3GPP TSG-RAN WG2 Meeting #119 electronic DRAFT\_R2-2208707

Online, August, 2022

Source: Session chair (Huawei)

Title: Report from MBS breakout session

Agenda Item: 9.7

# Email discussions

Kicked-off together with a meeting start:

* [AT119-e][600] Organizational - MBS session

Scope:

* + - Share plans and list of ongoing email discussions for MBS sessions
    - Share meetings notes and agreements for review and endorsement
* [AT119-e][601][MBS-R17] RRC corrections (Huawei)

Phase 1 scope: Gather comments on the RRC corrections summary

Phase 1 outcome: Updated RRC corrections summary:

* List of ‘easy’ proposals for agreement
* List of proposals that require online discussions
* List of proposals for further offline discussion

Deadline (Phase 1): Thursday 2022-08-18 0800 UTC, updated summary to be uploaded latest 1215 UTC

* [AT119-e][602][MBS-R17] CP other corrections (Mediatek)

Phase 1 scope: Gather comments on the Other CP corrections summary

Phase 1 outcome: Updated Other CP corrections summary:

* List of ‘easy’ proposals for agreement
* List of proposals that require online discussions
* List of proposals for further offline discussion

Deadline (Phase 1): Thursday 2022-08-18 0800 UTC, updated summary to be uploaded latest 1215 UTC

* [AT119-e][603][MBS-R17] UP corrections (Lenovo)

Phase 1 scope: Gather comments on the UP corrections summary

Phase 1 outcome: Updated Other CP corrections summary:

* List of ‘easy’ proposals for agreement
* List of proposals that require online discussions
* List of proposals for further offline discussion

Deadline (Phase 1): Thursday 2022-08-18 0800 UTC, updated summary to be uploaded latest 1215 UTC

Update 18 August 2022:

* [AT119-e][601][MBS-R17] RRC corrections (Huawei)

Phase 2 scope: Resolve remaining RRC issues, produce 38.331 CR

Phase 2 outcome: Report, 38.331 MBS corrections CR

Deadline (Phase 2): Report available: 2022-08-24 1200 UTC, agreeable CR: EOM

* [AT119-e][602][MBS-R17] CP other corrections (Mediatek)

Phase 2 scope: Resolve remaining Other CP issues

Phase 2 outcome: Report

Deadline (Phase 2): Report available: 2022-08-24 1200 UTC

* [AT119-e][603][MBS-R17] UP corrections (Lenovo)

Phase 2 scope: Resolve remaining UP issues

Phase 2 outcome: Report

Deadline (Phase 2): Report available: 2022-08-24 1200 UTC

* [AT119-e][604][MBS-R17] Stage-2 corrections and CR (CMCC)

Scope: Review the baseline Stage-2 CR and treat Stage-2 corrections from 6.1.1

Outcome: Report (if needed), 38.300 MBS corrections CR

Deadline: Agreeable CR available EOM, intermediate deadlines set by the rapporteur

* [AT119-e][605][MBS-R17] Reply LS to SA4 (Qualcomm)

Scope: Discuss the reply to SA4 LS in [R2-2206977](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206977_S4-220827.docx), i.e. what is needed in Rel-17, clarify what is not relevant in NR, can mention that we might consider additional info for Rel-18.

Outcome: Reply LS

Deadline: Agreeable LS available EOM

* [AT119-e][606][MBS-R17] 38.304 CR (CATT)

Scope: Review baseline 38.304 CR and update based on the agreements

Outcome: 38.304 MBS corrections CR

Deadline: Agreeable CR available EOM

* [AT119-e][607][MBS-R17] Capabilities CRs (Mediatek)

Scope: Prepare draft CRs for MBS capabilities based on the agreements

Outcome: Draft 38.331 and 38.306 CRs for MBS capabilities

Deadline: Agreeable CRs available EOM

* [AT119-e][608][MBS-R17] 38.321 CR (OPPO)

Scope: Prepare 38.321 CR based on the agreements

Outcome: 38.321 MBS corrections CR

Deadline: Agreeable CR available EOM

* [AT119-e][609][MBS-R17] 38.323 CR (Xiaomi)

Scope: Review baseline 38.304 CR and update based on the agreements

Outcome: 38.323 MBS corrections CR

Deadline: Agreeable CR available EOM

## 2.4 Instructions

Tdoc limitations (reminder)

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

- Assigned Editor of Running CRs input to update the running CR and input of one tdoc to facilitate addressing of CR open issues.

- 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).

Tdoc limitations applies to all other submitted tdocs.

Rel-18

For R2 119-e, no offline decision making for Rel-18, only online decisions. Any exception to this must be pre-agreed.

Rel-17 CR

General, all correction CRs / draft CRs:

1. Rapporteurs of Rel-17 WI CRs are asked to continue their volunteer responsibility, even if the WI is closed, at least for the durations of R2 119-e (later meetings TBD).
2. Unless otherwise explicitly agreed/indicated, max one Cat F CR per TS per WI shall be produced as outcome of the meeting. Exception: NBC aspects, if any, may need to be in a separate CR per WI (decided case by case). Note that Impact analysis is required per CR.
3. For smaller / editorial corrections, Companies are asked to coordinate directly with Rapporteurs of Rel-17 WI CRs, rather than submitting separate correction tdocs.
4. General: Please refer to TS contents, in order to illustrate issues and wanted corrections. Proposals that are vague and unspecific may be deprioritized / not treated.

Rel-17 UE capabilities

For R2 119-e, the intention is to finalize UE capabilities for Rel-17

There is no specific coordination for EUTRA 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: RAN2 should only implement in the CRs the features / feature groups from the RAN1 and RAN4 feature list without any FFS that impacts ASN.1 (no highlighted yellow, [] and/or marked as FFS/TBD). Also UE Capabilities that are dependent on such FFS features should not be implemented.

4: R2 Features and capabilities developed only in R2, are developed and corrected individually per WI, under WI-specific Agenda Items. Draft CRs (running CRs) for 38.331 and 38.306 are produced. The 306 CRs shall include an annex containing the RAN2 determined UE capabilities in the feature list format (similar to annex containing RAN2 agreements) for easy compilation into the TR38.822 in the later stage.

5. At the end of R2 119-e, 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.

[R2-2206902](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206902.doc) RAN2 Handbook 08-22 MCC discussion Late

# 6 NR Rel-17

## 6.1 NR Multicast

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

Tdoc Limitation: 5 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.

### 6.1.1 Organizational and Stage-2

LS ins. CR Rapporteurs baseline correction CRs. For smaller corrections, text clarifications etc please contact CR Rapporteur before/instead of submitting a separate Tdoc.

Impact to stage-2 TS, and discussions on system level issues that need resolution, if any.

