3GPP TSG-RAN WG2 Meeting #122 DRAFT\_ R2-2306547

Incheon, Korea, May 22-26, 2023

Source: Session chair (Huawei)

Title: Report from MBS breakout session

Agenda Item: 8.7

# Email discussions

Kicked-off together with a meeting start:

* [AT122][600] Organizational - MBS session

Scope:

* + - Share plans and list of ongoing email discussions for MBS sessions
    - Share meeting notes and agreements for review and endorsement
    - Flag IPA CRs from the previous meeting

Kicked-off after online session on Tuesday:

* [AT122][601] Revised IPA CRs

Scope: For CRs proponents to share and review updated IPA CRs as per the offline and online comments

Outcome: Revised IPA CRs

Deadline: Final versions of the revised CRs uploaded until Thursday 19:00

## 2.4 Instructions

Tdoc limitations

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

- Assigned summary rapporteur input of the summary.

- Email / offline discussions outcomes by discussion rapporteur,

- WI rapporteurs input for WI planning etc,

- TS rapporteur input for TS maintenance

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

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

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

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

## 6.2 NR Multicast

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

Tdoc Limitation: 2 tdocs

### 6.2.0 In principle agreed CRs

[R2-2304721](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304721_38.331_CR3967r2_CP%20Corrections%20for%20MBS.docx) Corrections to paging for MBS Samsung Electronics Co., Ltd CR Rel-17 38.331 17.4.0 3967 2 F NR\_MBS-Core [R2-2304470](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304470_38.331_CR3967r1_CP%20Corrections%20for%20MBS.docx)

Flagged by Qualcomm with the following comments:

1. There are some proposals impacting this change in R2-2305584. So, depending on the outcome, this CR may need further update to avoid CR merging conflict later.

* To be updated if needed based on the discussion this meeting (CB Friday)

[R2-2304780](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304780%20Corrections%20on%20MBS%20Broadcast%20Configuration.docx) Corrections on MBS Broadcast Configuration CATT, CBN CR Rel-17 38.331 17.4.0 3946 2 F NR\_MBS-Core [R2-2304323](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304323%20Corrections%20to%20TS%2038.331.docx)

Flagged by vivo with the following comments:

1. In the CR coversheet, NE-DC should be added in the impacted 5G architecture options part.

2. Editorial comments for the usage of punctuation marks given in in the [600] offline thread

Flagged by Qualcomm with the following comment:

1. Needs coverpage revision – RAN is also impacted due to change in 5.9.1.1

* Revised in R2-2306581

[R2-2304782](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304782%20Correction%20on%20Supporting%20MBS%20in%20SNPN.docx) Correction on Supporting MBS in SNPN CATT, CBN CR Rel-17 38.331 17.4.0 4065 3 F NR\_MBS-Core [R2-2304558](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304558%20Correction%20on%20Supporting%20MBS%20in%20SNPN.docx)

Flagged by QCM with the following comment:

1. Subclauses 6.3.2 and 11.2.2 are correctly listed as affected subclauses in the coverpage. However, the subclause titles of both of them are missing in the CR body.

* Revised in R2-2306583

[R2-2304815](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304815%20Miscellaneous%20RRC%20corrections%20for%20MBS.docx) Miscellaneous RRC corrections for MBS Huawei, HiSilicon CR Rel-17 38.331 17.4.0 4044 2 F NR\_MBS-Core [R2-2304321](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304321%20Miscellaneous%20RRC%20corrections%20for%20MBS.docx)

* Agreed

[R2-2304816](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304816%20Correction%20on%20MBS%20capabilities.docx) Correction on MBS capabilities Huawei, HiSilicon CR Rel-17 38.306 17.4.0 0908 1 F NR\_MBS-Core [R2-2304322](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304322%20Correction%20on%20MBS%20capabilities.docx)

* Agreed

[R2-2304981](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304981%20Corrections%20on%20cfr-ConfigMulticast%20and%20Multicast%20DRX.docx) Corrections on cfr-ConfigMulticast and Multicast DRX NEC, LG Electronics Inc, Nokia, Nokia Shanghai Bell, Samsung CR Rel-17 38.321 17.4.0 1579 2 F NR\_MBS-Core [R2-2304561](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304561%20Corrections%20on%20cfr-ConfigMulticast%20and%20Multicast%20DRX.docx)

Flagged by Qualcomm with the following comment:

1. It seems the CR was incomplete as explained by R2-2304699. If that is the case, this CR should be revised to include changes from R2-2304699 also instead of agreeing two separate CRs.

* Revised in R2-2306584

[R2-2305662](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305662%20Misc%20correction%20to%20TS%2038.331%20on%20NR%20MBS.docx) Misc correction to TS 38.331 on NR MBS ZTE, Sanechips CR Rel-17 38.331 17.4.0 4015 2 F NR\_MBS-Core [R2-2304329](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304329%20Misc%20correction%20to%20TS%2038.331%20on%20NR%20MBS.docx)

Flagged by Qualcomm with the following comment:

1. The title says Misc corrections. That makes at least two CRs with similar title “Misc correction” in this cycle alone for same WI. However, for this CR, there is exactly one correction, on field description of mtch-neighbourCell. Title should be updated to e.g. Correction to mtch-neighbourCell field description.

