3GPP TSG-RAN WG2 Meeting #120 DRAFT\_ R2-2213007

Toulouse, France, November, 2022

Agenda Item: 9.7

Source: Session chair (Huawei)

Title: Report from MBS breakout session

## Offline discussions

Pre-meeting discussions:

* [Pre120][600] Organizational - MBS session

Scope:

* + - Share plans and list of ongoing email discussions for MBS session
    - Share meeting notes and agreements for review and endorsement
* [Pre120][602][MBS-R17] RRC corrections (Huawei)

Scope: Summarize papers in [R2-2211302](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211302%20Corrections%20to%20TS%2038.331%20on%20Multicast%20MRB%20Handling.docx), [R2-2211303](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211303%20Corrections%20to%20TS%2038.331%20on%20Broadcast%20Aspects.docx), [R2-2211359](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211359%20Discussion%20about%20RAN2%20Impacts%20of%20Multicast%20HARQ%20Feedback%20by%20DCI%20format%204_1.docx), [R2-2211365](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211365_CR3589_38331_RRC%20Corrections%20on%20MBS.docx), [R2-2211385](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211385-MBSr17-CR.docx), [R2-2211511](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211511%20Corrections%20on%20RRC.docx), [R2-2211868](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211868%20Discussion%20on%20MBS%20SPS%20configuration.docx), [R2-2211869](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211869%20Corrections%20on%20MBS%20SPS%20configuration.docx), [R2-2212784](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212784%20Clarification%20on%20security%20configuration.docx), [R2-2212928](C:\\Users\\Dwx974486\\Documents\\3GPP\\Extracts\\R2-2212928 CR to TS 38.331 on MBS neighbour cell list.docx" \o "C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212928 CR to TS 38.331 on MBS neighbour cell list.docx) (in preparation for AT-meeting offline e-mail discussion)

* [Pre120][603][MBS-R17] MAC corrections (ASUSTeK)

Scope: Summarize papers in [R2-2211301](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211301%2038.321%20corrections%20for%20MBS%20v5.0.docx), [R2-2211366](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211366%20CR1455_38321_MAC%20Corrections%20on%20MBS.docx), [R2-2211509](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211509%20Corrections%20on%20MAC.docx)/[R2-2212957](C:\\Users\\Dwx974486\\Documents\\3GPP\\Extracts\\R2-2212957 Corrections on MAC.docx" \o "C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212957 Corrections on MAC.docx), [R2-2211593](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211593%20MBS%20DRX.docx), [R2-2211870](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211870%20Discussion%20on%20MBS%20DRX%20and%20SPS%20issues.docx), [R2-2212056](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212056%20MBS%20PTP%20Retx.docx), [R2-2212108](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212108%2038.321%20Draft%20CR%20(Rel17)%20Multicast%20HARQ%20feedback%20enabling%20and%20disabling.docx) (in preparation for AT-meeting offline e-mail discussion)

* [Pre120][604][eMBS] Summary of AI 8.11.4 RAN sharing scenarios (CATT)

Scope: Summarize all papers in AI 8.11.4 and propose replies to RAN3 LS

Kicked-off together with a meeting start:

* [AT120][600] Organizational - MBS session

Scope:

* + - Share plans and list of ongoing email discussions for MBS session
    - Share meeting notes and agreements for review and endorsement
* [AT120][601][MBS-R17] In-principle agreed CRs

Scope:

* + - Flag in-principle agreed CRs
    - Attempt to resolve the flags, if any
* [AT120][602][MBS-R17] RRC corrections (Huawei)

Scope: Discuss and propose resolutions for papers in [R2-2211302](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211302%20Corrections%20to%20TS%2038.331%20on%20Multicast%20MRB%20Handling.docx), [R2-2211303](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211303%20Corrections%20to%20TS%2038.331%20on%20Broadcast%20Aspects.docx), [R2-2211359](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211359%20Discussion%20about%20RAN2%20Impacts%20of%20Multicast%20HARQ%20Feedback%20by%20DCI%20format%204_1.docx), [R2-2211365](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211365_CR3589_38331_RRC%20Corrections%20on%20MBS.docx), [R2-2211385](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211385-MBSr17-CR.docx), [R2-2211511](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211511%20Corrections%20on%20RRC.docx), [R2-2211868](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211868%20Discussion%20on%20MBS%20SPS%20configuration.docx), [R2-2211869](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211869%20Corrections%20on%20MBS%20SPS%20configuration.docx), [R2-2212784](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212784%20Clarification%20on%20security%20configuration.docx), [R2-2212928](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212928%20CR%20to%20TS%2038.331%20on%20MBS%20neighbour%20cell%20list.docx)

Outcome: Report in R2-2213101

Deadline: Report available: 0700 UTC, 16 November

* [AT120][603][MBS-R17] MAC corrections (ASUSTeK)

Scope: Discuss and propose resolutions for papers in [R2-2211301](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211301%2038.321%20corrections%20for%20MBS%20v5.0.docx), [R2-2211366](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211366%20CR1455_38321_MAC%20Corrections%20on%20MBS.docx), [R2-2211509](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211509%20Corrections%20on%20MAC.docx)/[R2-2212957](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212957%20Corrections%20on%20MAC.docx), [R2-2211593](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211593%20MBS%20DRX.docx), [R2-2211870](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211870%20Discussion%20on%20MBS%20DRX%20and%20SPS%20issues.docx), [R2-2212056](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212056%20MBS%20PTP%20Retx.docx), [R2-2212108](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212108%2038.321%20Draft%20CR%20(Rel17)%20Multicast%20HARQ%20feedback%20enabling%20and%20disabling.docx)

Outcome: Report in [R2-2213102](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2213102%20Summary%20of%20%5bAT120%5d%5b603%5d%5bMBS-R17%5d%20MAC%20corrections%20(ASUSTeK).docx)

Deadline: Report available: 0700 UTC, 16 November

## 2.4 Instructions

Rel-17 CR

*Chair: Note that for R2 120, Rel-17 is still in heightened maintenance mode, i.e. with merged CRs, mega CRs, and CR rapporteurs still asked to maintain their responsibilities, e.g. to facilitate editorials and text enhancements. Rel-17 may go to normal mode (separate CRs, CR rapporteurs released from their duties, high bar for text enhancements), in 2023 Q1*

General, all correction CRs / draft CRs:

1. Rapporteurs of Rel-17 WI CRs are asked to continue their volunteer responsibility.

2. Unless otherwise explicitly agreed/indicated, max one Cat F CR per TS per WI shall be produced as outcome of the meeting. Exception: CRs with release independence, NBC CRs, if any, may need to be in a separate CR per WI (decided case by case). Note that Impact analysis is required per CR.

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

- For a CR rapporteur, i.e. an Assigned Rapporteur for a CR to a TS for a WI, One Rapporteur CR for editorials, text enhancements, smaller corrections (at this time applicable to Rel-17).

- 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).

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.

Rel-17 UE capabilities

For NR UE capabilities the following applies:

1: As previously, work on mega CRs (one mega CR for TS 38.306 and one for TS 38.331). This work is done under Agenda Item AI 6.0.2

2: Coordinate centrally incorporation in CRs of RAN1 / RAN4 features for all Rel17 WIs. This work is done under Agenda Item AI 6.0.2 and changes are done directly to the mega CRs. There could be exceptions, case by case, where RAN1 / RAN4 features are treated under a WI-specific Agenda Item instead.

3 At the end of R2 120, endorsed WI specific UE capability CRs will be merged into the mega CRs, and the mega CRs will be provided to TSG RAN. Any exception to this need to be decided case by case.

