of the paging cause is specified in both NR and LTE specifications.*

*Proposal 7： Do not define spare paging cause values in paging message.*

*Proposal 2： RAN2 to discuss which solution should be used for MT service type discrimination.*

*- Solution 1: Two values defined for pagingCause [*

*- Solution 2: A single value for pagingCause IE + indication of network support of Paging Cause feature*

*- Solution 3: Different paging ID indicates different paging causes*

*Proposal 4： RAN2 to discuss which solution should be used for paging message extension.*

*- Solution 1: Including the number of UEs paged for voice in paging message*

*- Solution 2: Including a separate list of pagingRecords for MUSIM UEs paged for voice in paging message*

*- Solution 3: Including a separate list of pagingRecords with pagingCause for MUSIM UEs in paging message*

*- Solution 4: Including a parallel list of pagingCause in paging message*

*- Solution 5: Different paging causes are indicated implicitly with different paging IDs*

*Proposal 5： The discussion related to security/privacy issue for paging cause is postponed in RAN2 and can be triggered according to SA3 progress.*

*Proposal 3： A reply LS to SA2 and RAN3 is needed to inform the RAN2 decision or preference.*

* Offline [230] to discuss what could be answered to SA2 on paging cause (Intel, [R2-2104331](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104331.zip))

TBD after Web Conf (Tuesday 1st week) whether anything is treated in this meeting

[R2-2103195](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103195.zip) Support for Multi-SIM paging cause from SA2 LS Intel Corporation discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2102794](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102794.zip) Paging with Service Indication OPPO discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2102913](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102913.zip) Discussion on support of paging cause for multi-USIM devices Samsung Electronics Co., Ltd discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103186](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103186.zip) Further analysis on Service type indication in paging and signalling mechanism for BUSY indication Nokia, Nokia Shanghai Bells discussion Rel-17

[R2-2103226](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103226.zip) Paging Cause and Busy Indication Qualcomm Incorporated discussion

[R2-2103246](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103246.zip) Supporting of Paging Cause Solution detection Spreadtrum Communications discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103248](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103248.zip) Discussion on the transmission of paging cause Spreadtrum Communications discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103304](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103304.zip) Introduction of paging cause China Telecommunications discussion

[R2-2103348](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103348.zip) Introduction of Paging Cause vivo discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103483](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103483.zip) Discussion on the paging with service indication Huawei, HiSilicon discussion Rel-17

[R2-2103574](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103574.zip) Support of Paging Cause LG Electronics discussion Rel-17 LTE\_NR\_MUSIM-Core

[R2-2103758](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103758.zip) Introduction of a Paging cause indication Ericsson discussion

[R2-2103958](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103958.zip) Discussion on paging service indication for MUSIM Futurewei Technologies discussion

[R2-2104158](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104158.zip) Paging with service indication MediaTek Inc. discussion

[R2-2104171](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104171.zip) Discussion of the paging cause support for MUSIM Xiaomi Communications discussion

Email discussions ([230])

* [AT113bis-e][230][NR] Reply LS to SA2 on paging cause (Intel)

Scope:

* + - Summarize main open issues based on contributions and online agreements.
		- Highlight if there are topics that clearly require online discussion.
		- Identify topics that might benefit from email discussions.

 Intended outcome:

* + - Discussion summary in [R2-2104331](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104331.zip) (by email rapporteur)

 Deadline for providing comments and for rapporteur inputs:

* + - 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 [230])

[R2-2104331](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104331.zip) Summary of [AT113bis-e][230][MUSIM] Reply LS to SA2 on paging cause (Intel) Intel discussion Rel-17 LTE\_NR\_MUSIM-Core

## 8.8 RAN slicing

(NR\_XYZ\_enh-Core; leading WG: RAN2; REL-17; WID: RP-210912)

Time budget: 0.5 TU

Tdoc Limitation: 2 tdocs

Email max expectation: 2 threads

### 8.8.1 Organizational

Rapporteur input

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

[R2-2103694](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103694.zip) Work Plan for RAN Slicing WI CMCC Work Plan Rel-17

- Lenovo thinks that Q4 meeting decision in RAN2#92e may still impact this.

