3GPP TSG-RAN WG2 Meeting #119 electronic R2-2208871

Online, 17th August – 29th August, 2022

Agenda Item: 6.1.2

Source: Huawei, HiSilicon

Title: [AT119-e][601][MBS-R17] RRC corrections

Document for: Discussion and Decision

# 1 Introduction

This document aims at summarizing the following offline discussion:

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

Phase 2 scope: Resolve remaining RRC issues

Phase 2 outcome: Report, 38.331 MBS corrections CR

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

This is a follow up offline discussing of [Pre119-e][601][MBS-R17] Summary of A.I. 6.1.2 RRC corrections (Huawei). The corresponding summary documents can be found in the [draft folder](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Inbox/Drafts/%5BPre119-e%5D%5B601%5D%5BMBS-R17%5D%20Summary%20of%20A.I.%206.1.2%20%20RRC%20corrections%20(Huawei)).

The following deadlines are suggested:

* For initial inputs to questions listed in this document and comments on the 38.331 CR for MBS
  + Deadline: Tuesday 2022-08-24 0100 UTC
* Summary of the offline and updated 38.331 CR for MBS
  + Deadline: Wednesday 2022-08-24, 1200 UTC

# 2 Contact information

|  |  |  |
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# 3 RRC corrections to be discussed

3.1 Correction 01

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| --- | --- |
| TDoc | Detailed RRC corrections |
| R2-2207032 | An MBS capable UE in RRC\_CONNECTED may initiate the procedure in several cases including upon successful connection establishment/resume, upon entering or leaving the broadcast service area, upon MBS broadcast session start or stop, upon change of interest, upon change of priority between MBS broadcast reception and unicast/multicast reception, upon change to a PCell in which the SIB1 scheduling information contains *SIB21*, upon receiving *SIB20* of an SCell via dedicated signalling, upon handover.  Upon initiating the procedure, the UE shall:  1> if *SIB21* is in the SIB1 scheduling information of the PCell:  2> ensure having a valid version of *SIB21* for the PCell;  2> if the UE did not transmit MBS Interest Indication since last entering RRC\_CONNECTED state; or  2> if since the last time the UE transmitted an MBS Interest Indication, the UE connected to a PCell in which the SIB1 scheduling information does not contain *SIB21*:  3> if the set of MBS broadcast frequencies of interest, determined in accordance with 5.9.4.3, is not empty:  4> set the contents of MBS Interest Indication according to 5.9.4.5 and initiate transmission of the *MBSInterestIndication* message;  2> else:  3> if the set of MBS broadcast frequencies of interest, determined in accordance with 5.9.4.3, is different from *mbs-FreqList* included in the last transmission of the MBS Interest Indication; or  3> if the prioritisation of reception of all indicated MBS broadcast frequencies compared to reception of any of the established unicast bearers and multicast MRBs has changed since the last transmission of the MBS Interest Indication:  4> set the contents of MBS Interest Indication according to 5.9.4.5 and initiate transmission of the *MBSInterestIndication* message;  NOTE: The UE may send MBS Interest Indication even when it is able to receive the MBS services it is interested in i.e. to avoid that the network allocates a configuration inhibiting MBS broadcast reception.  3> else if *SIB20* is in the SIB1 scheduling information of the PCell or is provided for the SCell:  4> if since the last time the UE transmitted the MBS Interest Indication, the UE connected to a PCell in which the SIB1 scheduling information does not contain *SIB20* and the UE was not provided with *SIB20* for an SCell; or  4> if the set of MBS broadcast services of interest determined in accordance with 5.9.4.4 is different from *mbs-ServiceList* included in the last transmission of the MBS Interest Indication:  5> set the contents of MBS Interest Indication according to 5.9.4.5 and initiate the transmission of *MBSInterestIndication* message. |

This correction is related to MII initiation. Currently, the following changes are agreed:

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

So in Rapporteur’s understanding, the changes in R2-2207032 on “provide” proposed by Correction 01 are not needed. And “broadcasting” can be changed to “providing” in the following sentence to make the wording consistent:

2> if since the last time the UE transmitted an MBS Interest Indication, the UE connected to a PCell not providing *SIB21*

**Q1: Do you agree with Rapporteur’s understanding?**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Kyocera | Yes | We think it’s much simpler and clarifies the meaning of “provide” sufficiently. |
| Ericsson | Yes |  |
| OPPO | Yes |  |
| Xiaomi | Yes |  |
| CATT | No | As the proponent, we think ”providing” is not clear sufficiently. That is why the similar change to 38.304 has been agreed in RAN2#118e meeting. |
| Samsung | Yes |  |
| MediaTek | No strong view | Both words are clear |
| LGE | Yes |  |
| ZTE | Yes | but no strong view |
| Intel | Yes |  |
| Qualcomm | Yes | But no strong view |
| Futurewei | Yes |  |
| Spreadtrum | Yes | But no strong view |
| Apple | Yes |  |
| Nokia | Yes |  |