## 6.1 NR Multicast

(NR\_MBS-Core; leading WG: RAN2; REL-17; WID: RP-201038)

Tdoc Limitation: 3 tdocs

It is encouraged to contribute with draft CRs or provide TP(s) for the affected specifications in the Annex of the contribution to facilitate the inclusion in the rapporteur CR.

### 6.1.0 In-principle Agreed CRs

Including also endorsed UE capabilities draft CRs.

Not counted towards Tdoc limitation.

[R2-2211657](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211657%20MBS%20corrections%20for%2038.304.docx) MBS corrections for 38.304 CATT, Samsung, Nokia, Nokia Shanghai Bell, ZTE, Sanechips CR Rel-17 38.304 17.2.0 0297 1 F NR\_MBS-Core [R2-2210881](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2210881%20MBS%20corrections%20for%2038.304.docx)

* ?? The CR is agreed

[R2-2211762](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211762%20MBS%20corrections%20for%20RRC.docx) MBS corrections for RRC Huawei, HiSilicon CR Rel-17 38.331 17.2.0 3500 3 F NR\_MBS-Core [R2-2210883](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2210883%20MBS%20corrections%20for%20RRC.docx)

* ?? The CR is agreed

[R2-2211888](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211888%2038.306%20CR%20for%20MBS%20UE%20capability%20corrections.docx) 38.306 CR for MBS UE capability corrections MediaTek inc. draftCR Rel-17 38.306 17.2.0 F NR\_MBS-Core [R2-2210876](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2210876%2038.306%20CR%20for%20MBS%20UE%20capability%20corrections.docx)

* ?? Revised in [R2-2212974](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212974%2038.306%20CR%20for%20MBS%20UE%20capability%20corrections.docx)

[R2-2211889](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211889%2038.331%20CR%20for%20MBS%20UE%20capability%20corrections.docx) 38.331 CR for MBS UE capability corrections MediaTek inc. draftCR Rel-17 38.331 17.2.0 F NR\_MBS-Core [R2-2210877](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2210877%2038.331%20CR%20for%20MBS%20UE%20capability%20corrections.docx)

* ?? The CR is agreed

[R2-2211981](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211981%20MBS%20corrections%20for%2038.323.docx) MBS corrections for 38.323 Xiaomi CR Rel-17 38.323 17.2.0 0102 3 F NR\_MBS-Core [R2-2210874](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2210874%20MBS%20corrections%20for%2038.323.docx)

* ?? The CR is agreed

[R2-2212501](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212501%20CR%2038300%20MBS.docx) Corrections on MBS Nokia, Nokia Shanghai Bell CR Rel-17 38.300 17.2.0 0564 2 F NR\_MBS-Core [R2-2211024](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211024%20CR%2038300%20MBS_v03.docx)

* ?? The CR is agreed

[R2-2212974](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212974%2038.306%20CR%20for%20MBS%20UE%20capability%20corrections.docx) Draft 38.306 CR for MBS UE capability corrections MediaTek inc. draftCR Rel-17 38.306 17.2.0 F NR\_MBS-Core

* ?? Revised in [R2-2213104](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2213104%2038.306%20CR%20for%20MBS%20UE%20capability%20corrections.docx)

[R2-2213104](C:\\Users\\Dwx974486\\Documents\\3GPP\\Extracts\\R2-2213104 38.306 CR for MBS UE capability corrections.docx" \o "C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2213104 38.306 CR for MBS UE capability corrections.docx) 38.306 CR for MBS UE capability corrections MediaTek inc. draftCR Rel-17 38.306 17.2.0 F NR\_MBS-Core

* ?? The CR is agreed

### 6.1.1 Organizational

LS ins etc.

[R2-2211151](file:///C:\Users\Dwx974486\Documents\3GPP\TSGR2\TSGR2_120\docs\R2-2211151.zip) LS on the RRC parameter for multicast HARQ-ACK feedback (R1-2210703; contact: Huawei) RAN1 LS in Rel-17 NR\_MBS-Core To:RAN2

### 6.1.2 Stage-2 corrections

### 6.1.3 CP corrections

Including corrections to TS 38.331, TS 38.304, features / UE caps developed in RAN2 (complementary to AI 6.0.2).

**Online discussion**

R2-2213101 Report of [AT120][602][MBS-R17] RRC corrections Huawei discussion Rel-17 NR\_MBS-Core

***Easy agreements:***

**Proposal 1: Correct the field description of *harq-FeedbackEnablerMulticast* as:**

|  |
| --- |
| ***harq-FeedbackEnablerMulticast***  Indicates whether the UE shall provide HARQ feedback for MBS multicast. Value *dci-enabler* means that whether the UE shall provide HARQ feedback for MBS multicast is indicated by DCI as specified in TS 38.213 [13]. Value enabled means the UE shall always provide HARQ feedback for MBS multicast. When the field is absent, the UE doesn’t provide HARQ feedback for MBS multicast as specified in TS 38.213 [13]. |

**Proposal 2: The correction of clause 5.3.5.6.7 in R2-2211302 is agreed:**

|  |
| --- |
| 5.3.5.6.7 Multicast MRB addition/modification The UE shall for each element in the order of entry in the list *mrb-ToAddModList*:  1> if *mrb-Identity* value included in the *mrb-ToAddModList* is part of the UE configuration:  \*\*\*Text omitted\*\*\*  1> else if *mrb-Identity* value included in the *mrb-ToAddModList* that is not part of the UE configuration (multicast MRB establishment including the case when full configuration option is used):  2> establish a PDCP entity and configure it in accordance with the received *pdcp-Config*;  2> associate the established multicast MRB with the corresponding *mbs-SessionId*; |

**Proposal 3: The correction of clause 5.9.4.2 in R2-2211303 is agreed:**

|  |
| --- |
| 5.9.4.2 Initiation An MBS capable UE in RRC\_CONNECTED may initiate the procedure in several cases including upon successful connection establishment/resume, upon entering or leaving the broadcast service area, upon MBS broadcast session start or stop, upon change of interest, upon change of priority between MBS broadcast reception and unicast/multicast reception, upon change to a PCell providing *SIB21* (i.e. where the *SIB1* scheduling information contains *SIB21*), upon receiving *SIB20* of an SCell via dedicated signalling, upon handover, upon RRC connection re-establishment. |

**Proposal 4: The following correction in clause 5.3.2.3 is agreed:**

|  |
| --- |
| 5.3.2.3 Reception of the *Paging* *message* by the UE or *PagingRecord* by the L2 U2N Remote UE Upon receiving the *Paging* message by the UE or receiving *PagingRecord* from its connected L2 U2N Relay UE by a L2 U2N Remote UE, the UE shall:  ….  1> if in RRC\_INACTIVE and the UE has joined one or more MBS session(s) indicated by the *TMGI*(s) included in the *pagingGroupList*:  ….  2> else:  3> forward the *TMGI*(s) to the upper layers; |

**Proposal 5: The following correction of field description of *headerCompression* in R2-2211365 is agreed:**

|  |
| --- |
| ***headerCompression***  If ROHC is configured, the UE shall apply the configured ROHC profile(s) in downlink. |

**Proposal 7: Check with RAN1 whether NW can configure SPS in one BWP using *sps-Config* and *sps-ConfigMulticastToAddModList-r17* simultaneously.**

**Proposal 8: The following change in R2-2211869 is agreed:**

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *SPS-List* | The field is mandatory present when included in *sps-ConfigToAddModList-r16*or *sps-ConfigMulticastToAddModList-r17*, otherwise the field is absent. |

**Proposal 9: Check with RAN1 whether other indexes than 0 can be used if a single DL SPS configuration for multicast is configured.**

DISCUSSION:

* ASUSTEK asks if we need to send LS to RAN1. For P9, we need to add more clarifications for the case in P9, if we ask RAN1.
* Huawei thinks we can send an LS.
* QCM checked P9 internally and index other than 0 cannot be used under some assumptions.
* QCM thinks in P1 we should say “can be indicated” instead of “is indicated”.
* Huawei and LG think “is indicated” is correct. Samsung agrees. vivo agrees.
* Agree P1 P2 P3 P4 P5 P7 P8 P9.
* We send an LS to check P7 and P9 to RAN1 (offline ASUSTEK)

Proposal 6: Further discuss how to solve the misinterpretation of PLMN ID issue during handover if plmn-index can be used in TMGI for MBS multicast.