* Endorsed

SMBR enforcement:

[R2-2103647](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103647.zip) SMBR enforcement in RAN Ericsson discussion Rel-17

* Postponed: contributions on this topic requested for May meeting as it may impact SA2 work

### 8.8.2 Cell reselection

To assist cell reselection, broadcast the supported slice info of the current cell and neighbour cells, and cell reselection priority per slice in system information message. To assist cell reselection, include slice info (with similar information as in SI message) in RRCRelease message. Take into account SA2 progress / coordinate with SA2 when/if applicable.

Web Conf (Tuesday 1st week) (2)

Basic solution direction:

[R2-2102831](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102831.zip) slice specific cell reselection Intel Corporation discussion Rel-17

*Observation#1: SA2 have concluded in their TR to assume that each cell in the tracking area supports the same S-NSSAI(s) for their Rel-17 SA2 solution for steering the UE based on dedicated priority configuration*

*Observation#2: With slice info provided in the SIB and RRC Release, the steering of the UE to desired frequency layer and cell is based on the slice info in SIB or RRC Release.*

**Discussion**

P1

- Lenovo agrees with Intel on following SA2 agreement but thinks the scenario where same slices are provided in different frequencies needs to be addressed. UE may need to do some reselections for MO traffic. CMCC is also interested in the MO case. Google agrees with Lenovo. Nokia agrees with P1.

- Intel clarifies that the intent was to avoid reselection due to slice unavailability (since whole TA supports same slices). Prioritization due to slice presence will cause delay in cell access as UE needs to do reselection and read SI after that.

- CMCC thinks SA2 agreement did not cover homogeneous deployments fully. Should consider also heterogeneous deployments. Nokia thinks any SA2 changes will come only in later releases so can use only homegeneous in Rel-17. Apple thinks that SA2 agreed that homogeneous slice support is needed for legacy UEs but is considering other solutions for heterogeneous cases.

- Intel thinks that legacy UEs were the reason for the decision and is valid for Rel-17.

P2

- Xiaomi thinks cell reselection priorities should be taken into account but can be left up to UE implementation.

- ZTE agrees with proposal. Apple also agrees but thinks we can leave some room for UE implementation. Vodafone also wants to specify UE behaviour to enable operators to manage the networks better. LGE also agrees. Samsung, CMCC and BT also agree.

- Google wonders what happens if UE is specified with slice-specific priorities but it enters a cell where those are not broadcast.

Agreements

1 RAN2 aligns with SA2 assumption that support of slices in a TA is homogenous also for Rel-17 (i.e. all cells within a TA supports the same slice availability). If SA2 decides to support heterogeneous deployments, RAN2 can revisit this.

2 The criteria for determining the cell reselection priority for inter-frequency cell reselection should not be left to UE implementation, but should be defined in the specification (just like cell reselection priorities currently). The details of slice info and how the UE determines its priority list from slice info is FFS.

2b FFS how to define slice priorities for reselection and how to handle conflicts between different priorities (e.g. broadcast vs. dedicated slice-specific priorities)

5 UE is only configured with either the existing dedicated priority configuration or the slice info in RRC Release.

3 In the case that slice info is also provided to the UE in the RRC Release message while SIB also provides the slice info, UE follows the dedicated slice info from RRC Release while T320-like timer is running and only if it expires that it follows the slice info in the SIB

4 In the case that existing dedicated priority configuration is provided to the UE in the RRC Release message while SIB also provides the slice info, UE follows the dedicated priority configuration while T320 is running as per legacy and only if it expires that it follows the slice info in the SIB

6 For UE supporting slice based cell reselection, the UE should use slice info in the SIB for cell reselection if both slice info and existing cell reselection priority is broadcast in the SIB.