**Q2: If the answer to Q1 is no, do you agree with Correction1?**

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| **Company** | **Yes/No** | **Comments** |
| CATT | Yes |  |
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3.2 Correction 02

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| --- | --- |
| TDoc | Detailed RRC corrections |
| R2-2207033 | ***MBS-SessionInfoList* field descriptions**   |  | | --- | | ***mtch-neighbourCell***  Indicates neighbour cells which provide this service on MTCH. The first bit is set to 1 if the service is provided on MTCH in the first cell in *mbs-NeighbourCellList*, otherwise it is set to 0. The second bit is set to 1 if the service is provided on MTCH in the second cell in *mbs-NeighbourCellList*, and so on. If the service is not available in any neighbouring cell and *mbs-NeighbourCellList* is signalled, the network sets all bits in this field to 0. The network does not configure this field if *mbs-NeighbourCellList* is not present or empty in the same message. If this field is absent, the related service may or may not be available in any neighbouring cell, i.e. the UE cannot determine the presence or absence of an MBS service in neighbouring cells based on the absence of this field. | | ***mtch-schedulingInfo***  Indicates the index of DRX configuration entry in *drx-ConfigPTM-List* that is used for scheduling the MTCH. The value 0 corresponds to the first entry in *drx-ConfigPTM-List*, the value 1 corresponds to the second entry in *drx-ConfigPTM-List* and so on. The network does not configure this field if *drx-ConfigPTM-List* is not present in the same message. In case *mtch-schedulingInfo* is absent for a G-RNTI (i.e. no PTM DRX), the UE shall monitor for PDCCH scrambled with G-RNTI in any slot according to the search space configured for MTCH [see TS 38.213 [13], clause 10.1]. | |

The following has already been clarified for *mbs-NeighbourCellList*:

When an empty *mbs-NeighbourCellList* list is signalled, the UE shall assume that MBS broadcast services signalled in *mbs-SessionInfoList* in the *MBSBroadcastConfiguration* message are not provided in any neighbour cell. When the field *mbs-NeighbourCellList* is absent, the current serving cell does not provide information about MBS broadcast services in the neighbouring cells, i.e. the UE cannot determine the presence or absence of an MBS service in neighbouring cells based on the absence of this field.

**Q3: Do you agree with Correction 02?**

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| **Company** | **Yes/No** | **Comments** |
| Kyocera | No | We don’t have strong need of the changes. |
| Ericsson | No, see comments | We do not see a strong need to clarify this, i.e. the NW will configure correctly. But if we want to clarify this, then it should be done via a conditional statement. |
| OPPO | No |  |
| Xiaomi | No |  |
| CATT | Yes | per the current asn.1 structure, It is possible that mbs-NeighbourCellList is not present but mtch-neighbourCell is included,it is not clear from the spec how UE should behave in such case. We cannot assume NW will always configure it correctly. |
| Samsung | No |  |
| MediaTek | No |  |
| LGE | No | It is clear that these parameters should be configured with the corresponding list. |
| ZTE |  | no strong view. good to clarify? maybe we can follow Ericsson suggestion to add a conditional statement there. |
| Intel | No | The field description of *mbs-NeighbourCellList* is already clear. |
| Futurewei | No | Don’t see a need to add these “no” clarifications. |
| Spreadtrum | No |  |
| Apple | No |  |
| Nokia | No | We do not see need |
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3.3 Correction 03

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| --- | --- |
| TDoc | Detailed RRC corrections |
| R2-2207034 | **5.3.5.6.6 Multicast MRB release**  The UE shall:  1> for each *mrb-Identity* value included in the *mrb-ToReleaseList* that is part of the current UE configuration; or  1> 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*; |

This correction is originated from some overlap with **5.3.5.6.1:**

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| 5.3.5.6.1 General The UE shall perform the following actions based on a received *RadioBearerConfig* IE:  \*\*[Text omitted]\*\*  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 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. |

In the meantime, apart from the duplication issue, Rapporteur observes that there may be a case where for a TMGI, one MRB is first released and another MRB is added in the same configuration message. In this case, the original description seems not suitable, as it will incorrectly indicate the release of use plane resources to upper layer during the execution of 5.3.5.6.6. Companies can provide their views on this correction.

