3GPP TSG-RAN WG2 Meeting #119bis electronic R2-220xxxx

Online, 10th October – 19th October, 2022

Agenda Item: 6.1.2

Source: Huawei, HiSilicon

Title: [AT119bis-e][601][MBS-R17] RRC corrections

Document for: Discussion and Decision

# 1 Introduction

This document aims at summarizing the following offline discussion:

* [AT119bis-e][601][MBS-R17] RRC corrections (Huawei)

Scope: Treat [R2-2209653](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209653.zip) and documents in 6.1.2

Outcome: Report, 38.331 CR

Deadline: Report available: Tuesday 2022-10-18 1000 UTC, agreeable CR: EOM

The following deadlines are suggested:

* For initial inputs to questions listed in this document and comments on the 38.331 CR for MBS
	+ Deadline: Thursday 2022-10-13 2359 UTC
* Summary of the offline and updated 38.331 CR for MBS
	+ Deadline: Tuesday 2022-10-18 1000 UTC

NOTE: The editorial changes are not included in the document. They are merged in the RRC CR and comments can be given directly in the CR if any. The correction in [R2-2210682](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210682.zip) is related to the UP offline discussion [AT119bis-e][603][MBS-R17] and is not discussed in this document.

# 2 Contact information

|  |  |  |
| --- | --- | --- |
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# 3 RRC corrections to be discussed

3.2 LCH re-association

This issue was discussed in the last meeting and the following agreements were made:

* 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.

During the RRC CR review, there were different views on whether to allow an already configured MRB logical channel to be re-associated to a new MRB. So the highlighted issue was left.

In [R2-2209654](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209654.zip), two cases are identified:

**Case 1:** The original MRB is not changed but only the MRB ID is changed via *mrb-IdentityNew-r17* (i.e. an existing and the same PDCP entity is still used).

**Case 2:** A new MRB is established with a new *mrb-Identity-r17* and new configuration, e.g. *PDCP-Config-r17* (i.e. a new PDCP entity is established).

And it is proposed LCH re-association in case 1 is allowed, while in case 2 not, which is aligned with the principle for DRB/SRB. Otherwise in case 2, the stored data/segments in the old RLC entity may be accidently delivered to the new PDCP entity.

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| Tdoc | Detailed RRC corrections |
| [R2-2209654](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209654.zip) | 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 or another MRB (i.e. another PDCP entity). Hence *servedRadioBearer* is not present in this case. |

**Q1: Do you agree that LCH re-association in case 2 is not allowed?**

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |  |
| CATT | Yes |  |
| Google | Yes |  |
| Sharp | Yes |  |
| MediaTek | Yes |  |
| LGE | Yes |  |
| Samsung | Yes |  |
| Nokia | Yes |  |
| Apple | Yes |  |
| vivo | Yes |  |
| OPPO | Yes |  |
| Intel | Yes |  |

**Q2: If the answer to Q1 is yes, do you agree with this correction in** [**R2-2209654**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209654.zip)**?**

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes |  |
| CATT | Yes |  |
| Google | Yes |  |
| Sharp |  | To avoid the debate on what is a new MRB, we prefer the following wording:*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 or another MRB (only change of MRB ID is not considered as another MRB). Hence servedRadioBearer is not present in this case.* |
| MediaTek | Yes |  |
| LGE | Yes | May “DRB or SRB or another MRB (i.e. another PDCP entity)” be replaced with “another radio bearer”? |
| Samsung | Yes |  |
| Nokia  | Yes |  |
| Apple | Yes |  |
| vivo | No | We assume MRBID changing is meant to change MRB to another MRB from UE point of view. In this sense, the current text is okay. If the majority view is to make some additional clarification, we suggest removing the *i.e. part* as we don’t think MRB is equal to PDCP entity, which sounds a bit strange and redundant.  |
| OPPO | Yes  |  |
| Intel | Yes |  |

In [R2-2209399](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209399.zip), it was proposed to clarify that the *MulticastRLC-BearerConfig* is not present when the network does not re-associate an already configured logical channel (serving an MRB) with DRB or SRB.

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| TDoc | Detailed RRC corrections |
| [R2-2209399](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209399.zip) | 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. Hence both *servedRadioBearer* and *MulticastRLC-BearerConfig* are not present in these cases. |

**Q3: Do you agree with this correction in** [**R2-2209399**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209399.zip)**?**

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| **Company** | **Yes/No** | **Comments** |
| Qualcomm | Yes | Editorial comment: ‘m’ in the field name ‘MulticastRLC-BearerConfig’ should be lower case. |
| CATT | No | The change is not necessary |
| Google | Yes |  |
| Sharp | Yes |  |
| MediaTek | Yes |  |
| LGE | Yes |  |
| Samsung | Yes |  |
| Nokia | No | *multicastRLC-BearerConfig* should be present if MRB id of an MRB changes but LCID does not change (condition LCH-SetupOnlyMRB: This field is mandatory present upon creation of a new logical channel for a multicast MRB and upon modification of MRB-Identity of the served MRB. It is absent, Need M otherwise.). To our understanding, ‘this case’ in the note refers to the first if-clause in section 5.3.5.5.4 (1> if the UE's current configuration contains an RLC bearer with the received logicalChannelIdentity/LogicalChannelIdentityExt within the same cell group). If MRB id for an MRB is changed without changing the LCID, this if-clause is true but multicastRLC-BearerConfig should be present. Thus the addition to the note is not correct.vivo response: our understanding is that these cases for MRB is meant for the case where the NW link an established RLC channel to another MRB without MRBID change. In this sense, the case mentioned by Nokia is not limited by the revised NOTE.  |
| Apple | Yes |  |
| vivo | Yes (Proponent) |  |
| OPPO | Yes  |  |
| Intel | Yes |  |

