**3GPP TSG RAN WG1 #103-e R1-200XXXX**

**e-Meeting, October 26th – November 13th, 2020**

**Agenda item: 8.12.3**

**Source:** Moderator (BBC)

**Title:** Summary #2 on RAN basic functions for broadcast/multicast for UEs in RRC\_IDLE/ RRC\_INACTIVE states

**Document for:** Discussion and Decision

# Introduction

RAN1#103-e is the first meeting that will start discussing the AI 8.12.3 on Basic functions for broadcast/multicast for RRC\_IDLE/ RRC\_INACTIVE UEs. The information of the email thread on this topic and the check points on the discussion provided by RAN1 Chairman is shown below:

[103-e-NR-MBS-03] Email discussion/approval for basic functions for broadcast/multicast for RRC\_IDLE/RRC\_INACTIVE UEs– David (BBC)

* 1st check point: 11/5
* 2nd check point: 11/10
* 3rd check point: 11/12

A summary of the analysis and key issues identified from the technical inputs to this meeting to AI 8.12.3 can be found here:
<https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_103-e/Inbox/drafts/8.12.3/R1-200xxxx%20FL%20summary%20on%20basic%20functions%20for%20multicast-broadcast%20idle-inactive%20UEs%20v1_00.docx>.

Since this is the first meeting to discuss AI 8.12.3, we will start with a prioritisation of issues to be discussed at RAN1#103-e. Once the issues have been agreed, the discussions can continue on the specific proposals.

Section 2 summarises the issues identified based on the technical contributions submitted to RAN1#103-e AI 8.12.3. Section 3 provides a first order prioritisation proposal from the moderator where companies can provide their views. This prioritisation phase discussion can be conducted by email and at the next online GTW sessions planned for the NR Multicast and Broadcast Services WI during RAN1#103-e.

# Summary of identified Issues for RAN1#103-e

**Issue 1**: Group scheduling for UEs in RRC\_IDLE/ RRC\_INACTIVE states

* Proposal 1: For RRC\_IDLE/RRC\_INACTIVE UEs, support group-common PDCCH with CRC scrambled by a common RNTI to schedule a group-common PDSCH, where the scrambling of the group-common PDSCH is based on the same common RNTI.

**Issue 2**: Configuration mechanisms for group scheduling of IDLE/INACTIVE UEs

* Proposal 2: Subject to RAN2 decision, assume as the baseline to enable the MBS configuration for UEs in RRC\_IDLE/ RRC\_INACTIVE states the broadcast-based mechanism, i.e. SIB and/or MCCH, as specified in LTE SC-PTM.

**Issue 3**: Broadcast and Multicast support by UEs in RRC\_IDLE/RRC\_INACTIVE state

* Proposal 3: broadcast service reception can be supported for UEs in RRC\_IDLE/INACTIVE/CONNECTED states.
* Proposal 4: study multicast service reception for UEs in RRC\_IDLE/INACTIVE/CONNECTED states.

**Issue 4**: MBS frequency resources of UEs in RRC\_IDLE/ RRC\_INACTIVE states

* Proposal 5: for RRC\_IDLE/RRC\_INACTIVE UEs, the initial BWP can be the default common frequency resource to receive MBS data.
	+ FFS: one/more MBS specific BWPs where to avoid BWP switching the MBS specific BWP(s) can contain the initial BWP.

**Issue 5**: Retransmissions and HARQ feedback for UEs in RRC\_IDLE/ RRC\_INACTIVE states

* Proposal 6: for RRC\_IDLE/RRC\_INACTIVE UEs, consider support of NACK-only based HARQ-feedback for multicast and broadcast.
* Proposal 7: for RRC\_IDLE/RRC\_INACTIVE UEs, consider reception of HARQ retransmissions initiated by UEs in RRC\_CONNECTED state for multicast and broadcast.
* Proposal 8: for RRC\_IDLE/RRC\_INACTIVE UEs, consider support of PDSCH repetitions for multicast and broadcast.

**Issue 6**: Beam sweeping for UEs in RRC\_IDLE/ RRC\_INACTIVE states

* Proposal 9: for RRC\_IDLE/RRC\_INACTIVE UEs, beam sweeping is supported for Rel-17 MBS transmissions.
	+ FFS: UE monitoring occasions are associated with a subset of the total SSB indexes.
	+ FFS: UE monitoring and association is based on beam sweeping SIBx/paging procedures.
	+ FFS: QCL assumption based on SSB or TRS based on SIB configuration.
	+ FFS: PTP/PTM indications can be done per SSB.

**Issue 7**: PDCCH Search Space for UEs in RRC\_IDLE/ RRC\_INACTIVE states

* Proposal 10: for RRC\_IDLE/RRC\_INACTIVE UEs, CSS is supported for group-common PDCCH.
	+ FFS: reuse current CSS types and/or define a new CSS type.

**Issue 8**: CORESET for UEs in RRC\_IDLE/ RRC\_INACTIVE states

* Proposal 11: for RRC\_IDLE/RRC\_INACTIVE UEs, an MBS-specific CORESET is defined where the CORESET of PDCCH can be CORESET0 by default.

# FL proposal for prioritisation of Issues for discussion at RAN1#103-e

The FL proposes the following prioritisation of topics for discussion at RAN1#103-e:

* Issue 1, Issue 2, Issue 3, Issue 4, Issue 5 and Issue 6.

This prioritisation proposal is for consideration and can be discussed by email and at the planned online GTW NR MB sessions at RAN1#103-e. The proposals for each of the issues can be discussed after the prioritisation of topics has been agreed.

Please provide company’s views in the table below on whether your company agrees with the prioritisation of topics for discussion at RAN1#103-e for AI 8.12.3 or any other comment:

|  |  |
| --- | --- |
| Company | Comments |
| LG | We propose to prioritize issue 1, 4 and 6 in RAN1#103-e.We could rely on RAN2 for Issue 2 and Issue 3 for the time being.We can wait for conclusion of connected mode in other AIs for Issue 5, 7 and 8.  |

# Summary

# References

1. RP-201038, “Revised Work Item on NR Multicast and Broadcast Services”, Huawei, HiSilicon, 3GPP TSG RAN, #88-e, E-meeting, June 2020.