DISCUSSION P6:

* QCM still thinks we have already discussed this.
* Vivo thinks the principle from previous meeting can be reused.
* Huawei explains this is different for MII nad for this case, here we are speaking of RRC container. If the NW translates, then the RRC container in target gNB is different than the UE RRC configuration.
* Huawei further explains the issue is with delta configuration.
* LG thinks the UE can stor full PLMN index. Huawei is not sure about this.
* Ericsson agrees with Huawei that this is different case and thinks there is an issue with delta configuration.
* Apple thinks this can be left to NW implementation.
* Nokia’s understanding is that there is no new clarification needed.
* Ericsson think the case is not fully understood.
* Postponed (discuss offline - Huawei).

Proposal 10: Discuss which of the following should be the understanding in RAN2:

- Understanding 1：If one neighbour cell is not indicated in the neighbour cell list (not empty), UE thinks that the related MBS broadcast services are not provided in the neighbour cell.

- Understanding 2：If one neighbour cell is not indicated in the neighbour cell list(not empty), UE cannot determine the presence or absence of the related MBS broadcast services in the neighbouring cell.

DISCUSSION:

* LG thinks in some cases the NW my not know all the neighbouring cells and may not always be able to determine their session broadcast status. In this sense correction makes sense. But the change should be limited.
* Ericsson thinks service continuity works even without this cell list. But it should be possible to miss some cells as otherwise there is plenty of unnecessary connections. Ericsson thinks U2 should be used.
* ZTE is proponent of CR and U2 and thinks companies seem to agree there is some issue.
* Nokia prefers U1 as U2 is optimization. 8 cells should be sufficient.
* QCM think current specs is U1 and is OK with this.
* ?? No change in the specs is needed, i.e. Understanding 1. FFS if change is needed to clarify. (Ericsson , we come back after coffee).

OFFLINE report:

* Ericsson reports there is still no consensus, there is an assumption that 8 cells is enough. Most companies think no change is needed. Ericsson thinks the case should be clarified, even if we go with Understanding 1.
* No change in the specs is needed.

[R2-2211510](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211510%20Discussion%20on%20MCCH%20information%20acquisition%20for%20MBS%20broadcast.docx) Discussion on MCCH information acquisition for MBS broadcast Huawei, CBN, HiSilicon discussion Rel-17 NR\_MBS-Core

Proposal 1: RAN2 to discuss the issue that the UE interested in MBS broadcast services may miss the MCCH change notification when switched to a BWP not covering the MBS broadcast CFR.

Proposal 2: RAN2 to discuss whether it can be left to UE implementation to solve this issue, i.e. UE can apply the MCCH information acquisition procedure when switching from a BWP not configured with searchSpaceMCCH to a BWP configured with searchSpaceMCCH.

DISCUSSION:

* QCM thinks this cannot be solved by UE implementation but NW should avoid this situation.
* Ericsson agrees with QCM. Apple agrees. CATT agrees.
* Samsung thinks this is a real issue and it should be clarified in the specifications. I.e. we should capture that MCCH acquisition is allowed when switching BWP.
* LGE thinks spec change is not needed as we have MCCH repetitions and NW can use them.
* Huawei is concerned that this requires some additional BWP switch commands.
* Ericsson would like to avoid autonomous BWP switch.
* There is no consensus that any change is needed in specs. It can be dealt with NW implementation.

[R2-2211974](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211974%20SNPN%20and%20MBS.docx) SNPN and MBS broadcast Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_MBS-Core

Proposal 1: Update field description of mbsInterestIndication to require to replace plmn-Index with either PLMN\_ID or NID (NPN-ID)

Proposal 2: Align naming of plmn-index to established naming of plmn-IdentityIndex to avoid confusion

Proposal 3: Discuss in RAN2 whether we can rely on PLMN-Index referring to SNPN (in TMGI-r17) or do we extend ASN.1 to allow explicitly refer to NID

DISCUSSION:

* QCM thinks we need to do sth to support SNPN, perhaps TMGI needs to indicate NID.
* Ericsson agrees MBS should support NPN, but not sure we need to signal NID as NID is not used for service differentiation. Why do we need to signal NID?
* Huawei also agrees we should support MBS with NPN. Vivo agrees. CMCC as well.
* ZTE thinks this is the first time we discuss it. For the UE only TMGI is relevant, think nothing needs to be done in RAN.
* CATT is not against, thinks RAN3 is discussing.
* CMCC asks what about CAG?
* MBS should be supported within SNPN. FFS if some change is needed. FFS CAG (offline to discuss FFSes - Nokia)

[R2-2212121](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212121%20Discussion%20on%20Group%20Paging.docx) Discussion on Group Paging Samsung R&D Institute India discussion Rel-17

Proposal: RAN2 to send LS to SA2 (and RAN3) to avail clarity about the potential use of group paging for multicast session release as specified in TS 23.247, considering RAN specifications have only considered group paging for session activation. Request SA2 to provide feedback to RAN2 and/or if needed, to clarify in the SA2 specification.

DISCUSSION:

* Vivo thinks this is per-UE level (session release) and unicast paging can be used. Not sure if group paging is used in this case.
* CATT thinks there is no impact on RAN specs, so no need for change. Huawei agrees, intention of the paper is OK but no impact on specs and no need for LS (it is clear in SA2 already).
* QCM thinks there is no use case of releasing in INACTIVE in Rel-17, may change in Rel-18.
* OPPO thinks there is no need for this clarification.
* No need for clarification.

[R2-2212272](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212272%20Clarification%20for%20MCCH%20acquisition.docx) Clarification for MCCH acquisition Ericsson, Qualcomm, MediaTek inc., CATT, Nokia, Nokia Shanghai Bell, Google Inc. CR Rel-17 38.331 17.2.0 3687 - F NR\_MBS-Core, NR\_redcap-Core

* The CR is agreed and will be merged to MBS RRC CR.