3.2 Miscellaneous corrections

In the [R2-2209653](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209653.zip), it is proposed to add a condition to clarify in which cases the IE *mtch-SSB-MappingWindowIndex-r17* can be absent. Specifically:

* The mtch-SSB-MappingWindowIndex-r17 shall be absent in case Searchspace0 is configured for searchSpaceMTCH-r17, i.e. the UE follows the beam mapping defined in RAN1 for Searchspace0.
* The mtch-SSB-MappingWindowIndex-r17 shall be absent in case the number of actual transmitted SSBs determined according to ssb-PositionsInBurst in SIB1 is 1, i.e. no beam sweeping is needed.

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| TDoc | Detailed RRC corrections |
| [R2-2209653](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209653.zip) | *MBS-SessionInfoList*The IE *MBS-SessionInfoList* provides the list of ongoing MBS broadcast sessions transmitted via broadcast MRB and, for each MBS broadcast session, the associated G-RNTI and scheduling information.***MBS-SessionInfoList* information element**-- ASN1START-- TAG-MBS-SESSIONINFOLIST-STARTMBS-SessionInfoList-r17 ::= SEQUENCE (SIZE (1..maxNrofMBS-Session-r17)) OF MBS-SessionInfo-r17MBS-SessionInfo-r17 ::= SEQUENCE { mbs-SessionId-r17 TMGI-r17, g-RNTI-r17 RNTI-Value, mrb-ListBroadcast-r17 MRB-ListBroadcast-r17, mtch-SchedulingInfo-r17 DRX-ConfigPTM-Index-r17 OPTIONAL, -- Need S mtch-NeighbourCell-r17 BIT STRING (SIZE(maxNeighCellMBS-r17)) OPTIONAL, -- Need S pdsch-ConfigIndex-r17 PDSCH-ConfigIndex-r17 OPTIONAL, -- Need S mtch-SSB-MappingWindowIndex-r17 MTCH-SSB-MappingWindowIndex-r17 OPTIONAL -- Cond MTCH-Mapping}

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| Conditional Presence | Explanation |
| *MTCH-Mapping* | The field is absent in case *searchspaceMTCH* is set to zero or in case the number of actual transmitted SSBs determined according to *ssb-PositionsInBurst* in *SIB1* is 1, Need R, otherwise it is present. |

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**Q4: Do you agree with this correction in** [**R2-2209653**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209653.zip)**?**

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| **Company** | **Yes/No** | **Comments** |
| Ericsson | See comments | The condition “case *searchspaceMTCH* is set to zero” also includes the case when *searchspaceMTCH* is absent and *searchspaceMCCH* is set to zero? |
| Qualcomm | See comments | The condition is defined in somewhat unusual way. It should be reverted to the format “The field is <<mandatory/optionally>> present if <<conditions>>. Otherwise, the field is absent, Need R.” |
| CATT | OK |  |
| Google | Agree with the intention | We have the same question as Ericsson. We also think the condition should be specified in the format indicated by Qualcomm. |
| Sharp |  | Agree with Qualcomm. |
| MediaTek |  | Agree with Qualcomm |
| Samsung | See Comments | Same views as Qualcomm |
| Nokia | No | Not critical. Nothing broken without this as it is up to NW to signal when needed.  |
| vivo | No | Agree with Nokia that NW will indicate this field when needed. For the other cases, the UE can acquire the mapping rule based on the RRC procedural test. It is not essential and nothing is broken.  |
| OPPO |  | The IE cannot be set to 0? |
| Intel | See comments | Same view as Qualcomm. |

According to the LS in [R2-2209201](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2209201.zip), the NAS is not aware of broadcast MBS sessions. And CT1 does not see the need of more indications than the ones mentioned in the LS. So indications related to broadcast MBS sessions is not needed. Rapporteur proposes to make the following corrections in RRC CR:

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| TDoc | Detailed RRC corrections |
|  | 5.9.3.3 Broadcast MRB establishmentUpon a broadcast MRB establishment, the UE shall:1> establish a PDCP entity and an RLC entity in accordance with *MRB-InfoBroadcast* for this broadcast MRB included in the *MBSBroadcastConfiguration* message and the configuration specified in 9.1.1.7;1> configure the MAC layer in accordance with the *mtch-SchedulingInfo* (if included);1> configure the physical layer in accordance with the *mbs-SessionInfoList*, *searchSpaceMTCH,* and *pdsch-ConfigMTCH*, applicable for the broadcast MRB;1> receive DL-SCH on the cell where the *MBSBroadcastConfiguration* message was received for the established broadcast MRB using *g-RNTI* and *mtch-SchedulingInfo* (if included) in this message for this MBS broadcast service;1> if an SDAP entity with the received *mbs-SessionId* does not exist:2> establish an SDAP entity as specified in TS 37.324 [24] clause 5.1.1.5.9.3.4 Broadcast MRB releaseUpon broadcast MRB release for MBS broadcast service, the UE shall:1> release the PDCP entity, RLC entity as well as the related MAC and physical layer configuration;1> if the SDAP entity associated with the corresponding *tmgi* has no associated MRB:2> release the SDAP entity, as specified in TS 37.324 [24] clause 5.1.2; |

**Q5: Do you agree with this correction?**

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| **Company** | **Yes/No** | **Comments** |
| Ericsson | No | Correct, CT1 did only see a need to be informed about establishment/release of user plane resources for Multicast. But upper layers is not restricted to CT1/NAS, and SA2 indicated to see a need for both multicast and broadcast ([R2-2209353](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209353.zip)):1. When the user plane resources are established for either an MBS broadcast or an MBS multicast session, the UE will notify upper layers about this (and include TMGI to identify the session).
2. When the user plane resources of either an MBS broadcast or an MBS multicast session are released, the UE will notify upper layers about this (and include TMGI to identify the session).

