3GPP TSG-RAN WG2 Meeting #124 DRAFT\_R2-2313566

Chicago, USA, Nov. 13th – 17th, 2023

Source: Session chair (Huawei)

Title: Report from session on MBS and QoE

Agenda Item: 8.6

# Offline discussions

AT-meeting offline discussions:

* [AT124][600] Organizational – Session on MBS and QoE

Scope:

* + - Share plans and list of ongoing email discussions for the session on MBS and QoE
    - Share meeting notes and agreements for review and endorsement
* [AT124][601][eMBS] UE capabilities (vivo)

Scope: Discuss:

* + - If/what needs to be further included in the minimum set of capabilities for MBS multicast in INACTIVE
    - Any other capabilities that need to be specified for MBS WI

Intended outcome: Report with agreeable proposals in R2-2313681

Deadline: Report available for CB session on Thursday

* [AT124][602][eMBS] MRB continuation (ZTE)

Scope: Discuss the remaining cases of MRB continuation:

* + - Transition from RRC CONNECTED to RRC INACTIVE in another cell
    - Transition from RRC INACTIVE to RRC CONNECTED

Intended outcome: Report with agreeable proposals in R2-2313682

Deadline: Report available for CB session on Thursday

* [AT124][603][eMBS] Remaining UP issues (Qualcomm)

Scope: Discuss remaining UP issues:

* + - CFR restrictions
    - MAC handling during state transitions and mobility, i.e. soft buffer flushing, DRX timers handling

Intended outcome: Report with agreeable proposals in R2-2313683

Deadline: Report available for CB session on Thursday

## 2.4 Instructions

Rel-17 maintenance CRs

* Only essential/critical corrections are expected
* Editorial and clarification corrections should be sent to be reviewed and approved by spec rapporteurs prior to submission.
* Editorials corrections should be collected and submitted by spec rapporteurs.

Rel-18 CR Handling

- Current Plan: Rel-18 R2 Functional Freeze is Q4 2023, i.e. Rel-18 TSes need to be created at latest at this point in time.

- CRs for all Rel-18 WIs to be agreed at RAN2#124 (November 2023). Running Draft CRs need to be updated to be real CRs.

- Previously in-principle-agreed Rel-18 CRs (e.g. for TEI18 or WIs ending before November 2023) need to be updated towards the latest TS version and submitted for final CR agreement at RAN2#124 (CR editor / proponent need to do this).

- Such CRs do not need to be resubmitted to intermediate meetings before RAN2#124.

- Such CR may be superseded by revision due to correction, which is in-principle agreed (see bullet below). CR editor / proponent should be ready to handle such revisions.

- For WG meetings until functional freeze (including this) it is possible to maintain and revise Rel-18 CRs, also in-principle-agreed Rel-18 CRs, also for WIs with no TU budget (they are kept in the agenda for this purpose). It is better to fix issues now rather than wait for ASN.1 review.

- For revision proposals for Rel-18 CRs/DraftCRs, use TPs attached to discussion documents or DraftCRs (Includes current running Rel18 CRs or update of in-principle agreed Rel-18 CRs)

- CR editors / Rapporteurs are requested to continue even after close of their respective WIs to support maintenance related to their respective CR / WI.

Rel-18 RRC parameters and MAC CEs

- RRC parameters, including those requested by other groups, e.g. RAN1, are covered by WI-specific RRC CRs.

- MAC CE parameters, including those requested by other groups, e.g. RAN1, are covered by WI-specific MAC CRs

- For information see also R2-2306732, LS on Signalling alternatives, from R2#122.

Rel-18 UE capabilities

- Handling in RAN2 is expected similar to Rel-17.

- For information see also R2-2306810 Further Guidelines on UE capability definitions LS out, from R2#122.

Expected Outcomes

- EUTRA UE capabilities are covered in WI-specific CRs.

- NR UE capabilities are covered in Rel-18 common MegaCRs (38306 and 38331) covering all rel-18 WIs (end outcome).

- UE capabilities in LPP 37355 are covered in CR for the Positioning WI.

During the work on NR UE caps:

- In a Common Rel-18 Agenda Item (AI): RAN1 and RAN4 features are handled jointly under a common AI, with some explicit exceptions. Running UE cap MegaCRs are maintained for the parts handled in the common AI.

- In WI-specific Rel-18 Agenda Items: RAN2 features are handled per WI. Case-by-case, for selected WIs, RAN1 and RAN4 features handled specifically per WI. The outcomes are covered in WI-specific Running CRs (draft CRs). It is expected that WI-specific UE cap running CRs will be merged with the Running Mega CRs only at/after RAN2#124.

Tdoc limitations

Tdoc limitations doesn’t apply to Rapporteur Input, i.e.

- Assigned summary rapporteur input of the summary.

- Email / offline discussions outcomes by discussion rapporteur,

- WI rapporteurs input for WI planning etc,

- TS rapporteur input for TS maintenance.

- Contact Company of a LSin that triggers RAN2 action may submit one tdoc to facilitate the LS reply. This only applies to one of the contact companies in case there are several (default the first).

- Spec rapporteur list of open issues for Rel-18 items

Tdoc limitations doesn’t apply to Input created at the meeting, revisions, assigned documents etc.

Tdoc limitations doesn’t apply to shadow / mirror CRs (Cat A), or In-Principle Agreed CRs.

Tdoc limitations applies to all other submitted tdocs (e.g. discussion tdoc and CR tdoc are counted as two).

Tdoc submission for RAN2#124 deadline

- Nov. 3rd 1000 UTC

## 7.11 Enhancements of NR Multicast and Broadcast Services

(NR\_MBS\_enh-Core; leading WG: RAN2; REL-18; WID: RP-231829)

Time budget: 0.5 TU

Tdoc Limitation: 3 tdocs

**NOTE: Focus will be on the critical open issues from the open issue list(s).**

**NOTE: Apsects covered directly in CR update/open issues e-mail discussions should not be discussed in companies contributions.**

### 7.11.1 Organizational

LS in, rapporteur input, running CRs, open issues list etc.

Including outcome of [Post123bis][610][eMBS] 38.300 CR update and open issues (CMCC)

Including outcome of [Post123bis][611][eMBS] 38.331 CR update and open issues (Huawei)

Including outcome of [Post123bis][612][eMBS] 38.321 CR update and open issues (Apple)

Including outcome of [Post123bis][613][eMBS] 38.323 CR update and open issues (Xiaomi)

Including outcome of [Post123bis][614][eMBS] UE capabilities CRs update and open issues (vivo)

Including outcome of [Post123bis][615][eMBS] 38.304 CR (CATT)

**LSin**

[R2-2311715](file:///D:\3GPP\Extracts\R2-2311715_R1-2310598.docx) Reply LS on multicast reception in RRC\_INACTIVE (R1-2310598; contact: Apple) RAN1 LS in Rel-18 NR\_MBS\_enh-Core To:RAN2

* Noted

**CRs and open issues**

* **38.300**

[R2-2312683](file:///D:\3GPP\Extracts\R2-2312683%20Introduction%20of%20eMBS%20%20in%20TS%2038.300.docx) Introduction of eMBS in TS 38.300 CMCC CR Rel-18 38.300 17.6.0 0732 - B NR\_MBS\_enh-Core

* Endorsed

[R2-2312684](file:///D:\3GPP\Extracts\R2-2312684%2038.300%20running%20CR%20open%20issues%20for%20eMBS.docx) 38.300 running CR open issues for eMBS CMCC discussion Rel-18 NR\_MBS\_enh-Core

Easy agreement (for removing Editor’s notes)

Proposal 1: Remove the Editor’s note for PTM configuration description in section 16.10.5.2

Proposal 2: Remove the Editor’s note for initial PTM configuration acquisition in section 16.10.5.2

Proposal 5: Remove the Editor’s note for addressing ping-pong issue in section 16.10.5.3.X.

* Ericsson has concern on P5. Ericsson thinks we need to have TTT as the network cannot handle it. There will be too much unnecessary signalling otherwise.
* Lenovo has some sympathy with Ericsson, but we can reuse Treselection from 38.304.
* CATT believes this is just an optimization, there were extensive discussions last time. QCM agrees, we do not need full-blown RRC CONNECTED style procedure.
* Proposal 1: Remove the Editor’s note for PTM configuration description in section 16.10.5.2
* Proposal 2: Remove the Editor’s note for initial PTM configuration acquisition in section 16.10.5.2
* Proposal 5: Remove the Editor’s note for addressing ping-pong issue in section 16.10.5.3.X.

Open issues:

Proposal 2a: RAN2 can further discuss how to make sure UE acquires multicast MCCH after join procedure.

Proposal 3: MRB mapping between cells within RNA can be further discussed.

Proposal 4: RAN2 needs to decide whether to introduce new extra frequency prioritization mechanism. If so, which solution is used:

Option a: Frequency priorities in MCCH;

Option b: FSAI based solution for frequency prioritization.

Proposal 6: It can be further discussed whether we need to restrict that one CFR is completely contained within the other in case UE receive both multicast service and broadcast service in RRC\_INACTIVE state.

Proposal 7: Other open issues:

- CFR mis-alignment between RRC\_INACTIVE/CONNECTED UEs

- Details on suspension/continuation of MRBs in state change

DISCUSSION on P2a:

* QCM thinks we need to capture somewhere that UE receives config only after joining a multicast session.
* Huawei clarifies this is captured in RRC.
* CMCC clarifies this is captured in stage-2.
* If not captured already properly, we can clarify in stage-2 specs that the UE can only receive MCCH with multicast configurations after joining multicast session.
* Other open issues discussed based on company contributions
* **38.331**

[R2-2313372](file:///D:\3GPP\Extracts\R2-2313372%20Introduction%20of%20eMBS%20to%20RRC.docx) Introduction of eMBS to RRC Huawei, HiSilicon CR Rel-18 38.331 17.6.0 4490 - B NR\_MBS\_enh-Core Revised

* Nokia would like to capture the agreement that UE can use PTM configuration from RRC Release until it receives the one from MCCH.
* Revised

[R2-2313548](file:///D:\3GPP\Extracts\R2-2313548%20Introduction%20of%20eMBS%20to%20RRC.docx) Introduction of eMBS to RRC Huawei, HiSilicon CR Rel-18 38.331 17.6.0 4490 1 B NR\_MBS\_enh-Core [R2-2313372](file:///D:\3GPP\Extracts\R2-2313372%20Introduction%20of%20eMBS%20to%20RRC.docx)

* Huawei clarifies this version just correct the CR number on the cover page.
* Endorsed
* If not captured already properly, in the next revision we will capture in RRC that UE can use PTM configuration from RRC Release until it receives the one from MCCH.