*LSins*

[R2-2206910](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206910_R1-2205215.docx) Reply LS on HARQ process for MCCH and Broadcast MTCH(s) (R1-2205215; contact: BBC) RAN1 LS in Rel-17 NR\_MBS To:RAN2

* Noted (already discussed in [603])

[R2-2206912](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206912_R1-2205369.docx) LS on TCI indication in multicast DCI (R1-2205369; contact: CMCC) RAN1 LS in Rel-17 NR\_MBS To:RAN2

* Noted (to be checked whether there is any impact on RRC specs, as part of [601])

[R2-2206977](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206977_S4-220827.docx) Reply LS on the MBS broadcast service continuity and MBS session identification (S4-220827; contact: Qualcomm) SA4 LS in Rel-17 NR\_MBS-Core, 5MBP3 To:RAN2 Cc:RAN3, SA2

* CATT thinks SA4 did not confirm the question that RAN2 actually asked (Q1 in RAN2 LS). Xiaomi thinks SA4 specs already captures what RAN2 asked for. Samsung indicates SA4 refers to parameters which are not relevant for NR, so we can indicate this to them. Ericsson thinks some signalling can help. ZTE agrees with intention from SA4 to include additional parameters, but agree with Samsung that this may not be relevant in NR any more. ZTE suggests to leave this for R18 MBS. Huawei shares view with ZTE. QCM thinks we need to add at least frequency.
* Noted
* Discuss offline the reply to SA4 LS, i.e. what is needed in Rel-17, clarify what is not relevant in NR, can mention that we might consider additional info for Rel-18.
* We will reply to this LS. [offline QCM]

[R2-2207038](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207038%20Response%20to%20SA4%20LS%20for%20MBS%20user%20service%20parameters.docx) Response to SA4 LS for MBS user service parameters Samsung discussion Rel-17

[R2-2208635](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208635%20Discussion%20about%20SA4%20LS%20on%20USD%20content%20with%20draft%20LS%20back.doc) Discussion about SA4 LS on USD content with draft LS back ZTE, Sanechips discussion Rel-17 NR\_MBS-Core

* 2 papers above noted

R2-2209122         Reply LS on rate matching patterns and CORESET configuration for MBS (R1-2208072; contact: Huawei)

* ?? Noted
* ?? To be addressed during post-meeting e-mail discussion for RRC CR update

*Two docs below treated via e-mail discussion [AT119-e][605]:*

[R2-2208884](C:\\Users\\Dwx974486\\Documents\\3GPP\\Extracts\\R2-2208884-offline605-Report-v16_rapp_final.docx" \o "C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208884-offline605-Report-v16_rapp_final.docx) [Offline 605] discussion report: Reply LS to SA4 Qualcomm Incorporated discussion Rel-17 NR\_MBS-Core

* Noted

[R2-2208885](C:\\Users\\Dwx974486\\Documents\\3GPP\\Extracts\\R2-2208885-MBS-R17-ReplyLStoSA4.docx" \o "C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208885-MBS-R17-ReplyLStoSA4.docx) Reply LS on the MBS broadcast service continuity and MBS session identification RAN2 LS out Rel-17 NR\_MBS-Core, 5MBP3 To:SA4 Cc:RAN3, SA2

* Approved

*Rapporteur correction CRs*

[R2-2207590](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207590%20Rapporteur%20corrections%20on%20RRC.docx) Rapporteur corrections on RRC Huawei, CATT, HiSilicon CR Rel-17 38.331 17.1.0 3289 - F NR\_MBS-Core

* Revised in [R2-2208874](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208874%20MBS%20corrections%20for%20RRC.docx)

[R2-2207813](file:///C:\\Users\\Dwx974486\\Documents\\3GPP\\Extracts\\38323_CR0098_(Rel-17)_R2-2207813%20Miscellaneous%20corrections%20for%20MBS%2038.323.docx" \o "C:UsersDwx974486Documents3GPPExtracts38323_CR0098_(Rel-17)_R2-2207813 Miscellaneous corrections for MBS 38.323.docx) Miscellaneous corrections for MBS 38.323 Xiaomi CR Rel-17 38.323 17.1.0 0098 - F NR\_MBS-Core

* Revised in R2-2208875

[R2-2208437](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208437%20Corrections%20on%20MBS.docx) Corrections on MBS CMCC, Huaiwei CR Rel-17 38.300 17.1.0 0540 - F NR\_MBS-Core

* Revised in R2-2208876

[R2-2207036](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207036%2038.304%20Corrections%20for%20MBS.docx) 38.304 Corrections for MBS CATT, Nokia, Huawei, HiSilicon, CBN CR Rel-17 38.304 17.1.0 0256 - F NR\_MBS-Core

*(moved from 6.1.3)*

* Revised in R2-2208877
* Take the above rapporteur CRs as baseline for further updates and discussion

*Stage-2 corrections*

*Papers below (R2-2207031 to R2-2208181) noted (treated as part of [AT119-e][604])*

[R2-2207031](file:///C:\\Users\\Dwx974486\\Documents\\3GPP\\Extracts\\R2-2207031%20Miscellaneous%20corrections%20to%20TS%2038.300%20on%20NR%20MBS.docx" \o "C:UsersDwx974486Documents3GPPExtractsR2-2207031 Miscellaneous corrections to TS 38.300 on NR MBS.docx) Miscellaneous corrections to TS 38.300 on NR MBS CATT CR Rel-17 38.300 17.1.0 0493 - F NR\_MBS-Core

[R2-2207222](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207222_CR0503_38300_Correction%20on%20MBS%20Interest%20Indication.docx) Correction on MBS Interest Indication vivo CR Rel-17 38.300 17.1.0 0503 - F NR\_MBS-Core

[R2-2207223](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207223_CR0504_38300_Correction%20on%20Layer%202%20Architecture%20for%20Broadcast.docx) Correction on Layer 2 Architecture for Broadcast vivo CR Rel-17 38.300 17.1.0 0504 - F NR\_MBS-Core

[R2-2208086](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208086%20Clarification%20of%20group%20paging.docx) Clarification of group paging Ericsson discussion Rel-17 NR\_MBS-Core

[R2-2208181](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208181%20CR%20MBS%20Stage2.docx) Stage2 corrections for NR MBS Nokia, Nokia Shanghai Bell CR Rel-17 38.300 17.1.0 0530 - F NR\_MBS-Core

R2-2208876 Corrections on MBS CMCC, Huawei CR Rel-17 38.300 17.1.0 0540 1 F NR\_MBS-Core

### 6.1.2 RRC corrections

[R2-2208871](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208871%20%5bPre119%5d%5b601%5d%5bMBS-R17%5d%20Summary%20of%20A.I.%206.1.2%20%20RRC%20corrections%20(Huawei).docx) [Pre119-e][601][MBS-R17] Summary of A.I. 6.1.2 / RRC corrections (Huawei) Huawei, HiSilicon discussion Rel-17 NR\_MBS-Core

DISCUSSION

* Intel has a concern on Easy07. Huawei think this makes specs clearer. CATT clarifies the UE can read MCCH from SCell or PCell, so it is better to make a clarification. Intel thinks there is no ambiguity. Nokia is OK with Easy07 and in general to clarify things.
* Easy08, Easy09: Huawei clarifies that PropModify means agree in principle, but the text needs to be refined.
* Adopt the corrections marked as PropAgree and PropModify, and merge them into the rapporteur RRC CR (i.e., Easy01, 03-04, 07-10, 12, 15-16, 17, 19). For PropModify, the intention is agreed, but the text needs to be modified per comments.
* Not pursue the issues/corrections marked as PropReject (i.e., Easy02, 05-06, 11, 13-14, 18).
* Discuss CTVS14 in [603] [MBS-R17] UP corrections:

CTVS14: The correction related to changing the condition “*SetupOnlyMRB*” for the resence of “*multicastHFN-AndRefSN-r17*”.