*For scenario 2 and 3, SA2 assumes that AS layer needs to indicate to the related upper layer per received TMGI, so that client applications may take proper actions towards users. SA2 hasn’t seen other events or information to be notified from AS layer towards upper layer.*  |
| Qualcomm | No | Agree with Ericsson |
| CATT | No strong view |  |
| Google | No | Agree with Ericsson |
| Sharp | No | Agree with Ericsson |
| MediaTek |  | Agree with Ericsson |
| LGE | -  | It is questionable that it is ok for UE upper layers to be not aware of broadcast MBS sessions. On the UE side, how do the entities for broadcast MBS sessions in upper layers properly handle the received broadcast MBS data without the indication? |
| Samsung | No | Agree with Ericsson |
| Nokia | No |  |
| Apple | No |  |
| vivo | No | The current text is good as per Ericsson’s comment.  |
| OPPO | Yes  | In CT1 LS [R2-2209302] it indicates “The NAS is not aware of broadcast MBS sessions.”Otherwise, how to understand this sentence?  |
| Intel | No | Agree with Ericsson. |

According to the LSs in [R2-2209190](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2209190.zip) and [R2-2209201](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2209201.zip), RRC\_INACTIVE UE does not need to forward the TMGI to NAS when the received group paging includes the interested TMGI. In [R2-2209547](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209547.zip), the following correction is proposed:

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| TDoc | Detailed RRC corrections |
| [R2-2209547](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209547.zip) | 5.3.2.3 Reception of the *Paging* *message* by the UE or *PagingRecord* by the L2 U2N Remote UEUpon receiving the *Paging* message by the UE or receiving *PagingRecord* from its connected L2 U2N Relay UE by a L2 U2N Remote UE, the UE shall:1> if in RRC\_IDLE, for each of the *PagingRecord*, if any, included in the *Paging* message, or1> if in RRC\_IDLE, for each of the *PagingRecord*, if any, included in the *UuMessageTransferSidelink* message received from the connected L2 U2N Relay UE:2> if the *ue-Identity* included in the *PagingRecord* matches the UE identity allocated by upper layers:3> if upper layers indicate the support of paging cause:4> forward the *ue-Identity,* *accessType* (if present) and paging cause (if determined) to the upper layers;3> else:4> forward the *ue-Identity* and *accessType* (if present) to the upper layers;1> if in RRC\_INACTIVE, for each of the *PagingRecord*, if any, included in the *Paging* message, or1> if in RRC\_INACTIVE, for each of the *PagingRecord*, if any, included in the *UuMessageTransferSidelink* message received from the connected L2 U2N Relay UE:2> if the *ue-Identity* included in the *PagingRecord* matches the UE's stored *fullI-RNTI*:3> if the UE is configured by upper layers with Access Identity 1:4> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *mps-PriorityAccess*;3> else if the UE is configured by upper layers with Access Identity 2:4> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *mcs-PriorityAccess*;3> else if the UE is configured by upper layers with one or more Access Identities equal to 11-15:4> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *highPriorityAccess*;3> else:4> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *mt-Access*;NOTE: A MUSIM UE may not initiate the RRC connection resumption procedure, e.g. when it decides not to respond to the *Paging* message due to UE implementation constraints as specified in TS 24.501 [23].2> else if the *ue-Identity* included in the *PagingRecord* matches the UE identity allocated by upper layers:3> if upper layers indicate the support of paging cause:4> forward the *ue-Identity*, *accessType* (if present) and paging cause (if determined) to the upper layers;3> else:4> forward the *ue-Identity* and *accessType* (if present) to the upper layers;3> perform the actions upon going to RRC\_IDLE as specified in 5.3.11 with release cause 'other';1> If in RRC\_IDLE, for each *TMGI* included in *pagingGroupList*, if any, included in the *Paging* message:2> if the UE has joined an MBS session indicated by the *TMGI* included in the *pagingGroupList*:3> forward the *TMGI* to the upper layers;1> if in RRC\_INACTIVE and the UE has joined one or more MBS session(s) indicated by the *TMGI* included in the *pagingGroupList*:2> if none of the *ue-Identity* included in any of the *PagingRecord*, if included in the *Paging* message, matches the UE identity allocated by upper layers:3> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set as below:4> if the UE is configured by upper layers with Access Identity 1:5> *resumeCause* is set to *mps-PriorityAccess*;4> else if the UE is configured by upper layers with Access Identity 2:5> *resumeCause* is set to *mcs-PriorityAccess*;4> else if the UE is configured by upper layers with one or more Access Identities equal to 11-15:5> *resumeCause* is set to *highPriorityAccess*;4> else:5> *resumeCause* is set to *mt-Access*.2> else:3> forward the *TMGI* to the upper layers; |