**Q4: Do you agree with Correction 03?**

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| **Company** | **Yes/No** | **Comments** |
| Kyocera | Yes |  |
| Ericsson | No, see comments | We have similar views as the rapporteur, that the yellow text is not equivalent to the text that is removed.  Furthermore we have a pending LS to CT1/SA2 about this TMGI reporting to upper layers ([R2-2206609](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_118-e/Docs//R2-2206609.zip)), i.e. we should wait for the replies before removing that. |
| OPPO | No |  |
| Xiaomi | No |  |
| CATT | Yes | The duplicated indication issue exists and should be addressed.  There are repeated indication to upper layer for the release of UP resource for the multicast MRB, as in 5.3.6.6.1 and 5.3.5.6.6. |
| Samsung | No |  |
| MediaTek | No | We can wait for the LS from CT1/SA2 first |
| LGE | No | Agree with rapporteur and Ericsson. |
| ZTE | No | better to keep?  but how about the issues mentioned by rapp  - do we have the same issue with legacy DRB operation  - or maybe this is something UE can avoid via implementation? |
| Intel | Yes |  |
| Futurewei | No |  |
| Spreadtrum | No |  |
| Apple | No |  |
| Nokia | No (with edits can be OK) | As also pointed out by Ericsson yellow text is not equivalent and if we remove one instance we should modify what is left to cover all the cases. |

3.4 Correction 04

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| TDoc | Detailed RRC corrections |
| R2-2207039 | **5.3.7.5 Reception of the *RRCReestablishment* by the UE** The UE shall:  <Omitted Text>   1. submit the *RRCReestablishmentComplete* message to lower layers for transmission;   1> if the PCell provides *SIB21*:  2> if the UE initiated transmission of a *MBSInterestIndication*message during the last 1 second preceding detection of radio link failure:  3> initiate transmission of a *MBSInterestIndication*message in accordance with clause 5.9.4;  1> the procedure ends. |

This correction is related MII reporting during reestablishment.

**Q5: Do you agree with Correction 04?**

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| **Company** | **Yes/No** | **Comments** |
| Kyocera | Yes | We think it’s the same behaviour with LTE eMBMS. |
| Ericsson | Yes | The proposed text is shorter than in LTE; but a bit unclear whether the UE re-evaluates the frequencies/services of interest, or that the UE retransmits the old MII message?  36.331:  2> if *SystemInformationBlockType15* is broadcast by the PCell:  3> if the UE has transmitted an *MBMSInterestIndication* message during the last 1 second preceding detection of radio link failure:  4> ensure having a valid version of *SystemInformationBlockType15* for the PCell;  4> determine the set of MBMS frequencies of interest in accordance with 5.8.5.3;  4> determine the set of MBMS services of interest in accordance with 5.8.5.3a;  4> initiate transmission of the *MBMSInterestIndication* message in accordance with 5.8.5.4; |
| OPPO | Yes |  |
| Xiaomi | Yes |  |
| CATT | No strong view |  |
| Samsung | Yes | @Ericsson, proposed change refers to sec 5.9.4 (NR spec description slightly differs from LTE, as in NR MII determination and MII transmission are invoked from main section of initiation), so we think it is sufficiently clear, and behaviour is same as that of LTE eMBMS |
| MediaTek | Yes |  |
| LGE | No strong view |  |
| ZTE | Yes |  |
| Intel | Yes |  |
| Qualcomm | Ok, but no strong view |  |
| Futurewei | Yes |  |
| Spreadtrum | Yes |  |
| Apple | No strong view |  |
| Nokia | No strong view |  |

3.5 Correction 05

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| R2-2207225 | **5.3.5.5.4 RLC bearer addition/modification**  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. |

The proponent’s understanding is that LCH re-association can happen between MRBs. While Rapporteur thinks LCH re-association shouldn’t be supported between MRBs. So rapporteur’s proposed resolution is to change the NOTE as:

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

**Q6: Which option do you prefer?**

Option 1: Rapporteur’s resolution, i.e. adding “, MRB” in the NOTE1;

Option 2: Correction05 as proposed by R2-2207225

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| **Company** | **Option1/2** | **Comments** |
| Kyocera | Option 1 | We agree with the rapporteur’s view. |
| OPPO | Option 1 | We agree with the rapporteur’s view. |
| Xiaomi | Option 1 |  |
| CATT | None | The current spec is correct.nothing needs to change.  For MRB, the corresponding LC can be associated to another MRB ID(i.e. mrb-IdentityNew) |
| Samsung | Option 1 |  |
| MediaTek | Option 1 |  |
| LGE | None | Same view with CATT |
| ZTE | None | Version H10 is good enough. (as CATT pointed out, option 1 might be not correct) |
| Intel | Option 1 |  |
| Qualcomm | Option 2 preferred | As explained by CATT above, an LCID already associated with MRB can be reallocated to another MRB ID, but cannot be allocated to SRB or DRB. This is crystal clear from original CR proposal (option 2). Rapporteur’s proposal (Option 1) assumes change in MRB bearer ID doesn’t mean change of bearer, which seems also ok, but risks misinterpretation. |
| Futurewei | Option 1 |  |
| Spreadtrum | None | Agree with CATT |
| Apple | Option 2 | “DBR” should be “DRB”. |
| Nokia | None | - MRB ID can be changed without release/add, e.g., in HO if target cell uses different MBR ID for a given MBS service  - target cell may also use different LCID for that service, therefore, also LCID may change  -> therefore, there may be a need to re-associate an already configured LCID with another MRB  Therefore, Option 1 is NOK  The purpose of Option 2 is to avoid using existing DRB ID for MRB and an existing MRB ID for DRB. To our understanding, this is already achieved with the current note. |