* Continue offline discussion on the issues/corrections marked as TBD. (i.e., CTVS01-13)

*Papers below (R2-2207032 to R2-2208639) noted (treated as part of [AT119-e][601])*

[R2-2207032](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207032%20Corrections%20related%20to%20MBS%20Interest%20Indication.docx) Corrections related to MBS Interest Indication CATT CR Rel-17 38.331 17.1.0 3208 - F NR\_MBS-Core

[R2-2207033](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207033%20Corrections%20on%20Broadcast%20Configuration.docx) Corrections on Broadcast Configuration CATT, CBN CR Rel-17 38.331 17.1.0 3209 - F NR\_MBS-Core

[R2-2207034](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207034%20Corrections%20on%20multicast%20MRB%20handling.docx) Corrections on multicast MRB handling CATT CR Rel-17 38.331 17.1.0 3210 - F NR\_MBS-Core

[R2-2207035](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207035%20Miscellaneous%20Corrections%20to%20TS%2038.331.docx) Miscellaneous Corrections to TS 38.331 CATT CR Rel-17 38.331 17.1.0 3211 - F NR\_MBS-Core

[R2-2207039](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207039%20RRC%20Corrections%20for%20MBS.docx) RRC Corrections for MBS Samsung discussion Rel-17 38.331

[R2-2207225](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207225%20Clarification%20on%20LCH%20Reassociation.docx) Clarification on LCH Reassociation vivo discussion Rel-17 NR\_MBS-Core

[R2-2207555](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207555%20Draft%20CR%20%2038.331%20TMGI%20handling%20in%20paging%20(1).docx) TMGI handling Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.1.0 3287 - F NR\_MBS-Core

[R2-2207591](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207591%20Clarfication%20on%20the%20early%20configuration%20of%20%20MBS%20broadcast%20search%20space.docx) Clarfication on the early configuration of MBS broadcast search space Huawei, CBN, HiSilicon discussion Rel-17 NR\_MBS-Core

[R2-2207592](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207592%20Discussion%20on%20coding%20of%20TMGI%20in%20MII.docx) Discussion on decoding of the TMGI in MII Huawei, CBN, HiSilicon discussion Rel-17 NR\_MBS-Core

[R2-2208084](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208084%20Broadcast%20sessions%20with%20the%20same%20MRB%20configuration.docx) Broadcast sessions with the same MRB configuration Ericsson discussion Rel-17 NR\_MBS-Core

*(moved from 6.1.3)*

[R2-2208088](C:\\Users\\Dwx974486\\Documents\\3GPP\\Extracts\\R2-2208088 MII signalling without SIB21.docx" \o "C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208088 MII signalling without SIB21.docx) MII signalling when SIB21 is absent Ericsson discussion Rel-17 NR\_MBS-Core

[R2-2208095](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208095.docx) Multicast-specific PUCCH-Config when multicast feedback is not configured with a priority value Qualcomm Incorporated CR Rel-17 38.331 17.1.0 3354 - F NR\_MBS-Core

[R2-2208589](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208589%20MBS%20Counter%20Check%20Procedure.docx) Counter Check Procedure for Multicast Samsung discussion Rel-17 NR\_MBS-Core

[R2-2208639](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208639%20Miscellaneous%20CR%20to%20TS%2038.331%20on%20NR%20MBS.docx) Miscellaneous CR to TS 38.331 on NR MBS ZTE, Sanechips CR Rel-17 38.331 17.1.0 3457 - F NR\_MBS-Core

[R2-2208874](C:\\Users\\Dwx974486\\Documents\\3GPP\\Extracts\\R2-2208874 MBS corrections for RRC.docx" \o "C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208874 MBS corrections for RRC.docx) MBS corrections for RRC Huawei, CATT, HiSilicon CR Rel-17 38.331 17.1.0 3289 1 F NR\_MBS-Core

* Revised in R2-2209094

R2-2209094 MBS corrections for RRC Huawei, CATT, HiSilicon CR Rel-17 38.331 17.1.0 3289 2 F NR\_MBS-Core

[R2-2208881](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208881%20Summary%20of%20AT119-e601MBS-R17%20RRC%20corrections.docx) [AT119-e][601][MBS-R17] RRC corrections Huawei, HiSilicon discussion Rel-17 NR\_MBS-Core

*[Easy Agreements]*

**Proposal 1: Correction 01 is not pursued. (18/19)**

**Proposal 2: Correction 02 is not pursued. (17/18)**

**Proposal 3: Postpone the discussion of Correction 03 and wait for the reply LS from CT1/SA2.**

**Proposal 4: Correction 04 is agreed and merged into Rapporteur’s RRC CR. (19/19)**

**Proposal 6: Correction 06 is not pursued. (17/18).**

**Proposal 9a: Re-discussing how MII signalling is controlled by NW is not pursued in R17. (17/18)**

**Proposal 9b: Correction 09 is not pursued. (8/8)**

**Proposal 10: Correction 10 is agreed and merged into Rapporteur’s RRC CR. (9/9)**

**Proposal 11a: Counter Check Procedure is not extended to multicast MRB. (16/18)**

**Proposal 11b: Correction 11 is not pursued.**

* Confirm easy agreements above in R2-2208881

Proposal 5a: Confirm that there is no restriction that the network does not re-associate a LCH for a multicast MRB with another radio bearer according to the following NOTE:

NOTE 1: For DRB and SRB, the network does not re-associate an already configured logical channel with another radio bearer.

Proposal 5b: Discuss whether multicast MRB ID change means the change of the MRB. If no, go for Option 1; otherwise, go for Option 2:

Option 1: For DRB, MRB and SRB, the network does not re-associate an already configured logical channel with another radio bearer. Hence servedRadioBearer is not present in this case.

Option 2: NOTE 1: For DRB and SRB, the network does not re-associate an already configured logical channel with another radio bearer. For MRB, the network does not re-associate an already configured logical channel with DBR or SRB.

DISCUSSION P5a/P5b

* QCM thinks we do not have to confirm P5a, can focus on P5b.
* LGE would like to keep the note as it is as its intention is to allow MRB ID change and the current note is clear. CATT agrees.
* QCM would prefer to make a clarifications just in case, option 2 is preferred. vivo agrees.
* Nokia thought existing note was OK and perhaps changes are not needed.
* QCM indicates that it does not mention MRB at all, so one could interpret that e.g. DRB LCH to MRB LCH re-association is possible (or vice versa). Vivo thinks we introduced MRB only in Rel-17 so if we just keep the note, it may be misinterpreted.
* We clarify NOTE1 as follows:

NOTE 1: For DRB and SRB, the network does not re-associate an already configured logical channel with another radio bearer. For MRB, the network does not re-associate an already configured logical channel with DRB or SRB.

* Discuss during CR review whether “Hence *servedRadioBearer* is not present in this case.” Needs to be removed in this case.
* Can consider further clarification on not allowing re-association to other MRBs during CR discussion if agreeable.

Proposal 7: Discuss which option to choose:

Option 1: NW can send configuration of MBS broadcast search space to a UE before MII reception. No specs impact.

Option 2: NW cannot send configuration of MBS broadcast search space to a UE before MII reception. Add a NOTE to limit NW behaviour.

DISCUSSION P7:

* QCM thinks this is a new requirement for the UE and they would like to avoid this. QCM think dedicated signalling is different from common signalling and O1 is not acceptable to QCM.
* Nokia thinks these cases are not really different as even in SI we provide parameters which are not supported by the UE. Nokia supports O1.
* Ericsson indicates this was discussed for SevingCellConfigCommon and this case is similar and that we agreed to discuss additional cases case by case. Ericsson prefers O1.
* vivo
* LGE prefer O1 to allow the NW to provide MBS SS before MII and indicates the UE can just ignore the configuration it does not understand. Futurewei, CATT, Samsung agree and also prefer O1.
* Huawei has the same understanding as LGE, i.e. there should be no problem from the UE.
* QCM can accept O1 but think we need to clarify in specifications as this should be not a general principle, just for MBS broadcast SS configuration.
* NW can send configuration of MBS broadcast search space to a UE before MII reception. Clarify this in 38.331.