* Revised in R2-2306585

[R2-2305771](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305771%2038.321%20CR1583r2%20(Rel17)%20SPS%20Initialization%20and%20Error%20Case%20Handling%20for%20MBS.docx) Corrections on SPS Initialization and Handling of Unknown, Unforeseen and Erroneous Protocol Data for MBS Samsung R&D Institute India CR Rel-17 38.321 17.4.0 1583 2 F NR\_MBS-Core [R2-2304528](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304528%2038.321%20CR1583r1%20(Rel17)%20SPS%20Initialization%20and%20Error%20Case%20Handling%20for%20MBS.docx)

Flagged by vivo with the following comments:

1. In the impacted 5G architecture options part of the CR coversheet, (NG)EN-DC should be revised as NE-DC considering MBS multicast can only be supported in the MCG side in NE-DC and NR-DC scenarios.

* Revised in R2-2306582

[R2-2305847](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305847_CR3948_38331%20Correction%20to%20PDSCH%20Aggregation%20of%20MBS%20SPS.docx) Correction to PDSCH Aggregation of MBS SPS vivo CR Rel-17 38.331 17.4.0 3948 3 F NR\_MBS-Core [R2-2304557](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304557_CR3948_38331%20Correction%20to%20PDSCH%20Aggregation%20of%20MBS%20SPS.docx)

Flagged by Qualcomm with the following comment:

1. Similar to R2-2304782 above, subclause 6.3.2 is marked as changed subclause, but the title of the subclasue is missing in the CR.

* Revised in R2-2306586

[R2-2306112](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306112_38.331_CR4037r2_Corrections%20on%20MBS%20SPS%20configuration.docx) Corrections on MBS SPS configuration ASUSTeK CR Rel-17 38.331 17.4.0 4037 2 F NR\_MBS-Core [R2-2304550](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304550_38.331_CR4037r1_Corrections%20on%20MBS%20SPS%20configuration.docx)

* Agreed

*Withdrawn*

R2-2304781 Correction on Supporting MBS in SNPN CATT, CBN CR Rel-17 38.331 17.4.0 4065 2 F NR\_MBS-Core [R2-2304469](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304469%20Correction%20on%20Supporting%20MBS%20in%20SNPN.docx) Withdrawn

*Revised IPA CRs*

R2-2306581 Corrections on MBS Broadcast Configuration CATT, CBN CR Rel-17 38.331 17.4.0 3946 3 F NR\_MBS-Core

R2-2306582 Corrections on SPS Initialization and Handling of Unknown, Unforeseen and Erroneous Protocol Data for MBS Samsung R&D Institute India CR Rel-17 38.321 17.4.0 1583 3 F NR\_MBS-Core

R2-2306583 Correction on Supporting MBS in SNPN CATT, CBN CR Rel-17 38.331 17.4.0 4065 4 F NR\_MBS-Core

R2-2306584 Corrections on cfr-ConfigMulticast and Multicast DRX NEC, LG Electronics Inc, Nokia, Nokia Shanghai Bell, Samsung CR Rel-17 38.321 17.4.0 1579 3 F NR\_MBS-Core

R2-2306585 Correction to mtch-neighbourCell field description ZTE, Sanechips CR Rel-17 38.331 17.4.0 4015 3 F NR\_MBS-Core

R2-2306586 Correction to PDSCH Aggregation of MBS SPS vivo CR Rel-17 38.331 17.4.0 3948 4 F NR\_MBS-Core

### 6.2.1 CP and Stage-2 corrections

Including corrections to TS 38.300, TS 38.331, TS 38.304, TS 38.306.

*MBS broadcast on SCell*

[R2-2304697](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304697%20Discussion%20on%20MBS%20Broadcast%20Reception%20on%20SCell.docx) Discussion on MBS Broadcast Reception on SCell vivo Mobile Com. (Chongqing) discussion Rel-17 NR\_MBS-Core

Proposal 1: MBS broadcast reception on SCell within SNPN is not supported.

Proposal 2: MBS broadcast reception on SCell within PLMN is supported based on NW implementation (i.e., no stage 3 spec impact).

[R2-2304776](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304776%20Discussion%20on%20PLMN%20index%20for%20broadcast%20reception%20on%20SCell.docx) Discussion on plmn-Index with MBS broadcast reception on SCell CATT, CBN discussion NR\_MBS-Core

Proposal 1: Using PLMN index in MCCH of SCell is supported.

Proposal 2: Introduce plmn-IdentityInfoList and npn-IdentityInfoList in ScellConfig to support using PLMN index in MCCH of SCell.

