3GPP TSG-RAN WG2 Meeting #118-e ***R2-220wxyz***

Electronic Meeting, May 9–20, 2022

**Agenda item: 6.1.4**

**Source: MediaTek**

**Title: [AT118-e][033][MBS] UE capabilities (MediaTek)**

**Document for:**  **Discussion**

# 1. Introduction

This paper is to trigger the following email discussion of UE capabilities in MBS:

* [AT118-e][033][MBS] UE capabilites (MediaTek)

Scope: Treat R2-2204625, R2-2204907, R2-2205541, R2-2205746, R2-2205750, R2-2205855, R2-2205939, R2-2206114. Collect one round of comments, pave the way for on-line agreement (identify agreeable points, discussion points),

Intended outcome: Report

Deadline: For online CB W1 Thursday

## 1.1 Contacts

Contact person for each participating company:

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| Company | Name | Email Address |
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# 2. Discussion

## 2.1 Mandatory UE capabilities for broadcast reception

In the last RAN2 meeting, the ROHC capability have been discussed for MBS broadcast and the following agreements are made：

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| * P12: RoHC is mandatory for UEs supporting MBS broadcast:   **• At least profiles 0x0000, 0x0001, 0x0002 are supported. FFS other profiles.**  **• FFS how many RoHC context sessions the UE has to mandatorily support. The number between 2 and 16 should be chosen.**   * **RoHC profile 0x0006 is not used / configurable for broadcast MRB.** |

However, It is still FFS for the mandatory ROHC profiles and how many RoHC context sessions are mandatory for UE supporting broadcast.

### 2.1.1 ROHC context session

According to the contributions, the number of ROHC context sessions is proposed with the range of 2 to 16. Some companies prefer a default value of maxCID(i.e. 15) to be the mandatory capability of ROHC context sessions, while other companies indicated a smaller number (e.g. 2 or 8).

Meanwhile, the company tdoc in [7] indicates that the broadcast can reuse the current CONNECTED mode capability signaling for ROHC profile support, and the ROHC context session is considered as a limit across the total number of supported RBs.

#### Question 1: Do companies agree to introduce a capability for ROHC context session for MBS broadcast?

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If the answer to Q1 is yes, please provide the further views on the number of ROHC context sessions .

#### Question 2: Please provide your views on the number of ROHC context sessions that should be supported for MBS broadcast.

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### 2.1.2 ROHC profiles

According to the contributions submited, some companies suggest to keep the minimum set of ROHC profiles as agreed in the previous meeting(i.e. 0x0000, 0x0001 and 0x0002, which are mandatory at least for voice over IMS) for broadcast.

As proposed in R2-2205541, the profile 0x0004 should be supported for broadcast, since it is mainly a simplification of UDP/IP profile (0x0002), and it may not require much complexity while providing compression gain for services where only IP is used.

#### Question 3: Do you think the ROHC profile 0x0004 can be kept in the ROHC profile list for broadcast MRB? (please clarify if you think any additional profile is needed)

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### 2.1.3 Minimum number of broadcast MRBs

In the previous meeting, RAN2 has agreed the default number of multicast MRBs shares the common limitation with DRBs that MRBs+DRBs=16 without capability signaling. However, it is not concluded on whether broadcast can share the same limitation with unicast. Considering the use cases and limited UE performance in idle/inactive state, the capability for minimum number of MRBs supported for broadcast may be different.

Meanwhile, some companies in their contribution propose that there is no need to define new requirement for broadcast MRB, since maxNumberROHC-ContextSessions can be considered as a limit across the total number of supported RBs, and the gNB does not configure broadcast MRB for one particular UE.

#### Question 4: Do companies agree to introduce a UE capability for minimum number of MRBs supporting by broadcast UE? If yes, please provide the minimum number you preferred.

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## 2.2 Broadcast reception on non-serving cell

According to the contributions submited, some companies suggest to introduce UE capability for Broadcast reception via non-serving cell. However, at meeting RAN2#117e, there was a discussion on whether it is optional (with UE capabilities) to support the broadcast reception on non-serving cell, and majorities agree that the reception in non-serving cell can be fully up to UE implementation without spec change. Rapporteur would like to check again if this is the majority views.

