3GPP TSG-RAN2 Meeting #121 R2-2302087

Athens, Greece, 27 February – 3 March 2023

Agenda Item: 6.2.2

Source: Huawei, HiSilicon

Title: Report of [AT121][602][MBS-R17] Remaining RRC CRs (Huawei)

Document for: Discussion and Decision

# 1 Introduction

This document aims at summarizing the following offline discussion:

* [AT121][602][MBS-R17] Remaining RRC CRs (Huawei)

      Scope: Treat remaining issues submitted to 6.2.2, i.e. check with companies which changes are needed and agreeable and which are not. Capture the agreements from the online session in the RRC (e.g. related to NPN).

      Outcome: Report summarizing which CRs/changes can be agreed and which not, can consider preparing a common CR with agreeable changes, if needed/more convenient.

      Deadline:  Friday CB session

# 3 Discussion of RRC CRs

1. [R2-2300194](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2300194%20Corrections%20to%20TS%2038.331.docx) Corrections to TS 38.331 CATT, CBN CR Rel-17 38.331 17.3.0 3782 - F NR\_MBS-Core

Rapporteur’s understanding:

* For the first change, it is not essential to specify when UE stops monitoring MCCH-RNTI.
* For the second change and the third change, they are fine.

[NEC] We also think this is not essential.

But if majority want to specify this, we are concerning one sentence “the SCell that is used to receive broadcast is released”

How about **SCell is deactivated**?

[Eri]

1. Change not needed (also strange to mandate a “shall” for this UE behavior)

2. This is a rare event, i.e. when the feature is deployed for the first time, or when the gNB is re-started? This requirement is also not provided in 38.331.

3. Ok

[CATT (proponent)]

1. For change 1,it is necessary to specify the UE behavior clearly on when to stop monitor MCCH RNTI and G-RNTI.
2. For change 2,.it is a possible case that in the current cell SIB20 was not scheduled in the SIB1 at the beginning but it is scheduled in SIB20 later. A UE that is interested to receive MBS broadcast service should apply the MCCH information acquisition in this case.

**Offline Conclusion 1:**

**We agree the third change for now.**

1. [R2-2301669](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2301669%20MBS%20corrections%20for%20RRC%20Release%20procedure.docx) MBS corrections for RRC Release procedure Sharp draftCR Rel-17 38.331 17.3.0 F NR\_MBS-Core

Rapporteur’s understanding:

* The re-establishment behavior during sdt shouldn’t affect the ongoing broadcast MRBs. So the change can be agreed.

[LG] We agree to the change.

[Eri] Agree

[CATT] OK

[QC] Intent ok, suggest rewording to avoid double negative (not+except), use something like ‘for each RLC bearer **corresponding to radio bearers** **configured for SDT** that is not suspended’

[Sharp (proponent)] QC’s suggestion is not correct. If the RLC of no-SDT RBs are not re-established, the conditions for initiating SDT defined in 5.3.13.1b may not be fulfilled even if all the new data are for SDT RBs. In addition, the proposed changed is align with other cases, for example, in the case of timer T300 expires.

[Samsung] Agree

[Rapp] To address QC’s concern, the changes can be moved after “RLC bearer”.

**Offline Conclusion 2:**

**The CR is agreed as:**

3> for each RLC bearer (except those associated with broadcast MRBs) that is not suspended:

4> re-establish the RLC entity as specified in TS 38.322 [4];

1. [R2-2301806](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2301806%20Correction%20to%20UL%20configuration.docx) Correction to UL configuration for multicast MRB Google Inc. CR Rel-17 38.331 17.3.0 3923 - F NR\_MBS-Core

Rapporteur’s understanding:

* The intention is OK. But the field should be also mandatory for multicast MRB configured with uplink RLC configuration, similar as DRB. Because unlike SRB, there is no default configuration for MRB.

[LG] We agree to the Rapporteur’s understanding. Our suggestion is “… mandatory present for a logical channel with uplink if it serves DRB or MRB.”

[Eri] Agree with rapporteur “or multicast MRB”.

[CATT] Agree with rapporteur

[QC]: Agree with intent. But wonder which fields inside the group (with cond UL) apply for MRB (not all of them apply, so is there a potential case where non-applicable field is mandatory to include due to existing conditions)?

[Samsung] Agree with rapporteur.

**Offline Conclusion 3:**

**The CR is agreed as:**

The field is mandatory present for a logical channel with uplink if it serves DRB or multicast MRB. It is optionally present, Need R, for a logical channel with uplink if it serves an SRB. Otherwise it is absent.