DISCUSSION on the two Tdocs above:

* LGE thinks we should follow vivo’s proposal as it is too late to change the UE behaviour. The network can handle this by implementation. ZTE agrees with LGE, vivo. ZTE thinks e should stop supporting new scenarios.
* Nokia asks if with vivo approach we can still allow reception on SCell? Nokia is open to optimize for this scenario but perhaps not critical.
* Huawei asks the same question as Nokia and thinks not only SNPN will not be supported but also very difficult for non-SNPN because this causes too much overhead or may require reconfiguration in the cell due to one UE. Support on SCell should be ensured and we can do it BC way with a small change.
* Ericsson would like to address this in Rel-17 as later it will be too late due to presence of legacy UEs in the network. Different SIB configuration on PCell and SCell should be supported.
* CATT agrees with Huawei and Ericsson and we have already agreed to support broadcast on SCell in R17.
* Samsung is OK to address this but thinks we just need a list o PLMNs and SNPNs.
* Mediatek supports addressing this in ASN.1 BC way.
* Xiaomi asks if we need to change some procedural text as well.
* Nokia asks if this list is optional to include. Ericsson have the same question and thinks this is optional and during absence UE should assume same PLMN index mapping in Scell and in PCell. CATT agrees.
* Using PLMN index in MCCH of SCell is supported.
* Introduce a optional list of PLMNs and SNPNs in ScellConfig to support using PLMN index in MCCH of SCell. Behaviour during absence to be clarified and impact on procedural text to be checked and addressed during CR work.

[602] CR for PLMN/SNPN list for SCell (CATT)

[R2-2305915](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305915%20MBS%20broadcast%20on%20SCell%20using%20plmn-Index.docx) MBS broadcast on SCell using plmn-Index Ericsson discussion Rel-17 NR\_MBS-Core

*Moved from 6.2.2*

Proposal 1: A backwards compatible ASN.1 change is acceptable in Rel-17 to enable MBS broadcast reception on SCell when plmn-Index for PLMNs/NPNs is used on MCCH.

Proposal 2: Introduce PLMN and NPN info list in SCellConfig including PLMN ID and NID info only.

[R2-2306323](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306323_CP%20Corrections%20for%20Broadcast%20support%20in%20SCell.docx) Supporting MBS Broadcast reception in SCell Samsung CR Rel-17 38.331 17.4.0 4145 - F NR\_MBS-Core

[R2-2306359](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306359%20MBS%20SCell%20reception.docx) MBS Scell Reception Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_MBS-Core

Proposal 1: Discuss whether we need to support using plmn-index for SCell MBS broadcast reception and if this seen necessary which solution to adopt

*RRC other*

[R2-2304777](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304777%20Corrections%20on%20pdsch-HARQ-ACK-CodebookListMulticast.docx) Corrections on pdsch-HARQ-ACK-CodebookListMulticast CATT, CBN CR Rel-17 38.331 17.4.0 4074 - F NR\_MBS-Core

* The CR is not pursued (1st change non-essential, 2nd change not correct/needed)

DISCUSSION:

* QCM: 1st change no strong view, seems already OK. 2nd change is not correct.
* CATT thinks MBS can be on only one cell in R17, so it should be “or”.
* Ericsson agrees with QCM – it just applies to both PCell and SCell, but it does not say both are configured at the same time.

[R2-2304817](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304817%20Remaining%20CP%20issues%20for%20MBS.docx) Remaining CP issues for MBS Huawei, CBN, HiSilicon discussion Rel-17 NR\_MBS-Core

Proposal 2: Clarify in RRC spec that the CORESET configured in SIB20 should be larger than CORESET#0 as per RAN1 agreement.

* Clarify in RRC spec that the CORESET configured in SIB20 should be larger than CORESET#0 as per RAN1 agreement.
* Proponent to find a CR to include this or provide a new CR, if needed (CB Friday)

[R2-2305584](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305584%20Corrections%20for%20MBS%20paging.docx) Corrections for MBS paging Xiaomi draftCR Rel-18 38.331 17.4.0 NR\_MBS-Core

* 2nd is not pursued
* Discuss 1st change offline (CB Friday)

DISCUSSION:

* Ericsson is not sure about the 2nd correction. For 1st change Ericsson wonders if the wanted behaviour is that UE forwards both I-RNTI and TMGI to upper layers and perhaps text can be cleaned up.
* CATT thinks 2nd change is not correct.
* QCM agrees with Ericsson for both changes
* Xiaomi asks if the UE can use only frequency from SIB21 when it is not in USD? CATT clarifies this is supported as per current text and that is the intention.

[R2-2306113](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306113%20Discussion%20on%20SPS%20deactivation%20state%20list%20for%20MBS_v2.docx) Discussion on SPS deactivation state list for MBS ASUSTeK discussion Rel-17 38.331 NR\_MBS-Core

Proposal: Discuss which option is used to align the understanding of sps-ConfigDeactivationStateList between UE and gNB.

Option 1: One-to-one mapping between state and index.

