**3GPP TSG-CT WG1 Meeting #129-eC1-21XXXX**

**Electronic meeting, 19-23 April 2021 Revision of C1-212061**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.501** | **CR** |  | **rev** | **1** | **Current version:** | **17.2.1** |  |
|  | | | | | | | | |
| *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:*** | MCC list for 5GMM message | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | China Mobile, Nokia, Nokia Shanghai Bell, OPPO | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GSAT\_ARCH-CT | | | | |  | ***Date:*** | | | 2021-04-09 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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:*** | | SA2 clarifies in the CR#2482 (S2-2101677) that indicated MCC(s) are intended to inform the UE of the country or international area in which the UE is determined to be currently located by the network. And informing the UE of the country or international area by the AMF is specified in Registration procedure, Network-initiated Deregistration procedure and Service Request procedure in the TS 23.502 after SA2#143e meeting.  Therefore, it is suggested to define the MCC list in TS 24.501 to be aligned with stage 2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | To define the MCC list in TS 24.501 to be aligned with stage 2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Informing the UE of the country or international area by the AMF will not be supported in stage 3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.2.9.1, 8.2.9.x(new), 8.2.14.1, 8.2.14.x(new), 8.2.18.1, 8.2.18.x(new), 9.11.3.xx(new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | 1. Add OPPO to Source. 2. Remove “Currently it is not clear whether the IE can include both MCCs of a country and one or more MCCs in the range 9xx.” from the editor's note. 3. Define “MCC indication” in the IE to indicate the MCC in the MCC list belongs to a country or international area. 4. Add editor’s notes to address the issuses for further study. | | | | | | | | |

\*\*\* First change \*\*\*

#### 8.2.9.1 Message definition

The REGISTRATION REJECT message is sent by the AMF to the UE. See table 8.2.9.1.1.

Message type: REGISTRATION REJECT

Significance: dual

Direction: network to UE

Table 8.2.9.1.1: REGISTRATION REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Registration reject message identity | Message type  9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause  9.11.3.2 | M | V | 1 |
| 5F | T3346 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 16 | T3502 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |
| 69 | Rejected NSSAI | Rejected NSSAI  9.11.3.46 | O | TLV | 4-42 |
| 75 | CAG information list | CAG information list  9.11.3.18A | O | TLV-E | 3-n |
| 68 | Extended rejected NSSAI | Extended rejected NSSAI  9.11.3.75 | O | TLV | 4-74 |
| xx | MCC list | MCC list  9.11.3.xx | O | TLV | 4-TBD |

\*\*\* Next change \*\*\*

#### 8.2.9.x MCC list

The AMF may include this IE to inform the UE of the country or international area where the UE is located.

\*\*\* Next change \*\*\*

#### 8.2.14.1 Message definition

The DEREGISTRATION REQUEST message is sent by the AMF to the UE. See table 8.2.14.1.1.

Message type: DEREGISTRATION REQUEST

Significance: dual

Direction: network to UE

Table 8.2.14.1.1: DEREGISTRATION REQUEST message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | De-registration request message identity | Message type  9.7 | M | V | 1 |
|  | De-registration type | De-registration type  9.11.3.20 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
| 58 | 5GMM cause | 5GMM cause  9.11.3.2 | O | TV | 2 |
| 5F | T3346 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 6D | Rejected NSSAI | Rejected NSSAI  9.11.3.46 | O | TLV | 4-42 |
| 75 | CAG information list | CAG information list  9.11.3.18A | O | TLV-E | 3-n |
| 68 | Extended rejected NSSAI | Extended rejected NSSAI  9.11.3.75 | O | TLV | 4-74 |
| xx | MCC list | MCC list  9.11.3.xx | O | TLV | 4-TBD |

\*\*\* Next change \*\*\*

#### 8.2.14.x MCC list

The AMF may include this IE to inform the UE of the country or international area where the UE is located.

\*\*\* Next change \*\*\*

#### 8.2.18.1 Message definition

The SERVICE REJECT message is sent by the AMF to the UE in order to reject the service request procedure. See table 8.2.18.1.1.

Message type: SERVICE REJECT

Significance: dual

Direction: network to UE

Table 8.2.18.1.1: SERVICE REJECT message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Extended protocol discriminator | Extended protocol discriminator  9.2 | M | V | 1 |
|  | Security header type | Security header type  9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet  9.5 | M | V | 1/2 |
|  | Service reject message identity | Message type  9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause  9.11.3.2 | M | V | 1 |
| 50 | PDU session status | PDU session status  9.11.3.44 | O | TLV | 4-34 |
| 5F | T3346 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 78 | EAP message | EAP message  9.11.2.2 | O | TLV-E | 7-1503 |
| 6B | T3448 value | GPRS timer 2  9.11.2.4 | O | TLV | 3 |
| 75 | CAG information list | CAG information list  9.11.3.18A | O | TLV-E | 3-n |
| xx | MCC list | MCC list  9.11.3.xx | O | TLV | 4-TBD |

\*\*\* Next change \*\*\*

#### 8.2.18.x MCC list

The AMF may include this IE to inform the UE of the country or international area where the UE is located.

\*\*\* Next change \*\*\*

#### 9.11.3.xx MCC list

The purpose of the MCC list information element is to inform the UE of the country or international area where the UE is located.

The MCC list information element is coded as shown in figures 9.11.3.x.1 and 9.11.3.x.2 and table 9.11.3.x.1.

The MCC list is a type 4 information element, with a minimum length of 4 octets.

Editor's note: The maximum number of MCCs which can be included in the IE is FFS.

Editor's note: Whether there should be only a single MCC in the IE is FFS.

Editor's note: Whether there is a condition that all MCCs in the list must correspond to the same country is FFS.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| MCC list IEI | | | | | | | | octet 1 |
| Length of MCC list contents | | | | | | | | octet 2 |
| MCC 1 | | | | | | | | octet 3  octet 4 |
| MCC 2 | | | | | | | | octet 5\*  octet 6\* | |
| … | | | | | | | | octet 7\*  octet 2n\* | |
| MCC n | | | | | | | | octet 2n+1\*  octet 2n+2\* | |

Figure 9.11.3.x.1: MCC list information element

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| MCC digit 2 | | | | MCC digit 1 | | | | octet 2n+1 |
| MCC Indication | 0  Spare | 0  Spare | 0  Spare | MCC digit 3 | | | | octet 2n+2 |

Figure 9.11.3.x.2: MCC n

Table 9.11.3.x.1: MCC list information element

|  |  |
| --- | --- |
| MCC, Mobile country code (octet 2n+1 and bits 1 to 4 in octet 2n+2)  The field is coded as in ITU-T Recommendation E.212 [42], annex A. | |
|  | |
| MCC indication(bit 8 of octet 2n+2) | |
| Bit | |
| **8** |  |
| 0 | MCC of a country |
| 1 | International area |
|  | |

Editor's note: When international area is indicated, whether MCC field could be not applicable is FFS.

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