**Q6: Do you agree with this correction in** [**R2-2209547**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209547.zip)**?**

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| **Company** | **Yes/No** | **Comments** |
| Ericsson | Yes | PS: the section did not become easier to read: 2> else:3> forward the *TMGI* to the upper layers;The use case for this “else” statement is:If in RRC\_INACTIVE and the UE has joined one or more MBS session(s) indicated by the *TMGI* included in the *pagingGroupList* and *ue-Identity* included in the *PagingRecord* matches the UE identity allocated by upper layers. Perhaps it is useful to clarify this with the else statement to avoid future puzzling but we are also fine to keep as is, i.e. the text is correct.  |
| Qualcomm | No | Clarification requested.Agree with Ericsson that the ‘else’ can be confusing but it means: - UE is in INACTIVE and- UE has joined one or more MBS sessions indicated by the *TMGI* included in the *pagingGroupList* and - at least one of *ue-Identity* included in any of the *PagingRecord*, if included in the *Paging* message, matches the UE identity allocated by upper layers. So, in essence this now means, for INACTIVE UE, forward TMGI to upper layers only when it is a group paging along with UE-specific paging UE identity. Otherwise (i.e. when group paging without UE-specific paging) UE resumes without forwarding the TMGI. Is it the intended behaviour? |
| CATT | Yes(proponent) | The spec change is essential to align with CT1/SA2 response. |
| Google | Agree with the changes except the “else” part | We don’t understand why RRC needs to forward the TMGI to the upper layers, while in RRC\_INACTIVE, in the case described by Ericsson. Such a forwarding may cause problems because the upper layers may think the UE receives a CN paging. |
| Sharp | Yes |  |
| MediaTek | Yes, but | We agree with Ericsson to add a Note to clarify the else case. |
| LGE | Agree with the first change only. | Regarding the second change,

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| For RRC Inactive, it is CT1’s understanding that the RAN paging is the responsibility of the AS, and therefore there is no need from an NAS perspective to be informed of the TMSI in this case. However, the NAS needs an indication from the AS when the UE has transitioned to RRC connected mode. |

The ‘an indication’ in the last sentence doesn’t mean tmgi. If group paging including tmgi is received, UE enters RRC\_CONNCTED regardless of whether the UE ID is included or not. |
| Samsung | Yes, but | We understand TMGI indication is needed in else case, as UE transits to RRC\_IDLE. For clear separation and readability for group paging from unicast paging, we suggest to add as below:2> else:3> forward the TMGI to the upper layers;3> perform the actions upon going to RRC\_IDLE as specified in 5.3.11 with release cause 'other'; |
| nokia | No | It is no correction in our understanding. Nothing is wrong with existing text. If upper layers receive indication unnecessarily does not cause any issue. So the change is not needed. |
| Apple | Agree with the first change | We have same understanding as LGE.  |
| vivo | No | We have the same concern with QC. We wonder why there are different actions (i.e., whether to forward TMGI to upper layers) for the cases of group paging without/with UE-specific paging. |
| OPPO | Yes  |  |
| Intel | No | Same concern as Qualcomm.  |

In [R2-2209547](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209547.zip), the following corrections are proposed (Correction 2 is also proposed in [R2-2209908](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209908.zip)):