Option 2: sps-ConfigDeactivationStateList is only applicable for unicast DCI as Rel-16.

Option 3: Not simultaneously configuring multicast SPS and sps-ConfigDeactivationStateList.

[R2-2306114](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306114_38.331_CR4134_Corrections%20on%20SPS%20deactivation%20state%20list%20for%20MBS_v1.docx) Corrections on SPS deactivation state list for MBS ASUSTeK CR Rel-17 38.331 17.4.0 4134 - F NR\_MBS-Core

DISCUSSION:

* Samsung thinks current specs allow option1 or 3 based on NW implementation and that is sufficient.
* LG prefers option 2, but some RAN1 changes are required for this option, does not like option 1. Option 3 is acceptable.
* Huawei agrees with Samsung and LGE and if we agree something we need to consult RAN1.
* ASUSTek asks if we then need to send an LS to RAN1.
* QCM thinks this is already clarified in RAN1 and we do not have to do anything, no change nor LS.
* ASUSTek asks what option is then the assumption in RAN2? QCM thinks it is option 1.
* LGE thinks RAN1 text applies to both unicast and multicast and we would need some change.
* Offline to check whether/what change is needed in RAN2 (CB Friday)

*Stage-2*

[R2-2304987](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304987%20Correction%20on%20terminology%20misalignment%20in%2038.300.docx) Correction on terminology misalignment in 38.300 NEC CR Rel-17 38.300 17.4.0 0671 - F NR\_MBS-Core

* Not pursued (in RAN2)

DISCUSSION:

* Nokia thinks maybe we need to coordinate with RAN3. Or maybe we don’t need to do anything.
* ZTE clarifies RAN3 is also discussing this and agreed not to update anything as anyway the section title clarifies it is for multicast.
* CATT thinks this is not needed.
* QCM thinks this is not essential, could be rapporteur CR if needed.
* Chair: This seems to be a section managed by RAN3 so they can discuss terminology alignment if needed.

[R2-2305914](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305914%20Clarification%20for%20Mission%20Critical%20UEs.docx) Clarification for Mission Critical UEs Ericsson discussion Rel-17 NR\_MBS-Core

Proposal 1: MCPTT latency/loss requirements can be met via gNB implementation.

Proposal 2: Add a NOTE to section 16.10.5.2 in 38.300:

NOTE: The gNB may decide, based on the Mission Critical 5QI values (as specified in TS 23.501 clause 5.7.4) for the QoS flow(s), to not release the UEs when there is temporary no data or the session is deactivated to avoid delay and potential data loss.

* Postponed until further SA2 progress

DISCUSSION:

* Ericsson clarifies this is discussed in SA2 as well and an LS is planned for RAN3 so Ericsson is OK to wait for progress there.

### 6.2.2 UP corrections

Including corrections to MAC, PDCP, RLC and SDAP.

*DRX – PTP retransmission*

[R2-2304818](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304818%20Remaining%20issue%20on%20PTP%20retransmission%20monitoring.docx) Remaining issue on PTP retransmission monitoring Huawei, CBN, HiSilicon discussion Rel-17 NR\_MBS-Core

Proposal 1: RAN2 to make a down selection from the following two options:

* Option 1: Change the word “configured” to “used” in the start condition of drx-HARQ-RTT-TimerDL (i.e., if the first HARQ-ACK reporting mode (i.e. ack-nack) is configured).
* Option 2: Delete “if the first HARQ-ACK reporting mode (i.e. ack-nack) is configured”.

DISCUSSION:

* Samsung thinks this is not so essential, because NW can choose PTM option or do PTP retransmission in the next active time. If we need to change, option 1 is preferred.
* Ericsson has similar view to Samsung and it will work now. QCM agrees (no strong view between option 1 and no change).
* LGE prefers no change but a disadvantage of no change is that UE misses some PTP retransmissions. Option 2 decreases power saving gains. LGE has some concern with option 1, but we would need PHY layer indications about HARQ ACK conversion.
* Xiaomi supports option 1 and indications are internal implementation of the UE, no need for any spec change.
* CATT thinks change is needed and option 1 is preferred. Mediatek agrees.
* Nokia thinks option 2 is simpler for the network, but no strong view between O1 and O2.
* Change the word “configured” to “used” in the start condition of drx-HARQ-RTT-TimerDL (i.e., if the first HARQ-ACK reporting mode (i.e. ack-nack) is configured).
* CR to be prepared (Huawei, CB Friday)

[R2-2305737](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305737%20R17%20MBS%20DRX%20PTP.docx) DRX Timers for PTP Retransmission Samsung discussion Rel-17 NR\_MBS-Core

Proposal. RAN2 to select one of the following options:

- Option 1. No specification change

- Option 2. In 5.7b of TS 38.321, “if the first HARQ-ACK reporting mode (i.e. ack-nack) is configured as specified in TS 38.213 [6]” is modified to “if the first HARQ-ACK reporting mode (i.e. ack-nack) is used as specified in TS 38.213 [6]”

