**3GPP TSG-CT WG1 Meeting #133e-bisC1-22xxxx**

**E-meeting, 17-21 January 2022**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.501** | **CR** | **3954** | **rev** | **-** | **Current version:** | **17.5.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Correction to MBS service area | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBS | | | | |  | ***Date:*** | | | 2022-01-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The MBS service area can contain the MBS TAI list, the NR CGI list or both as per stage-2 description in TS 23.247, and that's how it was captured in stage-3 spec TS 24.501.  However in the IE definition in clause 9.11.4.31, the "*or both*" was missed to be mentioned. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Correcting the MBS service area definition in the IE table.  Also some clarifications are made about the encoding of the MBS TAI list. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Wrong understanding that there is no possibility to include both of MBS TAI list and NR CGI list in the MBS Service area. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.11.4.31 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 change \*\*\*\*\*

#### 9.11.4.31 Received MBS container

The purpose of the Received MBS container information element is to indicate to the UE the information of the MBS sessions that the network accepts or rejects the UE to join, the information of the MBS sessions that the UE is removed from, or the information of the updated MBS service area.

The Received MBS container information element is coded as shown in figure 9.11.4.31.1, figure 9.11.4.31.2, figure 9.11.4.31.3, figure 9.11.4.31.4, figure 9.11.4.31.5, figure 9.11.4.31.6, figure 9.11.4.31.7, figure 9.11.4.31.8, figure 9.11.4.31.9 and table 9.11.4.31.1.

The Received MBS container is a type 4 information element with a minimum length of 6 octets and a maximum length of n octets.

Editor's note: The maximum number of Received MBS informations is FFS and is currently assumed to be 4.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Received MBS container IEI | | | | | | | | octet 1 |
| Length of Received MBS container contents | | | | | | | | octet 2  octet 3 |
| Received MBS information 1 | | | | | | | | octet 4  octet i |
| Received MBS information 2 | | | | | | | | octet i+1\*  octet l\* |
| … | | | | | | | | octet l+1\*  octet m\* |
| Received MBS information p | | | | | | | | octet m+1\*  octet n\* |

Figure 9.11.4.31.1: Received MBS container information element

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | | 6 | | 5 | 4 | | | 3 | 2 | 1 | |  |
| Rejection cause | | | | | MSAI | | | MD | | | | | octet 4 | |
| 0 | | 0 | | 0 | 0 | | 0 | MTI | | | | IPAE | octet 5 | |
| spare | | | | | | | |  | |
| TMGI | | | | | | | | | | | | | octet 6  octet j | |
| Source IP address information | | | | | | | | | | | | | octet j+1\*  octet v\* | |
| Destination IP address information | | | | | | | | | | | | | octet v+1\*  octet k\* | |
| MBS service area | | | | | | | | | | | | | octet k+1\*  octet s\* | |
| MBS timers | | | | | | | | | | | | | octet s+1\*  octet i\* | |

Figure 9.11.4.31.2: Received MBS information

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| MBS TAI list | | | | | | | | octet k+1\*  octet i\* |

Figure 9.11.4.31.3: MBS service area for MBS service area indication = "MBS service area included as MBS TAI list"

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| NR CGI list | | | | | | | | octet k+1\*  octet i\* |

Figure 9.11.4.31.4: MBS service area for MBS service area indication = "MBS service area included as NR CGI list"

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| MBS TAI list | | | | | | | | octet k+1\*  octet y\* |
| NR CGI list | | | | | | | | octet y+1\*  octet i\* |

Figure 9.11.4.31.5: MBS service area for MBS service area indication = "MBS service area included as MBS TAI list and NR CGI list"

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| NR CGI 1 | | | | | | | | octet k+1\*  octet k+8\* |
| NR CGI 2 | | | | | | | | octet k+8\*  octet k+15\* |
| … | | | | | | | | octet k+16\*  octet c\* |
| NR CGI w | | | | | | | | octet c+1\*  octet i\* |

Figure 9.11.4.31.6: NR CGI list

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| NR Cell ID | | | | | | | | octet k+1\* |
| octet k+5\* |
| MCC digit 2 | | | | MCC digit 1 | | | | octet k+6\* |
| MNC digit 3 | | | | MCC digit 3 | | | | octet k+7\* |
| MNC digit 2 | | | | MNC digit 1 | | | | octet k+8\* |

Figure 9.11.4.31.7: NR CGI

|  |  |
| --- | --- |
| MBS start time | octet s+1\*  octet s+6\* |

Figure 9.11.4.31.8: MBS timers for MBS timer indication = "MBS start time"

|  |  |
| --- | --- |
| MBS back-off timer | octet s+1\* |

Figure 9.11.4.31.9: MBS timers for MBS timer indication = "MBS back-off timer"