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| Correction number | Detailed RRC corrections |
| Correction 1 | 5.3.5.6.1 GeneralThe UE shall perform the following actions based on a received *RadioBearerConfig* IE:1> if the *RadioBearerConfig* includes the *srb3-ToRelease* or *srb4-ToRelease*:2> perform the SRB release as specified in 5.3.5.6.2;1> if the *RadioBearerConfig* includes the *srb-ToAddModList* or ifany DAPS beareris configured:2> perform the SRB addition or reconfiguration as specified in 5.3.5.6.3;1> if the *RadioBearerConfig* includes the *drb-ToReleaseList*:2> perform DRB release as specified in 5.3.5.6.4;1> if the *RadioBearerConfig* includes the *drb-ToAddModList*:2> perform DRB addition or reconfiguration as specified in 5.3.5.6.5;1> if the *RadioBearerConfig* includes the *mrb-ToReleaseList*:2> perform multicast MRB release as specified in 5.3.5.6.6;1> if the *RadioBearerConfig* includes the *mrb-ToAddModList*:2> perform multicast MRB addition or reconfiguration as specified in 5.3.5.6.7;1> release all SDAP entities, if any, that have no associated DRB as specified in TS 37.324 [24] clause 5.1.2, and indicate the release of the user plane resources for PDU Sessions associated with the released SDAP entities to upper layers;1> release all SDAP entities established for the MBS multicast sessions that have no associated multicast MRB as specified in TS 37.324 [24] clause 5.1.2, and indicate the release of user plane resources for these MBS multicast sessions to upper layers |
| Correction 2 | 5.3.5.6.6 Multicast MRB releaseThe UE shall:1> for each *mrb-Identity* value included in the *mrb-ToReleaseList* that is part of the current UE configuration; or1> for each *mrb-Identity* value that is to be released as the result of full configuration according to 5.3.5.11:2> release the PDCP entity and the *mrb-Identity*;NOTE 1: The UE does not consider the message as erroneous if the *mrb-ToReleaseList* includes any *mrb-Identity* value that is not part of the current UE configuration.NOTE 2: Whether or not the RLC and MAC entities associated with this PDCP entity are reset or released is determined by the *CellGroupConfig*. |
| Correction 3 | 5.3.5.6.7 Multicast MRB addition/modificationThe UE shall for each element in the order of entry in the list *mrb-ToAddModList*:1> if *mrb-Identity* value included in the *mrb-ToAddModList* is part of the UE configuration:2> if *mrb-Identity* value included in the *mrb-ToAddModList* for which *mrb-IdentityNew* is included (multicast MRB ID change):3> update the *mrb-Identity* to the value *mrb-IdentityNew*;2> if the *reestablishPDCP* is set:3> if *drb-ContinueROHC* is included in *pdcp-Config*:4> indicate to lower layer that *drb-ContinueROHC* is configured;3> if *drb-ContinueEHC-DL* is included in *pdcp-Config*:4> indicate to lower layer that *drb-ContinueEHC-DL* is configured;3> re-establish the PDCP entity of this multicast MRB as specified in TS 38.323 [5], clause 5.1.2;2> else, if the *recoverPDCP* is set:3> trigger the PDCP entity of this MRB to perform data recovery as specified in TS 38.323 [5];2> if the *pdcp-Config* is included:3> reconfigure the PDCP entity in accordance with the received *pdcp-Config*;1> else if *mrb-Identity* value included in the *mrb-ToAddModList* that is not part of the UE configuration (multicast MRB establishment including the case when full configuration option is used):2> establish a PDCP entity and configure it in accordance with the received *pdcp-Config*;2> if at least one multicast MRB was configured with the same *mbs-SessionId*:3> associate the established multicast MRB with the corresponding *mbs-SessionId*;2> if an SDAP entity with the received *mbs-SessionId* does not exist:3> establish an SDAP entity as specified in TS 37.324 [24] clause 5.1.1;3> if an SDAP entity with the received *mbs-SessionId* did not exist prior to receiving this reconfiguration:4> indicate the establishment of the user plane resources for the *mbs-SessionId* to upper layers.NOTE 1: When setting the *reestablishPDCP* flag for a radio bearer, the network ensures that the RLC receiver entities do not deliver old PDCP PDUs to the re-established PDCP entity. It does that e.g. by triggering a reconfiguration with sync of the cell group hosting the old RLC entity or by releasing the old RLC entity.NOTE 2: In this specification, UE configuration refers to the parameters configured by NR RRC unless otherwise stated.NOTE 3: When updating the *mrb-Identity*, the network ensures new MRBs are listed at the end of the *mrb-ToAddModList* if they have the same MRB ID as in the existing UE configuration. |
| Correction 4 | 5.9.1.1 GeneralUE receiving or interested to receive MBS broadcast service(s) applies MBS broadcast procedures described in this clause as well as the MBS Interest Indication procedure as specified in clause 5.9.4.The most of MBS broadcast configuration information is provided on MCCH logical channel. MCCH carries the *MBSBroadcastConfiguration* message which indicates the MBS broadcast sessions that are provided in the cell as well as the corresponding scheduling related information for these sessions. Optionally, the *MBSBroadcastConfiguration* message may also contain a list of neighbour cells providing the same broadcast MBS service(s) as provided in the current cell. The configuration information required by the UE to receive MCCH is provided in *SIB20*. Additionally, System Information provides also an information related to service continuity of MBS broadcast in *SIB21*. |
| Correction 5 |

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| ***dedicatedSystemInformationDelivery***This field is used to transfer *SIB6*, *SIB7*, *SIB8, SIB19, SIB20, SIB21* to the UE with an active BWP with no common search space configured or the L2 U2N Remote UE in RRC\_CONNECTED. For UEs in RRC\_CONNECTED (including L2 U2N Remote UE), this field is used to transfer the SIBs requested on-demand. |

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**Q7: Please indicate which of the above 5 corrections in** [**R2-2209547**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209547.zip) **is/are not agreeable?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Corrections not agreeable** | **Comments** |
| Ericsson | 4 | We think this correction is not needed/essential and the proposed wording is not clear. If companies think a clarification is needed, it is proposed to say:MBS broadcast configuration information, except CFR configuration for MCCH/MTCH, is provided on MCCH logical channel. |
| Qualcomm | 3 and 4  | #3 was added last meeting. Unclear why this needs to be removed.#4 is ambiguous. What does “the most of” mean? |
| Google | 3 and 4 | Nothing is wrong in the sentence removed by #3.“the most of” added by #4 is confusing.  |
| Sharp | 3 & 4 | Same view as QC and Google. |
| MediaTek | 3 and 4 | For 4, we are ok with the correction provided by Ericsson. |
| LGE | Correction 1Correction 3Correction 4 | Correction 1: Agree to the intention of Correction 1. In principle, an SDAP entity is released when it has no associated radio bearer. There are two types of SDAP entities. One is associated to a PDU session. The other is associated to multicast MBS session. Correction 1 handles latter one only. A correction is needed for the former one. Otherwise, the SDAP entity for multicast MBS session will be always released every radio bearer configuration because it has no associated DRB. The yellow-highlighted change is suggested.1> release all SDAP entities established for the PDU sessions, if any, that have no associated DRB as specified in TS 37.324 [24] clause 5.1.2, and indicate the release of the user plane resources for PDU Sessions associated with the released SDAP entities to upper layers;1> release all SDAP entities established for the MBS multicast sessions, if any, that have no associated multicast MRB as specified in TS 37.324 [24] clause 5.1.2, and indicate the release of user plane resources for these MBS multicast sessions to upper layersCorrection 3: Agree to the intention of the change. Moreover, the MRB that is initially established for a new MBS session needs to be associated to the new session. It is also considered that an SDAP entity is used for multicast MBS session. So, the following change is suggested.2> if an SDAP entity with the received *mbs-SessionId* does not exist:3> establish an SDAP entity as specified in TS 37.324 [24] clause 5.1.1;3> if an SDAP entity with the received *mbs-SessionId* did not exist prior to receiving this reconfiguration:4> indicate the establishment of the user plane resources for the *mbs-SessionId* to upper layers.2> associate the established multicast MRB with the SDAP entity with the received *mbs-SessionId*;Correction 4: |
| Samsung | 3 and 4 | Same views as Qualcomm. For 4, Ericsson’s proposed text can be considered. |
| Nokia | 3 (comment) ,4 (comment) | 3: deleting text seems to make this more vague. Wouldn’t it be better to keep it unless it is wrong?4: If some change is needed maybe we could be more explicit that SIB20/MCCH can provide MBS broadcast information? |
| Apple | 3,4 |  |
| vivo | 2, 4 | For Change 2, we fail to figure out any bug.For Change 4, we share the same view as Ericsson. |
| OPPO | 3,4 |  |
| Intel | 3, 4 | Same view as Qualcomm. |