* Noted

*DRX - other*

[R2-2304699](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304699_CR1612_38321%20Further%20Correction%20on%20Multicast%20DRX%20without%20cfr-ConfigMulticast.docx) Further Correction on Multicast DRX without cfr-ConfigMulticast vivo, NEC Corporation CR Rel-17 38.321 17.4.0 1612 - F NR\_MBS-Core

* Not pursued

DISCUSSION:

* Nokia is OK with the change
* LGE thinks there is issue that BWP switch can happen between initial Tx and reTx. LGE prefers original text.
* Huawei thinks this CR may cause issues for unicast PDCCH monitoring.
* QCM thinks this change is needed.
* Samsung thinks this change is editorial with no impact to UE behaviour. Ericsson agrees, thinks this change is not needed. Also agrees with LGE’s point.

[R2-2306392](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306392%20Draft%20Tdoc%20for%20multicast%20DRX%20with%20HARQ%20feedback%20disabled.docx) PTM retransmission reception by UEs without HARQ feedback Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_MBS-Core

Proposal 1: Enable reception of PTM retransmissions also for UEs with HARQ feedback disabled.

Proposal 2: Allow configuration of drx-HARQ-RTT-TimerDL-PTM and drx-RetransmissionTimerDL-PTM also when HARQ feedback is disabled. (38.331)

Proposal 3: Start drx-HARQ-RTT-TimerDL-PTM even when HARQ feedback is disabled if drx-HARQ-RTT-TimerDL-PTM is configured. (38.321)

Proposal 4: Start drx-HARQ-RTT-TimerDL-PTM when HARQ feedback is disabled only if UE knows when it would transmit the HARQ feedback if it were enabled. (38.321)

Proposal 5: Discuss whether implementing the change would require UE capability.

DISCUSSION:

* CATT thinks we have already agreed that if HARQ feedback is disabled, then UE does not monitor retransmissions. Thinks this is an optimization and does not agree with the proposals.
* Nokia thinks this is beneficial for the UE as the UE only monitors when the reception failed.
* Samsung thinks P1 is already supported and tends to agree with P2.
* ZTE, LGE and Huawei agrees with CATT.
* QCM has sympathy for Nokia proposals and think this is beneficial. QCM also agrees with Samsung. Ericsson also agrees.
* Xiaomi has sympathy for Nokia
* Offline to discuss P2-P5, i.e. check whether they are acceptable to R2, what changes are needed to support this (prepare draft CR), do we need a capability etc. (CB Friday)

*SDAP*

[R2-2306320](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306320.docx) Correction to SDAP protocol for NR MBS TD Tech, Chengdu TD Tech CR Rel-17 37.324 17.0.0 0023 - F NR\_MBS-Core

* Not pursued

DISCUSSION:

* MTK thinks this is reasonable change.
* LGE think that for MC this clarification is not required.
* Samsung thinks no clarification is needed. QCM, Ericsson, Nokia agrees.

*Withdrawn*

R2-2306360 MBS General CR to 38.331 Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_MBS-Core Withdrawn

## 7.11 Enhancements of NR Multicast and Broadcast Services

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

Time budget: 0.75 TU

Tdoc Limitation: 2 tdocs

### 7.11.1 Organizational

LS in, rapporteur input, running CRs etc.

[R2-2304819](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304819%20RRC%20Running%20CR%20for%20eMBS.docx) RRC running CR for eMBS Huawei, HiSilicon draftCR Rel-18 38.331 17.4.0 B NR\_MBS\_enh-Core [R2-2303971](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2303971%20RRC%20running%20CR%20for%20eMBS.docx)

[R2-2305631](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305631%2038.300%20Running%20CR%20for%20MBS%20enhancements.docx) 38.300 Running CR for MBS enhancements CMCC draftCR Rel-18 38.300 17.4.0 B NR\_MBS\_enh-Core

[R2-2306157](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306157_MAC%20running%20CR%20for%20R18%20eMBS_v0.docx) MAC running CR for eMBS Apple draftCR Rel-18 38.321 17.4.0 NR\_MBS\_enh-Core

### 7.11.2 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].

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

#### 7.11.2.1 Control plane

Further details of PTM configuration, service continuity, notifications and RRC state transitions handling including:

- FFS whether the network can provide PTM configuration for intra-gNB cells

- PTM configuration structure (message, parameters etc.)

- service continuity during mobility and state transitions

- notifications/group paging enhancements due to session activation/deactivation or due to Inactive mutlicast reception on/off

- MCCH change notification vs. (group) Paging for different cases

- details of frequency prioritization and multicast NCL

*MCCH and PTM configuration details*

[R2-2304774](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304774%20CP%20Issues%20of%20Multicast%20Reception%20in%20RRC_INACTIVE.docx) CP Issues of Multicast Reception in RRC\_INACTIVE CATT, CBN discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: The multicast MCCH configuration takes the broadcast MCCH configuration structure (i.e., mcch-Config-r17) as baseline.