*Discussed in the past, treated only if time allows*

[R2-2212271](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212271%20RedCap%20CFR%20for%20MBS%20broadcast.docx) RedCap CFR for MBS broadcast Ericsson, Qualcomm Incorporated discussion Rel-17 NR\_MBS-Core, NR\_redcap-Core

**Papers below discussed based on the offline report in R2-2213101**

[R2-2211302](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211302%20Corrections%20to%20TS%2038.331%20on%20Multicast%20MRB%20Handling.docx) Corrections to TS 38.331 on Multicast MRB Handling CATT, CBN CR Rel-17 38.331 17.2.0 3578 - F NR\_MBS-Core

[R2-2211303](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211303%20Corrections%20to%20TS%2038.331%20on%20Broadcast%20Aspects.docx) Corrections to TS 38.331 on Broadcast Aspects CATT, CBN CR Rel-17 38.331 17.2.0 3579 - F NR\_MBS-Core

[R2-2211359](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211359%20Discussion%20about%20RAN2%20Impacts%20of%20Multicast%20HARQ%20Feedback%20by%20DCI%20format%204_1.docx) Discussion about RAN2 Impacts of Multicast HARQ Feedback by DCI format 4\_1 vivo Mobile Com. (Chongqing) discussion Rel-17 NR\_MBS-Core

*(moved from 6.1.1)*

[R2-2211365](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211365_CR3589_38331_RRC%20Corrections%20on%20MBS.docx) RRC Corrections on MBS vivo Mobile Com. (Chongqing) CR Rel-17 38.331 17.2.0 3589 - F NR\_MBS-Core

[R2-2211385](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211385-MBSr17-CR.docx) Correction to harq-FeedbackEnablerMulticast Qualcomm Incorporated CR Rel-17 38.331 17.2.0 3592 - F NR\_MBS-Core

[R2-2211511](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211511%20Corrections%20on%20RRC.docx) Corrections on RRC Huawei, CBN, HiSilicon CR Rel-17 38.331 17.2.0 3607 - F NR\_MBS-Core

[R2-2211868](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211868%20Discussion%20on%20MBS%20SPS%20configuration.docx) Discussion on MBS SPS configuration ASUSTeK discussion Rel-17 NR\_MBS-Core

[R2-2211869](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211869%20Corrections%20on%20MBS%20SPS%20configuration.docx) Corrections on MBS SPS configuration ASUSTeK CR Rel-17 38.331 17.2.0 3651 - F NR\_MBS-Core

[R2-2212784](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212784%20Clarification%20on%20security%20configuration.docx) Clarification on security configuration Google Inc. CR Rel-17 38.331 17.2.0 3735 - F NR\_MBS-Core

[R2-2212928](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212928%20CR%20to%20TS%2038.331%20on%20MBS%20neighbour%20cell%20list.docx) CR to TS 38.331 on MBS neighbour cell list ZTE, Sanechips CR Rel-17 38.331 17.2.0 3755 - F NR\_MBS-Core

### 6.1.4 UP corrections

Including corrections to MAC, PDCP, RLC and SDAP.

**Online discussion**

[R2-2213102](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2213102%20Summary%20of%20%5bAT120%5d%5b603%5d%5bMBS-R17%5d%20MAC%20corrections%20(ASUSTeK).docx) Report of [AT120][603][MBS-R17] MAC corrections ASUSTeK discussion Rel-17 NR\_MBS-Core

*[Easy Agreements]*

**Proposal 1: The 1st to 5th changes proposed in R2-2211301 are agreed.**

2.2 PTP retransmission

*[To be discussed online]*

**Proposal 2-1: RAN2 discuss whether to determine if the UE supports PTP retransmission so as to start drx-HARQ-RTT-TimerDL after receiving PTM transmission based on the capability of PTP retransmission (Capture a related text suggested in R2-2212957 or suggested in option 1 in R2-2212056).**

*[Easy Agreements]*

**Proposal 2-2: After receiving a PTM transmission, drx-HARQ-RTT-TimerDL is started for PTP retransmission if the first HARQ-ACK reporting mode (i.e. ack-nack) is configured. Capture a related text suggested for proposal 1 in R2-2211870.**

**Proposal 2-3:** **After receiving a PTM transmission scheduled by configured downlink multicast assignment, drx-HARQ-RTT-TimerDL is started for PTP retransmission if CS-RNTI is configured. Capture a related text suggested for proposal 2 in R2-2211870.**

2.3 HARQ feedback

*[Easy Agreements]*

**Proposal 3: The correction** **change proposed in R2-2212108 is not agreed.**

**Proposal 4: According to RAN1 agreement, HARQ feedback disabled or NACK-only may be applied to “G-CS-RNTI for retransmission” but cannot be applied to the very first transmission (i.e. new transmission) after G-CS-RNTI activation. Capture a related text suggested for Proposal 3 in** **R2-2211870.**

**Proposal 5:** **According to RRC spec, in addition to G-RNTI or G-CS-RNTI (i.e. dynamically scheduling), HARQ feedback disabled or NACK-only can be also applied to “configured downlink assignment for MBS multicast”. Capture a related text suggested for Proposal 4 in** **R2-2211870.**

2.4 DRX Command

*[Easy Agreements]*

**Proposal 6:** **In addition to scheduling PDCCH addressed to C-RNTI, it’s allowed for gNB to include DRX Command MAC CE for unicast into MAC PDU scheduled by PDCCH addressed to CS-RNTI or by configured downlink assignment. Capture a related text suggested for Proposal 5 in** **R2-2211870.**

**Proposal 7:** **In addition to scheduling PDCCH addressed to G-RNTI, it’s allowed for gNB to include DRX Command MAC CE for multicast into MAC PDU scheduled by PDCCH addressed to G-CS-RNTI or by configured downlink multicast assignment. Capture a related text suggested for Proposal 6 in** **R2-2211870.**

2.5 G-RNTI and G-CS-RNTI in Multicast DRX

*[Easy Agreements]*

**Proposal 8:** **The 6th change proposed in R2-2211301 is not agreed.**

**Proposal 9:** **the proposed change in R2-2211366 is agreed.**

* Proposals 1, 2-2, 2-3, 3, 5, 7, 8, 9 are agreed.

DISCUSSION:

* Samsung has concerns with P1 (2nd and 3rd change in R2-2211301), in particular with PDCCH statement. Samsung thinks this is already covered and no need for change.
* LG has different opinion with Samsung. LG thinks this is useful as it clarifies this is for unicast transmission. Samsung thinks this is straightforward as this PDCCH is per-UE.

**Proposal 4: According to RAN1 agreement, HARQ feedback disabled or NACK-only may be applied to “G-CS-RNTI for retransmission” but cannot be applied to the very first transmission (i.e. new transmission) after G-CS-RNTI activation. Capture a related text suggested for Proposal 3 in** **R2-2211870.**

DISCUSSION P4:

* For P4, Huawei thinks it is unclear how we can capture this in our specs and in which specs (MAC, RRC?). ASUSTEK thinks we should capture this in MAC. Huawei thinks this issue is still being discussed in RAN1 and thinks we can wait or send an LS (prefer to wait). QCM thinks we can have RAN2 understanding and do not have to refer to RAN1 agreement.
* Huawei thinks it is better to have a clear agreement in RAN1 before capturing anything.
* Ericsson thinks we should not rush to capture this while it is being discussed in RAN1. Better to wait than have to revert. Samsung agrees with Huawei and Ericsson.
* Unless RAN1 makes another agreement, RAN2 assumes that HARQ feedback disabled or NACK-only may be applied to “G-CS-RNTI for retransmission” but cannot be applied to the very first transmission (i.e. new transmission) after G-CS-RNTI activation.
* We decide whether / what to capture next meeting.