[R2-2313373](file:///D:\3GPP\Extracts\R2-2313373%20MBS%20open%20issue%20list%20for%20RRC.docx) MBS open issue list for RRC Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

* Open issues discussed based on company contributions
* **38.321**

[R2-2312294](file:///D:\3GPP\Extracts\R2-2312294_MAC%20CR%20for%20Introduction%20of%20NR%20MBS%20enhancement(RAN2%23123bis%20agreements).docx) Introduction of NR MBS enhancement Apple CR Rel-18 38.321 17.6.0 1701 - B NR\_MBS\_enh-Core

* Endorsed

[R2-2312296](file:///D:\3GPP\Extracts\R2-2312296_Running%20MAC%20CR%20for%20eMBS%20(to%20address%20open%20issues).docx) Introduction of NR MBS enhancement (to address open issues) Apple CR Rel-18 38.321 17.6.0 1702 - B NR\_MBS\_enh-Core

* Not pursued, we will revise CR 1701 with new agreements

[R2-2312295](file:///D:\3GPP\Extracts\R2-2312295_Report%20of%20the%20discussion%20on%20MAC%20open%20issues%20for%20eMBS.doc) Summary of MAC open issue discussion for eMBS Apple discussion Rel-18 NR\_MBS\_enh-Core

< Open issue 1> Whether DRX Command MAC CE is applicable for inactive multicast DRX operation?

Proposal 1: DRX Command MAC CE is applicable for inactive multicast DRX operation.

Proposal 1a: Remove EN1 in section 5.7b of running MAC CR for eMBS.

* DRX Command MAC CE is applicable for inactive multicast DRX operation.
* Remove EN1 in section 5.7b of running MAC CR for eMBS.

<Open issue 2> FFS on the value of RNTI for multicast MCCH

Proposal 2: Introduce a new fix RNTI value for multicast-MCCH-RNTI.

Proposal 2a: Agree the following TP of Table 7.1-1 (RNTI values) in MAC running CR.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 7.1-1: RNTI values.**   |  |  | | --- | --- | | **Value (hexa-decimal)** | **RNTI** | | 0000 | N/A | | 0001–FFF2 | RA-RNTI, MSGB-RNTI, Temporary C-RNTI, C-RNTI, CI-RNTI, MCS-C-RNTI, CS-RNTI, TPC-PUCCH-RNTI, TPC-PUSCH-RNTI, TPC-SRS-RNTI, INT-RNTI, SFI-RNTI, SP-CSI-RNTI, PS-RNTI, SL-RNTI, SLCS-RNTI SL Semi-Persistent Scheduling V-RNTI, AI-RNTI, G-RNTI, G-CS-RNTI, and CG-SDT-CS-RNTI | | FFF3–FFFA | Reserved | | FFFB | Multicast MCCH-RNTI | | FFFC | PEI-RNTI | | FFFD | MCCH-RNTI | | FFFE | P-RNTI | | FFFF | SI-RNTI |   ~~Editor Note: FFS~~~~on the value of the multicast-MCCH-RNTI.~~ |

* Introduce a new fix RNTI value for Multicast MCCH-RNTI.
* We will call the new RNTI: “multicast MCCH-RNTI” (we align also in other specs)

<Open issue 3> FFS on the value of the LCID for multicast MCCH

Proposal 3: The same LCID value is used for multicast MCCH and broadcast MCCH.

Proposal 3a: Agree the following TP of Table 6.2.1-1c in MAC running CR.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 6.2.1-1c Values of LCID for MBS broadcast and multicast MCCH on DL-SCH**   |  |  | | --- | --- | | **Codepoint/Index** | **LCID values** | | 0 | Broadcast MCCH or multicast MCCH | | 1–32 | Identity of the logical channel of broadcast MTCH | | 33–63 | Reserved | |

* The same LCID value is used for multicast MCCH and broadcast MCCH.
* Agree the TP as in P3a above.

<Open issue 4> About the Editor Note in section 5.3.1 (DL Assignment reception)

Proposal 4: Remove the Editor Note 1 in section 5.3.1 of MAC running CR.

Proposal 4a: Agree to capture the following TP of section 5.8.1a in MAC running CR.

|  |
| --- |
| 5.8.1a Downlink for Multicast  To be used in RRC\_CONNECTED, MBS Semi-Persistent Scheduling (SPS) is configured by RRC on one Serving Cell per BWP. Multiple assignments can be active simultaneously in the same BWP.  For the DL MBS SPS, a DL assignment is provided by PDCCH, and stored or cleared based on L1 signalling indicating SPS activation or deactivation. |

* Remove the Editor Note 1 in section 5.3.1 of MAC running CR.
* Clarify in MAC specs section 5.8.1a only applies to UEs in RRC CONNECTED.
* **38.323**

[R2-2313218](file:///D:\3GPP\Extracts\R2-2313218%20Introduction%20of%20eMBS%20in%20TS%2038.323.docx) Introduction of eMBS in TS 38.323 Xiaomi CR Rel-18 38.323 17.5.0 0130 - B NR\_MBS\_enh-Core

* Revised

[R2-2313600](file:///D:\3GPP\TSGR2\TSGR2_124\docs\R2-2313600.zip) Introduction of eMBS in TS 38.323 Xiaomi CR Rel-18 38.323 17.5.0 0130 1 B NR\_MBS\_enh-Core

* Endorsed
* Nokia thinks we need to clarify that the changes on COUNT sync are for MC in INACTIVE.
* Huawei thinks PDCP specs should be RRC state transparent.
* Samsung agrees with Nokia.
* LGE agrees with Huawei and thinks it will get messy if we introduce this.
* QCM agrees with Nokia intent, but it should be clear from RRC for example.
* Ericsson thinks it is already clear when the indication form upper layers comes, do not think anything more is needed.
* **38.304**

[R2-2311852](file:///D:\3GPP\Extracts\R2-2311852%20Introduction%20of%20eMBS.docx) Introduction of eMBS CATT CR Rel-18 38.304 17.6.0 0355 - B NR\_MBS\_enh-Core

* Endorsed
* Ericsson there is an open issue with when the UE should start group paging monitoring, including eDRX and MICO mode.
* CATT thinks this can be still left up to UE implementation and this is not an open issue for closing the WI.
* **UE capabilities**

[R2-2312272](file:///D:\3GPP\Extracts\R2-2312272_CR0980_38306%20Introduction%20of%20eMBS%20UE%20Capabilities.docx) Introduction of eMBS UE Capabilities vivo CR Rel-18 38.306 17.6.0 0980 - B NR\_MBS\_enh-Core

* Endorsed
* In the next revision, draft UE capas CR drafting rules should be applied, as requested by the mega CR rapporteur

[R2-2312273](file:///D:\3GPP\Extracts\R2-2312273_CR4419_38331%20Introduction%20of%20UE%20Capability%20Reporting%20for%20eMBS.docx) Introduction of UE Capability Reporting for eMBS vivo CR Rel-18 38.331 17.6.0 4419 - B NR\_MBS\_enh-Core

* Endorsed
* In the next revision, draft UE capas CR drafting rules should be applied, as requested by the mega CR rapporteur

[R2-2312275](file:///D:\3GPP\Extracts\R2-2312275%20Summary%20of%20%5bPost123bis%5d%5b614%5d%20Open%20Issues%20for%20eMBS%20UE%20Capabilities.docx) Summary of [Post123bis][614] Open Issues for eMBS UE Capabilities vivo discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: As a baseline, a UE supporting multicast reception in RRC\_INACTIVE state also supports the following components:

- 12-bit length of PDCP sequence number;

- ROHC profiles 0x0000, 0x0001, and 0x0002;

- 4 ROHC header compression context sessions as the minimum number;

- UM MRB with 12-bit length of RLC sequence number;

- UM MRB with 6-bit length of RLC sequence number.

* Ericsson thinks we need to clarify minimum number of MRBs, number of G-RNTIs, search space etc.
* Vivo thinks we do not need to define the number of on MRBs, sessions etc.
* Nokia thinks 18-bit SN for PDCP should be added.
* Vivo clarifies this is optional capability, so it should not be minimum requirement.
* QCM thinks there should be another capability for threshold based resume.
* As a baseline, a UE supporting multicast reception in RRC\_INACTIVE state also supports the following components:

- 12-bit length of PDCP sequence number;

- ROHC profiles 0x0000, 0x0001, and 0x0002;

- 4 ROHC header compression context sessions as the minimum number;

- UM MRB with 12-bit length of RLC sequence number;

- UM MRB with 6-bit length of RLC sequence number.

* Offline if anything else needs to be captured for a minimum capability or if any other capabilities are needed (vivo)
* [AT124][601][eMBS] UE capabilities (vivo)

Scope: Discuss:

* + - If/what needs to be further included in the minimum set of capabilities for MBS multicast in INACTIVE
    - Any other capabilities that need to be specified for MBS WI

Intended outcome: Report with agreeable proposals in R2-2313681

Deadline: Report available for CB session on Thursday

R2-2313681 Report of [AT124][601][eMBS] UE capabilities vivo discussion Rel-18 NR\_MBS\_enh-Core

**Withdrawn**

R2-2312524 PDCP Running CR for eMBS Xiaomi draftCR Rel-18 38.323 17.5.0 B NR\_MBS\_enh-Core Withdrawn

[R2-2313244](file:///D:\3GPP\Extracts\R2-2313244%20Introduction%20of%20eMBS%20to%20RRC.docx) Introduction of eMBS to RRC Huawei, HiSilicon CR Rel-18 38.331 17.6.0 4482 - B NR\_MBS\_enh-Core Withdrawn

### 7.11.2 Multicast reception in RRC\_INACTIVE

Papers should not be submitted to 7.11.2, please use 7.11.2.1 or 7.11.2.2 instead.

#### 7.11.2.1 Control plane

Remaining stage-3 details for CP aspects of Multicast reception in RRC\_INACTIVE (e.g. is anything needed to ensure MRB continuation, co-existence between multicast reception in INACTIVE and SDT).

**SDT and MBS multicast in RRC\_INACTIVE**

[R2-2312545](file:///D:\3GPP\Extracts\R2-2312545.docx) Discussion on co-existence between multicast reception in INACTIVE and SDT ITRI discussion NR\_MBS\_enh-Core [R2-2310574](file:///D:\3GPP\Extracts\R2-2310574.docx)

Proposal 1: Network could configure SDT and MBS multicast reception in RRC\_INACTIVE together.

Proposal 2: The UE configured for MBS multicast reception in RRC\_INACTIVE should monitor the group paging during SDT.

Proposal 3: For a UE that does not support simultaneous reception of SDT and MBS multicast, the following principles should be adhered to:

Principle 1: The UE should not trigger SDT procedure while MBS multicast reception is ongoing.

Principle 2: The UE should not perform MBS multicast data reception during SDT.

[R2-2312297](file:///D:\3GPP\Extracts\R2-2312297_CP%20issues%20on%20multicast%20reception%20in%20RRC_INACTIVE_v0.doc) CP issues for multicast reception in RRC INACTIVE Apple discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: Support the simultaneous configuration of SDT and MBS multicast reception in RRC\_INACTIVE to one UE.

Proposal 2: UE is not required to receive group paging during the SDT procedure.

Proposal 3: UE is not required to receive data from MCCH and MTCH during the SDT procedure.