3.6 Correction 06

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| TDoc | Detailed RRC corrections |
| R2-2207555 | 5.3.2.3 Reception of the *Paging* *message* by the UE or *PagingRecord* by the L2 U2N Remote UE …  1> if in RRC\_INACTIVE, for each of the *PagingRecord*, if any, included in the *Paging* message and the *ue-Identity* included in the *PagingRecord* matches the UE's stored *fullI-RNTI*, or  1> if in RRC\_INACTIVE, for each of the *PagingRecord*, if any, included in the *UuMessageTransferSidelink* message received from the connected L2 U2N Relay UE and the *ue-Identity* included in the *PagingRecord* matches the UE's stored *fullI-RNTI*:  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 the UE is configured by upper layers with Access Identity 1:  3> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *mps-PriorityAccess*;  2> else if the UE is configured by upper layers with Access Identity 2:  3> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *mcs-PriorityAccess*;  2> else if the UE is configured by upper layers with one or more Access Identities equal to 11-15:  3> initiate the RRC connection resumption procedure according to 5.3.13 with *resumeCause* set to *highPriorityAccess*;  2> else:  3> 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> 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; |

The correction is some kind of rewording. Rapporteur’s understanding is as follows:

The changes are only to restructure the text (no functional change). However, the reconstruction will affect the Rel-15 wording structure for unicast paging which may cause some potential issues. Separate descriptions for multicast paging are clearer (although has more texts).

Also one company (Samsung) indicates: “Note that proposed changes are not proper as “2> else if the *ue-Identity* included in the…” is left dangling with no proper condition. It is not clear if it pertains to RRC\_INACTIVE but receiving CN paging. Further, going to RRC\_IDLE becomes ambiguous.”

**Q7: Whether Correction 06 is needed or not?**

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| **Company** | **Yes/No** | **Comments** |
| Kyocera | No | We share the rapporteur’s view. |
| Ericsson | No | We share the rapporteur’s view. |
| OPPO | No | We share the rapporteur’s view. |
| Xiaomi | No |  |
| CATT | No |  |
| Samsung | No |  |
| MediaTek | No |  |
| LGE | No | We share the rapporteur’s view. |
| ZTE | No |  |
| Intel | No | Agree with rapporteur. |
| Futurewei | No |  |
| Spreadtrum | No |  |
| Apple | No |  |
| Nokia | Preferred to have | But not strictly needed. This would just make specification more clear |

3.7 Correction 07

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| TDoc | Detailed RRC corrections |
| [R2-2207591](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207591.zip) | Proposal 1: Confirm the understanding that configuration of MBS broadcast search space to a UE not supporting MBS broadcast in PDCCH-ConfigCommon will not cause inter-operability issue.  Proposal 2: If Proposal 1 is not agreed, RAN2 is asked to change MBS broadcast capability from “optional capability without signalling” to “optional capability with signalling”. |

In R2-2207591, it mentions the possibility that the network may configure *searchSpaceMCCH* and *searchSapceMTCH* for a RRC configured BWPto the UE before the MII report, which can avoid potential the second RRC Reconfiguration procedures to configure MBS broadcast search space as a response to the MII report. In this case, the network may configure MBS broadcast search space in PDCCH-ConfigCommon to the UE not supporting MBS broadcast. As there is no UE actions required upon the UE receiving this MBS broadcast search space, proponent think it will not cause inter-operability issue.

**Q8: Do you agree with Proposal 1 in** [**R2-2207591**](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207591.zip)**?**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Kyocera | Yes |  |
| Xiaomi | Yes |  |
| CATT | No | We do not see issue here.  UE will report MII upon successful connection establishment. then gNB can decide whether to configure broadcast search space to UE based on MII. Before that, there is no need to provide the MCCH/MTCH search space to UE |
| MediaTek | Yes |  |
| Ericsson | Yes |  |
| ZTE | Yes |  |
| Intel | Yes |  |
| Qualcomm | Strong No | As commented during the pre-meeting discussion (which seems to be missing from the summary), we are not in favour of mandating a UE to understand (including just ignoring the fields) a dedicated signalling provided to it which corresponds to a feature not supported by the UE. The use case is not strong enough. So, we strongly disagree to P1. |
| Futurewei | Yes |  |
| Spreadtrum | No | Same view with Qualcomm |
| Apple | No | For CONNECTED mode, NW can provide the broadcast MBS related configuration based on MII. |
| Nokia | No | There does not seem to be anything broken without the proposal. Additionally this situation was discussed many times during the WI and it was deemed unnecessary optimization. If we do any solution then we should consider to do it properly so that UE can indicate that it is receiving MBS as soon as possible e.g. already when establishing connection |