Proposal 2: To notify the multicast MCCH change, change notification mechanism for Rel-17 broadcast MCCH is the baseline.

Proposal 3: One bit in the MCCH DCI is used to notify the change of the multicast MCCH.

Proposal 4: It is not supported to provide the PTM configuration of intra-gNB cells.

Proposal 5: For PTM configuration structure on the multicast MCCH, Rel-17 broadcast PTM configuration structure is taken as baseline.

Proposal 6: The PTM configuration in the RRCRelease message with suspendconfig has the same structure as the PTM configuration in multicast MCCH.

*Paging, RRC state transitions*

[R2-2305478](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305478%20Multicast%20activationdeactivation%20notification%20and%20RRC%20state%20transitions.docx) Multicast activationdeactivation notification and RRC state transitions LG Electronics Inc. discussion Rel-18

Proposal 1 Introduce a new indication per tmgi in the group paging, which informs Rel-18 UEs having the PTM configuration of whether to keep receiving the multicast in RRC\_INACTIVE or resume the RRC connection.

Proposal 3 Network explicitly indicates whether the multicast reception in RRC\_INACTIVE is allowed or not when suspending RRC connection, via RRCRelease message.

Proposal 4 For an UE which is configured to receive the multicast in RRC\_INACTIVE, the UE keeps receiving the multicast in RRC\_INACTIVE upon receiving the enhanced group paging, e.g. group paging including the new indication in P1.

Proposal 5 For an UE which is not configured to receive the multicast in RRC\_INACTIVE, the UE resumes the RRC connection upon receiving the enhanced group paging, e.g. group paging including the new indication in P1.

[R2-2306049](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306049%20RRC%20Resume%20for%20Multicast%20in%20RRC_INACTIVE.docx) RRC Resume for Multicast in RRC\_INACTIVE SHARP Corporation discussion

Proposal 1: Reuse the Access Catergory 8 or define a new Access Category for the RRC Resume request tiggered by not available of the PTM configuration.

Proposal 2: Define a new resume cause for RRC Resume request triggered by the event not available of the PTM configuration.

[R2-2305572](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305572.doc) Discussion on Service Continuity and RRC state transitions Spreadtrum Communications discussion Rel-18

Proposal 9: For RRC state transition from RRC\_INACTIVE to RRC\_CONNECTE, UE initiates RRC resume procedure with a new cause to enter RRC\_CONNECTED state.

*Session deactivation*

[R2-2305699](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305699%20MBS_PTM.docx) Discussion on PTM Configuration and Session Status Change Lenovo discussion Rel-18

Proposal 6 MCCH is used for notifying MC session deactivation for multicast reception in RRC\_INACTIVE to enable Rel-18 UE to stay in RRC\_INACTIVE and stop monitoring corresponding G-RNTI upon events like session deactivation/temporary no data.

[R2-2305786](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305786%20CP%20aspects%20for%20Multicast%20reception%20in%20RRC_INACTIVE.docx) CP aspects for Multicast reception in RRC\_INACTIVE Samsung R&D Institute India discussion Rel-18

Proposal 10: RAN2 to agree to enhanced group paging based approach to enable Rel-18 UE to stay in RRC\_INACTIVE and stop monitoring corresponding G-RNTI upon events like session deactivation.

*Resumption due to bad quality*

[R2-2305916](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305916%20Multicast%20reception%20in%20RRC_INACTIVE.docx) Multicast reception in RRC\_INACTIVE Ericsson discussion Rel-18 NR\_MBS\_enh-Core

Proposal 3: The UE resumes when the measured RSRP or RSRQ drops below the configured threshold.

Proposal 4: The threshold can be configured in MCCH or RRCRelease (when MCCH is not configured).

NCL, frequency prioritization

[R2-2306363](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306363%20Control%20plane%20details%20for%20multicast%20reception%20in%20RRC_INACTIVE%20state_final.docx) PTM configuration and mobility handling Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_MBS\_enh-Core

Proposal 6: For multicast service continuity, the UE in RRC\_INACTIVE state uses FSAI-based frequency prioritization mechanism of Rel-17 broadcast.

Proposal 7: RAN2 sends an LS to SA2 regarding the feasibility of provisioning of FSAIs also for multicast services.

Proposal 8: Neighbor cell list indicates the services that are provided to the UEs in RRC\_INACTIVE state in the neighbor cells.

Proposal 9: An LS is sent to RAN3 to define the signalling for information exchange on multicast delivery to UEs in RRC\_INACTIVE state between neighbor gNBs.

[R2-2304820](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304820%20Multicast%20reception%20for%20RRC_INACTIVE%20UE.docx) Multicast reception for RRC\_INACTIVE UE Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

Proposal 2: NW should be able to provide the UE with the information on whether the same PTM configuration is being used in neighbour cells for multicast in RRC\_INACTIVE.