Proposal 8: Discuss which option to choose:

Option 1: When UE reports plmn-index in the MII, the source gNB decodes the MII, translates the plmn-index to explicit PLMN ID and replaces the plmn-index with the explicit PLMN ID when sending MII to target gNB.

DISCUSSION P8:

* Nokia is OK with option 1, no need to impact Uu interface.
* Ericsson thinks the gNB just copies transparently, so it is a new behaviour for the network.
* CATT thinks O2 is not resource efficient.
* Ericsson wonders if we can postpone. Huawei thinks we should clarify. Huawei indicates this is a strong requirement to network.
* When UE reports plmn-index in the MII, the source gNB decodes the MII, translates the plmn-index to explicit PLMN ID and replaces the plmn-index with the explicit PLMN ID when sending MII to target gNB.
* Can be re-discussed if there is strong concern from NW vendors.

### 6.1.3 Other CP corrections

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

[R2-2208872](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208872%20%5bPre119-e%5d%5b602%5d%5bMBS-R17%5dSummary%20of%20AI%206.1.3%20Other%20CP%20Corrections%20(MediaTek).docx) Summary of Rel-17 MBS 6.1.3 Other CP corrections MediaTek Inc. discussion Rel-17 NR\_MBS-Core

DISCUSSION P1-1:

* Rapporteur clarifies that according to RAN1 this should be changed to 8, but we can restrict in specifications.
* Restrict the configuration of the value of maxG-RNTI-r17 as 8 (previously it is assumed to be 16).

DISCUSSION P1-4:

* For MBS broadcast, the maximum number of ROHC context sessions is set to 4, which is also the number of mandatory capability for MBS broadcast UEs.

DISCUSSION P1-2:

* Rapporteur clarifies that according to offline discussion it would be better to separate these parameters into two. Nokia asks whether then it means that maximum number of RNTIs would be still 16? Mediatek clarifies this is for UE capability reporting, so the UE reports what it supports. Intel clarifies in RAN1 specs this is already separated, so for RAN2 this is just a signalling discussion. QCM agrees to split into two parameters with 8 as a value each. Huawei thinks that we can make it separate assuming this is done already in RAN1 specs.
* Replace IE maxNumberRNTIs-MBS-r17 by two separate IEs maxNumberG-RNTIs-r17 and maxNumberG-CS-RNTIs-r17 and set the values to 8. (This is NBC change but may be ok for UE capability)

DISCUSSION P1-3:

* Rapporteur clarifies some companies thought this should be discussed in RAN1. Xiaomi clarifies that we used to have to have two separate capabilities for partial and full overlapping cases. Xiaomi thinks this can be discussed in RAN2. vivo thinks that partial overlapping for TDM case can be handled by FDM capability. Huawei thinks this should be discussed in RAN1 and proponent should raise this in RAN1. Nokia, vivo, Samsung, CATT agrees. Nokia thinks this is not a simple scenario.
* Confirm the discussion on simultaneous PDSCH processing capability should be taken in RAN1, if needed.

DISCUSSION P1-6:

* QCM thinks according to RANP, RedCap can work with Rel-17, but whether changes are needed can be discussed. ZTE asks whether we should now analyse RedCap support for MBS. CATT thinks that acc to RANP there should be no spec effort for RedCap in Rel-17. Nokia agrees with CATT. Ericsson believes that it would be good to consider some additional cases to make it work better (or address the cases where the service cannot be received). Mediatek thinks there is no technical discussion in RANP and that we can make sure it works for RedCap UE. Huawei thinks we can discuss if we identify an essential issue, i.e. it does not work. Huawei does not think issues raised by Ericsson are essential.
* Discuss further offline on the issue raised in papers for this meeting for RedCap and MBS, e.g. whether they are essential.

*Papers below (R2-2207224 to R2-2208636) noted (treated as part of [AT119-e][602])*

[R2-2207224](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207224%20Clarification%20on%20Group%20Paging%20for%20Inactive%20UE.docx) Clarification on Group Paging for Inactive UE vivo discussion Rel-17 NR\_MBS-Core

[R2-2207554](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207554%20CR%20to%2038.304%20%20Clarification%20to%20MBS%20prioritization%20with%20slice%20based%20reselection%20(1).docx) MBS prioritization with slice based reselection Nokia, Nokia Shanghai Bell CR Rel-17 38.304 17.1.0 0264 - F NR\_MBS-Core

*(moved from 6.1.2)*

[R2-2207562](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207562%20Discussion%20on%20the%20maximum%20G-RNTI%20for%20MBS.docx) Discussion on the maximum G-RNTI for MBS MediaTek inc. discussion Rel-17 NR\_MBS-Core

[R2-2207563](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207563%20Discussion%20and%20correction%20on%20UE%20capabilities%20for%20MBS.docx) Discussion and correction on UE capabilities for MBS MediaTek inc. discussion Rel-17 NR\_MBS-Core

[R2-2207564](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207564%20Corrections%20on%20the%20maximum%20G-RNTI%20for%20MBS.docx) Corrections on the maximum G-RNTI for MBS MediaTek inc. draftCR Rel-17 38.331 17.1.0 F NR\_MBS-Core

[R2-2207811](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207811%20Simultaneous%20PDSCH%20processing%20capability%20for%20MBS.docx) Simultaneous PDSCH processing capability for MBS Xiaomi discussion Rel-17 NR\_MBS-Core R2-2206114

[R2-2207814](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207814%20Correction%20on%20the%20G-RNTI%20and%20G-CS-RNTI%20configuration.docx) Correction on the G-RNTI and G-CS-RNTI configuration Xiaomi draftCR Rel-17 38.331 17.1.0 F NR\_MBS-Core

[R2-2208085](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208085%20Clarification%20of%20frequency%20prioritization%20for%20MBS%20broadcast.docx) Clarification of frequency prioritization for MBS broadcast Ericsson discussion Rel-17 NR\_MBS-Core

[R2-2208087](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208087%20MBS%20and%20RedCap.docx) MBS and RedCap Ericsson discussion Rel-17 NR\_MBS-Core

[R2-2208500](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208500.docx) Remaining MBS UE capability open issues Intel Corporation discussion Rel-17 NR\_MBS-Core

[R2-2208636](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208636%20On%20supported%20max%20number%20of%20G-RNTI%20on%20for%20MBS%20broadcast.doc) On supported max number of G-RNTI for MBS broadcast ZTE, Sanechips discussion Rel-17 NR\_MBS-Core

R2-2208877 38.304 Corrections for MBS CATT, Nokia, Huawei, HiSilicon, CBN CR Rel-17 38.304 17.1.0 0256 1 F NR\_MBS-Core

R2-2208879 Draft 38.306 CR for MBS UE capability corrections MediaTek Inc. draftCR Rel-17 38.306 17.1.0 F NR\_MBS-Core

R2-2208880 Draft 38.331 CR for MBS UE capability corrections MediaTek Inc. draftCR Rel-17 38.331 17.1.0 F NR\_MBS-Core

[R2-2208882](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208882%20Summary%20%5bAT119-e%5d%5b602%5d%5bMBS-R17%5d%20CP%20Other%20Corrections%20(MediaTek).docx) Summary of [AT119-e][602] Rel-17 MBS CP Other CP corrections MediaTek Inc. (Moderator) discussion Rel-17 NR\_MBS-Core

Proposal-4: It is up to network implementation to ensure the Redcap UE to receive MBS broadcast service with correct MBS broadcast bandwidth assignment (Rel-17).