**Q9: If you don’t agree with Proposal 1, do you agree to change MBS broadcast capability from “optional capability without signalling” to “optional capability with signalling”?**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| CATT | No | We do not see issue here. |
| Qualcomm | No | We do not see a need. |
| Spreadtrum | No |  |
| Apple | No |  |
| Nokia | No | Capability does not resolve the issue for the early configuration as has been discussed many times during the WI. |

3.8 Correction 08

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| TDoc | Detailed RRC corrections |
| [R2-2207592](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207592.zip) | * *TMGI*   The IE *TMGI* is used to identify the MBS session.  ***TMGI* information element**  -- ASN1START  -- TAG-TMGI-START  TMGI-r17 ::= SEQUENCE {  plmn-Id -r17 CHOICE {  plmn-Index INTEGER (1..maxPLMN),  explicitValue PLMN-Identity  },  serviceId-r17 OCTET STRING (SIZE (3))  }  -- TAG-TMGI-STOP  -- ASN1STOP   |  | | --- | | ***TMGI* field descriptions** | | ***serviceId***  Uniquely identifies the identity of an MBS service within a PLMN. The field contains octet 3- 5 of the IE Temporary Mobile Group Identity (TMGI) as defined in TS 24.008 [38]. The first octet contains the third octet of the TMGI, the second octet contains the fourth octet of the TMGI and so on. | | ***plmn-Id***  Uniquely identifies the identity of the PLMN. When this field is included in *MBS-ServiceList* field for MBS Interest Indication, the *explicitValue* shall be always chosen. | |

In R2-2207592, it is observed that the target gNB may not correctly comprehend the *plmn-index* in the *mbsInterestIndication* included in the *HandoverPreparationInformation* message during the handover. The reason is that different cells may support different PLMNs and even if the supported PLMNs are the same, the order of PLMNs in the list is very likely to be different as the *plmn-IdentityInfoList*s in SIB1 are generated separately by the source cell and the target cell. So it is proposed UE shall report explicit values of PLMN-IDs for TMGIs in the *MBSInterestIndication* message (this doesn’t affect the plmn-Index being used in MCCH to reduce the MCCH signalling overhead).

**Q10: Do you agree with the issue that the target gNB may not correctly comprehend the *plmn-index* in the *mbsInterestIndication* included in the *HandoverPreparationInformation* message during the handover?**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Kyocera | - | We assume the source gNB can translate the PLMN ID (i.e., to *explicitValue*) when it sends *HandoverPreparationInformation* to the target gNB, even if the UE reported with *plmn-Index*. Otherwise, we can accept the change. |
| Xiaomi | Yes |  |
| CATT | No | We do not see issue here. the MII is used by source gNB as well, so anyway source gNB will decode the MII and translate the plmn index to real PLMN ID. when sending MII to target gNB,source gNB can replace the PLMN index with the explit PLMN ID |
| Samsung |  | It is possible for gNB to address the issue |
| MediaTek | No strong view |  |
| Ericsson | Yes, see comments | We think that the ASN.1 indicates that the gNB just copies the MII message received from the UE (similar as with UAI):  mbsInterestIndication-r17 OCTET STRING (CONTAINING MBSInterestIndication-r17) OPTIONAL  The gNB does not need to construct an MII message with complete PLMN info to understand the message from the UE.  Concerning the PLMN info in the TMGI we have some follow up question:   * The UE indicates with the TMGI which MBS service it is interested in to receive. RAN2 did not specify that the UE needs to check the PLMN info in the TMGI, to signal that it is interested in the TMGI (e.g. the PLMN info does not need to be present in SIB1, or the PLMN may be different from the UE’s registered / equivalent PLMN(s)) * We assume that the UE uses a PLMN index if possible, otherwise the UE uses the full PLMN |
| LGE | No | The source gNB is responsible for translating the index into the full PLMN ID. |
| ZTE | no | but network might be able to address the issue.  and during the first round of discussion, it is also proposed that UE and source network's MII might be independent, e.g., UE report by index but in Xn interface it is a full version.  so it is fine not to make changes. |
| Intel | No | We also assume that source gNB can perform the translation, and there is no need to mandate UE behavior. |
| Futurewei | Yes |  |
| Spreadtrum | No | We think source gNB can address this issue. |
| Nokia | No |  |
|  |  |  |

**Q11: If the answer to Q10 is yes, do you agree with Correction08?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Xiaomi | Yes |  |
| Ericsson | Yes |  |
| Futurewei | Yes |  |
|  |  |  |