**Proposal 6:** **In addition to scheduling PDCCH addressed to C-RNTI, it’s allowed for gNB to include DRX Command MAC CE for unicast into MAC PDU scheduled by PDCCH addressed to CS-RNTI or by configured downlink assignment. Capture a related text suggested for Proposal 5 in** **R2-2211870.**

DISCUSSION P6:

* Huawei sees no motivation for this change.
* ASUSTEK thinks in legacy there is no restriction, bit with MBS we need to further clarify to align with legacy behaviour. Nokia agrees with ASUSTEK. LG also agrees.
* Huawei thinks there will be some impact on UE behaviour for unicast with this change.
* Huawei and QCM think there is some impact on unicast as well, it should be clear form the CR (if this is the case).
* In addition to scheduling PDCCH addressed to C-RNTI, it’s allowed for gNB to include DRX Command MAC CE for unicast into MAC PDU scheduled by PDCCH addressed to CS-RNTI or by configured downlink assignment. The exact change can be refined (use a related text suggested for Proposal 5 in R2-2211870 as a baseline).

**Proposal 2-1: RAN2 discuss whether to determine if the UE supports PTP retransmission so as to start drx-HARQ-RTT-TimerDL after receiving PTM transmission based on the capability of PTP retransmission (Capture a related text suggested in R2-2212957 or suggested in option 1 in R2-2212056).**

There are two options:

* O1: we refer to UE capability
* O2: we have an explicit configuration parameter in RRC

DISCUSSION P2-1:

* Rapporteur clarifies there is slight preference for O1 and we can try to go with this.
* Samsung does not like to make procedures based on UE capabilities and prefers O2 as it is cleaner. Nokia agrees and there were objections for O1. It seems O2 is acceptable to all, even though had less support.
* QCM thinks O2 is too much changes and cannot accept it.
* Ericsson does not like O1, this breaks the principles we have in MAC specs. We can also leave to implementation.
* LG thinks it is good to clarify and prefers O2.
* Apple prefer O2, because O1 would be a bad precedence as we do not do this normally.
* Huawei thinks this cannot be left to implementation and can accept both options.
* We do not clarify this at all for now due to objections for either option.

*Discussed in the past, treated only if time allows*

[R2-2211594](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211594%20PDCP%20Initialisation.docx) PDCP Initialisation Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_MBS-Core

Proposal 1: RAN2 to discuss whether to make initialisation of RX\_NEXT and RX\_DELIV for AM MRB during PDCP re-establishment optional and configurable such that they are initialised only if initialRX-DELIV is provided by upper layers TS 38.331.

Proposal 2: RAN2 to discuss whether to make it optional and configurable also for UM MRB.

DISCUSSION:

* Nokia clarifies for the case where there is initially no data, but the UE joins.
* Huawei thinks that if initial configuration is sent when there is no data and then reconfigure it when data arrives, this does not solve the issue in RAN3. Nokia agrees this does not solve the issue, but it helps.
* ZTE agrees with Nokia and it would help. ZTE indicates RAN3 is drafting an LS to RAN2.
* Ericsson thinks we do not need to wait for RAN3 and thinks this is useful. It would be good to have initial SN optional. QCM agrees.
* Xiaomi wonders what the initial values will be if this not included in the configuration. Xiaomi thinks UE needs an initial value. ZTE thinks initialization can be delayed until the UE receives the parameter. Xiaomi clarifies UE will start with 0, if not configured. LG supports the proposals.
* Make initialisation of RX\_NEXT and RX\_DELIV for AM MRB during PDCP re-establishment optional and configurable such that they are initialised only if initialRX-DELIV is provided by upper layers TS 38.331.
* Make it optional and configurable also for UM MRB.
* Changes will be done as part of RRC CR review (we can use TP from R2-2211594 as baseline)

**Papers below discussed based on the offline report in** [**R2-2213102**](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2213102%20Summary%20of%20%5bAT120%5d%5b603%5d%5bMBS-R17%5d%20MAC%20corrections%20(ASUSTeK).docx)

[R2-2211301](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211301%2038.321%20corrections%20for%20MBS%20v5.0.docx) Corrections for MBS OPPO, Nokia, Nokia Shanghai Bell, Huawei, HiSilicon, LG Electronics Inc, vivo, Xiaomi CR Rel-17 38.321 17.2.0 1454 - F NR\_MBS-Core

[R2-2211366](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211366%20CR1455_38321_MAC%20Corrections%20on%20MBS.docx) MAC Corrections on MBS vivo Mobile Com. (Chongqing) CR Rel-17 38.321 17.2.0 1455 - F NR\_MBS-Core

[R2-2211509](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211509%20Corrections%20on%20MAC.docx) Corrections on MAC Huawei, CBN, HiSilicon CR Rel-17 38.321 17.2.0 1463 - F NR\_MBS-Core

=> Revised in [R2-2212957](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212957%20Corrections%20on%20MAC.docx)

[R2-2212957](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212957%20Corrections%20on%20MAC.docx) Corrections on MAC Huawei, CBN, HiSilicon CR Rel-17 38.321 17.2.0 1463 1 F NR\_MBS-Core

[R2-2211593](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211593%20MBS%20DRX.docx) DRX Corrections Nokia, Ericsson, Nokia Shanghai Bell, Qualcomm Incorporated discussion Rel-17 NR\_MBS-Core

[R2-2211870](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211870%20Discussion%20on%20MBS%20DRX%20and%20SPS%20issues.docx) Discussion on MBS DRX and SPS issues ASUSTeK discussion Rel-17 NR\_MBS-Core

[R2-2212056](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212056%20MBS%20PTP%20Retx.docx) UE not supporting PTP retransmission via C-RNTI Samsung discussion Rel-17

[R2-2212108](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212108%2038.321%20Draft%20CR%20(Rel17)%20Multicast%20HARQ%20feedback%20enabling%20and%20disabling.docx) Multicast HARQ feedback enabling and disabling Samsung R&D Institute India draftCR Rel-17 38.321 17.2.0 F NR\_MBS\_enh-Core

## 8.11 Enhancements of NR Multicast and Broadcast Services

(NR\_MBS\_enh-Core; leading WG: RAN2; REL-18; WID: RP-221458)

Time budget: 0.5 TU

Tdoc Limitation: 2 tdocs

### 8.11.1 Organizational

LS in, rapporteur input etc.

[R2-2211157](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211157_R3-225987.docx) Reply LS on FS\_5MBS\_Ph2 progress (R3-225987; contact: Huawei) RAN3 LS in Rel-18 FS\_5MBS\_Ph2, NR\_MBS\_enh-Core To:SA2, RAN2 Cc:RAN1

* Noted

[R2-2211168](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211168_R3-226084.docx) LS on resource efficiency for MBS reception in RAN sharing scenario (R3-226084; contact: CATT) RAN3 LS in Rel-18 NR\_MBS\_enh To:RAN2 Cc:SA2

* Discussed based on contributions
* Noted

[R2-2212628](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212628%2038.300%20Running%20CR%20for%20MBS%20enhancements.docx) 38.300 Running CR for MBS enhancements CMCC CR Rel-18 38.300 17.2.0 0589 - B NR\_MBS\_enh-Core

* To be updated with agreements from this meeting
* Used as a baseline for review after the meeting (short e-mail discussion)

### 8.11.2 Multicast reception in RRC\_INACTIVE

Objective: Specify support of multicast reception by UEs in RRC\_INACTIVE state [RAN2, RAN3], PTM configuration for UEs receiving multicast in RRC\_INACTIVE state [RAN2]. Study the impact of mobility and state transition for UEs receiving multicast in RRC\_INACTIVE. (Seamless/lossless mobility is not required) [RAN2, RAN3].