Proposal-5: It is up to network implementation to ensure the Redcap UE to receive MBS multicast service and whether to avoid the case where UE joins a multicast but cannot receive the session due to bandwidth limitations (Rel-17).

DISCUSSION P4/P5:

* Ericsson indicates RANP agreed RedCap can support MBS, but Ericsson believes this should not impose requirements on NW configuration (e.g. CFR BW). Ericsson think it will be inefficient to modify CFR for RedCap specifically. Ericsson does not want to say that network needs to ensure RedCap reception. Nokia agrees.
* ZTE is fine with the original proposals, but not with the modified ones. ZTE thinks there is an indication from CN on whether RedCap UEs need to be supported for an MBS service.
* It is up to network implementation whether/how to enable Redcap UE to receive MBS broadcast/multicast.

Proposal-9: FG 33-1-1 (slot-level repetition up to 16 for broadcast MTCH) should be defined as an optional feature with UE capability signalling (To be discussed online).

DISCUSSION P9:

* QCM agrees with P9.
* Ericsson thinks that in case it is supposed to work for IDLE/INACTIVE, this would have to be mandatory capability for MBS broadcast UEs. LGE agrees and is not sure why this was separated. Intel, Nokia, CATT agrees.
* Huawei has not strong view on the capability signalling or not, but thinks the intention from RAN1 side to separate it was to make it optional. The feature can be used for specialized cases, e.g. Public Safety. Mediatek agrees and indicates that 8-times repetition is already supported anyway. QC, vivo agree.
* Chair wonders if we need to ask RAN1 why they separated this?
* We keep FG 33-1-1 as a separate optional capability from FG-33-1 (follow RAN1). FFS whether there is capability bit.

*Agreed offline via e-mail discussion [AT119-e][602]:*

* No need to define additional UE capability for MBS broadcast reception in terms of higher number of G-RNTIs.
* Current RRC ASN.1 structure is sufficient to allow the configuration of G-RNTI(s) and G-CS-RNT(s) per cell (no spec change needed for such configuration).
* No essential changes are identified to enable the MBS support of Redcap UE (Rel-17).
* Change NOTE 0g in section 5.2.4.1 of TS38.304 to “It is up to UE implementation which frequency to select, when the USD provides multiple frequencies for the service the UE is interested”.
* FFS whether MBS frequency prioritization procedure is impacted by slice based reselection priorities (decide next meeting, companies should coordinate with Slicing colleagues internally)
* the current text in TS38.331 is sufficient to describe the RRC Resume procedure when there is no identity information allocated by upper layers within the group paging message (No spec change needed to TS38.304).

### 6.1.4 MAC corrections

[R2-2208873](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208873%20Summary%20of%20A.I.%206.1.4%20and%206.1.5%20%20UP%20corrections%20(Lenovo).docx) [Pre119-e][603][MBS-R17] Summary of A.I. 6.1.4 and 6.1.5 / UP corrections (Lenovo) Lenovo discussion Rel-17 NR\_MBS-Core

DISCUSSION on P1, P5:

* Clarify Active Time for MBS multicast related to non-complete PDCCH monitoring [1].
* When describing the conditions of multicast DRX Active Time in CSI report, use“/” between conditions. [7]

DISCUSSION on P11, P13:

* Nokia thinks P13 is not needed and can be left to the UE without a note. Samsung, CATT agree with Nokia. QCM supports having a note. Xiaomi thinks it is useful for implementation people.
* RAN2 agrees that procedural texts on DL dynamic assignment related to NDI handling are not only for C-RNTI/Temporary C-RNTI/CS-RNTI but also for G-RNTI/G-CS-RNTI. [1][7]
* P13 is not agreed (the note stays as it was already)

DISCUSSION on P18, P19:

* ZTE thinks there is no need to change the name as it impacts multiple specs. Lenovo thinks RAN3 is also discussing to change the name and this is an omission from last meeting.
* multicastHFN-AndRefSN is renamed to initialRXDELIV and update the corresponding description to ‘Indicates an initial value of RX\_DELIV for multicast MRB PDCP window initialization as specified in TS 38.323 [5].’. [8] [9] [12]
* Add to section 16.10 (e.g. 16.10.5.3.2) in TS 38.300 a sentence saying: “For MRBs, PDCP can either be re-established or remain as it is.” [8]

*Papers below (R2-2207046 to R2-2208637) noted (treated as part of [AT119-e][603])*

[R2-2207046](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207046%20MAC%20Corrections%20for%20MBS.docx) MAC Corrections for MBS Samsung discussion Rel-17 38.321

[R2-2207226](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207226_CR1310_38321_Clarification%20on%20pdsch-AggregationFactor%20in%20NR%20MBS.docx) Clarification on pdsch-AggregationFactor in NR MBS vivo CR Rel-17 38.321 17.1.0 1310 - F NR\_MBS-Core

[R2-2207470](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207470%2038.321%20CR%20Correction%20on%20the%20HARQ%20buffer%20flush%20for%20the%20MBS%20broadcast.docx) 38.321 CR Correction on the HARQ buffer flush for the MBS broadcast Beijing Xiaomi Software Tech draftCR Rel-17 38.321 17.1.0 F NR\_MBS-Core

[R2-2207593](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207593%20Clarification%20on%20retransmission%20and%20RTT%20timer%20maintenance.docx) Clarification on retransmission and RTT timer maintenance Huawei, HiSilicon discussion Rel-17 NR\_MBS-Core

[R2-2207594](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207594%20Further%20consideration%20on%20inactivity%20timers%20for%20unicast%20and%20multicast.docx) Further consideration on inactivity timers for unicast and multicast Huawei, HiSilicon discussion Rel-17 NR\_MBS-Core

[R2-2207812](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207812%20HARQ%20process%20for%20MCCH%20and%20Broadcast%20MTCH(s).docx) HARQ process for MCCH and Broadcast MTCH(s) Xiaomi draftCR Rel-17 38.321 17.1.0 F NR\_MBS-Core

[R2-2208637](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208637%20Miscellaneous%20CR%20to%20TS%2038.321%20on%20NR%20MBS.docx) Miscellaneous CR to TS 38.321 on NR MBS ZTE, Sanechips CR Rel-17 38.321 17.1.0 1395 - F NR\_MBS-Core

R2-2208878 38.321 corrections for MAC OPPO CR Rel-17 38.321 17.1.0 1403 - F NR\_MBS-Core

[R2-2208883](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208883%20%5bAT119-e%5d%5b603%5d%5bMBS-R17%5d%20UP%20corrections%20(Lenovo).docx) Summary of [AT119-e][603][MBS-R17] UP corrections (Lenovo) Lenovo discussion Rel-17 NR\_MBS-Core

P15: Allow configuration of initial value of RX\_DELIV also when PDCP is re-established for UM MRB [8]

P16: when upper layers request a PDCP entity suspend for the multicast MRB, no specific behavior is needed for RX\_NEXT and RX\_DELIV, i.e. no initialization for RX\_NEXT and RX\_DELIV [10].

P2: It is clarified that the same HARQ process cannot be used for multiple G-RNTI or G-CS-RNTI simultaneously and only one drx-RetransmissionTimerDL-PTM and/or one drx-HARQ-RTT-TimerDL-PTM per HARQ process are running at a given time.