DISCUSSION on group Paging monitoring during SDT:

* Intel agrees with Apple, i.e. paging should not be monitored, same as for unicast Paging.
* Nokia thinks group Paging is different and the UE can monitor any occasion. Why is this a problem?
* Vivo thinks UE should monitor whether the session gets active or not. If all session are already active, the UE doesn’t have to do it.
* Huawei thinks group paging is different than unicast paging. If UE does not monitor paging then there is no way to indicate the UE to continue MC reception in INACTIVE.
* LG wonders whether new requirement is needed for UE reception of MC in INACTIVE and SDT.
* Samsung thinks there is a conflict if the UE receives both unicast and group Paging.
* Lenovo thinks the NW can bring the UE to RRC CONNECTED and then send it to INACTIVE.
* Xiaomi supports Apple’s proposal.
* QCM has a similar view as Xiaomi and Apple. QCM thinks such new requirement should not be introduced just for MC in INACTIVE.
* Ericsson thinks UE needs to monitor group Paging. During congestion, the NW should not move the UE to RRC CONNECTED. For legacy, no need to monitor, but for MC in INACTIVE it is needed. CATT agrees.
* Huawei thinks we should allow the UE to stay in INACTIVE for MC reception.
* Samsung thinks NW can send RRCRelease with PTM config.
* Support the simultaneous configuration of SDT and MBS multicast reception in RRC\_INACTIVE to one UE, unless serious issues are identified during implementation in the CR.
* MRB cannot be configured as SDT bearer.
* The UE is not required to monitor group Paging during SDT procedure.
* The understanding is NW can send the UE directly to INACTIVE with PTM config for MC in INACTIVE.

**MRB continuation**

[R2-2312685](file:///D:\3GPP\Extracts\R2-2312685%20Discussion%20on%20CP%20open%20issues.docx) Discussion on CP open issues CMCC discussion Rel-18 NR\_MBS\_enh-Core

Proposal 5: It’s network implementation to use the same logical channel ID within the cells belonging to UE’s RNA that indicated as “synchronized” to ensure MRB continuation.

[R2-2313496](file:///D:\3GPP\Extracts\R2-2313496%20Control%20plane%20details%20for%20multicast%20reception%20in%20RRC_INACTIVE%20state_final.docx) Control plane details for multicast reception in RRC\_INACTIVE state Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_MBS\_enh-Core

Proposal 8: UE releases MRBs for a service that were used in RRC\_CONNECTED state and adds new MRBs if the MRB/PTM configuration provided for the UE (either via RRCRelease or MCCH) does not allow continuation of MRBs (e.g., based on LCID).

[R2-2311808](file:///D:\3GPP\Extracts\R2-2311808%20MRB%20continuation%20for%20Multicast%20reception%20in%20RRC_INACTIVE.doc) MRB continuation for Multicast reception in RRC\_INACTIVE ZTE, Sanechips discussion Rel-18 NR\_MBS\_enh-Core

Proposal 5 RRC\_INACTIVE UE delivers multicast data to upper layer according to association of PDCP/RLC entities configured in RRC\_CONNECTED, instead of the mapping of MRB ID/LCID.

Proposal 6 In a “synced” RNA area, the order of MRBs for the same session in the source and target cells’ MCCH messages should be consistent.

Proposal 7 In a “synced” RNA area, MRB continuity can be supported when UE resumes to RRC\_CONNECTED.

DISCUSSION:

* Nokia thinks the CMCC would require LCID coordination between the cells which is hard to achieve. ZTE agrees – RNA can cover multiple DUs, coordination would be very hard.
* LGE assumes eLCID is used and that the network can coordinate used LCIDs. LGE asks about ZTE’s solution: how do you make the ordering for multiple sessions. ZTE clarifies this is per session.
* Ericsson think coordination could be done by implementation and it would work OK together with Nokia’s proposal.
* CATT believes ZTE’s proposal is more reasonable. CATT thinks Nokia’s scenario is not aligned with previous agreement.
* Huawei agrees with ZTE’s approach. Coordination may be possible within DU, but not across DUs.
* Nokia believes MRB continuation is not always possible, e.g. if CFRs are different for CONNECTED and INACTIVE. CATT thinks this is just about upper layer configuration, CFR can still be different.
* LGE thinks we need to consider multiple session scenario for P6.
* Mediatek thinks ZTE’s proposal can be OK, but LCID coordination can still be made based on MW implementation.
* In a “synced” RNA area, the order of MRBs within the same session configuration in the source and target cells’ MCCH messages should be consistent.
* For transition from RRC CONNECTED to RRC INACTIVE, the same LCIDs are used for the same MRBs if UE continues in the same cell from which it received RRCRelease.
* Offline on different cell case and RRC INACTIVE to CONNECTED transition (ZTE)
* [AT124][602][eMBS] MRB continuation (ZTE)

Scope: Discuss the remaining cases of MRB continuation:

* + - Transition from RRC CONNECTED to RRC INACTIVE in another cell
    - Transition from RRC INACTIVE to RRC CONNECTED

Intended outcome: Report with agreeable proposals in R2-2313682

Deadline: Report available for CB session on Thursday

R2-2313682 Report of [AT124][602][eMBS] MRB continuation ZTE discussion Rel-18 NR\_MBS\_enh-Core

**RRC and UE behaviour clarifications**

[R2-2313374](file:///D:\3GPP\Extracts\R2-2313374%20Remaining%20CP%20issues%20for%20multicast%20reception%20in%20RRC_INACTIVE.docx) Remaining CP issues for multicast reception in RRC\_INACTIVE Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: The UE only triggers resumption for a multicast session due to bad quality in case it is monitoring the G-RNTI corresponding to the multicast session.

Proposal 2: Upon T302 expiry, the UE should re-evaluate the condition for RRC resumption, if it was rejected during RRC resumption triggered by bad quality of multicast reception.

DISCUSSION on P1:

* Ericsson has mixed feelings, can be configurable or not have it at all.
* LGE does not support P1 as it will delay service reception.
* CATT does not think missing Paging is not an issue.

DISCUSSION on P2:

* Nokia asks what happens if the UE does not re-evaluate? Huawei clarifies after such time, the quality might get better and UE will resume unnecessarily.
* Vivo agrees with the intention, but special cases do not have to be captured. QCM agrees.
* Understanding is the UE uses the latest available measurement for condition evaluation, no need to capture special cases. Check whether this requires some spec changes, e.g. a NOTE.

Proposal 6: NW should be able to configure eLCID for for multicast MRB in RRC\_INACTIVE.

Proposal 7: The max number of thresholds for resume is set to 16.

DISCUSSION on P6 and P7:

* Nokia is OK with the proposals.
* NW should be able to configure eLCID for multicast MRB in RRC\_INACTIVE, similar as in Rel-17.
* The max number of thresholds for resume is set to 8.

**Service continuity enhancements**

[R2-2312506](file:///D:\3GPP\Extracts\R2-2312506%20Consideration%20on%20the%20control%20plane%20issue%20for%20multicast%20reception%20in%20RRC_INACTIVE.docx) Consideration on the control plane issue for multicast reception in RRC\_INACTIVE Xiaomi discussion Rel-18

Proposal 3: The frequency priorities can be provided via multicast MCCH.

Proposal 4: Upon receiving the frequency priorities in the multicast MCCH, the UE should prioritize using them over the dedicated priorities for the cell reselection.

[R2-2312476](file:///D:\3GPP\Extracts\R2-2312476%20MBS_CP.docx) Control plane aspects of multicast reception in RRC\_INACTIVE Lenovo discussion Rel-18

Proposal 2 Neighbour cell list is enhanced to include:

- Whether the multicast session is supported by either PTM transmission or PTP transmission in the neighbour cell or not;

- In case that the multicast session is supported, whether PTM transmission is provided in the neighbour cell or only PTP transmission is provide in the neighbour cell.

[R2-2311806](file:///D:\3GPP\Extracts\R2-2311806%20Leftover%20CP%20issues%20on%20Multicast%20reception%20in%20RRC_INACTIVE.doc) Leftover CP issues on Multicast reception in RRC\_INACTIVE ZTE, Sanechips, CBN discussion Rel-18 NR\_MBS\_enh-Core

[R2-2311812](file:///D:\3GPP\Extracts\R2-2311812%20Discussion%20on%20Remaining%20Issues%20for%20eMBS%20CP.doc) Discussion on Remaining Issues for eMBS CP vivo discussion Rel-18 NR\_MBS\_enh-Core

[R2-2311853](file:///D:\3GPP\Extracts\R2-2311853%20Remaining%20CP%20Issues%20for%20Multicast%20reception%20in%20RRC_INACTIVE.docx) Remaining CP Issues for Multicast reception in RRC\_INACTIVE CATT, CBN discussion Rel-18 NR\_MBS\_enh-Core

[R2-2311886](file:///D:\3GPP\Extracts\R2-2311886%20Remaining%20CP%20issues%20for%20multicast%20reception%20in%20RRC%20INACTIVE.docx) Remaining CP issues for multicast reception in RRC INACTIVE MediaTek inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2311999](file:///D:\3GPP\Extracts\R2-2311999%20Discussion%20on%2038.306%20running%20CR%20for%20R18%20MBS.docx) Discussion on 38.306 running CR for R18 MBS MediaTek Inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2312070](file:///D:\3GPP\Extracts\R2-2312070%20Discussion%20on%20control%20plane%20for%20eMBS.docx) Discussion on control plane for eMBS NEC discussion NR\_MBS\_enh-Core

[R2-2312551](file:///D:\3GPP\Extracts\R2-2312551%20Open%20issues%20on%20control%20plane%20for%20multicast%20reception%20in%20RRC_INACTIVE%20state.docx) Open issues on control plane for multicast reception in RRC\_INACTIVE state TD Tech, Chengdu TD Tech discussion Rel-18

[R2-2312569](file:///D:\3GPP\Extracts\R2-2312569.doc) Discussion on CP remaining issues for Multicast Spreadtrum Communications discussion Rel-18

[R2-2312718](file:///D:\3GPP\Extracts\R2-2312718%20CP%20Aspects%20for%20Multicast%20Reception%20in%20RRC_INACTIVE.docx) CP Aspects for Multicast Reception in RRC\_INACTIVE Samsung R&D Institute India discussion Rel-18

[R2-2312853](file:///D:\3GPP\Extracts\R2-2312853_eMBS_CP-open-issues.doc) CP open issues for multicast reception in INACTIVE Kyocera discussion Rel-18 [R2-2311066](file:///D:\3GPP\Extracts\R2-2311066_eMBS_CP-open-issues.doc)

[R2-2312962](file:///D:\3GPP\Extracts\R2-2312962%20Open%20issues%20for%20multicast%20reception%20in%20RRC_INACTIVE.docx) Open issues for multicast reception in RRC\_INACTIVE Ericsson discussion Rel-18 NR\_MBS\_enh-Core

[R2-2312964](file:///D:\3GPP\Extracts\R2-2312964%20MBS%20multicast%20and%20UE%20power%20saving.docx) MBS multicast and UE power saving Ericsson discussion Rel-18 NR\_MBS\_enh-Core

[R2-2313035](file:///D:\3GPP\Extracts\R2-2313035%20MBS-CP-issues.docx) No special handling for “Special UE” and other open issues Qualcomm Incorporated discussion Rel-18 NR\_MBS\_enh-Core

[R2-2313102](file:///D:\3GPP\Extracts\R2-2313102%20Remaining%20issues%20on%20multicast%20reception%20in%20RRC_INACTIVE.docx) Remaining issues on multicast reception in RRC\_INACTIVE LG Electronics Inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2313277](file:///D:\3GPP\Extracts\R2-2313277%20CP%20issues%20for%20eMBS.docx) CP issues for eMBS Shanghai Jiao Tong University discussion

[R2-2313362](file:///D:\3GPP\Extracts\R2-2313362%20MBS%20multicast%20reception%20when%20eDRX%20or%20MICO%20mode%20are%20configured.docx) MBS multicast reception when eDRX or MICO mode are configured Ericsson CR Rel-18 38.304 17.6.0 0367 - F NR\_MBS\_enh-Core

[R2-2313415](file:///D:\3GPP\Extracts\R2-2313415%20Coexistence%20of%20SDT%20and%20Multicast%20reception%20in%20RRC_INACTIVE.docx) Coexistence of SDT and Multicast reception in RRC\_INACTIVE Sharp discussion

[R2-2313416](file:///D:\3GPP\Extracts\R2-2313416%20MRB%20handling%20during%20RRC%20resume%20procedure.docx) MRB handling during RRC resume procedure Sharp discussion

#### 7.11.2.2 User plane

Remaining stage-3 details for UP aspects of Multicast reception in RRC\_INACTIVE (e.g. MAC operation, CFR configuration).