Security issues:

[R2-2103213](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103213.zip) Consideration on slice-specific cell reselection OPPO discussion Rel-17

*Proposal 1 If RAN2 agrees to resolve security concern on S-NSSAI exposure, introduce a new parameter to represent slice identity as slice index or slice group index.*

*Proposal 2 The relationship between slice index/slice group index and slice identity can be indicated via NAS or dedicated RRC message.*

*Proposal 3 Slice related cell reselection info, including slice identity and per-slice frequency priority, indicated in RRCRelease message overrides the one associated with the same slice received in SI message from the same gNB.*

*Proposal 4 RAN2 considers to indicate the “restricted area”, e.g. cells, frequencies, for the usage of per-slice frequency priority indicated in RRCRelease message, i.e. per-slice frequency priority indicated in RRCRelease message is only valid in the restricted area.*

*Proposal 5 RAN2 considers the trade-off between the performance and the complexity to support slice in cell reselection. The following solutions can be considered.*

*• If the intended slice is not supported by the candidate cell, the cell is not considered for cell reselection.*

*• If per-slice frequency priority is indicated, the UE performs cell reselection based on per-slice frequency priority associated with the intended slice.*

*• If the indented slice is supported on a specific frequency, the UE autonomously sets the frequency priority of that frequency as high.*

By Email [251] (20)

[R2-2103668](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103668.zip) Slice-based cell reselection information Nokia, Nokia Shanghai Bell discussion Rel-17

[R2-2103646](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103646.zip) On solution for RAN slicing enhancement Ericsson discussion Rel-17

[R2-2102696](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102696.zip) Slice specific cell reselection Qualcomm Incorporated discussion

[R2-2102773](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102773.zip) Considerations on contents of slice based reselection KDDI Corporation discussion Rel-17

[R2-2103159](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103159.zip) Discussion on slice based cell reselection China Telecommunication discussion Rel-17

[R2-2103695](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103695.zip) Discussion on slice based cell reselection CMCC discussion Rel-17

[R2-2103269](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103269.zip) Cell (re)selection for RAN slicing Asia Pacific Telecom co. Ltd, FGI discussion

[R2-2104004](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104004.zip) Discussion on slice based cell reselection under network control Huawei, HiSilicon discussion Rel-17

[R2-2104032](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104032.zip) Discussion on slice based Cell Reselection CATT discussion

[R2-2104063](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104063.zip) Discussion on slice-aware cell reselection ZTE corporation, Sanechips discussion Rel-17

[R2-2104176](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104176.zip) Discussion on slice based cell reselection Samsung Electronics Co., Ltd discussion Rel-17

[R2-2102762](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102762.zip) Considerations on slice based cell reselection Beijing Xiaomi Software Tech discussion Rel-17

[R2-2102988](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102988.zip) Considerations on slice-based cell reselection Lenovo, Motorola Mobility discussion Rel-17

[R2-2103239](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103239.zip) Discussion on slice based cell reselection Spreadtrum Communications discussion Rel-17

[R2-2103375](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103375.zip) Slice based cell reselection vivo discussion Rel-17

[R2-2103589](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103589.zip) Slice based Cell Reselection Sony Europe B.V. discussion Rel-17

[R2-2103621](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103621.zip) Discussion on slice based cell reselection LG Electronics UK discussion Rel-17

[R2-2103745](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103745.zip) Slice-specific system information for cell reselection Google Inc. discussion Rel-17

[R2-2103881](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103881.zip) Discussion on slice based cell reselection Apple discussion Rel-17

[R2-2103961](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103961.zip) System information contents for slice-aware cell reselection Sharp discussion Rel-17

Email discussions ([251]) - kicked off after online session

* [AT113bis-e][251][NR] Slice-specific cell reselection (Intel)

Scope:

* + - Summarize main open issues based on contributions and online agreements.
		- Highlight if there are topics that clearly require online discussion.
		- Identify topics that might benefit from email discussions.