3.9 Correction 09

|  |  |
| --- | --- |
| TDoc | Detailed RRC corrections |
| R2-2208088 | **5.9.4.2 Initiation**  …  Upon initiating the procedure, the UE shall:  1> if *SIB21* is provided by the PCell; or  1> if *SIB21* is not provided by the PCell and the frequency is included in the USD for the MBS services of interest:  **5.9.4.3 MBS frequencies of interest determination**  The UE shall:  1> consider a frequency to be part of the MBS frequencies of interest if the following conditions are met:  2> at least one MBS session the UE is receiving or interested to receive via a broadcast MRB is ongoing or about to start; and  NOTE 1: The UE may determine whether the session is ongoing from the start and stop time indicated in the User Service Description (USD), see TS 38.300 [2] or TS 23.247 [67].  2> for at least one of these MBS sessions, *SIB21* acquired from the PCell includes mapping between the concerned frequency and one or more MBS FSAIs indicated in the USD for this session, or for at least one of these MBS sessions, the concerned frequency is not included in *SIB21* but is indicated in the USD for this session, or for at least one of these MBS sessions, the concerned frequency is included in the USD when *SIB21* is absent; and  NOTE 2: The UE considers a frequency to be part of the MBS frequencies of interest even though NG-RAN may (temporarily) not employ a broadcast MRB for the concerned session, i.e., the UE does not verify if the session is indicated on MCCH.  2> the *supportedBandCombination* the UE included in *UE-NR-Capability* contains at least one band combination including the concerned MBS frequency of interest.  5.9.4.4 MBS services of interest determination  The UE shall:  1> consider an MBS service to be part of the MBS services of interest if the following conditions are met:  2> the UE is receiving or interested to receive this service via a broadcast MRB; and  2> the session of this service is ongoing or about to start; and  2> one or more MBS FSAIs in the USD for this service is included in *SIB21* acquired from the PCell for a frequency belonging to the set of MBS frequencies of interest, or no MBS FSAI in the USD for this service is included in *SIB21* and the MBS service is included in the USD for a frequency belonging to the set of MBS frequencies of interest, or *SIB21* is absent and the MBS service is included in the USD for a frequency belonging to the set of MBS frequencies of interest, determined according to 5.9.4.3. |

In [R2-2208088](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2208088.zip), it is proposed UE can send MII when *SIB21* is absent but the frequency info is included in the USD for the MBS service. Correspondingly, UE can also include the frequency/service of interest in the MII message in this case.

Rapporteur’s understanding is that it was discussed and agreed to use the presence/absence of *SIB21* to enable/disable MII reporting in RAN2#116. If MII reporting is allowed without *SIB21,* the NW cannot control MII reporting on/off and a gNB not supporting MBS may also receive the MII message and cause failure.

Then the proponent proposed a way forward to discuss the following:

P1: RAN2 to discuss if MII signalling is supported when SIB21 is absent

P2: RAN2 to discuss how to enable the use case in P1 (e.g. add MII flag in SIB)

Per Rapporteur’s understanding, SIB21 already allows empty list of frequencies, if the network intends not providing any frequencies and allowing MII report, an empty SIB21 can be sent to control MII report. We see no reason to re-discuss this in R17 considering that there is already a clear agreement and R17 is already closed.

**Q12: Do you agree to re-discuss how MII signalling is controlled by NW?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Kyocera | No | We agree with the rapporteur’s view. |
| Ericsson | Yes, see comments | We agree with the rapporteur about the RAN2 discussion and agreement.  But in case frequency info is provided in USD only (e.g. single frequency network) and *SIB21* is absent, then the UE would not signal MII. This means that the UE would not be able to receive broadcast in connected when this is on Scell frequency.  We think sending an empty SIB21 is not a good solution, better to add a flag to e.g. SIB2. |
| OPPO | No | We agree with the rapporteur’s view. |
| Xiaomi | No |  |
| CATT | No | We’d like to stick to the previous agreement |
| Samsung | No | We agree with the rapporteur’s view. |
| MediaTek | No | We agree with the rapporteur’s view. |
| LGE | No | We agree with the rapporteur’s view. No reason for MBS-supporting gNB not to provide SIB21. |
| ZTE |  | no strong view |
| Intel | No | Agree with rapporteur. |
| Futurewei | No |  |
| Spreadtrum | No | We agree with the rapporteur’s view. |
| Apple | No |  |
| nokia | No |  |

**Q13: Do you agree with Correction9?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Kyocera | No | The change is not in-line with RAN2 agreements. |
| CATT | No | We’d like to stick to the previous agreement |
| LGE | No | We’d like to stick to the previous agreement |
| Intel | No | See answer to Q12. |
| Nokia | No |  |