1. [R2-2301780](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2301780%20Misc%20CR%20to%20TS%2038.331%20on%20NR%20MBS.docx) Misc CR to TS 38.331 on NR MBS ZTE, Sanechips CR Rel-17 38.331 17.3.0 3921 - F NR\_MBS-Core

Rapporteur’s understanding:

* For the 1st, 3rd, 4th, and 7th change, they are editorial changes, so we can agree to them.
* For the 2nd change, intention is to align with RAN1, so should be also OK.

For the 5th change, the intention is correct. When the NCL is absent, the UE cannot determine whether the ongoing sessions are provided in neighbor cell, so there is no use to signal *mtch-neighbourCell*; When the NCL is empty, it means no neighbor cells are providing the ongoing sessions, so there is also no use to signal *mtch-neighbourCell*.

* For the 6th change, the intention is OK. Because the cells in the NCL may also not providing the MBS sessions. But keeping only the highlighted change should be enough.

The IE *MBS-NeighbourCellList* indicates a list of neighbour cells in which ongoing MBS sessions provided via broadcast MRB in the current cell might be also provided based on the information provided in the per session *mtch-neighbourCell*.

[NEC] Agree rapporteur’s highlighted change.

Also fine to the ZTE’s proposal **by removing “per session”.**

* [Eri] Agree with rapporteur, except:*CFR for broadcast:* We do not see the need for *CFR for broadcast*. Because even with this change, you can say it is not clear when CFR for broadcast does not include locationAndBandwidthBroadcast.
* *MBS-NeighbourCellList*: We think “might be” is a bit misleading and does not improve the readability. We think it is better to keep as is, i.e. the details are further explained in the field description. We are fine to add “*based on the information provided in mtch-neighbourCell*”.
* ***mtch-neighbourCell****:* We do not see a strong need for these changes, which also overlap with the field description of mbs-neighbourCellList. We would be fine to only say: “The field is absent when mbs-neighbourCellList is absent or empty”. We should not use “shall be absent”.

[CATT] the 6th change is not essential. The current wording reads right. In our understanding, A cell in the MBS-NeighbourCellList at least provide one ongoing MBS session, or the cell is not supposed to be in the mbs-neighbourCellList.

[QC]

* for changes in commonControlResourceSetExt, since RAN1 is discussing, wait for RAN1 conclusion before changing in RAN2.
* changes in MBS-SessionInfoList seems too detailed, e.g. seems no need to capture that this field is absent if mbs-Neigh cell list is absent (shouldn’t that be obvious from the second sentence?)
* [Samsung]
* 6th change is not essential. At most, “may also be provided” is okay to add in place of “might be provided”

**Offline comments:**

* For the 4th change:

E///: no name of CFR for broadcast.

ZTE: there is a configuration for this. The intention is to limit it for CFR for broadcast, in case of the absence of locationAndBandwidthBroadcast.

HW: Agree there is some ambiguity in the specs and the description should be more general.

E///: Can accept.

* For the 5th change:

E///: To change the wording to be more general. Clarify that when the NCL is absent or present but empty, the mtch-neighbourCell is absent.

ZTE: Can have some offline discussion about the wording.

Rapp: after some offline with proponent, there seems still more details to be considered and may not be easily addressed in this meeting. Suggest to bring this change to the next meeting.

* For the 2nd change:

QC: although RAN1 approved a CR last meeting, there are more discussion on this in RAN1. Suggest to postpone this or delete the details and just refer to R1 spec.

HW: Agree to just refer to R1 spec. Proponent also agrees.

**Offline Conclusion 4:**

**The 1st, 3rd, 4th, and 7th change are agreed.**

**The 2nd change is agreed as:**

***moreThanOneNackOnlyMode***

Indicates the modes of NACK-only feedback in the PUCCH transmission as specified in TS 38.213 [13]. If multicast CFR is not configured, this field is not included. Otherwise, if the field is absent, UE uses mode 1 for multicast CFR.

**The 6th change is agreed as:**

The IE *MBS-NeighbourCellList* indicates a list of neighbour cells where ongoing MBS sessions provided via broadcast MRB in the current cell may also be provided.