 Intended outcome:

* + - Discussion summary in [R2-2104321](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104321.zip) (by email rapporteur)

 Deadline for providing comments and for rapporteur inputs:

* + - 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 [251])

[R2-2104321](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104321.zip) Summary of [AT113bis-e][251][NR] Slice-specific cell reselection (Intel) Intel discussion Rel-17 NR\_Slice-Core

### 8.8.3 RACH

Configuration of separated PRACH configuration (e.g., transmission occasions of time-frequency domain and preambles) for slice or slice group. RACH parameters prioritization (e.g., scalingFactorBI and powerRampingStepHighPriority) for slice or slice group. Determine how this works with existing functionality. FFS whether RACH partitioning should be initially done as a common design for multiple WIs: RAN slicing, RedCap, Small Data Transmission, CovEnh? Or whether coordination should be attempted once each WI has produced CRs.

Web Conf (Tuesday 1st week) (3)

Basic solution direction:

[R2-2103696](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103696.zip) Discussion on slice based RACH configuration CMCC discussion Rel-17

*Proposal 2: It is feasible and beneficial to work out a unified solution for RACH partitioning to support Rel-17 WI, e.g., slicing, RedCap, coverage enhancement, SDT.*

Discussion

P1/3

- Lenovo thinks we agreed to this during SI but details were left open. Preamble partiotioning might not be needed. Also wonders why P3 parameters are needed in dedicated signallling? CMCC explains they might use both signalling types. QC is fine with P1 but thinks partitions should not overlap. For P3, thinks this is covered by existing case which allows both. Samsung is fine with P1 but how to configure these can be discussed further and "slice group" is not yet clear. OPPO support only RO partition. SIB information is also OK.

*Proposal 1: Both RO partition and preambles partition are supported.*

*Proposal 3: scalingFactorBI and powerRampingStepHighPriority can be configured per slice group in SIB and dedicated RRC signalling.*

P4/5

- Lenovo thinks this implies that network can configrue some slices with 2-step and some with 4-step RACH. But is not sure why this is needed - could support only one type of RACH with slices. QC thinks we can leave this up to network as long as we use legacy behaviour.

*Proposal 4: Network can configure some slices with 2-step RA resources. Only if the MO slice is configured with 2-step RA resources and the measured RSRP is higher than threshold msgA-RSRP-Threshold, should the 2-step RA be selected.*

*Proposal 5: Legacy 2-step RA fallback mechanism is supported. And msgA-TransMax can be configured per slice or slice group.*

*Proposal 6: slice specific RA prioritization parameter should override MPS/MCS specific parameter.*

*Proposal 7: RAN2 confirm that Slice specific RA prioritization has no impact on RA prioritization for HO and beam failure recovery.*

Agreements

1 RAN2 aims to support both RO partition and preambles partition.

2 scalingFactorBI and powerRampingStepHighPriority can be configured at least in SIB (FFS for dedicated RRC signalling).

3 Network can configure slices with 4-step or 2-step (or both) RA resources.

4 Legacy 2-step RA fallback mechanism is supported.

[R2-2102761](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102761.zip) Considerations on slice based RACH configuration Beijing Xiaomi Software Tech discussion Rel-17

*Proposal 4: The number of slice/slice group with dedicated RACH resource should be limited.*

*Proposal 1: For slice based RACH configuration, SST can be considered as slice group.*

*Proposal 2: Separated RACH resource can be configured per SST and RA prioritization can be further configured per SD sharing the same SST-specific RACH resource.*

*Proposal 3: 2-step and 4-step RACH resource can be configured to the same slice/slice group.*

*Proposal 5: For slice-based RACH type selection, UE can take slices type into consideration as well as RSRP, e.g. URLLC slice prefers 2-step RACH type.*

*Proposal 6: For slice specific RACH, the fallback mechanism should be supported for 2-step/4-step specific RACH and 2-step/4-step common RACH.*

*Proposal 7: To guarantee UE fast access to the slice, UE should not be prevent to initiate access attempt based on common resource if it failed to access based on slice-specific RACH resource.*

*Proposal 8: The legacy identity-specific RA prioritization can overrule slice-specific RA prioritization if configured at the same time unless the priority of the two sets of RA prioritization is configured by network.*