3.10 Correction 10

|  |  |
| --- | --- |
| TDoc | Detailed RRC corrections |
| R2-2208095 | *BWP-UplinkDedicated* The IE *BWP-UplinkDedicated* is used to configure the dedicated (UE specific) parameters of an uplink BWP.  *BWP-UplinkDedicated* information element  -- ASN1START  -- TAG-BWP-UPLINKDEDICATED-START  BWP-UplinkDedicated ::= SEQUENCE {  pucch-Config SetupRelease { PUCCH-Config } OPTIONAL, -- Need M  pusch-Config SetupRelease { PUSCH-Config } OPTIONAL, -- Need M  configuredGrantConfig SetupRelease { ConfiguredGrantConfig } OPTIONAL, -- Need M  srs-Config SetupRelease { SRS-Config } OPTIONAL, -- Need M  beamFailureRecoveryConfig SetupRelease { BeamFailureRecoveryConfig } OPTIONAL, -- Cond SpCellOnly  ...,  [[  sl-PUCCH-Config-r16 SetupRelease { PUCCH-Config } OPTIONAL, -- Need M  cp-ExtensionC2-r16 INTEGER (1..28) OPTIONAL, -- Need R  cp-ExtensionC3-r16 INTEGER (1..28) OPTIONAL, -- Need R  useInterlacePUCCH-PUSCH-r16 ENUMERATED {enabled} OPTIONAL, -- Need R  pucch-ConfigurationList-r16 SetupRelease { PUCCH-ConfigurationList-r16 } OPTIONAL, -- Need M  lbt-FailureRecoveryConfig-r16 SetupRelease { LBT-FailureRecoveryConfig-r16 } OPTIONAL, -- Need M  configuredGrantConfigToAddModList-r16 ConfiguredGrantConfigToAddModList-r16 OPTIONAL, -- Need N  configuredGrantConfigToReleaseList-r16 ConfiguredGrantConfigToReleaseList-r16 OPTIONAL, -- Need N  configuredGrantConfigType2DeactivationStateList-r16 ConfiguredGrantConfigType2DeactivationStateList-r16 OPTIONAL -- Need R  ]],  [[  ul-TCI-StateList-r17 CHOICE {  explicitlist SEQUENCE {  ul-TCI-ToAddModList-r17 SEQUENCE (SIZE (1..maxUL-TCI-r17)) OF TCI-UL-State-r17 OPTIONAL, -- Need N  ul-TCI-ToReleaseList-r17 SEQUENCE (SIZE (1..maxUL-TCI-r17)) OF TCI-UL-State-Id-r17 OPTIONAL -- Need N  },  unifiedTCI-StateRef-r17 ServingCellAndBWP-Id-r17  } OPTIONAL, -- Need R  ul-powerControl-r17 Uplink-powerControlId-r17 OPTIONAL, -- Cond NoTCI-PC  pucch-ConfigurationListMulticast1-r17 SetupRelease { PUCCH-ConfigurationList-r16 } OPTIONAL, -- Need M  pucch-ConfigurationListMulticast2-r17 SetupRelease { PUCCH-ConfigurationList-r16 } OPTIONAL -- Need M  ]],  [[  pucch-ConfigMulticast1-r17 SetupRelease { PUCCH-Config } OPTIONAL, -- Need M  pucch-ConfigMulticast2-r17 SetupRelease { PUCCH-Config } OPTIONAL -- Need M  ]]  }  ConfiguredGrantConfigToAddModList-r16 ::= SEQUENCE (SIZE (1..maxNrofConfiguredGrantConfig-r16)) OF ConfiguredGrantConfig  ConfiguredGrantConfigToReleaseList-r16 ::= SEQUENCE (SIZE (1..maxNrofConfiguredGrantConfig-r16)) OF ConfiguredGrantConfigIndex-r16  ConfiguredGrantConfigType2DeactivationState-r16 ::= SEQUENCE (SIZE (1..maxNrofConfiguredGrantConfig-r16)) OF ConfiguredGrantConfigIndex-r16  ConfiguredGrantConfigType2DeactivationStateList-r16 ::=  SEQUENCE (SIZE (1..maxNrofCG-Type2DeactivationState)) OF ConfiguredGrantConfigType2DeactivationState-r16  -- TAG-BWP-UPLINKDEDICATED-STOP  -- ASN1STOP |

In R2-2208095, it is observed that for multicast, there is no *pucch-ConfigMulticast1/pucch-ConfigMulticast2* when multicast feedback is not configured with a priority value. There are only *pucch-ConfigurationListMulticast1*/*pucch-ConfigurationListMulticast2* applicable when multicast feedback is configured with a priority value.

Companies can check whether current specs is sufficient or there is any case missing.