P2a: It is clarified that the drx-RetransmissionTimerDL-PTM or drx-HARQ-RTT-TimerDL-PTM is maintained per G-RNTI or G-CS-RNTI per HARQ process.

DISCUSSION P2/P2a:

* QCM thinks we have P2 because P2a is not agreeable.
* Nokia is puzzled about P2 as it seems not related to the question asked.
* Huawei thinks the timers can have different values for different RNTIs, so P2a is useful clarification.
* RAN2 confirms that the same HARQ process cannot be used for multiple G-RNTI or G-CS-RNTI simultaneously and only one drx-RetransmissionTimerDL-PTM and/or one drx-HARQ-RTT-TimerDL-PTM per HARQ process are running at a given time. (no spec change)

P15: Allow configuration of initial value of RX\_DELIV also when PDCP is re-established for UM MRB [8]

DISCUSSION P15:

* ZTE thinks the solution proposed by P15 is not optimal. This solution does not work for AM MRB for PDCP suspension and re-establishment.
* Xiaomi’s understanding is that for AM MRB variables are not re-initialized. The alignment with PDCP suspension can be discussed based on P16, but it seems difficult based on the discussion so far.
* Lenovo indicates P15 is only for UM MRB and there might be no issue for AM MRB.
* LGE is fine with P15. LGE does not see any issue for AM MRB for re-establishment. LGE thinks we could discuss AM MRB further.
* Allow configuration of initial value of RX\_DELIV also when PDCP is re-established for UM MRB. FFS AM MRB, if a fix is needed

P16: when upper layers request a PDCP entity suspend for the multicast MRB, no specific behavior is needed for RX\_NEXT and RX\_DELIV, i.e. no initialization for RX\_NEXT and RX\_DELIV [10].

DISCUSSION P16:

* Xiaomi thinks this value will not be stored as it is one-shot according to RRC. Huawei agrees
* Xiaomi thinks letting UE choose any value would also work.
* LGE thinks during e-mail discussion there was some confusion. LGE thinks we need to consider UM and AM MRBs together to avoid specs complexity. LGE thinks keeping the state variables during suspend does not solve the issue as there are no proper initial values to be applied for resume.
* Huawei indicates that for AM MRB there will be no PDCP re-establishment.
* ZTE has sympathy for LGE’s comments.
* Chair: Companies are to coordinate on the issue related to P16 and this can be rediscussed during the next meeting.

*Agreed offline via e-mail discussion [AT119-e][603]:*

* ****Correct Figure 4.2.2-1 and Figure 4.2.2-2 in TS 38.321 to incorporate (De-)-Multiplexing block for MCCH.****
* ****change the name of pdsch-AggregationFactorMulticast to pdsch-AggregationFactor in RRC spec.****
* ****FFS**** whether any changes are needed for the HARQ buffer flushing of MBS broadcast at MAC reset/TAT expiry.

### 6.1.5 Other UP Corrections

Including corrections to PDCP, RLC and SDAP.

*Papers below (R2-2207370 to R2-2208638) noted (treated as part of [AT119-e][603])*

[R2-2207370](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207370%20MBS%20PDCP%20related%20corrections.docx) PDCP related corrections for MBS Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_MBS-Core

[R2-2207565](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207565%20PDCP%20corrections%20for%20MBS.docx) PDCP corrections for MBS MediaTek inc. discussion Rel-17 NR\_MBS-Core

[R2-2207595](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207595%20PDCP%20state%20variables%20handling%20during%20multicast%20MRB%20suspend.docx) PDCP state variables handling during multicast MRB suspend Huawei, Xiaomi, CBN, HiSilicon discussion Rel-17 NR\_MBS-Core

[R2-2207692](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207692%20correction%20on%20HFN%20and%20SN.docx) Misalignment between RRC and PDCP specs regarding multicastHFN-AndRefSN Lenovo discussion Rel-17

[R2-2208590](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208590%20MBS%20Initial%20RX_DELIV.docx) Correction for Initial value of RX\_DELIV for Multicast Samsung discussion Rel-17 NR\_MBS-Core

[R2-2208638](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208638%20Miscellaneous%20CR%20to%20TS%2038.323%20on%20NR%20MBS.docx) Miscellaneous CR to TS 38.323 on NR MBS ZTE, Sanechips CR Rel-17 38.323 17.1.0 0099 - F NR\_MBS-Core

R2-2208875 Miscellaneous corrections for MBS 38.323 Xiaomi CR Rel-17 38.323 17.1.0 0098 1 F NR\_MBS-Core

# 8 Rel-18

## 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.

[R2-2206965](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206965_S2-2203020.doc) UE capabilities for MBS (S2-2203020; contact: Qualcomm) SA2 LS in Rel-18 FS\_5MBS\_Ph2 To:RAN1 Cc:RAN, RAN2, RAN3

* Noted

[R2-2206973](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206973_RP-221861.docx) Reply LS on UE capabilities for MBS (RP-221861; contact: Qualcomm) RAN LS in Rel-18 FS\_5MBS\_Ph2 To:SA2 Cc:RAN1, RAN2, RAN3

* Noted

[R2-2207770](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207770.docx) Rel-18 NR MBS enhancement workplan CATT Work Plan Rel-18 NR\_MBS\_enh-Core

* Noted

### 8.11.2 Multicast reception in RRC\_INACTIVE

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]

*General assumptions, scenarios*

[R2-2207771](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207771.docx) Discussion on multicast reception in RRC\_INACTIVE CATT, CBN discussion Rel-18 NR\_MBS\_enh-Core

DISCUSSION P1:

* QCM asks if in scenario 2 we assume the UE already has a configuration? CATT confirms. Vivo wonders whether we can assume to have a unified solution for both S1 and S2. Ericsson we need to consider security concerns when providing MC config via MCCH, for dedicated configuration the concern is with updating the configuration when the UE is INACTIVE. OPPO is worried that S2 excludes dedicated configuration. CATT clarifies this is not an intention. Samsung indicates that we need to assume that the UE already has a valid configuration. OPPO asks for S1 what happens in case the session is deactivated in the meantime. ZTE thinks we need to focus on scenarios, not solutions for now. Mediatek think we can agree the initial config needs to be provided in RRC Connected.
* In Rel-18, multicast reception for UEs in INACTIVE supports at least the following scenarios, with the assumption that the UE already has a valid PTM configuration:

- Scenario 1: a UE has been receiving multicast in CONNECTED, and it enters INACTIVE and continues the multicast reception.

- Scenario 2: a UE has joined a multicast session and has been directed to INACTIVE, the UE starts to receive the multicast session

**FFS for state changes, e.g. due to service being not provided in INACTIVE anymore etc.**

DISCUSSION P2-3:

* QCM would like to capture that the network can selectively move UEs between the states for Multicast service reception. Ericsson agrees and indicates RAN should be in control of this. Apple thinks we need some clarification on UE behaviour. Thinks feature should be enabled per UE. OPPO think only low QoS services can be provided in INACTIVE.
* It is up to gNB to decide whether a multicast session may be received by UE(s) in INACTIVE. FFS what information gNB may be provided to form such decision (related to SA2 discussion).
* It is supported that gNB transmit one multicast session to both UEs in CONNECTED and INACTIVE in the same cell. FFS how the gNB configures this.
* It is assumed the network can choose which UEs receive in RRC INACTIVE and which in RRC Connected and can move UEs between the states for Multicast service reception.