*Proposal 9: The collision of RA-RNTI need to be resolved if slice-based RACH resources are configured in addition to the existing common RACH resources.*

Discussion

[R2-2102697](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102697.zip) Slice specific RACH Qualcomm Incorporated discussion

*Observation 1: WID objective limits scoping of slice specific RACH is only triggered by MO traffic. However, it is not clear whether it includes MO signaling and/or data traffic*

*Observation 2: MO signaling (e.g. TAU) triggered Slice specific RACH may not be reasonable in some scenario when the new camping cell doesn’t support some UE’s supported slice*

*Observation 3: Section 5.2.2 of TR 38.832 has captured to introduce the slice grouping, and thereby the only FFS is whether to define a new grouping mechanism or reusing UAC access category*

*Observation 4: Reusing UAC access category to configure slice grouping is not a clean solution because some slice info may not be derived if they belong to same AC and not all slices in one AC can be supported by gNB*

*Observation 5: It is important that slice specific RACH shall not prevent access of Rel-15 / Rel-16 legacy UEs. In addition, Rel-17 UEs supporting RACH isolation should not switch to another BWP to trigger common RACH when non-urgent slice traffic arrival*

*Observation 6: Following Rel-16 legacy mechanism, if only 2-step slice RACH resource configured in the BWP, high priority slice may only trigger 2-step RACH to reduce latency*

*Observation 7: Considering RAN2 is introducing RACH prioritization for different scenarios / cases ever from Rel-15 to Rel-17 (BFR/HO → MPS/MCS → Slice), specifying a flexible / configurable way is more forward compatible way*

**Scenario:**

*Proposal 1: RAN2 confirm that only MO data arrival triggered RACH can apply slice specific RACH, i.e. MO signaling (e.g. mo-Signalling and mo-SMS) triggered RACH is not applied to slice-specific RACH*

*Proposal 2: If Proposal 1 is agreed, RAN2 is kindly suggested to discuss whether CONNECTED UE can also apply slice specific RACH when RACH is triggered by MO data arrival (i.e. when UL synchronisation status is "non-synchronised", or there are no PUCCH resources for SR available, or SR failure)*

**Signaling:**

*Proposal 3: For both slice specific cell reselection and slice specific RACH, introduce a common slice grouping via a configured mapping from a set of S-NSSAIs to a slice group. FFS detailed signaling for slice grouping*

*Proposal 4: Due to lack of SA2/CT1 TU, RAN2 conclude it is up to UE implementation to determine the slice priority in this release if its intended slices includes more than one S-NSSAI in this release.*

**Common aspects of RACH isolation and prioritization:**

*Proposal 5: RAN2 confirm that slice specific RACH (including RACH isolation and RACH prioritization) is only applied to CBRA rather than CFRA*

**Aspects of RACH isolation:**

*Proposal 6: RAN2 confirm for a slice or slice group, separated RO and/or preamble can be configured without overlapping with the existing RACH-ConfigCommon and RACH-ConfigCommonTwoStepRA. FFS shared RO and preamble*

*Proposal 7: To support legacy UE and non-urgent slice, if slice specific RACH resource is configured in one BWP, common RACH resource (i.e. legacy CBRA resource) is required to be configured in the same BWP*

*Proposal 8: Keep the below principle of Rel-16 RACH type selection and fallback mechanism for slice specific RACH:*

*• If only 2-step RACH resource is configured in one BWP, the UE shall only perform 2-step RACH*

*• If both 2-step and 4-step resource are configured in one BWP, the UE selects to perform 2-step RACH or 4-step RACH based on RSRP threshold. FFS whether to introduce a slice (group) specific RSRP*

*• Reuse access attempt number as condition to fallback from 2-step RACH to 4-step RACH. FFS whether to introduce a slice (group) specific attempt number threshold*