In [R2-2210712](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210712.zip), MCCH acquisition outside the MBS service area is discussed. The following observations and proposal are made:

**Observation 1**: Based on the information in *SIB21* the UE may prioritize an MBS frequency where it will not find the service it is interested in.

**Observation 2**: The UE can use the cell/TAI list in the USD to avoid acquiring the MCCH when the cell is outside the MBS service area.

**Proposal:** Clarify in a NOTE in 38.331 that the UE may use the cell/TAI list in the USD to avoid acquiring the MCCH when the UE is outside the MBS service area.

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| --- | --- |
| TDoc | Detailed RRC corrections |
| [R2-2210712](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210712.zip) | 5.9.2.2 InitiationA UE shall apply the MCCH information acquisition procedure upon becoming interested to receive MBS broadcast services. A UE interested to receive MBS broadcast services shall apply the MCCH information acquisition procedure upon entering the cell providing *SIB20* (e.g. upon power on, following UE mobility), upon receiving *SIB20* of an Scell via dedicated signalling and upon receiving a notification that the MCCH information has changed due to the start of new MBS service(s). A UE that is receiving data via broadcast MRB shall apply the MCCH information acquisition procedure upon receiving a notification that the MCCH information has changed due to MCCH information modification other than the change caused by the start of new MBS service(s).NOTE 1: It is up to UE implementation how to address a possibility of the UE missing an MCCH change notification.NOTE 2: The UE may use the cell/TAI list in the USD to avoid acquiring the MCCH when the UE is outside the MBS service areaUnless explicitly stated otherwise in the procedural specification, the MCCH information acquisition procedure overwrites any stored MCCH information, i.e. delta configuration is not applicable for MCCH information and the UE discontinues using a field if it is absent in MCCH information. |

**Q8: Do you agree with this correction in** [**R2-2210712**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210712.zip)**?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Ericsson | Yes (proponent) | The point is that the *MBS service area*, indicated by cell/TAI list in USD, may not coincide with the *MBS frequency area* indicated by *SIB21*. For example: the operator may provide all TV channels in both Stockholm and Gothenburg, except for TV4 (see [**R2-2210712**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210712.zip) for further explanation).  |
| CATT | Agree with the intention | Agree with the intention, maybe it is better to leave it to UE implementationNOTE 2: It is up to UE implementation t use the cell/TAI list in the USD to avoid acquiring the MCCH when the UE is outside the MBS service area |
| Google | Yes |  |
| Sharp | Yes |  |
| MediaTek  |  | Agree with CATT to left it to UE implementation. |
| LGE  |  | Agree with CATT to left it to UE implementation |
| Samsung |  | We also have the view that this should be left to UE implementation. It seems there can be many interested services and correspondingly different MBS service area(s). An RRC\_IDLE/RRC\_INACTIVE UE may be interested in broadcast service not provided on cell, but is now added by network based on traffic load situation or other UE’s interest indication, whether such RRC\_IDLE/RRC\_INACTIVE UE rely on the stored USD information only?  |
| Nokia | No | No strong view though – Nothing prevents in current specification to do this? But nothing wrong with NOTE either that it is allowed to use information for this purpose |
| Apple |  | It can be up to UE implementation.  |
| vivo | No | We agree with the intention but fail to see the necessity to capture this detailed implementation in the RRC spec.  |
| OPPO | No  | It can be up to UE implementation. |
| Intel | Comments | This can be left to UE implementation. |

In [R2-2210713](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210713.zip), MBS broadcast neighbour cell configuration is discussed. The following proposals are made

**Proposal 1**: *mtch-NeighbourCell* is optionally present in case *mbs-NeighbourCellList* is present with size greater than zero.

**Proposal 2**: The IE *MBS-NeighbourCellList* indicates a list of neighbour cells where ongoing MBS sessions provided via broadcast MRB in the serving cell are also provided.