**CFR restrictions**

[R2-2312071](file:///D:\3GPP\Extracts\R2-2312071%20Discussion%20on%20user%20plane%20for%20eMBS.docx) Discussion on user plane for eMBS NEC discussion NR\_MBS\_enh-Core

Proposal 1: When the Multicast CFR for RRC\_INACTIVE and Broadcast CFR are configured simultaneously, one of the two CFRs is covered by the other CFR.

[R2-2311854](file:///D:\3GPP\Extracts\R2-2311854%20Remaining%20UP%20Issues%20for%20Multicast%20reception%20in%20RRC_INACTIVE.docx) Remaining UP Issues for Multicast reception in RRC\_INACTIVE CATT, CBN discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: If multicast CFR in RRC\_INACTIVE and broadcast CFR are configured differently, there is no need to restrict that one CFR is completely contained within the other.

**MAC handling during state transitions and mobility**

[R2-2313156](file:///D:\3GPP\Extracts\R2-2313156%20Remaining%20user%20plane%20issues%20for%20eMBS.docx) Remaining user plane issues for eMBS LG Electronics Inc. discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1. The soft buffer for HARQ process used for multicast reception in RRC\_INACTIVE is not flushed during the RRC state transition between RRC\_CONNECTED and RRC\_INACTIVE.

Proposal 2. drx-HARQ-RTT-TimerDL-PTM and drx-RetransmissionTimerDL-PTM are kept running if running during the RRC state transition between RRC\_CONNECTED and RRC\_INACTIVE.

[R2-2313326](file:///D:\3GPP\Extracts\R2-2313326%20eMBS%20UP.docx) UP Aspects for Multicast Reception in RRC\_INACTIVE Samsung discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: HARQ continuation for multicast reception during RRC state transition is not supported. DL soft buffer is flushed (no specification impact).

Proposal 2. At cell reselection with service continuity for multicast (i.e. same multicast service is provided in the target cell), DL soft buffer is flushed regardless of PDCP COUNT continuation.

* Offline on the two UP issues above (QCM)
* [AT124][603][eMBS] Remaining UP issues (Qualcomm)

Scope: Discuss remaining UP issues:

* + - CFR restrictions
    - MAC handling during state transitions and mobility, i.e. soft buffer flushing, DRX timers handling

Intended outcome: Report with agreeable proposals in R2-2313683

Deadline: Report available for CB session on Thursday

R2-2313683 Report of [AT124][603][eMBS] Remaining UP issues Qualcomm discussion Rel-18 NR\_MBS\_enh-Core

[R2-2311807](file:///D:\3GPP\Extracts\R2-2311807%20MAC%20Reset%20for%20Multicast%20reception%20in%20RRC_INACTIVE%20upon%20RRCRelease.doc) MAC Reset for Multicast reception in RRC\_INACTIVE upon RRCRelease ZTE, Sanechips discussion Rel-18 NR\_MBS\_enh-Core

[R2-2311813](file:///D:\3GPP\Extracts\R2-2311813%20Discussion%20on%20Multicast%20DRX%20Timer.docx) Discussion on Multicast DRX Timer vivo discussion Rel-18 NR\_MBS\_enh-Core

[R2-2311814](file:///D:\3GPP\Extracts\R2-2311814%20Discussion%20on%20Remaining%20Issues%20for%20PDCP%20COUNT%20in%20eMBS.docx) Further Discussion on PDCP COUNT vivo discussion Rel-18 NR\_MBS\_enh-Core

[R2-2311887](file:///D:\3GPP\Extracts\R2-2311887%20CFR%20discussion%20for%20multicast%20and%20broadcast%20services.docx) CFR discussion for multicast and broadcast services MediaTek inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2312477](file:///D:\3GPP\Extracts\R2-2312477%20MBS_UP.docx) User plane aspects of multicast reception in RRC\_INACTIVE Lenovo discussion Rel-18

[R2-2312488](file:///D:\3GPP\Extracts\R2-2312488%20Discussion%20on%20the%20remaining%20UP%20issues%20for%20the%20multicast%20reception%20in%20RRC_INACTIVE.doc) Discussion on the remaining UP issues for the multicast reception in RRC\_INACTIVE Xiaomi discussion Rel-18

[R2-2312553](file:///D:\3GPP\Extracts\R2-2312553%20Further%20discussion%20on%20user%20plane%20for%20multicast%20reception%20in%20RRC_INACTIVE%20state.docx) Open issues on user plane for multicast reception in RRC\_INACTIVE state TD Tech, Chengdu TD Tech discussion Rel-18

[R2-2312570](file:///D:\3GPP\Extracts\R2-2312570%20User%20plane%20details%20for%20multicast%20reception%20in%20RRC_INACTIVE%20state.docx) User plane aspects of multicast reception in RRC\_INACTIVE state Nokia Corporation discussion Rel-18 NR\_MBS\_enh-Core

[R2-2312686](file:///D:\3GPP\Extracts\R2-2312686%20Discussion%20on%20UP%20open%20issues.docx) Discussion on UP open issues CMCC discussion Rel-18 NR\_MBS\_enh-Core

[R2-2313024](file:///D:\3GPP\Extracts\R2-2313024%20MBS-cfr-config-rrc-inactive.docx) Views on the FFS on the multicast CFR configuration aspects Qualcomm Incorporated discussion Rel-18 NR\_MBS\_enh-Core [R2-2310476](file:///D:\3GPP\Extracts\R2-2310476%20cfr-config-rrc-inactive.docx)

[R2-2313375](file:///D:\3GPP\Extracts\R2-2313375%20Remaining%20UP%20issues%20for%20multicast%20reception%20in%20RRC_INACTIVE.docx) Remaining UP issues for multicast reception in RRC\_INACTIVE Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

**Withdrawn**

R2-2312963 PTM DRX for MBS multicast Ericsson discussion Rel-18 NR\_MBS\_enh-Core Withdrawn

### 7.11.3 Shared processing for MBS broadcast and Unicast reception

Remaining stage-3 details for shared processing, if any.

Remaining aspects of UE capabilities (for both multicast reception in Inactive and shared processing).

**Signalling aspects**

[R2-2312719](file:///D:\3GPP\Extracts\R2-2312719%20Remaining%20issues%20for%20shared%20processing.docx) Remaining Issues for Shared Processing Samsung R&D Institute India discussion Rel-18

Proposal 1A: When non-servingCellMII is provided in SIB1 by the PCell, UE initiates transmission of MII during ReconfigurationWithSync and Reestablishment scenarios (i.e. for the cases when MII was initiated during 1 second preceding reception of the RRCReconfiguration message or RRCReesablihment message, or after receiving RRCReconfiguration applied due to conditional reconfiguration execution).

Proposal 1B: Adopt text proposal TP1 and TP2 as provided.

[R2-2313376](file:///D:\3GPP\Extracts\R2-2313376%20Discussion%20on%20shared%20processing%20for%20MBS%20broadcast%20and%20unicast%20reception.docx) Discussion on shared processing for MBS broadcast and unicast reception Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: The gNB should indicate the UE in case some bands in the band filter are only requested for MBS reception from non-serving cell in UE capability enquiry procedure.

**Clarifications**

[R2-2313243](file:///D:\3GPP\Extracts\R2-2313243%20TP%20for%2038300%20Shared%20Processing.docx) Shared processing description in 38.300 Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: Adopt the text proposal for Section 16.10.6.X (Shared processing for MBS broadcast and unicast reception) shown in Annex.

[R2-2313383](file:///D:\3GPP\Extracts\R2-2313383%20Clarification%20on%20the%20non-serving%20cell%20reception%20capability%20of%20MBS%20broadcast.docx) Clarification on the non-serving cell reception capability of MBS broadcast Xiaomi discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: When indicating the support of the Rel-18 MBS broadcast reception of non-serving cell, the UE shall also support the Rel-17 basic broadcast reception capability (i.e. optional without UE radio access capability parameters). No extra specification change is expected.

Proposal 2: When indicating the support for the Rel-18 MBS broadcast reception of non-serving cell, the UE can indicate dci-BroadcastWith16Repetitions-r17 for the same CC. No extra specification change is expected.

Proposal 3: When indicating the support for the Rel-18 MBS broadcast reception of non-serving cell, the serving cell reception capability is independently indicated. No extra specification change is expected.

Proposal 4: The UE can indicate MBS broadcast reception of non-serving cell in multiple CCs.

Proposal 5: The UE is only required to support up-to 1 non-serving cell reception of MBS broadcast.

Proposal 6: If Proposal 5 is agreed, the UE only reports one non-serving cell information in the MBSInterestIndication message.

[R2-2311855](file:///D:\3GPP\Extracts\R2-2311855%20Remaining%20Issues%20on%20UE%20capabilities.docx) Remaining Issues on UE Capabilities CATT, CBN discussion Rel-18 NR\_MBS\_enh-Core

[R2-2312073](file:///D:\3GPP\Extracts\R2-2312073%20Discussion%20on%20shared%20process.docx) Discussion on shared process NEC discussion NR\_MBS\_enh-Core

R2-2313287 Impact of multicast reception in RRC\_INACTIVE state on sharing processing TD Tech, Chengdu TD Tech discussion Rel-18 Late

[R2-2313288](file:///D:\3GPP\Extracts\R2-2313288%20Impact%20of%20multicast%20reception%20in%20RRC_INACTIVE%20state%20on%20sharing%20processing.docx) Impact of multicast reception in RRC\_INACTIVE state on sharing processing TD Tech, Chengdu TD Tech discussion Rel-18

[R2-2313376](file:///D:\3GPP\Extracts\R2-2313376%20Discussion%20on%20shared%20processing%20for%20MBS%20broadcast%20and%20unicast%20reception.docx) Discussion on shared processing for MBS broadcast and unicast reception Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

## 7.14 Enhancement on NR QoE management and optimizations for diverse services

(NR\_QoE\_enh-Core; leading WG: RAN3; REL-18; WID: RP-223488)

Time budget: 0.5 TU

Tdoc Limitation: 3 tdocs

**NOTE: Focus will be on the critical open issues from the open issue list(s).**

**NOTE: Apsects covered directly in CR update/open issues e-mail discussions should not be discussed in companies contributions.**

### 7.14.1 Organizational

Including LSs and any rapporteur inputs (e.g. work plan, running CRs, open issues list)

**LSin**

[R2-2311730](file:///D:\3GPP\Extracts\R2-2311730_R3-235912.doc) Reply LS on Priority information and NR-DC (R3-235912; contact: Huawei) RAN3 LS in Rel-18 NR\_QoE\_enh-Core To:RAN2 Cc:SA4, SA5

* Actions discussed based on papers
* Noted

[R2-2311731](file:///D:\3GPP\Extracts\R2-2311731_R3-235913.doc) Reply LS on MBS communication service (R3-235913; contact: Huawei) RAN3 LS in Rel-18 NR\_QoE\_enh-Core To:SA4, SA5, RAN2, SA2

* Actions discussed based on papers
* Noted

[R2-2313598](file:///D:\3GPP\TSGR2\TSGR2_124\docs\R2-2313598.zip)    LS reply for LS on QMC support in RRC\_IDLE and RRC\_INACTIVE (S3-235102; contact: Nokia)

* Noted
* RAN2 will wait for RAN3 decision on whether UE-based or CN-based solution is adopted, but may make some assumptions beforehand.
* Huawei wonders whether there are any RAN2 impacts as RAN2 is in cc.
* Qualcomm thinks this is mainly for RAN2, we should discuss whether the solution is secure in RAN2.
* Nokia thinks RAN3 is discussing this based on replies from all WGs.