*Proposal 9: RAN2 confirm the following 5 cases in the table are supported for RACH type selection and fallback of slice specific RACH, where “common RACH” means legacy cell specific CBRA resource:*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Cases* | *RACH resource configuration in one BWP* | *RACH type selection* | *Fallback after MSGA attempt number beyond threshold* | *Notes* |
| *Case 1* | *2-step slice specific RACH* *4-step common RACH* | *Always perform 2-step slice specific RACH*  | *UE switch to MSG1 of 4-step common RACH*  | *Via only configuring 2-step slice RACH resource, high priority slice may only trigger 2-step RACH to reduce latency* |
| *Case 2* | *2-step slice specific RACH* *4-step slice specific RACH* *4-step common RACH*  | *RACH type selection based on RSRP threshold* | *UE can switch to MSG1 of 4-step slice specific RACH*  | *No fallback from 4-step slice specific RACH to 4-step common RACH* |
| *Case 3* | *4-step slice specific RACH* *2-step common RACH*  | *Always perform 4-step slice specific RACH*  | *No fallback*  |  |
| *Case 4* | *4-step slice specific RACH* *4-step common RACH*  | *Always perform 4-step slice specific RACH*  | *No fallback*  |  |
| *Case 5* | *2-step slice specific RACH* *2-step common RACH**4-step slice specific RACH* *4-step common RACH* | *RACH type selection based on RSRP threshold* | *UE can switch to MSG1 of 4-step slice specific RACH*  | *No fallback from 4-step slice specific RACH to 4-step common RACH. Not preferred due to large RACH resource usage* |

**Aspects of RACH prioritization:**

*Proposal 10: scalingFactorBI and powerRampingStepHighPriority are baseline of slice specific prioritized RACH parameters. Other parameters can be considered only if time allows*

*Proposal 11: For each RA prioritization parameters set (e.g. one set for MPS/MCS and another set for URLLC slice), a priority value can be configured by gNB or pre-configured via UE’s subscription. And the UE’s AS selects the set of RACH prioritization parameters with highest priority to perform RACH*

By Email [252] (13)

[R2-2102832](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102832.zip) Considerations of slice based RACH Intel Corporation discussion Rel-17

[R2-2102989](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102989.zip) Considerations on slice-based PRACH configuration Lenovo, Motorola Mobility discussion Rel-17

[R2-2103089](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103089.zip) Slice based RACH configuration Samsung discussion Rel-17

[R2-2103214](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103214.zip) Consideration on slice-specific RACH OPPO discussion Rel-17

[R2-2103240](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103240.zip) Consideration on slice based RACH configuration Spreadtrum Communications discussion Rel-17

[R2-2103376](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103376.zip) Slice based RACH configuration vivo discussion Rel-17

[R2-2103548](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103548.zip) RACH prioritisation for slices Nokia, Nokia Shanghai Bell discussion Rel-17 FS\_NR\_slice

[R2-2103882](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103882.zip) Discussion on slice based RACH Apple discussion Rel-17

[R2-2104005](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104005.zip) Discussion on slice based RACH configuration Huawei, HiSilicon discussion Rel-17

[R2-2104019](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104019.zip) Analysis on slice based RACH configuration CATT discussion

[R2-2104064](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104064.zip) Discussion on slice specific RACH resources and RACH prioritization ZTE corporation, Sanechips discussion Rel-17

[R2-2104099](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104099.zip) Slice-specific RA procedure LG Electronics UK discussion

Email discussions ([252]) - kicked off after online session

* [AT113bis-e][252][NR] Slice-specific RACH (CMCC)

Scope:

* + - Summarize main open issues based on contributions and online agreements.
		- Highlight if there are topics that clearly require online discussion.
		- Identify topics that might benefit from email discussions.

 Intended outcome:

* + - Discussion summary in [R2-2104322](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104322.zip) (by email rapporteur)

 Deadline for providing comments and for rapporteur inputs:

* + - 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 [252])

[R2-2104322](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104322.zip) Summary of [AT113bis-e][252][NR] Slice-specific RACH (CMCC) CMCC discussion Rel-17 NR\_Slice-Core

# 9 Rel-17 EUTRA Work Items

## 9.3 EUTRA R17 Other

Time budget: 0 TU

Tdoc Limitation: X tdocs

Email max expectation: X threads

Including discussion on RAN2 actions for user location tracking attack based on GSMA LS [R2-2100003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2100003.zip).