Proposal 3: legacy mechanism of providing the dedicated frequency priority in RRC dedicated signaling can be reused for multicast frequency prioritization in RRC\_INACTIVE.

[R2-2304700](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304700%20Discussion%20on%20eMBS%20from%20the%20CP%20Perspective.doc) Discussion on eMBS from the CP Perspective vivo Mobile Com. (Chongqing) discussion Rel-18 NR\_MBS\_enh-Core

[R2-2304728](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304728%20Control%20plane%20discussion%20for%20multicast%20reception%20in%20RRC%20INACTIVE.docx) Control plane discussion for multicast reception in RRC INACTIVE MediaTek inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2304933](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304933%20Consideration%20on%20the%20control%20plane%20issue%20for%20multicast%20reception%20in%20RRC_INACTIVE.docx) Consideration on the control plane issue for multicast reception in RRC\_INACTIVE Beijing Xiaomi Software Tech discussion Rel-18

[R2-2304985](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304985%20Discussion%20on%20control%20plane%20for%20Multicast%20reception%20in%20RRC_INACTIVE.docx) Discussion on control plane for Multicast reception in RRC\_INACTIVE NEC Corporation discussion Rel-18 NR\_MBS\_enh-Core

[R2-2305184](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305184%20notif&state-transitions-rrc-inactive.docx) Service continuity, RRC state transitions and notifications Qualcomm Incorporated discussion Rel-18 NR\_MBS\_enh-Core

[R2-2305379](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305379.docx) Discussion for UEs receiving Multicast in RRC\_INACTIVE state TCL Communication Ltd. discussion

[R2-2305475](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305475%20Control%20plane%20for%20multicast%20reception%20in%20RRC_INACTIVE%20state.docx) Control plane for multicast reception in RRC\_INACTIVE state TD Tech, Chengdu TD Tech discussion Rel-18

[R2-2305477](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305477%20PTM%20configuration%20for%20multicast%20reception%20in%20RRC_INACTIVE.docx) PTM configuration for multicast reception in RRC\_INACTIVE LG Electronics Inc. discussion Rel-18

[R2-2305632](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305632%20Discussion%20on%20multicast%20reception%20in%20RRC_INACTIVE%20CP%20issues.docx) Discussion on multicast reception in RRC\_INACTIVE CP issues CMCC discussion Rel-18 NR\_MBS\_enh-Core

[R2-2305700](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305700%20MBS_state%20transition.docx) Discussion on Mobility and RRC State Transition Lenovo discussion Rel-18

[R2-2305817](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305817_Transition%20to%20CONNECTED%20to%20ensure%20the%20reliability%20for%20an%20MBS%20session.doc) Transition to CONNECTED to ensure the reliability for an MBS session Interdigital Inc. discussion Rel-18 NR\_MBS\_enh-Core

[R2-2305917](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305917%20MBS%20multicast%20and%20UE%20power%20saving.docx) MBS multicast and UE power saving Ericsson discussion Rel-18 NR\_MBS\_enh-Core

[R2-2306047](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306047%20%20Notification%20of%20Multicast%20session%20deactivation_temporary%20no%20data%20in%20enhanced%20group%20paging%20message.docx) Notification of Multicast session deactivation/temporary no data in enhanced group paging message SHARP Corporation discussion

[R2-2306147](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306147_eMBS_multicast-inactive-CP.doc) Control plane aspects on multicast reception in RRC INACTIVE Kyocera discussion Rel-18 [R2-2303271](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2303271_eMBS_PTM-config_mobility.doc)

[R2-2306158](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306158_CP%20issues%20on%20multicast%20reception%20in%20RRC_INACTIVE_v0.doc) CP issues on multicast reception in RRC\_INACTIVE Apple discussion Rel-18 NR\_MBS\_enh-Core

[R2-2306321](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306321.docx) Control plane aspects for multicast reception in RRC\_INACTIVE Intel Corporation discussion Rel-18 NR\_MBS\_enh-Core

[R2-2306401](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306401%20PTM%20configuration%20for%20multicast%20reception%20in%20RRC_INACTIVE.docx) PTM configuration for multicast reception in RRC\_INACTIVE Shanghai Jiao Tong University discussion

*Withdrawn*

R2-2305387 Discussion on security issue with multicast MCCH CANON Research Centre France discussion Rel-18 NR\_MBS\_enh-Core Withdrawn

#### 7.11.2.2 User plane

Including aspects such as CFR configuration, MAC operation (e.g. DRX, scheduling), L2 operation during state transitions and mobility, identification of PHY layer impacts etc.

This agenda item will not be treated in this meeting

[R2-2305663](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305663%20CFR%20design%20for%20Multicast%20reception%20in%20RRC_INACTIVE.doc) CFR design for Multicast reception in RRC\_INACTIVE ZTE, Sanechips discussion Rel-18 NR\_MBS\_enh-Core

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

Objective: 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]

Including aspects such as:

- Granularity of capability signalling for MBS broadcast reception from non-serving cell

- What additional information and exact parameters should be reported

- Scenarios for UE to report additional info in MII and whether/how network can control when UE should report it

*UE capability and network control*

[R2-2305633](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305633 Discussion%20on%20Shared%20processing.docx) Discussion on Shared processing CMCC discussion Rel-18 NR\_MBS\_enh-Core

Proposal 1: It is proposed to indicate the capability at FeatureSetDownlinkPerCC level.