**Work plan**

[R2-2313280](file:///D:\3GPP\Extracts\R2-2313280%20Revised%20Work%20Plan%20for%20Rel-18%20NR%20QoE%20Enhancement.docx) Revised Work Plan for Rel-18 NR QoE Enhancement China Unicom discussion NR\_QoE\_enh-Core

* Noted

**CRs and open issues**

* **38.300**

[R2-2311870](file:///D:\3GPP\Extracts\R2-2311870 38.300%20running%20CR%20for%20R18%20QoE%20enhancement%20in%20NR.docx) 38.300 running CR for R18 QoE enhancement in NR China Unicom, Huawei, HiSilicon draftCR Rel-18 38.300 17.6.0 NR\_QoE\_enh-Core

* Endorsed
* We will include further agreements form this meeting
* Next version should be an official CR with proper title and cover page descriptions

[R2-2311869](file:///D:\3GPP\Extracts\R2-2311869%20%5bPost123bis%5d%5b616%5d%5bQoE%5d%2038.300%20CR%20update%20and%20open%20issues%20(China%20Unicom).doc) [Post123bis][616][QoE] 38.300 CR update and open issues (China Unicom) China Unicom discussion NR\_QoE\_enh-Core

Easy agreement:

Proposal 1a: Working Assumptions: when UE moves to RRC\_IDLE state, the UE will store QoE configurations it received in RRC\_CONNECTED state or it stored in RRC\_INACTIVE state in the AS layer.

Proposal 1b: If RAN2 make agreements on IDLE/INACTIVE QoE configurations retrieval procedures, RAN2 need to discuss whether to introduce a new 1-bit indication in msg5 to represent the availability of QoE measurement configurations stored in the UE.

Proposal 2a: WA: when UE moves to RRC\_IDLE state, the UE will store the following information per QoE configuration:

– QoE reference.

– The ID of the Measurement Collection Entity.

– The measConfigAppLayerID.

– Service type.

– QoE measurement type (s-based or m-based measurement) for MBS broadcast service.

– AS layer based area scope info.

Proposal 2b: RAN2 agree to leave it to RAN3 to decide which entity (gNB or OAM) can be used to map MCE ID to MCE IP address.

Proposal 3: UE doesn’t store RVQoE configurations in RRC\_IDLE state.

* Lenovo asks if P3 is only for IDLE state or should also apply to INACTIVE?
* QCM thinks it should apply to INACTIVE as well.
* Working assumptions (pending final decision from RAN3 on whether UE-based solution is chosen):
  + - when UE moves to RRC\_IDLE state, the UE will store QoE configurations it received in RRC\_CONNECTED state or it stored in RRC\_INACTIVE state in the AS layer.
    - when UE moves to RRC\_IDLE state, the UE will store the following information per QoE configuration (can be updated based on further RAN3 agreements):

– QoE reference.

– The ID of the Measurement Collection Entity.

– The measConfigAppLayerID.

– Service type.

– QoE measurement type (s-based or m-based measurement) for MBS broadcast service.

– AS layer based area scope info.

* RAN2 agree to leave it to RAN3 to decide which entity (gNB or OAM) can be used to map MCE ID to MCE IP address.
* UE doesn’t store RVQoE configurations in RRC\_IDLE state and in RRC\_INACTIVE (outside of UE INACTIVE context, if stored there).

For online decision:

Proposal 1c: QoE measurement reporting procedure is used for transmitting QoE configurations info to the gNB if UE based solution is supported.

Proposal 5: RAN2 need to discuss whether it’s possible to not introduce explicit indicator in AS-layer on whether a QoE configuration is also applicable in RRC-IDLE/INACTIVE states.

Proposal 6: The gNB can provide priority information for the UE to decide which reports to discard in case the UE’s QoE buffer becomes full in idle/inactive state.

* Proposals discussed based on company contributions

For details input:

Proposal 4a: RAN2 need to discuss whether UE AS layer need to explicitly inform APP layer whether the UE is currently inside area scope or out of area scope via AT command.

Proposal 4b: RAN2 need to discuss whether it can be agreed that APP layer should only start new QoE measurement session when the UE is in the area scope.

Proposal 7: RAN2 can analysis the spec impacts and then decide whether UE can do PLMN checking in idle/inactive state in Rel-18.

Proposal 8: RAN2 can discuss if there are any potential issue left to support inter-RAT mobility, e.g. QoE measurement release at the handover.

* Proposals discussed based on company contributions
* **38.331**

[R2-2312825](file:///D:\3GPP\Extracts\R2-2312825%20-%20Introduction%20of%20QoE%20enhancements.docx) Introduction of Enhancement on NR QoE management and optimizations for diverse services Ericsson CR Rel-18 38.331 17.6.0 4446 - B NR\_QoE\_enh-Core

* Endorsed

[R2-2312826](file:///D:\3GPP\Extracts\R2-2312826%20-%20Outstanding%20RRC%20issues%20for%20QoE.docx) Report of [Post123bis][617][QoE] 38.331 CR update and open issues (Ericsson) Ericsson discussion Rel-18 NR\_QoE\_enh-Core

Proposal 1 Discuss whether the session status indication should be sent in MeasurementReportAppLayer or in Msg5.

* Proposal discussed based on company contributions
* **37.340**

[R2-2312703](file:///D:\3GPP\Extracts\R2-2312703%20Introduction%20of%20QoE%20for%20NR-DC.docx) Introduction of QoE for NR-DC Nokia, Nokia Shanghai Bell CR Rel-18 37.340 17.6.0 0372 - B NR\_QoE\_enh-Core

* Endorsed

[R2-2312704](file:///D:\3GPP\Extracts\R2-2312704%20Report%20of%20%5bPost123bis%5d%5b618%5d%5bQoE%5d%2037.340%20CR%20update%20and%20open%20issues.docx) Report of [Post123bis][618][QoE] 37.340 CR update and open issues Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_QoE\_enh-Core

For easy agreement:

Proposal 1: For QoE reporting configured to be reported via SRB5, when SCG is deactivated, it is NW implementation to map SRB5 to MN, release the corresponding QoE configurations or pause the QoE reporting.

Proposal 2a: The RAN2#123 agreement “if UL traffic arrives and the UE cannot send a QoE report because the configured SRB is not available, UE continues to store the report until the SRB is available or the QoE configuration is released” is applicable only to encapsulated QoE (i.e., the QoE report storage is not applied to RVQoE).

Proposal 3a: When SN is released, all the QoE measurements configured by the SN should be released (i.e., there is no need to indicate to UE which QoE configurations should be released or kept).

* For QoE reporting configured to be reported via SRB5, when SCG is deactivated, it is NW implementation to map SRB5 to MN, release the corresponding QoE configurations or pause the QoE reporting.
* The RAN2#123 agreement “if UL traffic arrives and the UE cannot send a QoE report because the configured SRB is not available, UE continues to store the report until the SRB is available or the QoE configuration is released” is applicable only to encapsulated QoE (i.e., the QoE report storage is not applied to RVQoE).
* When SN is released, all the QoE measurements configured by the SN should be released (i.e., there is no need to indicate to UE which QoE configurations should be released or kept).

Remaining open issues to be discussed in next meeting:

Proposal 2b: When UE cannot send RVQoE report because the configured RVQoE specific SRB is not available, RAN2 to further clarify whether the RVQoE report should be discarded and not stored and reported later.

Proposal 3b: When SN is released, FFS how to treat the unsent QoE report configured to be reported over SRB5.

* Proposals discussed based on company contributions
* **UE capabilities**

[R2-2312661](file:///D:\3GPP\Extracts\R2-2312661%20Introduction%20of%20QMC%20in%20NR-DC%20and%20RRC_IDLERRC_INACTIVE%20in%20TS%2038306.docx) Introduction of QMC in NR-DC and RRC\_IDLE/RRC\_INACTIVE in TS 38.306 CMCC CR Rel-18 38.306 17.6.0 0991 - B NR\_QoE\_enh-Core

* Endorsed
* SRB5 capability should be moved to section 4.2.20 in the next revision.

[R2-2312662](file:///D:\3GPP\Extracts\R2-2312662%20Introduction%20of%20QMC%20in%20NR-DC%20and%20RRC_IDLERRC_INACTIVE%20in%20TS%2038331.docx) Introduction of QMC in NR-DC and RRC\_IDLE/RRC\_INACTIVE in TS 38.331 CMCC CR Rel-18 38.331 17.6.0 4438 - B NR\_QoE\_enh-Core

* Endorsed
* SRB5 capability should be moved together with other QoE parameters in the next revision.
* Lenovo wonders why SRB5 capability is in “general” section.
* Huawei thinks it makes sense to put this together with SRB3.
* Lenovo indicates that it should not be put in parameters with XDD differentiation.
* Intel thinks there should be no XDD differentiation for SRB5.

[R2-2312663](file:///D:\3GPP\Extracts\R2-2312663%20Open%20issues%20list%20for%20Rel-18%20QoE%20UE%20capabilities.docx) Open issues list for Rel-18 QoE UE capabilities CMCC discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312664](file:///D:\3GPP\Extracts\R2-2312664%20Report%20of%20%5bPost123bis%5d%5b619%5d%5bQoE%5d%20UE%20capabilities%20CRs%20update%20and%20open%20issues%20(CMCC).docx) Report of [Post123bis][619][QoE] UE capabilities CRs update and open issues (CMCC) CMCC discussion Rel-18 NR\_QoE\_enh-Core

Need further discussion:

(4/7) Proposal 1: RAN2 does not define RedCap-specific UE capability for Rel-18 QoE.

(2/3) Proposal 2: RedCap and eRedCap UE should have the same minimum memory requirement for QoE in RRC\_IDLE and RRC\_INACTIVE.

* Proposals discussed based on company contributions

Easy agreeable:

(7/7) Proposal 3: Do not introduce MBS multicast UE capability for all RRC states in Rel-18 QoE.