No TEI17 documents will be handled in this meeting.

Web Conf (Monday 2nd week) (1+2)

GSMA LS on location tracking attack:

[R2-2102607](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102607.zip) User location identification from Carrier Aggregation secondary cell activation messages (FSAG Doc 88\_009; contact: GSMA) GSMA LS in To:SA3, RAN2

[R2-2102819](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102819.zip) UE location attack based on SCell activation Ericsson discussion Rel-17 [R2-2100483](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2100483.zip)

*Observation 1 There are other ways of locating a user in LTE or NR cell (e.g. measuring the uplink signal strength) and the impact of the SLIC attack does not seem greater than any of these.*

*Observation 2 Since the risk of the attack is low GSMA only considers it worth mitigating if it can be done in a simple way.*

*Observation 3 If the attack is to be mitigated by adding noise to the SCell activation/deactivation MAC it needs to be verified that legacy UEs actually ignores the unused bits in the bitmap.*

*Observation 4 There are other ways of mitigating the attack than those listed in the research paper, for example sending the SCell activation/deactivation MAC CE over an SCell instead of the PCell or changing the C-RNTI through an intra-cell handover.*

*Proposal 1 It is left up to network implementation how to mitigate the SLIC attack and prevent that information is leaked about the number of activated SCells.*

[R2-2104039](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104039.zip) Discussion on user location identification from SCell Activation Huawei, HiSilicon discussion Rel-17

*Observation 1: The adversary cannot understand the configuration of the SCells but can learn the number of activated SCells if the unencrypted MAC CE is successfully received by the adversary.*

*Observation 2: The adversary will not be able to know the UE ID after UE move to another cell and will not be able to receive any PDSCH.*

*Observation 3: The numbers of SCells configured for different UEs at the same location may be different, because the number is not only related to the UE location (cell quality), but also related to the data service type of the UE.*

*Proposal 1: RAN2 waits for SA3 to make the conclusions on SLIC attack before making any decisions.*

Discussion of above

- QC agrees the risk is low but thinks this is a reminder to us to keep security level high. Using MAC CEs is not always secure and we should think carefully when we decide between RRC and MAC CE signalling. Intel agrees but thinks that if we leave it up to SA3, then don't know how RAN2 protocols work. Chair wonders if we send LS to SA3? Ericsson wonders if we should include GSMA in any LS. Huawei thinks SA3 can ask us if there is progress. Vodafone thinks we can send information to SA3 but not GSMA.

* Can consider sending LS to SA3 from next meeting if there is need.

Web Conf (Monday 2nd week) (3)

SA3 LS on UPIP for LTE/EPC:

[R2-2102659](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102659.zip) Reply LS on User Plane Integrity Protection for eUTRA connected to EPC (S2-2101306; contact: Qualcomm) SA2 LS in Rel-17 To:SA3, CT1 Cc:RAN2, RAN3, CT4

* Noted (RAN2 in cc only without actions, LS reply handled by email [202])

[R2-2102605](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102605.zip) Reply LS on User Plane Integrity Protection for eUTRA connected to EPC (C1-211461; contact: Qualcomm) CT1 LS in Rel-17 UPIP\_SEC To:SA3 Cc:RAN2, RAN3, CT4, SA2

* Noted (RAN2 in cc only without actions, LS reply handled by email [202])

[R2-2102667](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102667.zip) LS on User Plane Integrity Protection for eUTRA connected to EPC (S3-210563; contact: Vodafone) SA3 LS in To:RAN2, RAN3, CT4, SA2 Cc:CT1

* Noted (handled by email [202])

By Email [202] (5)