Proposal 3: Whether to include additional information in MII can be controlled by the network, for example,by introducing extra indication in SIB1 besides the indication allowing MII reporting.

Proposal 4: gNB can refresh the new IE’s value in SIB1to avoid repeated reporting by different UEs.

[R2-2304701](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304701%20Further%20Discussion%20on%20Shared%20Processing%20in%20eMBS.docx) Further Discussion on Shared Processing in eMBS vivo Mobile Com. (Chongqing) discussion Rel-18 NR\_MBS\_enh-Core [R2-2302671](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2302671%20Further%20Discussion%20on%20Shared%20Processing%20in%20eMBS.docx)

Proposal 1 The granularity for capability of receiving MBS broadcast from a non-serving cell is at FeatureSetDownlinkPerCC level.

Proposal 2 UE reports directly the whole additional information in MII when indicated by SIB1 of its unicast serving cell, i.e. one step reporting enough.

*Information signalled in MII*

[R2-2305577](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305577%20Remaining%20issues%20for%20shared%20processing%20of%20MBS.docx) Remaining issues for shared processing of MBS Xiaomi discussion Rel-18 NR\_MBS\_enh-Core

Proposal 2: The TDM pattern should be included in the UE reporting for shared processing.

Proposal 3: The UE can indicate the DRX reception configuration of MBS.

Proposal 4: The UE can indicate the PDSCH configuration (e.g. mcs-Table) of MBS.

Proposal 5: All NR values for broadcast frequency, subcarrier spacing, and bandwidth are included.

[R2-2304729](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304729%20Discuss%20on%20shared%20processing%20for%20broadcast%20and%20unicast%20reception.docx) Discuss on Shared processing for broadcast and unicast reception MediaTek inc. discussion Rel-18 NR\_MBS\_enh-Core

Proposal 2: The number of component carriers used for broadcast reception in non-serving cell can be signalled in MBSInterestIndication.

Proposal 4: RAN2 to discuss whether to report the following configurations in MII for maximum data rate calculation. Further details can be checked with RAN1 if needed.

• CFR configuration

• MIMO layer

• Modulation order

• Supported band combination

[R2-2304775](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304775%20Remaining%20issues%20on%20Shared%20Processing.docx) Remaining issues on Shared Processing CATT, CBN discussion Rel-18 NR\_MBS\_enh-Core

[R2-2304821](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304821%20Discussion%20on%20shared%20processing%20for%20MBS%20broadcast%20and%20unicast%20reception.docx) Discussion on shared processing for MBS broadcast and unicast reception Huawei, HiSilicon discussion Rel-18 NR\_MBS\_enh-Core

[R2-2304888](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304888%20Bandwidth%20signalling%20for%20shared%20processing.docx) Bandwidth signalling and scenarios for shared processing Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_MBS\_enh-Core [R2-2304060](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304060%20Bandwidth%20signalling%20for%20shared%20processing.docx)

[R2-2304986](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304986%20Discussion%20on%20shared%20process%20for%20MBS%20broadcast%20and%20unicast.docx) Discussion on shared process for MBS broadcast and unicast NEC Corporation discussion Rel-18 NR\_MBS\_enh-Core

[R2-2305185](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305185%20MBS-capability-sharing.docx) Shared processing for MBS broadcast and Unicast reception Qualcomm Incorporated discussion Rel-18 NR\_MBS\_enh-Core

[R2-2305480](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305480%20Simultaneous%20unicast%20reception%20and%20broadcast%20reception.docx) Simultaneous unicast reception and broadcast reception TD Tech, Chengdu TD Tech discussion Rel-18

[R2-2305502](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305502.docx) Shared processing for simultaneous MBS broadcast and unicast reception Intel Corporation discussion Rel-18 NR\_MBS\_enh-Core [R2-2304023](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2304023.docx)

[R2-2305664](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305664%20Shared%20processing%20for%20MBS%20broadcast%20and%20Unicast%20reception.doc) Shared processing for MBS broadcast and unicast reception ZTE, Sanechips discussion Rel-18 NR\_MBS\_enh-Core

[R2-2305783](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2305783%20Shared%20processing%20for%20MBS%20broadcast%20and%20unicast%20reception.docx) Shared processing for MBS broadcast and unicast reception Samsung R&D Institute India discussion Rel-18

[R2-2306148](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306148_eMBS_shared-processing.doc) Shared processing for inter-PLMN MBS broadcast reception Kyocera discussion Rel-18 [R2-2303273](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2303273_eMBS_shared-processing.doc)

[R2-2306159](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2306159_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