* Do not introduce MBS multicast UE capability for all RRC states in Rel-18 QoE.

Open issues for RAN2#124:

Proposal 5: Introduce the following open issue related to UE capability in RAN2#124:

- OI1: AR/MR QoE capability

- OI2: Clarification of Rel-17 legacy QoE capability is only for RRC\_CONNECTED

- OI3: Clarification of RRC\_IDLE/INACTIVE QoE capability includes priority-based QoE report discarding.

Proposal 6: Include OI4, i.e., introduction of separate SRB5 segmentation UE capability and clarification the legacy UE capability is for SRB4, to the Open issue list.

* Proposals discussed based on company contributions

### 7.14.2 QoE measurements in RRC\_IDLE INACTIVE

Including remaining details of area scope handling for MBS QoE, QoE configuration storing and retrieval at/from the UE, AS layer signalling details.

Including any new impact stemming from RAN3 agreements.

**Area scope handling**

[R2-2312827](file:///D:\3GPP\Extracts\R2-2312827%20-%20QoE%20measurements%20in%20RRC_INACTIVE%20and%20RRC_IDLE%20state.docx) QoE measurements in RRC\_INACTIVE and RRC\_IDLE state Ericsson discussion Rel-18 NR\_QoE\_enh-Core

Proposal 2 The gNB forwards the area scope to the UE AS together with the QoE configuration in the MeasConfigAppLayer IE.

Proposal 3 RAN2 should send an LS to CT1, asking CT1 to extend the +CAPLEVMCNR AT command with an “inside area”/”outside area” indication or specify a new AT command for conveying such an indication from the UE AS to the UE application. (A draft LS is included in the annex.)

Proposal 4 The UE shall not autonomously release a QoE configuration when the UE leaves the area scope in RRC\_IDLE or RRC\_INACTIVE state.

DISCUSSION:

* Nokia is not ready to confirm WA until we get reply from SA4.
* Huawei asks if the QoE config in P2 means the IDLE QoE configuration.
* Ericsson clarifies this is the QoE configuration from gNB to UE.
* Lenovo wonders what happens if the app layer receives out of area indication while it is performing measurements already. Ericsson clarifies that in this case there should be no action in APP layer, area scope is only checked at the beginning of the session.
* CATT asks when the indication will be sent to APP layer, when area is crossed or based on APP request? Ericsson think no request is needed.
* Ericsson and Huawei think AS can always send this indication whenever it moves in/out area scope and APP layer only considers it for non-ongoing QoE measurement session.
* QCM thinks it is better to just send the indications when they are useful for APP layer.
* Nokia indicates AS layer may not always know whether the session is ongoing or not.
* The following agreements are based on the assumption that we use AS-layer area scope checking:
  + - The gNB forwards the area scope to the UE AS together with the IDLE/INACTIVE applicable QoE configuration in the MeasConfigAppLayer IE.
    - RAN2 should send an LS to CT1 and SA4, asking CT1 to extend the +CAPLEVMCNR AT command with an “inside area”/”outside area” indication or specify a new AT command for conveying such an indication from the UE AS to the UE application. AS layer sends this indication whenever it moves in/out area scope and APP layer only considers it for non-ongoing QoE measurement session
    - The UE shall not autonomously release a QoE configuration when the UE leaves the area scope in RRC\_IDLE or RRC\_INACTIVE state.
* Offline for the LS (Ericsson)

**QoE configuration priorities**

[R2-2312334](file:///D:\3GPP\Extracts\R2-2312334%20QoE%20Measurements%20Discarding%20in%20IDLE_INACTIVE%20States.docx) QoE Measurements Discarding in IDLE/INACTIVE States Apple discussion Rel-18 NR\_QoE\_enh-Core

Proposal 1: The gNB can configure a priority level for each QoE configuration. When the AS buffer for QoE becomes full in IDLE/INACTIVE state, the UE first discards the QoE measurements associating to the QoE configuration with the lowest priority.

Proposal 2: The QoE configuration without priority level is considered as the lowest priority.

Proposal 3: If none of the QoE configurations is associated to a priority level, the UE may first discard the oldest QoE measurement when the AS buffer becomes full, or simply select QoE measurement to discard based on UE implementation.

DICUSSION:

* ZTE supports P1, for P2 prefer to assume there is always priority, for P3 prefer not to leave to UE implementation.
* Lenovo thinks RAN3 needs to clarify whether all QoE configuration will have priority. For P3 prefer to leave to UE implementation.
* Huawei supports P2, priority level should be optional parameter. For P3, it is OK to leave to UE implementation.
* Ericsson thinks we already have an agreement that by default we should discard the oldest first.
* CATT, Nokia, Ericsson is ok with P2, priority should be optional.
* The gNB can configure a priority level for each QoE configuration. When the AS buffer for QoE becomes full in IDLE/INACTIVE state, the UE first discards the QoE measurements associating to the QoE configuration with the lowest priority.
* Priority level is optionally configured by the network
* The QoE configuration without priority level is considered as the lowest priority.
* If none of the QoE configurations is associated to a priority level, the UE may first discard the oldest QoE measurement when the AS buffer becomes full.

**QoE configuration storage and retrieval**

[R2-2312800](file:///D:\3GPP\Extracts\R2-2312800%20Remaining%20issue%20on%20QoE%20measurement%20in%20IDLE%20and%20INACTIVE.docx) Remaining issue on QoE measurement in IDLE and INACTIVE ZTE Corporation, Sanechips discussion Rel-18 NR\_QoE\_enh-Core

Proposal 2: If UE based solution is supported, QoE measurement reporting procedure is used to transmit QoE configurations info to the gNB.

Proposal 3: If P2 is agreed, introduce a new 1-bit indication in msg5 to indicate the availability of QoE measurement configurations stored in the UE.

Proposal 4: Confirm below working assumption as agreement：RAN2 will use explicit indicator in AS-layer on whether a QoE configuration is also applicable in RRC-IDLE/INACTIVE states.

DISCUSSION on P2 and P3:

* Lenovo thinks it is strange to use reporting message to carry this configuration.
* CATT asks whether we should allow the NW to request only configuration but not reports from the UE.
* Ericsson thinks the network will just configure SRB4 and UE will report everything. QCM agrees, no need for additional mechanism. CATT thinks that in this case there is no need for a separate indication as in P3. ZTE is OK to extend the current bit’s meaning to cover indication of QoE configurations.
* Samsung supports P2, but wonders what happens if SRB4 is configured by legacy gNB and the UE sends QoE configurations. QCM sees no issue. Ericsson agrees with Samsung, this needs to be resolved.
* China Unicom thinks we could use UE Information Request/Response procedure and avoid the issue with legacy gNB
* Offline: If UE based solution is supported:
  + - Whether QoE measurement reporting procedure is used to transmit QoE configurations info to the gNB, i.e. the NW configures SRB4 and UE send QoE configurations and/or QoE reports (if available)
    - **whether/how gNB indicates whether it supports QoE configuration retrieval form the UE (Samsung)**
    - **If we need to introduce a new 1-bit indication in msg5 to indicate the availability of QoE measurement configurations stored in the UE.**

DISCUSSION on P4:

* Ericsson agrees with P4, but we just need an indication for IDLE, not for INACTIVE.
* Huawei disagrees with P4, implicit indication is enough. There will be new IEs introduced for Rel-18, so they can be used as an implicit indication.
* Ericsson thinks implicit does not work for signalling based QoE. Nokia agrees.
* QCM thinks if we add explicit indication, then there is impact on RAN3.
* Samsung agrees with Huawei, area scope always needs to be provided to the UE and this can be implicit.
* China Unicom thinks we can reuse broadcast indication from RAN3 to set this explicit indicator.
* RAN2 will use explicit indicator in AS-layer on whether a QoE configuration is also applicable in RRC-IDLE and INACTIVE states. One indicator for both IDLE and INACTIVE states is assumed unless it causes issues during CR implementation.
* RAN2 assumes this has no impact on RAN3, i.e. this indication is set based on the information already available at the gNB (e.g. broadcast indication).

**PLMN checking**

[R2-2312665](file:///D:\3GPP\Extracts\R2-2312665%20Remaining%20issues%20on%20QMC%20in%20RRC_IDLE%20and%20RRC_INACTIVE.docx) Remaining issues on QMC in RRC\_IDLE and RRC\_INACTIVE CMCC discussion Rel-18 NR\_QoE\_enh-Core

Proposal 8: When transferring to RRC\_CONNECTED, UE should check the PLMN of target gNB before UE forwards any QoE information. If PLMN changes, UE should not forward QoE configuration and report and keep them in UE AS layer memory.

[R2-2312747](file:///D:\3GPP\Extracts\R2-2312747%20Discussion%20on%20remaining%20issues%20for%20QoE%20measurements%20in%20RRC%20IDLE%20and%20INACTIVE%20state.docx) Discussion on remaining issues for QoE measurements in RRC IDLE and INACTIVE state CATT discussion Rel-18 NR\_QoE\_enh-Core

Proposal 11: Considering supporting the PLMN checking for QoE will introduce more spec impact in RAN2, RAN3 and SA5, it is not recommended to support PLMN checking in this release.

**Other QoE configuration details**

[R2-2312871](file:///D:\3GPP\Extracts\R2-2312871-QoE%20for%20IDLE%20and%20Inactive%20state.docx) Open Issues on QoE for IDLE and Inactive state Qualcomm Incorporated discussion NR\_QoE\_enh-Core

Proposal 1 No need to indicate delivery mode i.e.unicast, multicast or broadcast mode for QoE collection in AS layer.

Proposal 2 RAN2 confirms to introduce explicit indicator in AS-layer on whether a QoE configuration is also applicable in RRC-IDLE/INACTIVE states.

Proposal 3 Using MeasurementReportAppLayer message to report the store QoE configuration and session status indication.

[R2-2313282](file:///D:\3GPP\Extracts\R2-2313282%20Discussion%20on%20QoE%20measurements%20in%20RRC_IDLE%20and%20INACTIVE%20states.docx) Discussion on QoE measurements in RRC\_IDLE and INACTIVE states China Unicom discussion NR\_QoE\_enh-Core

Proposal 2: The UE needs to obtain the available RVQoE metrics indications from gNB in QoE configuration in RRC\_CONNECTED state, then the UE can store the indications in AS layer in idle/inactive state and send them back to gNB when it moves into RRC\_CONNECTED state.

Proposal 3: The gNB can configure multiple QoE configurations to the UE only when it receives the IDLE/INACTIVE QoE configurations, so as to ensure the number of QoE configurations measured in the UE is no exceeding 16.

[R2-2312827](file:///D:\3GPP\Extracts\R2-2312827%20-%20QoE%20measurements%20in%20RRC_INACTIVE%20and%20RRC_IDLE%20state.docx) QoE measurements in RRC\_INACTIVE and RRC\_IDLE state Ericsson discussion Rel-18 NR\_QoE\_enh-Core

Proposal 12 Discuss whether the network version of the QoE configuration can be implemented as an OCTET STRING in the RRC message.

