**3GPP T****SG-RAN WG2 Meeting #119bis-e R2-221xxxx**

Online, 10 – 19 Oct 2022

**Title: [DRAFT] Reply LS on FS\_5MBS\_Ph2 progress**

**Response to: LS of R2-2209356/S2-2207470 on FS\_5MBS\_Ph2 progress from SA2**

**Release: Release 18**

**Work Item: NR\_MBS\_enh**

Source: Huawei [will be RAN2]

**To: SA2, RAN3**

**Cc: RAN1**

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**Attachments:** **None**

# 1 Overall description

RAN2 thanks SA2 for their LS on FS\_5MBS\_Ph2 progress. Based on the discussion in RAN2, RAN2 would like to provide the following feedback for SA2’s questions:

**RAN2 Answer to Q1-a):**

* When comparing quality and reliability of MBS reception in a given cell:
	+ - If the comparison is between situation 1, where the MBS session is delivered only to UEs in the *RRC\_CONNECTED* state (employing HARQ), and situation 2, where the MBS session is delivered only to UEs in the *RRC\_INACTIVE* state, then the UEs in situation 1 may have higher reception quality and reliability;
		- If the UEs are in situation 3 (see the answer to Q1-b), where some UEs are in the *RRC\_CONNECTED* state and some UEs are in the *RRC\_INACTIVE* state, while the MBS session is delivered, then all UEs will receive the same traffic (including retransmissions driven by the *RRC\_CONNECTED* UEs with HARQ) and will have similar reception quality and reliability.

**RAN2 Answer to Q1-b):**

* Yes, it is supported that gNB transmits service of one multicast session to both UEs in RRC\_CONNECTED and RRC\_INACTIVE in the same cell.

**RAN2 Answer to Q1-c):**

* There may or may not be interruptions and data loss during state transition, depending on the solution to provide the PTM configuration and also network implementation. If any interruptions occur, we expect those interruptions to be in the order of milliseconds.

**RAN2 answer to Q1 d) and Q2:**

* For the MBS session handling: the existing MBS session QoS parameters (e.g. ARP, 5QI) can be used to differentiate different MBS sessions to decide whether the corresponding services can be provided to RRC\_INACTIVE UEs.
* For the case of differentiating different UEs: as the MBS session related QoS parameters are the same for different UEs within the same MBS session, the existing QoS parameters of MBS QoS Flow(s) cannot be used by NG-RAN to differentiate the handling for different UEs. Thus, RAN2 confirms that additional assistance information is needed if the handling for different UEs needs to be differentiated.

**RAN2 answer to Q3:**

* Yes, the UE capability indicating support of multicast reception in RRC\_INACTIVE state can be reported to RAN, which is subject to the discussion of UE capability.

**RAN2 answer to Q4:**

* Yes, the UEs in RRC\_IDLE need to be transitioned to RRC\_CONNECTED state to start receiving the MBS data and thus the CN initiated group paging is still needed to be performed.

**RAN2 answer to Q5:**

* It is possible that the RRC\_INACTIVE UE receives MBS data without going back to RRC\_CONNECTED state when the MBS session is being activated provided the UE has already joined the multicast session and the UE has valid MRB configuration. Whether and how Rel-18 UE in RRC\_INACTIVE state can be informed when the session is activated is under discussion in RAN2.
* For group paging initiated for UEs in RRC\_IDLE state, per Rel-17 specification, the RRC\_INACTIVE UEs will also respond. However, for Rel-18, if the MBS session can be received in RRC\_INACTIVE state, the RRC\_INACTIVE UE need not go back to RRC\_CONNECTED state if the UE has already joined the multicast session and the UE has valid configuration. It is FFS how to avoid these UEs going back to RRC\_CONNECTED state when the CN group paging is received.

**RAN2 answer to Q6:**

* RAN2 has made the following agreement: Multicast service continuity after cell reselection in RRC\_INACTIVE state (i.e. without resuming RRC connection) will be supported (if the configuration of the multicast session in the new cell is available for the UE). Upon cell reselection to neighbour cells during active multicast session, if the configuration of the session is not available for the new cell for UEs in RRC\_INACTIVE, then the UE is required to resume RRC connection to get the Multicast MRB configuration.

**RAN2 answer to Q7:**

* RAN2 would like to leave this question for RAN3 to respond.

# 2 Actions

**To SA2, RAN3 groups:**

**ACTION:** RAN2 kindly asks SA2 and RAN3 to take the above feedback into account.

# 3 Dates of next RAN2 meetings

TSG-RAN WG2#120 November 14th – 18th, 2022 Toulouse, France

TSG-RAN WG2#121 February 27th – March 3rd, 2023 Athens, GR