**3GPP TSG-SA WG6 Meeting #64 S6-245358**

**Orlando (FL), USA, 18th – 22nd November 2024 (revision of S6-235238)**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **23.289** | **CR** | **0141** | **rev** | **1** | **Current version:** | **19.3.0** |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Support of provisioning MBS assistance information to the 5GC |
|  |  |
| ***Source to WG:*** | Huawei, Hisilicon |
| ***Source to TSG:*** | S6 |
|  |  |
| ***Work item code:*** | enhMC |  | ***Date:*** | 2024-11-04 |
|  |  |  |  |  |
| ***Category:*** | **C** |  | ***Release:*** | Rel-19 |
|  | *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 canbe 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)* |
|  |  |
| ***Reason for change:*** | In Rel-18, the multicast MBS data reception in RRC inactive state is introduced at the network layer to enable simultaneous reception of MBS session data for a higher number of UEs in a cell than can be operating in RRC\_CONNECTED state, to participate in public safety group calls using MBS-based service.However, due to timeline issue, SA6 only support such concept and add general functional description in clause 4.7.1.This feature also requires the AF/AS to provide the MBS assistance information indicating that a UE is preferred to be kept connected when the related MBS Session the UE joined is active. The MC service server acting as the AF, needs to determines the UE(s) being preferred to be kept connected when the related MBS Session the UE joined is active; SA2 has some instructions in clause 7.2.9a of 23.247 as follows:*NOTE 2: The AF can provide the MBS Session assistance information for the UEs based on observed or expected UE data transmission behaviour, e.g., a frequent talker and/or the group leader of a multicast group represented by an MBS Session ID.* In addition, the UE’s capability of supporting receive MBS data in RRC inactive state also needs to be considered. |
|  |  |
| ***Summary of change:*** | (1) Introduce a new clause to cover the support of multicast MBS data reception in RRC inactive state including the following aspects: a. the selection of UE is preferred to be kept connected when the related MBS Session the UE joined is active. b. when to provide the MBS assistance information to the 5GC (e.g., UDM via the NEF).(2) Update the SIP registration to allow the UE to report the reception capability of multicast data in RRC\_INACTIVE state.  |
|  |  |
| ***Consequences if not approved:*** | The multicast MBS data reception in RRC inactive state is not fully supported. |
|  |  |
| ***Clauses affected:*** | 5.3.3.3.2, 5.3.3.3.3, (new)7.3.x, (new)7.3.x.1, (new)7.3.x.2, (new)7.3.x.3, |
|  |  |
|  | **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:*** |  |

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* First changes \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

##### 5.3.3.3.2 Reference point SIP-1(between the signalling user agent and the SIP core)

The SIP-1 reference point, which exists between the signalling user agent and the SIP core for establishing a session in support of MC service, shall use the Gm reference point as defined in 3GPP TS 23.002 [8] (with necessary enhancements to support MC service requirements and profiled to meet the minimum requirements for support of MC services). The SIP-1 reference point fulfils the requirements of the 5G-GC1 reference point, and is used for:

- SIP registration (including the UE's capabilities, for example MBMS capable, or MBS capable UE, capability to receive multicast MBS data in RRC\_INACTIVE state);

- authentication and security to the service layer;

- event subscription and event notification;

- overload control;

- MBS session management; e.g., MBS session announcement and de-announcement; and

- media negotiation.

NOTE 1: The reference point 5G-GC1 is defined within SA6, and outside of SA2 scope.

NOTE 2: Information related to the UE´s MBS/MBMS capabilities can be exchanged during either registration or service authorization procedure.

##### 5.3.3.3.3 Reference point SIP-2 (between the SIP core and the SIP AS)

The SIP-2 reference point, which exists between the SIP core and the SIP AS for establishing a session in support of MC service, shall use the ISC and Ma reference points as defined in 3GPP TS 23.002 [8]. The SIP-2 reference point is used for:

- notification to the MC service server(s) of SIP registration (including the UE's capabilities, for example MBMS capable, or MBS capable UE, capability to receive multicast MBS data in RRC\_INACTIVE state) by the MC service UE;

- authentication and security to the service layer;

- event subscription and event notification;

- session management; and

- media negotiation.

NOTE: Information related to the UE´s MBS/MBMS capabilities can be exchanged during either registration or service authorization procedure.

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* **2nd change**s \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

### 7.3.x Support of Multicast MBS session data reception in UE with RRC\_INACTIVE state

#### 7.3.x.1 General

Multicast MBS reception in RRC\_INACTIVE mode enables a higher number of UEs in a cell to participate in public safety group calls using MBS-based service. The MC service server may indicate to the 3GPP core network that a UE is preferred to be kept connected when the related MBS session which the UE joined is active via provisioning the MBS assistance information as described in 3GPP TS 23.247 [15].

#### 7.3.x.2 Provisioning of the MBS assistance information

After the MC service server obtaining the MBS Session ID of a multicast MBS Session via the TMGI allocation or the MBS session creation procedure, and the group and MBS session mapping is determined, the MC service server may provision the MBS assistance information of a UE to the 5GC as described in 3GPP TS 23.247 [15].

Such provisioning may be performed and updated until the MBS session is deleted. If the MBS session ID(s) are well planned and statically assigned to the groups, and UEs preferred to receive multicast data in RRC\_CONNECTED state is determined based on static information (e.g., user’s role in the group), the MC service server may provision the UE’s MBS assistance information before the group call setup. If the MBS session is dynamically assigned to a group call, or dynamic information (e.g., location, floor requset frequency, the UE suffering bad receptions quality) is considered to determine the UEs preferred to receive multicast data in RRC\_CONNECTED state, such provisioning may be deferred after the group call setup (e.g., after the MapGroupToSessionStream or even floor request).

The MC service server may select such UE considering both the static characteristics (e.g., UE’s incapable to receiving multicast MBS data in RRC\_INACTIVE state, user’s role (e.g., commander)) and dynamic information (e.g., UE location, floor request frequency) of the UE(s) in one or more group where the multicast MBS session is to be used/used.