[R2-2312435](file:///D:\3GPP\Extracts\R2-2312435.doc) Discussion on QoE measurement in RRC\_IDLE and RRC\_INACTIVE Samsung discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312705](file:///D:\3GPP\Extracts\R2-2312705%20Remaining%20issues%20on%20QoE%20for%20RRC%20IDLE%20and%20INACTIVE.docx) Remaining issues on QoE for RRC IDLE and INACTIVE Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312871](file:///D:\3GPP\Extracts\R2-2312871-QoE%20for%20IDLE%20and%20Inactive%20state.docx) Open Issues on QoE for IDLE and Inactive state Qualcomm Incorporated discussion NR\_QoE\_enh-Core

[R2-2313142](file:///D:\3GPP\Extracts\R2-2313142%20Discussion%20on%20QoE%20measurements%20in%20RRC_IDLE%20and%20INACTIVE.docx) Discussion on QoE measurements in RRC\_IDLE and INACTIVE Huawei, HiSilicon discussion Rel-18 NR\_QoE\_enh-Core

### 7.14.3 Support of QoE measurements for NR-DC

Remaining RAN2 aspects of QoE support in NR-DC, including any new impact stemming from RAN3 agreements.

[R2-2312706](file:///D:\3GPP\Extracts\R2-2312706%20Remaining%20issues%20on%20QoE%20for%20NR-DC.docx) Remaining issues on QoE for NR-DC Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_QoE\_enh-Core

Proposal 1: When UE cannot send RVQoE report because the configured RVQoE specific SRB is not available, the UE should discard the RVQoE report.

Proposal 2: When SN is released, the UE should discard the unsent QoE report configured to be reported via SRB5.

* When UE cannot send RVQoE report because the configured RVQoE specific SRB is not available, the UE should discard the RVQoE report.
* When SN is released, the UE should discard the unsent QoE report configured to be reported via SRB5.

[R2-2312436](file:///D:\3GPP\Extracts\R2-2312436.doc) Discussion on QoE measurement for NR-DC Samsung discussion Rel-18 NR\_QoE\_enh-Core

Proposal 2. If UE receives leg switch to leg 2 when performing RRC segmentation via leg1,

- If leg 2 allows RRC segmentation, UE starts reporting via leg 2 from the 1st segment.

- Otherwise (i.e., leg 2 does not allow RRC segmentation), UE stops sending the segments and discards all the segments.

DISCUSSION:

* ZTE wonders about the use case, why the network switches leg while receiving the reports?
* QCM thinks the NW can wait to receive all segments and only then switch the leg. There is no need for new UE behaviour.
* Samsung thinks the other leg does not know whether there are segments being sent. Ericsson agrees and supports the proposal.
* QCM thinks the timing can be coordinated by the network nodes.

[R2-2312666](file:///D:\3GPP\Extracts\R2-2312666%20Remaining%20issues%20on%20QMC%20in%20NR-DC.docx) Remaining issues on QMC in NR-DC CMCC discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312748](file:///D:\3GPP\Extracts\R2-2312748%20Discussion%20on%20remaining%20issues%20for%20QoE%20measurements%20for%20NR-DC.docx) Discussion on remaining issues for QoE measurements for NR-DC CATT discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312801](file:///D:\3GPP\Extracts\R2-2312801%20Remaining%20issue%20on%20QoE%20measurement%20for%20NR-DC.docx) Remaining issue on QoE measurement for NR-DC ZTE Corporation, Sanechips discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312828](file:///D:\3GPP\Extracts\R2-2312828%20-%20QoE%20measurements%20in%20NR-DC.docx) QoE measurements in NR-DC Ericsson discussion Rel-18 NR\_QoE\_enh-Core

[R2-2313143](file:///D:\3GPP\Extracts\R2-2313143%20Discussion%20on%20QoE%20measurements%20in%20NR-DC.docx) Discussion on QoE measurements in NR-DC Huawei, HiSilicon discussion Rel-18 NR\_QoE\_enh-Core

[R2-2313281](file:///D:\3GPP\Extracts\R2-2313281%20Discussion%20on%20QoE%20configuration%20and%20reporting%20for%20NR-DC.docx) Discussion on QoE configuration and reporting for NR-DC China Unicom discussion NR\_QoE\_enh-Core

### 7.14.4 UE capabilities and other topics

Including discussion on the remaining RAN2 impacts of continuity of legacy QoE measurement job for streaming and MTSI service during intra-5GC inter-RAT handover process, if any.

Including the discussion on the remaining RAN2 impact of Rel-17 left-over topics, if any.

Including discussion on the remaining UE capability aspects of the QoE WI.

**Inter-RAT HO**

[R2-2312872](file:///D:\3GPP\Extracts\R2-2312872-Inter-RAT%20QoE%20mobility.docx) Inter-RAT QoE mobility Qualcomm Incorporated discussion NR\_QoE\_enh-Core

Proposal 1: For HO from LTE/5GC to NR, UE should release all LTE QoE configurations and apply NR QoE configuration if received.

Proposal 2: For HO from NR to LTE/5GC, UE should release all NR QoE configurations and apply LTE QoE configuration if received.

[R2-2312437](file:///D:\3GPP\Extracts\R2-2312437.doc) Discussion on QoE continuity during inter-RAT handover Samsung discussion Rel-18 NR\_QoE\_enh-Core

Proposal 1. When handover from LTE to NR, NW can indicate to UE whether to keep or release LTE QoE configuration. The indication is introduced in RRCReconfiguration message (contained in MobilityFromEUTRACommand), and target gNB can configure it.

Proposal 2: When handover from NR to LTE, NW indicates to UE at most one QoE configuration to keep. UE releases NR QoE configurations not indicated by NW. The indication is introduced in MobilityFromNRCommand message and source gNB can configure it.

DISCUSSION:

* Ericsson thinks QCM proposal isnot really a handover. It is releasing and configuring again.
* QCM clarifies that they thought this is simpler. With Samsung approach we need some new interactions between UE AS layer and APP layer.
* Nokia supports QCM proposals. Wonders about Samsung proposal, how source node can make the decision?
* NEC also supports QCM proposal, believes this is more aligned with RAN3 solution.
* Samsung has the same concern as Ericsson, QCM’s solution does not ensure QoE continuty. Agrees some interactions are neeed for their solution. Huawei agrees, we need to ensure QoE continuation.
* China Unicom prefers Samsung approach, thinks QCM’s proposal is not aligned with RAN3 agreements. Thinks not many modification are needed for AS-APP ayer interactions.
* Apple also believes Samsung approach is better as otherwise we have no AS layer contiunation which is required.
* ZTE does not thikn QCM’s proposal will work properly. If the QoE config is released, then it is not possible to send reports.
* Nokia thinks there is RAN3 impact with Samsung’s approach.
* QCM clarifies that for NR to LTE driection there is no additional impact. The other direction is more tricky.
* Nokia still has concerns with P1.
* When handover from NR to LTE, NW indicates to UE at most one QoE configuration to keep. UE releases NR QoE configurations not indicated by NW. The indication is introduced in MobilityFromNRCommand message and source gNB can configure it.
* Offline (Huawei):
  + - Check if we can agree: When handover from LTE to NR, NW can indicate to UE whether to keep or release LTE QoE configuration. The indication is introduced in RRCReconfiguration message (contained in MobilityFromEUTRACommand), and target gNB can configure it.
    - **Check if there are issues with the above agreement**

**UE capabilities**

[R2-2312667](file:///D:\3GPP\Extracts\R2-2312667%20Remaining%20issues%20on%20Rel-18%20QoE%20UE%20capabilities.docx) Remaining issues on Rel-18 QoE UE capabilities CMCC discussion Rel-18 NR\_QoE\_enh-Core

Proposal 1: Do not introduce RedCap or eRedCap related QoE UE capabilities in Rel-18.

Proposal 2: Introduce a UE capability, e.g., qoe-ARMR-MeasReport-r18, indicating whether UE supports NR QoE Measurement Collection for AR/MR services in RRC\_CONNECTED, see TS 26.119 and TR 26.812.

Proposal 3: Introduce calcification for Rel-17 QoE UE capabilities that they are only for RRC\_CONNECTED.

Proposal 4: Priority-based QoE report discarding for paused and IDLE/INACTIVE QoE is a mandatory UE capability without UE capability signaling.

Proposal 5: Introduce a separate UE capability indicating UE supports uplink segmentation for SRB5 and clarify the legacy segmentation capability is for MeasurementReportAppLayer via SRB4.

[R2-2313144](file:///D:\3GPP\Extracts\R2-2313144%20Discussion%20on%20UE%20capabilities%20and%20others.docx) Discussion on UE capabilities and others Huawei, HiSilicon discussion Rel-18 NR\_QoE\_enh-Core

Proposal 1: The minimum memory requirement is 64KB total for both IDLE/INACTIVE and paused QoE reports for RedCap/eRedCap UE.

Proposal 2: The UE capability supportOfRedCap-r17 is used for defining QoE memory requirement for RedCap UEs. FFS for eRedCap, depending on the capability discussion in eRedCap WI

Proposal 3: Clarify Rel-17 QoE capability (e.g., qoe-Streaming-MeasReport-r17, qoe-MTSI-MeasReport-r17 or qoe-VR-MeasReport-r17) that they only apply in RRC\_CONNECTED.

Proposal 4: For priority and assistance information in QoE configuration, if there are some impacts on UE side, it can be supported by all the UEs which support NR QoE Measurement Collection in RRC\_IDLE and RRC\_INATIVE states, and thus there is no need to specify an additional capability for it.

[R2-2312040](file:///D:\3GPP\Extracts\R2-2312040.docx) Remaining issues of QoE support for NR-DC and inter-RAT mobility NEC discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312335](file:///D:\3GPP\Extracts\R2-2312335%20Other%20Issues%20of%20Rel-18%20QoE.docx) Other Topics of Rel-18 QoE Apple discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312707](file:///D:\3GPP\Extracts\R2-2312707%20Discussion%20on%20inter-RAT%20QoE%20continuity%20and%20UE%20capabilities.docx) Discussion on inter-RAT QoE continuity and UE capabilities Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_QoE\_enh-Core [R2-2310656](file:///D:\3GPP\Extracts\R2-2310656%20Inter-RAT%20QoE%20continuity%20and%20UE%20capabilities.docx)

[R2-2312749](file:///D:\3GPP\Extracts\R2-2312749%20Discussion%20on%20remaining%20issues%20for%20UE%20capability%20and%20Rel-17%20leftover%20issues.docx) Discussion on remaining issues for UE capability and Rel-17 leftover issues CATT discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312802](file:///D:\3GPP\Extracts\R2-2312802%20Remaining%20issue%20on%20Rel-18%20other%20QoE%20enhancement.docx) Remaining issue on Rel-18 other QoE enhancement ZTE Corporation, Sanechips discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312829](file:///D:\3GPP\Extracts\R2-2312829%20-%20QoE%20and%20IRATHO%20to%20LTE.docx) QoE and IRAT handover to LTE Ericsson discussion Rel-18 NR\_QoE\_enh-Core

[R2-2312873](file:///D:\3GPP\Extracts\R2-2312873-UE%20capability%20on%20QoE.docx) Open issues on UE QoE capabilities Qualcomm Incorporated discussion NR\_QoE\_enh-Core

[R2-2313283](file:///D:\3GPP\Extracts\R2-2313283%20Discussion%20on%20Rel-18%20NR%20QoE%20capabilities.docx) Discussion on Rel-18 NR QoE capabilities China Unicom discussion NR\_QoE\_enh-Core

## 7.24 TEI18

Specific items may be allocated to a breakout session for treatment.