Including aspects such as:

* details of PTM configuration option 1 and 2, e.g. to understand potential enhancements required for RRC state management, configuration update, notifications, service continuity, mobility, session state changes etc.
* comparison of the two options, how to address main issues of each option, mixed option considerations
* potential cross-WG impacts identification

***PTM configuration and PTM reconifguration during mobility***

*Option 1*

[R2-2211611](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211611%20Discussion%20on%20multicast%20reception%20in%20RRC_INACTIVE.docx) Discussion on multicast reception in RRC\_INACTIVE NEC Europe Ltd discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1 : Using dedicated RRC signaling (e.g., RRCRelease, RRCReconfiguration) to provide multicast configuration to UE when its RRC state is switched from RRC\_CONNECTED to RRC\_INACTIVE and details FFS.

Proposal 6: Using RRCRelease carrying multicast configuration as a response to multicast request during random access procedure.

Proposal 7: RAN2 is suggested to consider the following methods for the mobility of multicast reception in RRC\_INACTIVE:

- Option 1: Use dedicated RRC signaling to provide multicast configuration list for multiple cells

- Option 2: Introduce area-specific multicast configuration

*Option 2*

[R2-2212185](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212185.docx) Multicast reception in RRC\_INACTIVE Intel Corporation discussion Rel-18 NR\_MBS\_enh-Core

Proposal 2: RAN2 to confirm that there are no security issues for Option 2, in which PTM configuration for multicast service is provided in SIB+MCCH.

Proposal 3: For multicast reception in RRC\_INACTIVE, PTM configuration is provided via SIB20 + MCCH, similarly as in broadcast reception.

Proposal 4: PTM configuration is not area specific.

Proposal 5: When the multicast session is activated, UE can receive the multicast session in RRC\_INACTIVE if the PTM configuration to be used in RRC\_INACTIVE for the session is available to the UE (e.g., the configuration was previously provided to UE via dedicated RRC signaling or via MCCH), otherwise it goes back to RRC\_CONNECTED to receive the multicast session.

*Mixed solution*

[R2-2211730](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211730_Multicast%20reception%20in%20RRC_INACTIVE%20state_v0.doc) Multicast reception in INACTIVE state Apple discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: For both options, when NW configures UE to continue the multicast reception in INACTIVE state, NW provides the PTM configuration for the activated multicast session via the RRC dedicated signaling.

Proposal 6: The UE can acquire whether the newly selected cell supports the INACTIVE multicast transmission in two options:

- Option 1: NW configures the cell list where the UE can receive the multicast reception in INACTIVE state;

- Option 2: UE acquires the information from the target cell by itself, via MCCH channel.

[R2-2212305](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212305%20Multicast%20reception%20in%20RRC_INACTIVE.docx) Multicast reception in RRC\_INACTIVE Ericsson discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: MCCH is used in case there is a need to indicate a change in PTM config, area config or session status change.

Proposal 2: In case MCCH is not configured RAN group paging can be used to indicate session status change (activation/deactivation status).

Proposal 5: RRCResumeRequest-RRCRelease sequence is not used to configure (new) configuration(s).

DISCUSSION (common for the paper above):

* ZTE thinks that to really support O1, there will be a lot enhancements needed, but for O2, we can reuse a lot things that we have already specified in Rel-17.
* Nokia thought that O2 made most sense initially, but they think some kind of mix makes sense. Nokia has concerns with RAN3 impact of O1.
* QCM supports O1, but O2 cannot be use directly as now we have to handle multicast now. QCM would be OK with some hybrid approach as well.
* Ericsson thinks that if we restrict O1 to serving cell.
* Nokia wonders if the NW needs to always provide dedicated signalling.
* MTK wonders about compatibility issues with Rel-17 UEs for mixed option.
* Intel supports mixed approach.
* OPPO thinks mixed solution means that now the UE will have to support both multicast and broadcast. OPPO thinks there are security concerns with option 2. Thinks LS to SA3 is needed. Samsung agrees there can be security concerns.
* Vivo wonders how MCCH is scheduled (dedicated or broadcast signalling).
* Lenovo is not sure whether mobility can be supported via MCCH.
* Mediatek thinks the issue is not about security. Wonders why we cannot use broadcast instead if we choose option 2.
* QCM wonders how we make sure that only UEs who joined get MCCH.
* BT wonders how we ensure mobility between the cells.
* AT&T thinks it is not acceptable that UE has to move to RRC Connected to get MCCH configuration. QCM thinks that in this case broadcast service should be used.
* Apple thinks mobility details can be left FFS.
* We will have a mixed approach and we start with the following:
  + 1. When NW configures UE to continue the multicast reception in INACTIVE state, NW provides the PTM configuration for the activated multicast session via the RRC dedicated signalling, at least for the serving cell (FFS other cases).
    2. **MCCH is used in case there is a need to indicate a PTM configuration in case there is a need for change in PTM config or during mobility beyond serving cell / gNB. FFS session status change and other indications.**
    3. **We assume that the UE can only receive multicast service after it joined the session.**
    4. **FFS whether MCCH configuration is initially provided to the UE via dedicated signalling.**

***State transitions***

[R2-2212521](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212521_eMBS_multicast-inactive.doc) Details of multicast reception in RRC INACTIVE Kyocera discussion Rel-18 [R2-2210428](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2210428_eMBS_multicast-inactive.doc)

Proposal 2 RAN2 should agree that the UE is allowed to stop monitoring MTCH upon reception of multicast session deactivation.

Proposal 4 RAN2 should agree that no enhancement specific to the multicast session release is needed, i.e., the UE transitions to RRC Connected by the existing (group) paging.

Proposal 5 RAN2 should confirm the baseline that the group paging can be used to inform Rel-18 UE(s) about the session activation.

Proposal 6 RAN2 should agree UE behaviour Option 1 “When the multicast session is activated, UE can receive the multicast session in RRC\_INACTIVE if the PTM configuration used in RRC\_INACTIVE for the session is available to the UE and the UE has joined the session already (e.g., configuration provided to UE via dedicated RRC signaling or via MCCH), otherwise it goes back to RRC\_CONNECTED to receive the multicast session.”

Proposal 7 RAN2 should agree UE behaviour Option 2 “When the multicast session is activated, UE is indicated by group paging whether it can receive the multicast session in RRC\_INACTIVE or not (detailed signaling FFS).”

Proposal 8 RAN2 should discuss how to enhance the group paging to page a subset of UEs, e.g., with a new UE-ID list to stay in INACTIVE for multicast session reception.

***Cell reselection***

[R2-2212176](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212176.doc) Discussion on Multicast Reception in RRC\_INACTIVE Spreadtrum Communications discussion Rel-18

Proposal 4: R17 cell reselection procedure for MBS broadcast reception can be taken as baseline for the mobility for Multicast reception in RRC\_INACTIVE state.

Proposal 5: The frequency providing Multicast service(s) in RRC\_INACTIVE state should be prioritized during the cell reselection when the Multicast capable UE is receiving Multicast service(s) in RRC\_INACTIVE state.

Proposal 6: The system information of serving cell UE camps on should contain the information of neighbour cells supporting the same Multicast service(s) in RRC\_INACTIVE state.

[R2-2211512](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211512%20Multicast%20reception%20for%20RRC_INACTIVE.docx) Multicast reception for RRC INACTIVE UE Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

Proposal 6: Dedicated frequency priority can be used as baseline for multicast frequency prioritization and further discuss whether to address the scenario where a MBS multicast service is provided in different frequencies in different cells/areas.

***L1 related***

[R2-2211299](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211299%20Discussion%20on%20multicast%20reception%20in%20RRC_INACTIVE%20state.doc) Discussion on multicast reception in RRC\_INACTIVE state OPPO discussion Rel-18 NR\_MBS\_enh

Proposal 13: Send LS to RAN1 to confirm how to configure or use CFR for multiact reception for UEs in RRC\_INACTIVE state.