DISCUSSION P4:

* Vivo asks whether we allow different resource to be used for Connected and for Inactive? Nokia thinks this makes sense but is not necessary, i.e. separate resources should be possible. ZTE would like to clarify we mean radio resources. Vivo would like to remove “(i.e. resources used for MTCH)”. Apple thinks there are some things we cannot reuse. OPPO indicates there might be also configurations that are needed for INACTIVE in particular.
* The following is taken as baseline: we assume the same PDCCH/PDSCH resources (e.g. resources used for MTCH) can be used for all UEs (including UEs in CONNECTED and/or INACTIVE states) for receiving the same multicast session. Different configuration/resources are not precluded as well. FFS what exactly can be common and what not (e.g. HARQ, SPS etc.) and what is needed in addition (to legacy PTM config).

*PTM configuration for RRC\_INACTIVE*

[R2-2208441](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208441%20Initial%20consideration%20on%20multicast%20reception%20in%20RRC_INACTIVE.docx) Initial consideration on multicast reception in RRC\_INACTIVE CMCC discussion Rel-18 NR\_MBS\_enh-Core

DISCUSSION P3:

* Xiaomi thinks there is a security concern for O2 and O3 and we may need to discuss with SA3. OPPO has similar concern and prefer O1. OPPO wonders about the difference between O2 and MBS broadcast. QCM has similar questions. Samsung, QCM prefer O1. vivo would like to exclude O3. Huawei, Intel do not see security concerns. Samsung thinks O1 is simplest, does not think there will be frequent configuration changes. Does not think O3 is needed. TD Tech asks whether MCCH in O2 is configured per session or commonly for all sessions. Xiaomi MCCH configuration for the INACTIVE UE will be combined with the dedicated configuration provided in CONNECTED. If a fake gNB provides the MCCH configuration, the connection of the CONNECTED UE will fail. This is different from the Rel-17 broadcast mode.
* For PTM configuration delivery, RAN2 further investigates the following solutions:

Option 1: Dedicated signalling

Option 2: Solution based on SIB+MCCH

We do not preclude some “mix” of the options

DISCUSSION P5:

* Mediatek thinks PTP is not supported, but wonders whether we can have an enhancement for HARQ. LG thinks we can reuse HARQ from Connected mode and would not like exclude this. CATT thinks HARQ was discussed in RAN plenary and was excluded due to no RAN1 Tus.
* HARQ feedback and PTP are not supported for multicast reception in RRC\_INACTIVE.

*Mobility support*

[R2-2208096](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208096-multicast-rrc-inactive.docx) Multicast reception by UEs in RRC\_INACTIVE state Qualcomm Incorporated discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1. Multicast service continuity after cell reselection in RRC\_INACTIVE state (i.e. without resuming RRC connection) will be supported.

Proposal 4. Upon cell reselection to neighbour cells within the RNA during active multicast session, if MRB configuration of reselected cell is not provided for RRC\_INACTIVE state, then the UE is required to resume RRC connection to get the Multicast MRB configuration.

DISCUSSION P1/P4:

* TD Tech supports both. Ericsson would like to have an option of using RRC resume, e.g. based on the threshold. We need to consider the network awareness of UEs receiving MC in INACTIVE. Samsung, OPPO support P1/P4. Ericsson thinks service continuity is left up to RAN3. CATT clarifies mobility will be discussed in both RAN2 and RAN3 (as per each WG’s expertise/area). Huawei would like to clarify fir P4, that it is configuration of the session which is not provided. LG thinks P4 is misleading and suggests to clarify that configuration is “not available”.
* Multicast service continuity after cell reselection in RRC\_INACTIVE state (i.e. without resuming RRC connection) will be supported (if the configuration of the new cell is available for the UE). FFS whether there are cases where the UE needs to resume the connection. FFS RAN3 impacts due to inter-gNB mobility.
* Upon cell reselection to neighbour cells during active multicast session, if the configuration of the session is not available for the new cell for UEs in INACTIVE, then the UE is required to resume RRC connection to get the Multicast MRB configuration.

*Papers below in A.I. 8.11.2 not treated*

*State transitions and notifications*

[R2-2207699](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207699%20Mobility%20and%20state%20transition.docx) Mobility and state transition for multicast reception in RRC\_INACTIVE Lenovo discussion Rel-18

Proposal 4 NW can indicate that UE stays in RRC\_INACTIVE or enters RRC\_CONNECTED for receiving a multicast Session in paging message.

[R2-2208093](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208093%20MBS%20multicast%20reception%20in%20RRC_INACTIVE.docx) MBS multicast reception in RRC\_INACTIVE Ericsson discussion Rel-18 NR\_MBS\_enh-Core

Working assumption 12: When the UE receives multicast data in RRC\_INACTIVE the multicast session state can change (configured, active or inactive).

Proposal 4: The gNB uses RRCRelease with suspendConfig to enable the UE to receive multicast in RRC\_INACTIVE.

[R2-2207588](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207588%20Multicast%20reception%20in%20RRC_INACTIVE.docx) Multicast reception in RRC\_INACTIVE Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

Proposal 5: Reuse the existing RRC release message to transit the UE to RRC INACTIVE state for multicast service receiving.

Proposal 6a: Reuse legacy group paging to trigger UE to resume from RRC\_INACTIVE state to RRC CONNECTED state in case the network intends to stop providing multicast service for RRC INACTIVE UEs.

[R2-2206987](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206987%20Discussion%20on%20supporting%20group%20scheduling%20for%20RRC_INACTIVE%20UEs_clean.docx) Discussion on supporting group scheduling for RRC\_INACTIVE UEs FGI discussion

[R2-2206988](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206988.docx) Multicast reception in RRC\_INACTIVE state TD Tech Ltd discussion Rel-18

[R2-2206997](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206997%20Discussion%20on%20multicast%20reception%20in%20RRC_INACTIVE%20state.doc) Discussion on multicast reception in RRC\_INACTIVE state OPPO discussion Rel-18 NR\_MBS\_enh

[R2-2207047](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207047%20Considerations%20for%20Multicast%20Reception%20in%20RRC_INACTIVE.docx) Considerations for Multicast Reception in RRC\_INACTIVE Samsung discussion Rel-18

[R2-2207191](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207191.doc) Discussion on RAN based Notification Area for Multicast Mobility in RRC Inactive State TCL Communication Ltd. discussion Rel-18

[R2-2207204](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207204%20Overview%20considerations%20on%20multicast%20in%20RRC_INACTIVE.docx) Overview considerations on Multicast reception in RRC\_INACTIVE NEC Europe Ltd discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207227](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207227%20Supporting%20Multicast%20Reception%20in%20RRC_INACTIVE.docx) Supporting Multicast Reception in RRC\_INACTIVE vivo discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207318](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207318%20-Discussion%20on%20possible%20approaches%20to%20support%20multicast%20for%20inactive%20UEs.doc) Discussion on possible approaches to support multicast for inactive UEs Futurewei discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207412](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207412.docx) State transition for UEs receiving Multicast in RRC\_INACTIVE state TCL Communication Ltd. discussion

[R2-2207415](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207415.docx) PTM configuration for UEs receiving Multicast in RRC\_INACTIVE state TCL Communication Ltd. discussion

[R2-2207447](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207447_%20Multicast%20reception%20in%20RRC_INACTIVE%20state_v0.doc) Multicast reception in RRC\_INACTIVE state Apple discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207481](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207481%20Considerations%20on%20the%20multicast%20reception%20in%20RRC_INACTIVE.docx) Considerations on the multicast reception in RRC\_INACTIVE Beijing Xiaomi Software Tech discussion Rel-18