#### Question 5: Do companies agree to that the reception in non-serving cell can be fully up to UE implementation without spec change?

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## 2.3 Broadcast reception without capability signaling

According to R2-2205750, the proponet suggests to introduce MBS broadcast reception in idle, inactive and connected mode (FG33-1) to chapter 5 of 38.306 as an optional feature without capability signalling (since there is no UE capability signalling for FG33-1). Companies are invited to provided their views on whether such UE capability should be added to chapter 5 in 38.306.

#### Question 5: Do companies agree to introduce the UE capability for MBS broadcast reception in idle, inactive and connected mode (FG33-1) as an optional feature without capability signalling (to chapter 5 in 38.306)?

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## 2.4 Impact of MBS broadcast on paging and SIBs

In the contribution R2-2205746, the propent mentioned that UE may need to prioritize paging when the UE does not support the reception of Paging and group common PDSCH in the same slot. This enables the UE to receive paging and SI without any additional delay when paging and SI conflicts with broadcast.

However, it is rapporteur’s understanding that the current agreement from RAN1 has precluded this case:

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| RAN1#107bis-e  **Agreement**  For RRC\_IDLE/INACTIVE UEs, a **UE is not required to support** reception of FDMed MCCH/MTCH PDSCH and SIB1 or Paging PDSCH in PCell. |

In addition, in rapporteur understanding, the network can ensure that the paging/SIB information and group common PDSCH are not in the same slot.

#### Question 6: Do you think if RAN2 needs to discuss the potential issue for the reception of paging and group common PDSCH in the same slot?

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## 2.5 Simultaneous PDSCH processing capability

In the contribution R2-2206114, company mentioned several case for simultaneous PDSCH processing capability and suggest RAN2 to clarify the coverage of feature 33-3-2 and 33-3-3. Rapporteur thinks this is more suitable to be discussed in RAN1 and RAN2 can wait for RAN1’s conclusion. Therefore, no question is casted for this issue.

## 2.6 Other issues

#### Question 7: Companies are invited to comment if there are any other issues for MBS UE capabilities that needs to be discussed during this email discussion.

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# 3. Final Summary and Proposal

Based on the email discussion, the following proposals are made for MBS UE capbility, with the easy proposals highlighted in green for online session:

TBD

# 4. Reference

[1] R2-2204625 R17 MBS UE capabilities Qualcomm India Pvt Ltd discussion Rel-17 NR\_MBS-Core

[2] R2-2204907 Discussion on mandatory ROHC support for MBS broadcast MediaTek inc. discussion

[3]R2-2205541 Remaining MBS UE capability open issues Intel Corporation discussion Rel-17

[4]R2-2202786 Draft 306 CR for MBS UE capabilities MediaTek Inc. draftCR Rel-17 38.306 16.7.0 B NR\_MBS-Core

[5] R2-2205746 Impact of MBS broadcast on paging and SIBs Ericsson discussion Rel-17 NR\_MBS-Core

[6] R2-2205750 UE capabilities for MBS Ericsson discussion Rel-17 NR\_MBS-Core

[7] R2-2205855 UE support for ROHC profiles and context sessions Ericsson discussion Rel-17 NR\_MBS-Core

[8] R2-2205939 Discussion on UE capabilities for MBS Huawei, HiSilicon discussion Rel-17 NR\_MBS-Core

[9] R2-2206114 UE capability discussion for MBS Xiaomi Communications discussion Rel-17 NR\_MBS-Core

[10] R2-2205712 Discussion on MRB Configuration Samsung discussion Rel-17 NR\_MBS-Core

[11] R2-2204626 R17 MBS UP remaining issues Qualcomm India Pvt Ltd discussion Rel-17 NR\_MBS-Core

[12] R2-2203343 Report of: [Pre117-e][001][MBS] CP open Issues Input