Proposal 14: Send LS to RAN1 to confirm that the network will transmit the multicast data for RRC\_INACTIVE UE via beam sweeping based on SSB index like broadcast MBS.

Proposal 15: Send LS to RAN1 to confirm that DCI for R18 multicast MBS, i.e DCI for R18 multicast MBS looks like the DCI for R17 multicast MBS or DCI for R17 broadcast MBS or others.

Proposal 16: Send LS to RAN1 to confirm that the HARQ feedback for a G-RNTI should be set to disable If Multicast reception by UEs in RRC\_INACTIVE state is configured for this G-RNTI.

[R2-2212311](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212311%20PTM%20configuration%20for%20multicast%20reception%20in%20RRC_INACTIVE.doc) PTM configuration for multicast reception in RRC\_INACTIVE LG Electronics Inc. discussion Rel-18

[R2-2211243](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211243.docx) Further discussions on multicast reception in RRC\_INACTIVE CATT, CBN discussion NR\_MBS\_enh-Core

[R2-2211247](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211247%20Supporting%20Multicast%20Reception%20in%20RRC_INACTIVE%20from%20Upper%20Layer%20Aspects.docx) Supporting Multicast Reception in RRC\_INACTIVE from Upper Layer Aspects vivo Mobile Com. (Chongqing) discussion Rel-18 NR\_MBS\_enh-Core

[R2-2211248](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211248%20Supporting%20Multicast%20Reception%20in%20RRC_INACTIVE%20from%20Lower%20Layer%20Aspects.docx) Supporting Multicast Reception in RRC\_INACTIVE from Lower Layer Aspects vivo Mobile Com. (Chongqing) discussion Rel-18 NR\_MBS\_enh-Core

[R2-2211271](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211271%20Analysis%20of%20options%20for%20sendiong%20PTM%20configuration.docx) Analysis of options for sending PTM configuration TD Tech, Chengdu TD Tech discussion Rel-18

[R2-2211273](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211273%20Discussion%20on%20multicast%20reception%20in%20RRC_INACTIVE%20state.docx) Multicast reception in RRC\_INACTIVE state Chengdu TD Tech, TD Tech discussion Rel-18

[R2-2211294](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211294.doc) Discussion on Paging and PTM configuration for Multicast reception in Inactive State TCL Communication Ltd. discussion Rel-18 Late

[R2-2211300](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211300-Draft%20LS%20on%20multicast%20reception%20in%20RRC_INACTIVE.doc) LS on multicast reception in RRC\_INACTIVE OPPO LS out Rel-18 NR\_MBS\_enh To:RAN1

[R2-2211434](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211434.docx) Session state change for UEs receiving Multicast in RRC\_INACTIVE state TCL Communication Ltd. discussion

[R2-2211435](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211435.docx) PTM configuration for UEs receiving Multicast in RRC\_INACTIVE state TCL Communication Ltd. discussion

[R2-2211550](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211550-multicast-rrc-inactive.docx) Multicast reception by UEs in RRC\_INACTIVE state Qualcomm Incorporated discussion Rel-18 NR\_MBS\_enh-Core

[R2-2211880](file:///C:\Users\Dwx974486\Documents\3GPP\TSGR2\TSGR2_120\docs\R2-2211880.zip) PTM configuration option 1 CANON Research Centre France discussion Rel-18 [R2-2209533](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2209533_MBS%20pre-configuration%20and%20PTM%20configuration%20in%20RRC_INACTIVE%20state.docx) Withdrawn

[R2-2211890](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211890%20Discuss%20on%20PTM%20configuration%20delivery%20for%20multicast%20in%20RRC%20INACTIVE.docx) Discuss on PTM configuration delivery for multicast in RRC INACTIVE MediaTek inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2211891](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211891%20Discuss%20on%20the%20notification%20for%20multicast%20in%20RRC%20INACTIVE.docx) Discuss on the notification for multicast in RRC INACTIVE MediaTek inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2211971](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211971%20MBS%20Inactive%20Multicast%20Reception.docx) Multicast reception in RRC\_INACTIVE Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_MBS\_enh-Core

[R2-2212014](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212014_PTM%20configuration%20option%201.docx) PTM configuration option 1 CANON Research Centre France discussion Rel-18 [R2-2209533](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2209533_MBS%20pre-configuration%20and%20PTM%20configuration%20in%20RRC_INACTIVE%20state.docx)

[R2-2212037](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212037%20PTM%20configuration.docx) PTM configuration for multicast reception in RRC\_INACTIVE Lenovo discussion Rel-18

[R2-2212038](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212038%20Mobility%20and%20state%20transition.docx) Mobility and state transition for multicast reception in RRC\_INACTIVE Lenovo discussion Rel-18

[R2-2212104](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212104%20Discussion%20on%20Multicast%20Reception%20in%20RRC_INACTIVE.docx) Discussion on Multicast Reception in RRC\_INACTIVE Samsung R&D Institute India discussion Rel-18

[R2-2212209](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212209%20RRC_INACTIVE%20in%20Multicast.docx) Service expectations for Multicast Sessions in RRC\_INACTIVE AT&T, FirstNet discussion Rel-18

[R2-2212310](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212310%20State%20transition%20for%20multicast%20reception%20in%20RRC_INACTIVE.doc) State transition for multicast reception in RRC\_INACTIVE LG Electronics Inc. discussion Rel-18

[R2-2212411](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212411_Ensuring%20desired%20level%20of%20reliability%20for%20an%20MBS%20session.doc) Ensuring desired level of reliability for an MBS session InterDigital, Inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2212545](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212545%20%20PTM%20Configuration%20for%20RRC_INACTIVE%20UE.docx) PTM Configuration for RRC\_INACTIVE UE SHARP Corporation discussion

[R2-2212629](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212629%20Discussion%20on%20multicast%20reception%20in%20RRC_INACTIVE.docx) Discussion on multicast reception in RRC\_INACTIVE CMCC discussion Rel-18 NR\_MBS\_enh-Core

[R2-2212741](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212741%20Considerations%20on%20the%20multicast%20reception%20in%20RRC_INACTVE%20state.docx) Considerations on the multicast reception in RRC\_INACTVE state Xiaomi discussion Rel-18

[R2-2212896](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212896.docx) Multicast reception in RRC\_INACTIVE ASELSAN, Turkcell discussion Rel-18 NR\_MBS\_enh-Core

[R2-2212926](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212926%20Multicast%20reception%20in%20RRC_INACTIVE.doc) Multicast reception in RRC\_INACTIVE ZTE, Sanechips discussion Rel-18 NR\_MBS\_enh-Core

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

Specify Uu signalling enhancements to allow a UE to use shared processing for MBS broadcast and unicast reception, i.e., ‎including UE capability and related assistance information reporting regarding simultaneous unicast reception in RRC\_CONNECTED and MBS broadcast reception from the same or different operators [RAN2]

**Agenda Item not treated during this meeting.**

[R2-2211272](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211272%20Simultaneous%20unicast%20and%20broadcast%20receptions.docx) Simultaneous unicast reception and MBS broadcast reception TD Tech, Chengdu TD Tech discussion Rel-18

[R2-2211304](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211304%20MBS%20reception%20interruption%20problem%20in%20LTE%20and%20NR.docx) MBS reception interruption problem in LTE and NR Chengdu TD Tech, TD Tech discussion Rel-18 Withdrawn