[R2-2207557](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207557%20MBS%20Inactive%20Principles%20final.docx) MBS inactive principles Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207566](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207566%20Discussion%20on%20multicast%20enhancement%20for%20RRC%20INACTIVE%20state.docx) Discussion on multicast enhancement for RRC INACTIVE state MediaTek inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207689](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207689.doc) Discussion on Multicast Reception in RRC\_INACTIVE Spreadtrum Communications discussion Rel-18

[R2-2207698](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207698%20PTM%20configuration.docx) PTM configuration for multicast reception in RRC\_INACTIVE Lenovo discussion Rel-18

[R2-2207720](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207720%20Mobility%20of%20UEs%20receiving%20multicast%20in%20RRC_INACTIVE%20State.docx) Mobility of UEs receiving multicast in RRC\_INACTIVE state CANON Research Centre France discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207730](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207730%20%20PTM%20configuration%20for%20RRC_INACTIVE.docx) PTM Configuration in RRC\_INACTIVE SHARP Corporation discussion NR\_MBS\_enh-Core

[R2-2208289](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208289_eMBS_multicast-inactive.doc) Multicast reception in RRC INACTIVE Kyocera discussion Rel-18

[R2-2208312](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208312%20Multicast%20reception%20in%20RRC_INACTIVE.doc) Multicast reception in RRC\_INACTIVE LG Electronics Inc. discussion Rel-18

[R2-2208374](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208374_MBS%20support%20in%20RRC_INACTIVE.doc) MBS support in RRC\_INACTIVE InterDigital, Inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2208499](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208499.docx) Multicast reception in RRC\_INACTIVE Intel Corporation discussion Rel-18 NR\_MBS\_enh-Core

[R2-2208520](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208520%20Discussion%20on%20user%20plane%20aspects%20for%20support%20of%20multicast%20in%20RRC_INACTIVE_v4.doc) Discussion on user plane aspects for support of multicast in RRC\_INACTIVE LG Electronics Inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2208633](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208633%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]

*Assumptions and baseline solution*

[R2-2208182](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208182%20BroadcastSharedProcessing.docx) Shared processing for MBS broadcast and unicast reception Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: RAN2 initially focuses on optimizations on devices with single RX/single TX or dual RX/single TX chains.

Proposal 2: RAN2 focuses either on introducing gaps that is specific for broadcast reception or work on mechanisms that utilize already existing gaps for limited capability UEs that can receive only from one cell at a time.

DISCUSSION:

* QCM thinks we should start with 2Rx as 1Rx is mainly for low cost devices while these are not expected to receive MBS and unicast simultaneously. Samsung agrees and indicates even if MUSIM 2Rx is assumed. QCM thinks we should not discuss enhancements for 1Rx specifically.
* Huawei does not see the need to limit the scenarios.
* OPPO thinks we do not have to support 1Rx case.
* Ericsson shares the view from QCM and would like to avoid using gaps.
* RAN2 focuses on solutions taking multi-Rx UEs (i.e. no specific enhancements for 1Rx UEs).

*Papers below in A.I. 8.11.3 not treated*

[R2-2208548](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208548.docx) Shared processing for simultaneous MBS broadcast and Unicast reception Intel Corporation discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: LTE solution on shared processing for broadcast and unicast reception is the baseline for NR, i.e. 1) new IE is added in system information to control whether MBSInterestIndication for shared processing can be sent or not; 2) MBSInterestIndication message content and related procedure is updated for shared processing.

Proposal 2: If Proposal 1 is agreed, new IE to control whether MBSInterestIndication for shared processing can be sent or not is added to SIB1.

Proposal 3: If Proposal 1 is agreed, in MBSInterestIndication, for each broadcast service that the UE is receiving or interested to receive, the following parameters are signalled: carrier frequency (ARFCN-ValueNR), subcarrier spacing, and bandwidth of the CFR.

Proposal 4: If Proposal 1 is agreed, shared processing for broadcast and unicast reception is an optional feature without UE capability signalling.

[R2-2206989](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206989.docx) Simultaneous unicast reception and MBS broadcast reception TD Tech Ltd discussion Rel-18

[R2-2206990](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206990.docx) A new MCCH transmission method Chengdu TD Tech, TD Tech discussion Rel-18

[R2-2206991](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206991.docx) MBS reception interruption problem in LTE and NR TD Tech Ltd discussion Rel-18 Withdrawn

[R2-2206998](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2206998%20Discussion%20on%20support%20of%20FTA%20in%20NR.doc) Discussion on support of FTA in NR OPPO discussion Rel-18 NR\_MBS\_enh

[R2-2207014](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207014.docx) MBS reception interruption problem in LTE and NR Chengdu TD Tech, TD Tech discussion Rel-18

[R2-2207184](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207184.doc) Discussion on UE shared Processing for Broadcast and Unicast Services Reception TCL Communication Ltd. discussion Rel-18

[R2-2207228](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207228%20Supporting%20Shared%20Processing%20for%20MBS%20Broadcast%20and%20Unicast.docx) Supporting Shared Processing for MBS Broadcast and Unicast vivo discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207448](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207448_%20Sharing%20processing%20of%20MBS%20broadcast%20and%20unicast%20reception_v0.doc) Sharing processing of MBS broadcast and unicast reception Apple discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207567](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207567%20Discussion%20on%20broadcast%20coexistence%20and%20signaling%20enhancement.docx) Discussion on broadcast coexistence and signaling enhancement MediaTek inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207589](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207589%20Discussion%20on%20shared%20processing%20for%20MBS%20broadcast%20and%20unicast%20reception.docx) Discussion on shared processing for MBS broadcast and unicast reception Huawei, CBN, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207690](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207690.doc) Discussion on shared processing for MBS broadcast and Unicast Reception Spreadtrum Communications discussion Rel-18

[R2-2207772](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207772.docx) Discussions on shared processing for MBS broadcast and unicast reception CATT, CBN discussion Rel-18 NR\_MBS\_enh-Core

[R2-2207808](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2207808%20Discussion%20on%20shared%20processing%20for%20MBS%20broadcast%20and%20unicast%20reception.docx) Discussion on shared processing for MBS broadcast and unicast reception Xiaomi discussion Rel-18 NR\_MBS\_enh-Core

[R2-2208092](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208092%20MBS%20broadcast%20and%20unicast%20reception%20with%20shared%20resources.docx) MBS broadcast and unicast reception with shared resources Ericsson discussion Rel-18 NR\_MBS\_enh-Core

[R2-2208097](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208097-MBS-capability-sharing.docx) Shared processing for MBS broadcast and unicast reception Qualcomm Incorporated discussion Rel-18 NR\_MBS\_enh-Core

[R2-2208290](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208290_eMBS_shared-processing.doc) Shared processing for simultaneous reception of MBS and unicast Kyocera discussion Rel-18

[R2-2208442](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208442%20Discussion%20on%20shared%20processing%20for%20broadcast%20and%20unicast%20reception.docx) Discussion on shared processing for broadcast and unicast reception CMCC discussion Rel-18 NR\_MBS\_enh-Core

[R2-2208591](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208591%20MBS%20Uu%20Signaling.docx) Uu Signaling Enhancements for MBS Samsung discussion Rel-18 NR\_MBS\_enh-Core

[R2-2208634](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2208634%20On%20shared%20processing%20for%20MBS%20broadcast%20and%20Unicast%20reception.doc) On shared processing for MBS broadcast and Unicast reception ZTE, Sanechips discussion Rel-18 NR\_MBS\_enh-Core