**Q14: Do you agree with Correction10?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| MediaTek | Yes | For multicast feedback which is not configured with a priority value, the IE seems missed. |
| Intel | Yes |  |
| Qualcomm | Yes | As explained in the coverpage and as also clarified during the pre-meeting discussion, this change is needed. |
| Futurewei | Yes |  |
| Apple | Yes |  |
| Nokia | Yes | We think correction would be required – if not then we should concult RAN1 whether they are fine with Ran2 structure |

3.11 Correction 11

|  |  |
| --- | --- |
| TDoc | Detailed RRC corrections |
| R2-2208589 | The procedural text related to counter check in 5.3.6 and ASN. 1 signalling in 6.2.2 are updated to apply counter check to multicast MRB. **(The detailed changes can refer to the paper)** |

In R2-2208589, it is proposed to extend Counter Check Procedure to multicast MRB. Rapporteur’s understanding is as below:

Counter check has been discussed in SA3#106E but not agreed (S3-220292). Companies in SA2 commented that since security including integrity protection of the data traffic is provided at a higher layer above PDCP, what happens at the PDCP layer or below is irrelevant.

From RAN2 point of view, besides for security purpose, counter check is not an essential feature.

Companies can provide their views on this function.

**Q15: Do you think agree to extend Counter Check Procedure to multicast MRB?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Kyocera | No | We share the rapporteur’s view. |
| OPPO | No |  |
| Xiaomi | No |  |
| CATT | No | Not necessary |
| Samsung | Yes | We think we have to focus on RAN2 perspective only. SA3 conclusion implies that from MBS security protection perspective, counter check procedure is not necessary. But what RAN2 should consider is that it is also used for purposes of radio bearer management and connection control.   * Counter check procedure is currently being used for batch reception error in case of bad channel quality (near RLF). In Multicast, disabling feedback is supported, which means that this problem should be controlled by the network. Counter check is a good tool which is already used for unicast. * Also, even if SA3 does not see security issue from service perspective, it does not mean that there is no issue in RAN2. In RAN, regardless of the security damage, MRB needs to be refreshed if an attack is detected. So, in this case, counter check is still useful. * Also, in Rel-15 NR standardization, RAN2 agreed to introduce this counter check procedure for unicast, without SA3 input. RAN2 decided it on its own.   Thus, its RAN2 scope, we would prefer to consider the issue. |
| MediaTek | No strong view |  |
| LGE | No |  |
| ZTE | Yes | Sees no harm enabling already existing feature. |
| Intel | No | Agree with rapporteur. |
| Qualcomm | No | In our understanding, this was discussed in SA3 and not agreed by SA3. |
| Futurewei | No |  |
| Spreadtrum | No strong view |  |
| Apple | No |  |
| Nokia | No |  |

**Q16: If the answer to Q15 is yes, do you agree with the Correction11 made in R2-2208589?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
| Samsung | Yes |  |
|  |  |  |
|  |  |  |

# 4 Conclusion

**TBD**

*[Easy Agreements]*

*[To be discussed]*

# 4 References

1. R2-2207032 Corrections related to MBS Interest Indication CATT CR Rel-17 38.331 17.1.0 3208 - F NR\_MBS-Core
2. R2-2207033 Corrections on Broadcast Configuration CATT, CBN CR Rel-17 38.331 17.1.0 3209 - F NR\_MBS-Core
3. R2-2207034 Corrections on multicast MRB handling CATT CR Rel-17 38.331 17.1.0 3210 - F NR\_MBS-Core
4. R2-2207035 Miscellaneous Corrections to TS 38.331 CATT CR Rel-17 38.331 17.1.0 3211 - F NR\_MBS-Core
5. R2-2207039 RRC Corrections for MBS Samsung discussion Rel-17 38.331
6. R2-2207225 Clarification on LCH Reassociation vivo discussion Rel-17 NR\_MBS-Core
7. R2-2207555 TMGI handling Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.1.0 3287 - F NR\_MBS-Core
8. R2-2207591 Clarification on the early configuration of MBS broadcast search space Huawei, CBN, HiSilicon discussion Rel-17 NR\_MBS-Core
9. R2-2207592 Discussion on decoding of the TMGI in MII Huawei, CBN, HiSilicon discussion Rel-17 NR\_MBS-Core
10. R2-2208084 Broadcast sessions with the same MRB configuration Ericsson discussion Rel-17 NR\_MBS-Core (moved from 6.1.3)
11. R2-2208088 MII signalling when SIB21 is absent Ericsson discussion Rel-17 NR\_MBS-Core
12. R2-2208095 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

1. R2-2208589 Counter Check Procedure for Multicast Samsung discussion Rel-17 NR\_MBS-Core
2. R2-2208639 Miscellaneous CR to TS 38.331 on NR MBS ZTE, Sanechips CR Rel-17 38.331 17.1.0 3457 - F NR\_MBS-Core