**Table 9.11.4.31.1: Received MBS container information element**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MBS decision (MD) (bits 1 oto 3 of octet 4) | | | | | | | | | |
| The MD indicates the network decision of the join requested by the UE, the network requests to remove the UE from the MBS session or the network request to update the MBS service area of MBS session. | | | | | | | | | |
| Bits | | | | | | | | | |
| **3** | | **2** | | | **1** | | |  | |
| 0 | | 0 | | | 1 | | | MBS service area update | |
| 0 | | 1 | | | 0 | | | MBS join is accepted | |
| 0 | | 1 | | | 1 | | | MBS join is rejected | |
| 1 | | 0 | | | 0 | | | Remove UE from MBS session | |
| All other values are unused in this version of the specification and interpreted as 000 if received. | | | | | | | | | |
|  | | | | | | | | | |
| If MD is set to "MBS join is rejected", bits 5 to 8 of octet 3 shall contain the Rejection cause, otherwise bits 5 to 8 of octet 3 are spare and shall be coded as zero. | | | | | | | | | |
|  | | | | | | | | | |
| MBS service area indication (MSAI) (bits 4 and 5 of octet 4) | | | | | | | | | |
| The MSAI indicates whether the MBS service area is included in the IE or not | | | | | | | | | |
| Bits | | | | | | | | | |
| **5** | | **4** | | |  | | |  | |
| 0 | | 0 | | |  | | | MBS service area not included | |
| 0 | | 1 | | |  | | | MBS service area included as MBS TAI list | |
| 1 | | 0 | | |  | | | MBS service area included as NR CGI list | |
| 1 | | 1 | | |  | | | MBS service area included as MBS TAI list and NR CGI list | |
|  | | | | | | | | | |
| Rejection cause (bits 6 to 8 of octet 4) | | | | | | | | | |
| The Rejection cause indicates the reason of rejecting the join request. | | | | | | | | | |
| Bits | | | | | | | | | |
| **8** | | | **7** | **6** | | |  | |  |
| 0 | | | 0 | 0 | | |  | | No additional information provided |
| 0 | | | 0 | 1 | | |  | | Insufficient resources |
| 0 | | | 1 | 0 | | |  | | User is not authorized to use MBS service |
| 0 | | | 1 | 1 | | |  | | MBS session has not started or will not start soon |
| 1 | | | 0 | 0 | | |  | | User is outside of local MBS service area |
| 1 | | | 0 | 1 | | |  | | Session context not found |
| All other values are unused in this version of the specification and interpreted as 000 if received. | | | | | | | | | |
|  | | | | | | | | | |
| IP address existence (IPAE) (bit1 of octet 5) | | | | | | | | | |
| The IPAE indicates whether the Source IP address information and Destination IP address information are included in the IE or not. | | | | | | | | | |
| Bit | | | | | | | | | |
| **1** |  | | | | |  | | | |
| 0 |  | | | | | Source and destination IP address information not included | | | |
| 1 |  | | | | | Source and destination IP address information included | | | |
|  | | | | | | | | | |
| If IPAE is set to "Source and destination IP address information included", Source IP address information and Destination IP address information shall be included in the IE, otherwise Source IP address information and Destination IP address information shall not be included in the IE. | | | | | | | | | |
|  | | | | | | | | | |
| Bits 4 to 8 of octet 5 are spare and shall be coded as zero. | | | | | | | | | |
| MBS timer indication (MTI) (bits 2 and 3 of octet 5) | | | | | | | | | |
| The MTI indicates whether there is MBS timer included in the IE or not. | | | | | | | | | |
| Bit | | | | | | | | | |
| **3** | **2** | | | | |  | | | |
| 0 | 0 | | | | | No MBS timers included | | | |
| 0 | 1 | | | | | MBS start time included | | | |
| 1 | 0 | | | | | MBS back-off timer included | | | |
| All other values are unused in this version of the specification and interpreted as 00 if received | | | | | | | | | |
|  | | | | | | | | | |
| TMGI (octets 6 to j) | | | | | | | | | |
| The TMGI is coded as described in subclause 10.5.6.13 in 3GPP TS 24.008 [12] starting from octet 2. | | | | | | | | | |
|  | | | | | | | | | |
| Source IP address information (octet j+1 to v) | | | | | | | | | |
| This field contains the IP unicast address used as source address in IP packets for identifying the source of the multicast service. The value of this field is copied from the corresponding source IP address information in the requested MBS container. | | | | | | | | | |
|  | | | | | | | | | |
| Destination IP address information (octet v+1 to k) | | | | | | | | | |
| This field contains the IP multicast address used as destination address in related IP packets for identifying a multicast service associated with the source. The value of this field is copied from the corresponding destination IP address information in the requested MBS container. | | | | | | | | | |
|  | | | | | | | | | |
| MBS service area (octet k+1 to i) | | | | | | | | | |
| The MBS service area contains the MBS TAI list, the NR CGI list or both, that identifies the service area(s) for a local MBS service. | | | | | | | | | |
|  | | | | | | | | | |
| MBS TAI list (octet k+1 to i) | | | | | | | | | |
| The MBS TAI list is coded as octet 2 and above of the 5GS tracking area identity list IE defined in subclause 9.11.3.9. | | | | | | | | | |
|  | | | | | | | | | |
| NR CGI (octet k+1 to i) | | | | | | | | | |
| The NR CGI globally identifies an NR cell. It contains the NR Cell ID and the PLMN ID of that cell. | | | | | | | | | |
|  | | | | | | | | | |
| NR Cell ID (octet k+1 to k+5) | | | | | | | | | |
| The NR Cell ID consists of 36 bits identifying an NR Cell ID as specified in subclause 9.3.1.7 of 3GPP TS 38.413 [31], in hexadecimal representation. Bit 8 of octet y+1 is the most significant bit and bit 5 of octet y+5 is the least significant bit. Bits 1 to 4 of octet y+5 are spare and shall be coded as zero. | | | | | | | | | |
| MBS start time (octets s+1 to s+6) | | | | | | | | | |
| The MBS start time is coded as described in subclause 10.5.3.9 in 3GPP TS 24.008 [12] starting from octet 2 till octet 7. | | | | | | | | | |
|  | | | | | | | | | |
| MBS back-off timer (octet s+1) | | | | | | | | | |
| The MBS back-off timer is coded as octet 3 described in subclause 10.5.7.4a in 3GPP TS 24.008 [12]. | | | | | | | | | |
|  | | | | | | | | | |
| NOTE: The IPAE bit is not expected to be set to "Source and destination IP address information included" when the MBS decision (MD) indicates "Remove UE from MBS session". | | | | | | | | | |

\*\*\*\*\* End of changes \*\*\*\*\*