**SA WG2 Meeting #156E (e-meeting) S2-230xxxx**

**April 17 – 21, 2023 *revision of S2-230xxxx***

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.247** | **CR** | **x-** | **rev** | **-** | **Current version:** | **18.1.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **x** | Core Network | **x** |

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| ***Title:*** | Resolving open issues for MBS multicast RRC inactive reception | | | | | | | | | |
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| ***Source to WG:*** | Nokia, Nokia Shanghai-bell | | | | | | | | | |
| ***Source to TSG:*** | S2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBS\_Ph2 | | | | |  | ***Date:*** | | | April 7th, 2023 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | The following EN  Editor's note: The MBS assistance information protocol details require RAN WG feedback, e.g. whether the indication is enough  Can be removed since SA2 decided on a semantics for the MBS assistance information where the encoding is sufficient.  However, as it was agreed in the TR conclusions that the MBS assistance information is a **recommendation** to not apply RRC-inactive mode for related UEs to avoid frequent state changes, it is not sufficient to use “may” in related RAN procedures.  The following EN  Editor's note: How NG-RAN notifies the UE that the MBS session is activated and whether the MBS session is allowed to be received in RRC-INACTIVE state will be decided by RAN WGs.  Can be converted into a NOTE, since there is no need to further document related signalling between NG RAN and the UE in SA2´s specifications. | | | | | | | | |
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| ***Summary of change:*** | | Remove first EN and use “should” instead of “may” in related NG RAN procedures,  Convers second EN into Note, | | | | | | | | |
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| ***Consequences if not approved:*** | | Unresolved issues remain | | | | | | | | |
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| ***Clauses affected:*** | |  | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## 6.17 Support of Multicast MBS session data reception in UE with RRC\_INACTIVE state

To provide multicast MBS service to more UEs in a cell, the NG-RAN may decide to move some UE(s) receiving multicast MBS data from RRC\_CONNECTED to RRC\_INACTIVE state if the UE(s) is capable to receiving MBS data in RRC\_INACTIVE state.

The decision in NG-RAN may use the following information provided from 5GC:

- Existing MBS session QoS parameters, e.g. the most demanding ARP and 5QI of all MBS QoS Flow within the MBS session.

- MBS assistance information for the MBS session, the MBS assistance information for the MBS session is an optional parameter and associated with one MBS session, which consists of an indication that the UE is preferred to be kept in connected when the related MBS session that the UE joined is active. When the NG-RAN node receives this information, the NG-RAN should determine to keep the UE in RRC\_CONNECTED state even if the MBS session data is supported to be received in RRC\_INACTIVE state.

NOTE 1: How the NG-RAN nodes perform those decisions is up to NG-RAN implementation.

NOTE 2: The "RRC Inactive Assistance Information" in clause 5.3.3.2.5 of TS 23.501 [5] is sent by AMF to NG-RAN, whether and how it is used by NG-RAN for deciding whether to send a UE to RRC\_INACTIVE state is decided by NG-RAN.

The MBS session QoS parameters (e.g. ARP and 5QI) are provided to NG-RAN by the MB-SMF during user plane establishment for shared delivery.

Per the MBS session that the UE joined, the related "MBS assistance information for the MBS session" is provided to NG-RAN by the SMF if the MBS assistance information is available in the SMF and the MBS session that the UE joined is included in the MBS assistance information. The SMF gets from the UDM the "MBS assistance information", which is provisioned by the AF via the NEF to the UDM as part of the MBS subscription data and includes all the MBS session ID(s), where the UE is preferred to be kept connected when the related MBS session that the UE joined is active (as specified in clause 6.4). The SMF provides the "MBS assistance information for the MBS session" to the NG-RAN as part of the associated PDU session information within the N2 SM information in the procedures where the associated PDU session information need be sent to NG-RAN node, e.g. PDU Session modification for UE joining, handover procedure.

When an MBS session is to be activated, if there are UE(s) that joined the MBS session, the 5GC activates the MBS Session in the NG-RANs serving the joined UE(s). The joined UEs in RRC\_INACTIVE state in the cells, where the delivered MBS session is allowed to be received in RRC\_INACTIVE state, may be able to stay in RRC\_INACTIVE state and receive MBS Session data

NOTE x: How NG-RAN notifies the UE that the MBS session is activated and whether the MBS session is allowed to be received in RRC-INACTIVE state is documented in RAN specifications..

When an UE in RRC\_INACTIVE state is receiving ongoing MBS session data, if the UE moves to a new cell within the RNA, or if the UE moves outside the current RNA but within the current Registration Area, or if the UE moves out of the current Registration Area, the UE should be able to receive the MBS session data if applicable in the new area.

NOTE 3: The scenario of the UE moving to a new cell within the RAN Notification Area is specified in RAN specifications.