[R2-2103016](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103016.zip) User Plane Integrity Protection for eUTRA connected to EPC Qualcomm Incorporated discussion Rel-17 UPIP\_SEC

[R2-2103962](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103962.zip) PDCP for Integrity protection for LTE EPC Intel Corporation discussion Rel-17

[R2-2103295](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103295.zip) User Plane Integrity Protection for LTE Samsung discussion Rel-17

*(moved from 8.17)*

[R2-2103928](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103928.zip) Discussion on Capturing PDCP Impacts for User Plane Integrity Protection Ericsson discussion [R2-2101477](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2101477.zip)

*(moved from 8.17)*

[R2-2103865](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2103865.zip) RAN impact on UP IP for eUTRA connected to EPC Apple discussion Rel-17

*(moved from 8.17)*

Not treated in this meeting

TEI17 documents will not be handled in this meeting (as per RAN#91e decision, the event-based trigger for LTE MDT will be discussed in RAN2#115e when RAN2 has TU allocation for TEI17)

[R2-2102703](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102703.zip) Introduction of event-based trigger for LTE MDT logging KDDI Corporation draftCR Rel-17 37.320 16.4.0 B TEI17 Late

[R2-2102721](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2102721.zip) Introduction of event-based trigger for LTE MDT logging KDDI Corporation draftCR Rel-17 36.331 16.4.0 B TEI17 Late

Email discussions ([202])

* [AT113bis-e][202][LTE] UPIP for LTE Rel-17 (Qualcomm)

Scope:

* + - Discuss the UPIP contributions under AI 9.3 and determine whether there is consensus on what RAN2 could reply to SA3.
		- Can provide also draft LS reply to SA3

 Intended outcome:

* + - Discussion summary in [R2-2104325](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104325.zip) (by email rapporteur)

 Deadline for providing comments and for rapporteur inputs:

* + - Initial deadline (for companies' feedback): 1st week Thu, UTC 0900
		- Initial deadline (for rapporteur's summary and draft LS): 1st week Fri, UTC 0900

Web Conf (Monday 2nd week) (3)

[R2-2104325](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104325.zip) Summary of [AT113bis-e][202][LTE] UPIP for LTE Rel-17 (Qualcomm) Qualcomm Incorporated discussion Rel-17 UPIP\_SEC

* [202] From Release 17, support UPIP with NR-PDCP when connected to EPC. Send a reply to SA3 based on this.
* [202] UPIP support with LTE PDCP when connected to EPC can be considered in future releases.

- Intel wonders if using NR PDCP means we will only support UPIP for features supported in NR PDCP, not everything in LTE PDCP. QC clarifies this was the intention. Vodafone thinks this wasn't clear and wonders which features are not covered in NR PDCP? Intel clarifies their contribution had a list and e.g. smaller PDCP SN size is one such thing.

- Vodafone wants to be sure some bearers can use LTE PDCP while others use NR PDCP.

[R2-2104335](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104335.zip) Draft Reply LS on User Plane Integrity Protection for eUTRA connected to EPC Qualcomm Incorporated LS out To: SA3, RAN3 Cc:CT1, CT4, SA2

- Vodafone thinks LTE PDCP is not mentioned in the LS.

* Change "From Rel-17" to "For Rel-17"
* Add "UPIP support with LTE PDCP when connected to EPC can be considered in future releases"
* Revised in [R2-2104349](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104349.zip)

[R2-2104349](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_113bis-e/Docs/R2-2104349.zip) Draft Reply LS on User Plane Integrity Protection for eUTRA connected to EPC RAN2 LS out To: SA3, RAN3 Cc:CT1, CT4, SA2

* Approved

## 9.4 NR and EUTRA Inclusive language

Time budget: N/A

CRs were endorsed/agreed-in-principle at R2#112-e. Final approval is expected when R17 TSes are to be created and at that point CRs need to be updated towards latest TS version and submitted again. Meanwhile this AI can be used to cover missing part, if any, and for correction/modification of the endorsed/agreed-in-principle CRs e.g. for inter-group consistency, inter-group review etc.