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| Correction number | Detailed RRC corrections |
| Correction 1 | – *MBS-SessionInfoList*The IE *MBS-SessionInfoList* provides the list of ongoing MBS broadcast sessions transmitted via broadcast MRB and, for each MBS broadcast session, the associated G-RNTI and scheduling information.***MBS-SessionInfoList* information element**-- ASN1START-- TAG-MBS-SESSIONINFOLIST-STARTMBS-SessionInfoList-r17 ::= SEQUENCE (SIZE (1..maxNrofMBS-Session-r17)) OF MBS-SessionInfo-r17MBS-SessionInfo-r17 ::= SEQUENCE {mbs-SessionId-r17 TMGI-r17,g-RNTI-r17 RNTI-Value,mrb-ListBroadcast-r17 MRB-ListBroadcast-r17,mtch-SchedulingInfo-r17 DRX-ConfigPTM-Index-r17 OPTIONAL, -- Need S mtch-NeighbourCell-r17 BIT STRING (SIZE(maxNeighCellMBS-r17)) OPTIONAL, -- Cond mbs-NCLpdsch-ConfigIndex-r17 PDSCH-ConfigIndex-r17 OPTIONAL, -- Need Smtch-SSB-MappingWindowIndex-r17 MTCH-SSB-MappingWindowIndex-r17 OPTIONAL -- Need R}

|  |  |
| --- | --- |
| Conditional Presence | **Explanation** |
| *mbs-NCL* | This field is optionally present in case *mbs-NeighbourCellList* is present with size greater than zero, Need S. Otherwise it is absent. |

 |
| Correction 2 | – *MBS-NeighbourCellList*The IE *MBS-NeighbourCellList* indicates a list of neighbour cells where ongoing MBS sessions provided via broadcast MRB in the serving cell are also provided.***MBS-NeighbourCellList* information element**-- ASN1START-- TAG-MBS-NEIGHBOURCELLLIST-STARTMBS-NeighbourCellList-r17 ::= SEQUENCE (SIZE (0..maxNeighCellMBS-r17)) OF MBS-NeighbourCell-r17MBS-NeighbourCell-r17 ::= SEQUENCE {physCellId-r17 PhysCellId,carrierFreq-r17 ARFCN-ValueNR OPTIONAL -- Need S}-- TAG-MBS-NEIGHBOURCELLLIST-STOP-- ASN1STOP |

**Q9: Please indicate which of the above 2 corrections in** [**R2-2210713**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210713.zip) **is/are not agreeable?**

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| --- | --- | --- |
| **Company** | **Corrections not agreeable** | **Comments** |
| Qualcomm | 2, also see comments for 1. | Agree with intent of correction #1. Suggest rewording the condition: Need S should be in the ‘otherwise’ absent part. Also condition name generally starts with uppercase.No need of correction #2. “Current cell” is fine, no need to restrict to ‘serving cell’ only. (PS: ok with editorial change removing ‘s’ from cells) |
| Google | 2 | We agree with Qualcomm’s comments. |
| Sharp | 2 |  |
| MediaTek | 2 |  |
| LGE | 2 | Agree with QC. |
| Samsung | 2 | Agree with QC |
| Nokia | 1 | Why would we need this condition? There is nothing wrong even if we would not have the condition |
| vivo | 1, 2 | We fail to figure out the motivation. The current text is okay with us. |
| OPPO | 1,2 | 1: same view as Nokia2: same view as QC |
| Intel | 1, 2 | For correction 1, the current field description is clear to us. For proposal 2, not sure whether correction is needed. Our understanding is that "current" cell refers to the serving cell transmitting MCCH. |

In [R2-2210717](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210717.zip), the following correction is proposed to avoid releasing the SDAP entity for broadcast MRB during full configuration:

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| --- | --- |
| TDoc | Detailed RRC corrections |
| [R2-2210717](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210717.zip) | 5.3.5.11 Full configurationThe UE shall:1> release/ clear all current dedicated radio configurations except for the following:- the MCG C-RNTI;- the AS security configurations associated with the master key;- the SRB1/SRB2 configurations and DRB/multicast MRB configurations as configured by *radioBearerConfig* or *radioBearerConfig2*.NOTE 1: Radio configuration is not just the resource configuration but includes other configurations like *MeasConfig*. Radio configuration also includes the RLC bearer configurations as configured by *RLC-BearerConfig*. In case NR-DC or NE-DC is configured, this also includes the entire NR or E-UTRA SCG configuration which are released according to the MR-DC release procedure as specified in 5.3.5.10.NOTE 1a: For NR sidelink communication/discovery, the radio configuration includes the sidelink RRC configuration received from the network, but does not include the sidelink RRC reconfiguration and sidelink UE capability received from other Ues via PC5-RRC. In addition, the UE considers the new NR sidelink configurations as full configuration, in case of state transition and change of system information used for NR sidelink communication/discovery.NOTE 1b: To establish the RLC bearer of SRB(s) after release due to *fullConfig*, the network can include the *srb-Identity* within *srb-ToAddModList* (i.e. the UE applies RLC default configuration) and/or provide *rlc-BearerToAddModList* of concerned SRB(s) explicitly.- the logged measurement configuration;1> if the *spCellConfig* in the *masterCellGroup* includes the *reconfigurationWithSync*:2> release/ clear all current common radio configurations;2> use the default values specified in 9.2.3 for timers T310, T311 and constants N310, N311;1. else (full configuration after re-establishment or during RRC resume):

2> if the UE is acting as L2 U2N Remote UE:3> use value for timer T311, as included in *ue-TimersAndConstants* received in *SIB1*2> else:3> use values for timers T301, T310, T311 and constants N310, N311, as included in *ue-TimersAndConstants* received in *SIB1*;1. if no *measConfigAppLayerId* is included:

2> inform upper layers about the release of all application layer measurement configurations;2> discard any received application layer measurement report from upper layers;2> consider itself not to be configured to send application layer measurement report.1> apply the default L1 parameter values as specified in corresponding physical layer specifications except for the following:- parameters for which values are provided in *SIB1*;1> apply the default MAC Cell Group configuration as specified in 9.2.2;1. for each *srb-Identity* value included in the *srb-ToAddModList* (SRB reconfiguration):

2> establish an RLC entity for the corresponding SRB;2> apply the default SRB configuration defined in 9.2.1 for the corresponding SRB;NOTE 2: This is to get the SRBs (SRB1 and SRB2 for reconfiguration with sync and SRB2 for resume and reconfiguration after re-establishment) to a known state from which the reconfiguration message can do further configuration.1. for each *pdu-Session* that is part of the current UE configuration:

2> release the SDAP entity (clause 5.1.2 in TS 37.324 [24]);2> release each DRB associated to the *pdu-Session* as specified in 5.3.5.6.4;NOTE 3: This will retain the *pdu-Session* but remove the DRBs including *drb-identity* of these bearers from the current UE configuration. Setup of the DRBs within the AS is described in clause 5.3.5.6.5 using the new configuration. The *pdu-Session* acts as the anchor for associating the released and re-setup DRB. In the AS the DRB re-setup is equivalent with a new DRB setup (including new PDCP and logical channel configurations).1. for each *mbs-SessionId* that is part of the current UE configuration and associated to a multicast MRB:

2> release the SDAP entity (clause 5.1.2 in TS 37.324 [24]);2> release each multicast MRB associated to the *mbs-SessionId* as specified in 5.3.5.6.6;NOTE 4: This will retain the *mbs-SessionId* but remove the multicast MRBs including *mrb-identity* of these bearers from the current UE configuration. Setup of the multicast MRBs within the AS is described in clause 5.3.5.6.7 using the new configuration. The *mbs-SessionId* acts as the anchor for associating the released and re-setup multicast MRB. In the AS the multicast MRB re-setup is equivalent with a new multicast MRB setup (including new PDCP and logical channel configurations).1. for each *pdu-Session* that is part of the current UE configuration but not added with same *pdu-Session* in the *drb-ToAddModList*:

2> if the procedure was triggered due to reconfiguration with sync:3> indicate the release of the user plane resources for the *pdu-Session* to upper layers after successful reconfiguration with sync;2> else:3> indicate the release of the user plane resources for the *pdu-Session* to upper layers immediately;1. for each *mbs-SessionId* that is part of the current UE configuration but not added with the same *mbs-SessionId* in the *mrb-ToAddModList*:

2> if the procedure was triggered due to reconfiguration with sync:3> indicate the release of the user plane resources for the *mbs-SessionId* to upper layers after successful reconfiguration with sync;2> else:3> indicate the release of the user plane resources for the *mbs-SessionId* to upper layers immediately. |

**Q10: Do you agree with this correction in** [**R2-2210717**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210717.zip)**?**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Ericsson | Yes |  |
| Qualcomm | Yes |  |
| CATT | Yes |  |
| Google | Yes | Proponent |
| Sharp | Yes |  |
| MediaTek | Yes |  |
| LGE | Yes |  |
| Samsung | Yes |  |
| Nokia | Yes |  |
| Apple | Yes |  |
| vivo | Yes |  |
| OPPO | Yes  |  |
| Intel | Yes |  |

# 4 Conclusion

*[Easy Agreements]*

*[To be discussed]*

# 4 References

1. [R2-2209654](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209654.zip) Discussion on LCH re-association for MRB Huawei, HiSilicon discussion Rel-17 NR\_MBS-Core
2. [R2-2209399](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209399.zip) RRC Corrections on MBS vivo CR Rel-17 38.331 17.2.0 3484 - F NR\_MBS-Core
3. [R2-2209547](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209547.zip) Miscellaneous Corrections to TS 38.331 for MBS CATT, CBN CR Rel-17 38.331 17.2.0 3494 - F NR\_MBS-Core Late
4. [R2-2209908](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2209908.zip) RRC corrections for MBS Intel Corporation discussion Rel-17 NR\_MBS-Core
5. [R2-2210050](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210050.zip) Broadcast MRB retention upon T300 expiry Samsung CR Rel-17 38.331 17.2.0 3521 - F NR\_MBS-Core
6. [R2-2210130](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210130.zip) Various small corrections to 38.331 Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.2.0 3524 - F NR\_MBS-Core
7. [R2-2210576](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210576.zip) 38.331 CR Correction on the ASN.1 violation or encoding error handling for MCCH message Beijing Xiaomi Software Tech draftCR Rel-17 38.331 17.2.0 F NR\_MBS-Core
8. [R2-2210682](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210682.zip) CR to TS 38.331 on MRB configuration ZTE, Sanechips CR Rel-17 38.331 17.2.0 3560 - F NR\_MBS-Core
9. [R2-2210712](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210712.zip) MBS service area and MCCH acquisition Ericsson discussion Rel-17 NR\_MBS-Core
10. [R2-2210713](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210713.zip) A closer look at the MBS broadcast neighbours Ericsson discussion Rel-17 NR\_MBS-Core
11. [R2-2210717](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119bis-e/Docs//R2-2210717.zip) Correction to full configuration for MBS Google Inc. CR Rel-17 38.331 17.2.0 3562 - F NR\_MBS-Core