Time budget: 1 TU

### 7.24.2 TEI proposals by RAN2

Items initiated in RAN2 for NR and LTE.

Tdoc limitation: 1 tdoc, limitation only applicable for non-previously-agreed-to-be-considered TEI proposals.   
proposals that has been agreed or agreed to be considered are not limited by the tdoc limitation.

Including outcome of [Post123bis][403][POS] BT AoA/AoD (Ericsson)

**MBS and RedCap**

* **LS in**

[R2-2311763](file:///D:\3GPP\Extracts\R2-2311763_S2-2311706.doc) Reply LS on RedCap UE MBS Broadcast reception (S2-2311706; contact: ZTE) SA2 LS in Rel-18 5MBS\_Ph2 To:RAN3, RAN2

* **Discussion**

[R2-2312965](file:///D:\3GPP\Extracts\R2-2312965%20CN%20assistance%20for%20MBS%20broadcast%20sessions%20for%20RedCap%20UEs.docx) CN assistance for MBS broadcast sessions for RedCap UEs Ericsson, Qualcomm discussion Rel-18 TEI18

Proposal 1: A Rel-18 RedCap UE that supports MBS broadcast shall also support RedCap CFR configuration. The UE supporting RedCap CFR only monitors one CFR at a time, i.e. it monitors the RedCap CFR if configured, otherwise the default CFR.

Proposal 2: Reply to SA2 that an indication that an MBS broadcast session is intended to be received by both non-RedCap UE and RedCap UE may assist the gNB to decide when to transmit the session on both default and RedCap CFR and avoid waste or resources when this is not needed.

Proposal 3: Reply to SA2 that RAN2 assumes that non-RedCap UEs are allowed to receive an MBS broadcast session which is intended to be received by RedCap UEs.

Proposal 4: Reply to SA2 that RAN2 assumes that the same QoS parameters for a specific MBS broadcast service are applicable for RedCap and non-RedCap UEs.

[R2-2311810](file:///D:\3GPP\Extracts\R2-2311810%20Discussion%20about%20SA2%20LS%20on%20RedCap%20UE%20MBS%20Broadcast%20reception.doc) Discussion about SA2 LS on RedCap UE MBS Broadcast reception ZTE, Sanechips, CBN discussion Rel-18 TEI18

[R2-2313233](file:///D:\3GPP\Extracts\R2-2313233%20RedCap%20MBS%20Broadcast.docx) On SA2 questions on RedCap UE MBS Broadcast reception Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_MBS-Core, TEI18

[R2-2313379](file:///D:\3GPP\Extracts\R2-2313379%20Discussion%20on%20the%20LS%20from%20SA2%20on%20RedCap%20UE%20MBS%20Broadcast%20reception.docx) Discussion on the LS from SA2 on RedCap UE MBS Broadcast reception Huawei, CBN, HiSilicon discussion Rel-18 TEI18, NR\_MBS\_enh-Core, NR\_redcap\_enh-Core

* **Draft reply LS(es)**

[R2-2311809](file:///D:\3GPP\Extracts\R2-2311809%20%5bdraft%5d%20reply%20LS%20to%20SA2%20on%20RedCap%20UE%20MBS%20Broadcast%20reception.doc) [draft] reply LS to SA2 on RedCap UE MBS Broadcast reception ZTE LS out Rel-18 TEI18 To:SA2 Cc:RAN3

[R2-2313238](file:///D:\3GPP\Extracts\R2-2313238%20Reply%20LS%20to%20SA2%20and%20RAN3%20on%20RedCap%20MBS.docx) Reply LS on RedCap UE MBS Broadcast reception Nokia, Nokia Shanghai Bell LS out Rel-18 NR\_MBS-Core, TEI18 To:SA2,RAN3

[R2-2313380](file:///D:\3GPP\Extracts\R2-2313380%20Reply%20LS%20on%20RedCap%20UE%20MBS%20Broadcast%20reception.docx) Reply LS on RedCap UE MBS Broadcast reception Huawei, HiSilicon LS out Rel-18 TEI18, NR\_MBS\_enh-Core, NR\_redcap\_enh-Core To:SA2 Cc:RAN3

* **CRs**

[R2-2313377](file:///D:\3GPP\Extracts\R2-2313377%20Clarification%20on%20MBS%20search%20space%20configuration%20for%20Redcap.docx) Clarification on MBS search space configuration for Redcap Huawei, CBN, HiSilicon discussion Rel-18 TEI18, NR\_MBS\_enh-Core, NR\_redcap\_enh-Core

[R2-2313378](file:///D:\3GPP\Extracts\R2-2313378%20Correction%20on%20MBS%20search%20space%20configuration%20for%20Redcap.docx) Correction on MBS search space configuration for Redcap Huawei, CBN, HiSilicon CR Rel-18 38.331 17.6.0 4491 - B TEI18, NR\_MBS\_enh-Core, NR\_redcap\_enh-Core

**PTM retransmissions**

* **Discussion**

[R2-2311856](file:///D:\3GPP\Extracts\R2-2311856%20Discussion%20on%20PTM%20retransmission%20reception%20by%20UEs%20without%20HARQ%20feedback.docx) Discussion on PTM retransmission reception by UEs without HARQ feedback CATT discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: If it has to be specified, UE in connected with HARQ feedback disabled starts the timer drx-HARQ-RTT-TimerDL-PTM in the first symbol after the end of the corresponding multicast transmission. i.e., reusing the same solution for UE receiving multicast in INACTIVE.

[R2-2313216](file:///D:\3GPP\Extracts\R2-2313216%20Discussion%20on%20PTM%20retransmission%20reception%20with%20HARQ%20feedback%20disabled.docx) Discussion on PTM retransmission reception with HARQ feedback disabled ASUSTeK discussion Rel-18 TEI18

Proposal 1: In Rel-18, clarify that HARQ feedback is enabled by RRC or by PDCCH as specified in TS 38.213 [6].

Proposal 2: In Rel-18, clarify that UE would not start drx-HARQ-RTT-TimerDL-PTM for retransmission if the PDCCH indicates disabling HARQ feedback for the DL multicast transmission.

[R2-2313157](file:///D:\3GPP\Extracts\R2-2313157%20Discussion%20on%20PTM%20retransmission%20reception%20with%20HARQ%20feedback%20disabled.docx) Discussion on PTM retransmission reception with HARQ feedback disabled LG Electronics Inc. discussion Rel-18 NR\_MBS-Core, TEI18

[R2-2313381](file:///D:\3GPP\Extracts\R2-2313381%20Discussion%20on%20starting%20time%20for%20PTM%20retransmission%20by%20UEs%20with%20HARQ%20disabled.docx) Discussion on starting time for PTM retransmission by UEs with HARQ disabled Huawei, CBN, HiSilicon discussion Rel-18 TEI18, NR\_MBS\_enh-Core

* **CRs**

[R2-2312593](file:///D:\3GPP\Extracts\R2-2312593%20PTM%20Retransmission%20CR%20RRC_Revision.docx) PTM retransmission reception for multicast DRX with HARQ feedback disabled [PTM\_ReTx\_Mcast\_HARQ\_Disb] Nokia Corporation draftCR Rel-18 38.331 17.6.0 B NR\_MBS-Core Revised

[R2-2312594](file:///D:\3GPP\Extracts\R2-2312594%20PTM%20Retransmission%20CR%20RRC_UECap.docx) PTM retransmission reception for multicast DRX with HARQ feedback disabled- UE capability bit [PTM\_ReTx\_Mcast\_HARQ\_Disb] Nokia Corporation draftCR Rel-18 38.331 17.6.0 B NR\_MBS-Core Revised

[R2-2312595](file:///D:\3GPP\Extracts\R2-2312595%20PTM%20Retransmission%20CR%20MAC.docx) PTM retransmission reception for multicast DRX with HARQ feedback disabled [PTM\_ReTx\_Mcast\_HARQ\_Disb] Nokia Corporation draftCR Rel-18 38.321 17.6.0 B NR\_MBS-Core Revised

[R2-2312610](file:///D:\3GPP\Extracts\R2-2312610%20PTM%20Retransmission%20CR%20UE%20Capability.docx) PTM retransmission reception for multicast DRX with HARQ feedback disabled [PTM\_ReTx\_Mcast\_HARQ\_Disb] Nokia Corporation draftCR Rel-18 38.306 17.6.0 NR\_MBS-Core Revised

[R2-2313491](file:///D:\3GPP\Extracts\R2-2313491%20PTM%20Retransmission%20CR%20RRC_Revision.docx) PTM retransmission reception for multicast DRX with HARQ feedback disabled [PTM\_ReTx\_Mcast\_HARQ\_Disb] Nokia Corporation, AT&T, Qualcomm, Samsung, Verizon, Ericsson draftCR Rel-18 38.331 17.6.0 B NR\_MBS-Core [R2-2312593](file:///D:\3GPP\Extracts\R2-2312593%20PTM%20Retransmission%20CR%20RRC_Revision.docx)

[R2-2313507](file:///D:\3GPP\Extracts\R2-2313507%20PTM%20Retransmission%20CR%20RRC_UECap.docx) PTM retransmission reception for multicast DRX with HARQ feedback disabled- UE capability bit [PTM\_ReTx\_Mcast\_HARQ\_Disb] Nokia Corporation, AT&T, Qualcomm, Samsung, Verizon, Ericsson draftCR Rel-18 38.331 17.6.0 B NR\_MBS-Core [R2-2312594](file:///D:\3GPP\Extracts\R2-2312594%20PTM%20Retransmission%20CR%20RRC_UECap.docx)

[R2-2313517](file:///D:\3GPP\Extracts\R2-2313517%20PTM%20Retransmission%20CR%20MAC.docx) PTM retransmission reception for multicast DRX with HARQ feedback disabled [PTM\_ReTx\_Mcast\_HARQ\_Disb] Nokia Corporation, AT&T, Qualcomm, Samsung, Verizon, Ericsson draftCR Rel-18 38.321 17.6.0 B NR\_MBS-Core [R2-2312595](file:///D:\3GPP\Extracts\R2-2312595%20PTM%20Retransmission%20CR%20MAC.docx)

[R2-2313519](file:///D:\3GPP\Extracts\R2-2313519%20PTM%20Retransmission%20CR%20UE%20Capability.docx) PTM retransmission reception for multicast DRX with HARQ feedback disabled [PTM\_ReTx\_Mcast\_HARQ\_Disb] Nokia Corporation, AT&T, Qualcomm, Samsung, Verizon, Ericsson draftCR Rel-18 38.306 17.6.0 B NR\_MBS-Core [R2-2312610](file:///D:\3GPP\Extracts\R2-2312610%20PTM%20Retransmission%20CR%20UE%20Capability.docx)

[R2-2313382](file:///D:\3GPP\Extracts\R2-2313382%20Correction%20on%20starting%20time%20for%20PTM%20retransmission%20by%20UEs%20with%20HARQ%20disabled.docx) Correction on starting time for PTM retransmission by UEs with HARQ disabled Huawei, CBN, HiSilicon CR Rel-18 38.321 17.6.0 1724 - B TEI18, NR\_MBS\_enh-Core