[R2-2211307](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211307-MBS-capability-sharing.docx) Shared processing for MBS broadcast and unicast reception Qualcomm Incorporated discussion Rel-18 NR\_MBS\_enh-Core [R2-2209448](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2209448-MBS-capability-sharing.docx)

R2-2211329 MBS reception interruption problem in LTE and NR Chengdu TD Tech, TD Tech discussion Rel-18 Withdrawn

[R2-2211330](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211330%20MBS%20reception%20interruption%20problem%20in%20LTE%20and%20NR.docx) MBS reception interruption problem in LTE and NR Chengdu TD Tech, TD Tech discussion Rel-18 Withdrawn

[R2-2211415](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211415%20MBS%20reception%20interruption%20problem%20in%20LTE%20and%20NR.docx) MBS reception interruption problem in LTE and NR TD Tech, Chengdu TD Tech discussion Rel-18

[R2-2211731](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211731_Shared%20processing%20of%20MBS%20broadcast%20and%20unicast%20reception_v0.doc) Shared processing of MBS broadcast and unicast reception Apple discussion Rel-18 NR\_MBS\_enh-Core

[R2-2212522](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212522_eMBS_shared-processing.doc) Shared processing for inter-PLMN MBS broadcast reception Kyocera discussion Rel-18 [R2-2210427](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2210427_eMBS_shared-processing.doc)

### 8.11.4 RAN sharing scenarios

Objective: Study and if necessary, specify enhancements to improve the resource efficiency for MBS reception in RAN sharing scenarios [RAN3]

This objective has no official RAN2 involvement and this AI is only to gather companies views on incoming LS from RAN3 (R3-226084), other considerations should not be contributed and will not be treated.

**Online discussion**

[R2-2213103](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2213103.docx) Summary of AI 8.11.4 RAN sharing scenarios CATT discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1 Start with the following for answer to Q1:

“In the RRC ASN.1, the PTM configuration (e.g. g-RNTI/MRB list/mtch-SchedulingInfo/pdsch-Config, etc.) is configured per TMGI value, for a list of TMGIs. So, it is supported that multiple TMGIs are provided with the same PTM configuration.”

Can discuss if anything needs to be added on signaling overhead.

DISCUSSION P1:

* Rapporteur clarifies we do not have to mention signalling overhead in Q1.
* CATT clarifies that a number of companies did not think overhead is an issue as the configuration is a set of indexes.
* Huawei indicates RAN3 did not ask about overhead, no need to mention it. QCM agrees. Samsung also agrees. Nokia thinks RAN3 meant to ask about the impact. Nokia would prefer more detailed information.
* QCM is only about whether this is supported or not.
* ZTE thinks that we already have means to avoid overhead and we can mention this.
* Nokia thinks RAN3 can read our specs.
* Reply with the following answer to Q1:

“In the RRC ASN.1, the PTM configuration (e.g. g-RNTI/MRB list/mtch-SchedulingInfo/pdsch-Config, etc.) is configured per TMGI value, for a list of TMGIs. So, it is supported that multiple TMGIs are provided with the same PTM configuration.”

Proposal 2 Start with the following for answer to Q2:

“It is possible to support service continuity towards a neighbour cell not indicated in the mbs-NeighbourCellList. For example, if a neighbour cell is not indicated in the mbs-NeighbourCellList, UE may request unicast reception of the service before moving to the cell. From RAN2 point of view, it is optional for network to provide mbs-NeighbourCellList and it is up to UE implementation how to utilize such information for service continuity.”

DISCUSSION P2:

* Ericsson does not agree with this interpretation. ZTE agrees, we should remove the example.
* QCM thinks this is good as a starting point.
* Nokia thinks the reply can be OK, but believes there might be some problem because we can signal 8 cells for all TMGIs, which is limiting in case of RAN sharing.
* CATT thinks size limitation was mentioned in RAN3 LS.
* QCM thinks that we can just increase the list size in Rel-17.
* Ericsson thinks that NCL is not PLMN specific, so there are some restriction in the applicability of NCL for roaming between shared and non-shared cells. Ericsson thinks NCL is not useful, so we should not increase NCL size.
* Ericsson would like to further clarify that NCL is an enhancement for service continuity. ZTE agrees.
* Answer to Q2:

“It is possible to support service continuity towards a neighbour cell not indicated in the mbs-NeighbourCellList.”

* Can add that NCL is used to enhance service continuity or broadcast.

Proposal 3 Start with the following for answer to Q3:

“From RRC point of view there is no restriction that the TMGIs for the broadcast services that UE is interested to receive or is receiving should contain PLMN ID broadcasted in SIB1.”

Can discuss whether to add that the current RRC specification does not support MBS in the SNPN scenario.

Can discuss whether anything needs to be added on signaling overhead.

QUESTION (3) Is there any significant limitation from RRC point of view if the TMGI as received by the 5GC contains a PLMN/SNPN ID not broadcast in SIB1?

DISCUSSION P3:

* Huawei thinks the question was not clear.
* Answer to Q3:

From RRC point of view there is no restriction that the TMGIs for the broadcast services that UE is interested to receive or is receiving should contain PLMN ID broadcasted in SIB1.”

* Mention the agreement made for SNPN for Rel-17.
* We clarify that we are still discussing SNPN ID.
* LS reply (offline – CATT)

**All Tdocs below treated as part of the summary document in** [**R2-2213103**](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2213103.docx)

[R2-2211244](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211244.docx) [Draft] Reply LS on resource efficiency for MBS reception in RAN sharing scenario CATT LS out NR\_MBS\_enh-Core To:RAN3 Cc:SA2

[R2-2211245](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211245.docx) Discussions on RAN3 LS on resource efficiency for MBS reception in RAN sharing scenario CATT, CBN discussion NR\_MBS\_enh-Core

[R2-2211513](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211513%20Discussion%20on%20the%20RAN3%20LS%20on%20resource%20efficiency%20for%20MBS%20reception%20in%20RAN%20sharing%20scenario.docx) Discussion on the RAN3 LS on resource efficiency for MBS reception in RAN sharing scenario Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

[R2-2211612](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211612%20Discussion%20on%20RAN%20sharing%20scenarios%20for%20MBS.docx) Discussion on RAN sharing scenarios for MBS NEC Europe Ltd discussion Rel-18 NR\_MBS\_enh-Core

[R2-2211972](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2211972%20RAN%20sharing%20and%20response%20to%20RAN3.docx) RAN sharing and response to RAN3 Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_MBS\_enh-Core

[R2-2212057](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212057%20MBS%20RAN%20Sharing.docx) Discussion on RAN sharing scenario Samsung discussion Rel-18

[R2-2212306](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212306%20RAN%20sharing%20scenarios.docx) RAN sharing scenarios Ericsson discussion Rel-18 NR\_MBS\_enh-Core

[R2-2212577](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212577.docx) Discussion on RAN3 LS on MBS RAN sharing Intel Corporation discussion Rel-18 NR\_MBS\_enh-Core

[R2-2212630](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212630 Discussion%20on%20RAN3%20LS.docx) Discussion on RAN3 LS CMCC discussion Rel-18 NR\_MBS\_enh-Core

[R2-2212740](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212740%20Discussion%20on%20the%20) Discussion on the “LS on resource efficiency for MBS reception in RAN sharing scenario” from RAN3 (R3-226084) Xiaomi discussion Rel-18

[R2-2212927](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2212927%20RAN2%20on%20network%20sharing%20for%20Broadcast%20session.doc) RAN2 on network sharing for Broadcast session ZTE, Sanechips discussion Rel-18 NR\_MBS\_enh-Core