1. [R2-2301202](file:///C:\Users\Dwx974486\Documents\3GPP\Extracts\R2-2301202%20Miscellaneous%20clarifications%20for%20MBS.docx) Miscellaneous clarifications for MBS Ericsson discussion Rel-17 NR\_MBS-Core

**Proposal 1**: In case the UE needs to support concurrent MBS sessions the UE needs to support multiple G-RNTIs.

**Proposal 2**: Add a NOTE in 38.331 to clarify:

* *mbs-ServiceList* and *mbs-FreqList* are not included in the same *MBSInterestIndication* message
* *mbs-ServiceList* applies to MBS broadcast service(s) provided on the serving frequency
* *mbs-ServiceList* includes the MBS broadcast service(s) the UE is able to receive simultaneously

**Proposal 3**: Clarify in 38.300 that in cell where the session is provided via PTM:

* the UE does not request a unicast bearer for that session
* the UE releases the unicast bearer that the UE requested for that session

Rapporteur’s understanding:

* For P1, there can be one-to-many mapping between G-RNTI and MBS sessions. Besides, it there are more G-RNTI scheduling than UE supports, gNB can reject the establishment the of MBS session and CN can switch to unicast session for the UE.
* For P2, *mbs-FreqList* is reported to assist NW to configure the frequency and *mbs-ServiceList* is reported to assist NW to schedule on the serving frequency. In this sense, they can be reported simultaneously. There seems no harm if the *mbs-ServiceList* contains services of other frequency. And it may not be needed to restrict the services to that can be received simultaneously.
* For P3, it may be useful to clarify that the UE requests the unicast after reselecting to the target cell in stage 2.

[NEC] P3：The intention is OK, but

We are concerning that even for a cell where the session is provided, UE still can **prioritises** unicast for that session, we have “mbs-Priority IE” mechanism.

[Eri (proponent)] In response to the rapporteur comments:

* P1: The mapping is left to gNB implementation, i.e. the UE cannot rely on a 1:N mapping (and for broadcast the gNB is not aware of the number of G-RNTIs the UE supports). Reverting to PTP defies the purpose of PTM, i.e. should be avoided. The UE can optionally support up to 8 G-RNTIs, and we think that the UE should use this feature to receive multiple sessions at the same time, i.e. we think that is a reasonable requirement.
* P2: We do not understand that use case when UE sends both service and frequency list, i.e. the UE either wants to receive the services on the serving frequency and include the service list for scheduling puroposes. Or the UE wants to receive services on another frequency/SCell and sends the frequency list. When the UE receives the SIB20-SCell then the UE sends the service list for the SCell frequency. We do not think that the UE should send services it cannot receive simultaneously, i.e. the NW will try to schedule around these services, and the NW effort would then be for nothing for certain services indicated by the UE:
  + In case we keep the current signalling options, i.e. allow the frequency priorities and service priorities to be send simultaneously, then at minimum we should clarify concerning the signalled priorities:
    - NOTE: In case the *mbs-ServiceList* includes services on different frequencies, the network only considers the services on the selected frequency from the *mbs-FreqList*.
* P3: We would like to note that there is no incentive for the UE to release the unicast once acquired, and this unicast bearer use for broadcast MBS is transparent to the gNB. We also think this is a serious issue, i.e. the whole purpose of MBS deployment is that UEs use the PTM configuration in the cells where PTM is supported.

[CATT]

P1: Agree with Rapporteur’s understanding

P2: such restriction is not needed. Reporting mbs-FreqList and mbs-ServiceList in one MII are useful, In our understanding,mbs-FreqList is used to ensure simultaneously unicast reception and broadcast reception, e.g via CA scheduling. And mbs-ServiceList is used for handover.

P3:not sure if it needs to clarify, it can be up to UE implementation.

[QC]: P1: observation seems correct for some network implementation choices, but no spec impact.

P3 no need to capture in spec (intent is ok). For mcast, this is all done by NW, not UE autonomous. For broadcast, there is no guarantee that UE can get the service via unicast.

[Samsung]

P1: Agree with Rapporteur

P2: Both frequency and service information from all UEs are useful for the overall service provisioning by the network. However, agree that frequency priority/ordering prevails over service priority/ordering. A clarification for UE behavior can be provided that service priority is only considered within the selected frequency based on frequency priority.

P3: Agree with intent.

[Eri] (Comment from email): suggest to reword the NOTE as:

NOTE: The *mbs-ServiceList*, which may include services on different frequencies, is not used to determine on which frequency to enable MBS broadcast reception for the UE.

[Rapp] Personally, I’m fine to reword the NOTE in the proposal. Anyway this will be further discussed online.

**Offline Conclusion 5:**

**For P1, no specs effort is needed.**

**For P2, discuss online whether the NOTE is needed:**

NOTE: The *mbs-ServiceList*, which may include services on different frequencies, is not used to determine on which frequency to enable MBS broadcast reception for the UE.

**For P3, discuss online.**

# 4 Conclusion

See above.