**3GPP TSG-CT WG1 Meeting #133-eC1-216556**

**E-meeting, 11-19 November 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.501** | **CR** | **3508** | **rev** | **3** | **Current version:** | **17.4.1** |  |
|  |
| *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 |  |

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| ***Title:***  | Validity of 5GMM cause value #78 and an indication of country of UE location |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Qualcomm Incorporated, Thales, vivo |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5GSAT\_ARCH-CT |  | ***Date:*** | 2021-11-03 |
|  |  |  |  |  |
| ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | The validity of the “indication of country of UE location” was decided as follows:***that indication will be valid until the next successful initial registration to a PLMN through satellite access or when updated by the network***There can be other conditions.In addition, the validity of 5GMM cause value #78 should be specified as well. |
|  |  |
| ***Summary of change:*** | Validity of 5GMM cause value #78 and an indication of country of UE location is specified |
|  |  |
| ***Consequences if not approved:*** | The UE needs to consider the cause value and the indication as valid unless there is a next successful initial registration to an NTN PLMN or the indication is updated. |
|  |  |
| ***Clauses affected:*** | 4.23.2 |
|  |  |
|  | **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:*** | Change after CT1#132-e* The validity of 5GMM cause value #78 is also in the scope.
* The EN is replaced with new conditions:
	+ UE implementation-based timer and location; and
	+ Switch off.
 |

### 4.23.2 Handling of network's indication of country of UE location

The network provided indication of country of UE location is only applicable for a UE accessing a PLMN using satellite NG-RAN.

The UE may receive an indication of country of UE location from the network in REGISTRATION REJECT, DEREGISTRATION REQUEST or SERVICE REJECT. If provided, the contents of the indication of country of UE location may be applied in procedures described in 3GPP TS 23.122 [5].

If 5GMM cause value #78 and, optionally, an indication of country of UE location are provided to the UE by a PLMN via satellite NG-RAN, in addition to the steps specified in subclauses 5.5.1.2.5, 5.5.1.3.5, 5.5.2.3.2, and 5.6.1.5, the UE shall:

a) if the UE geographic location is available with an acceptable accuracy, store the current UE geographical location;

b) start implementation-specific timer; and

c) not initiate any NAS procedure towards the PLMN and shall consider that that indication is valid (if the indication is received) until:

1) the next successful initial registration to a PLMN through satellite NG-RAN;

2) the UE receives 5GMM cause value #78 from a different PLMN via satellite NG-RAN;

3) the implementation specific timer expires;

4) the geographical distance between the current UE location and the stored geographical location, if any, exceeds an implementation-specific distance threshold; or

5) the UE is switched off.

 Upon occurrence of any of events 1), 2), 4), and 5), the UE shall stop the timer and delete the stored geographical location, if any.

If the UE received Access re-attempt IE along with the 5GMM cause value #78 then:

- the value of the timer in b) shall not be set to a value smaller than the value of the Access re-attempt timer; and

- the value of the distance threshold in c)4) shall not be set to a value smaller than Access re-attempt restriction distance.

If the UE receives an indication of country of UE location from a network not accessed through satellite access, the UE shall ignore the received indication.

Editor's note [5GSAT\_ARCH-CT, CR#3219]: It is FFS if and how the HPLMN can influence the validity and use of the indication of country of UE location in the UE.

Editor's note [5GSAT\_ARCH-CT, CR#3219]: The name and the encoding of the information element providing the country of the UE location is FFS.

\*\*\* next change \*\*\*

### 8.2.9 Registration reject

#### 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 discriminator9.2 | M | V | 1 |
|  | Security header type | Security header type9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
|  | Registration reject message identity | Message type9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause9.11.3.2 | M | V | 1 |
| 5F | T3346 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 16 | T3502 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 78 | EAP message | EAP message9.11.2.2 | O | TLV-E | 7-1503 |
| 69 | Rejected NSSAI | Rejected NSSAI9.11.3.46 | O | TLV | 4-42 |
| 75 | CAG information list | CAG information list9.11.3.18A | O | TLV-E | 3-n |
| 68 | Extended rejected NSSAI | Extended rejected NSSAI9.11.3.75 | O | TLV | 5-90 |
| X1 | Access re-attempt restriction | Access re-attempt restriction9.11.3.x2 | O | TV | 4 |

\* \* \* Next Change \* \* \* \*

#### 8.2.9.x Access re-attempt restriction

The network may include this IE if 5GMM cause value #78 is indicated if the network wants to indicate a minimum time or UE travelled distance before a registration re-attempt is allowed to this PLMN.

*\*\*\* next change \*\*\**

### 8.2.14 De-registration request (UE terminated de-registration)

#### 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 discriminator9.2 | M | V | 1 |
|  | Security header type | Security header type9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
|  | De-registration request message identity | Message type9.7 | M | V | 1 |
|  | De-registration type | De-registration type9.11.3.20 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
| 58 | 5GMM cause | 5GMM cause9.11.3.2 | O | TV | 2 |
| 5F | T3346 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 6D | Rejected NSSAI | Rejected NSSAI9.11.3.46 | O | TLV | 4-42 |
| 75 | CAG information list | CAG information list9.11.3.18A | O | TLV-E | 3-n |
| 68 | Extended rejected NSSAI | Extended rejected NSSAI9.11.3.75 | O | TLV | 5-90 |
| X1 | Access re-attempt restriction | Access re-attempt restriction9.11.3.x2 | O | TV | 4 |

*\*\*\* next change \*\*\**

#### 8.2.14.x Access re-attempt restriction

The network may include this IE if 5GMM cause value #78 is indicated if the network wants to indicate a minimum time or UE travelled distance before a registration re-attempt is allowed to this PLMN.

*\*\*\* next change \*\*\**

### 8.2.18 Service reject

#### 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 discriminator9.2 | M | V | 1 |
|  | Security header type | Security header type9.3 | M | V | 1/2 |
|  | Spare half octet | Spare half octet9.5 | M | V | 1/2 |
|  | Service reject message identity | Message type9.7 | M | V | 1 |
|  | 5GMM cause | 5GMM cause9.11.3.2 | M | V | 1 |
| 50 | PDU session status | PDU session status9.11.3.44 | O | TLV | 4-34 |
| 5F | T3346 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 78 | EAP message | EAP message9.11.2.2 | O | TLV-E | 7-1503 |
| 6B | T3448 value | GPRS timer 29.11.2.4 | O | TLV | 3 |
| 75 | CAG information list | CAG information list9.11.3.18A | O | TLV-E | 3-n |
| X1 | Access re-attempt restriction | Access re-attempt restriction9.11.3.x2 | O | TV | 4 |

*\*\*\* next change \*\*\**

#### 8.2.18.x Access re-attempt restriction

The network may include this IE if 5GMM cause value #78 is indicated if the network wants to indicate a minimum time or UE travelled distance before a registration re-attempt is allowed to this PLMN.

\* \* \* Next Change \* \* \* \*

#### 9.11.3.x2 Access re-attempt restriction

The purpose of the Access re-attempt restriction information element is to indicate the minimum time and minimum distance before re-attempting access to a PLMN that rejected the previous access attempt with cause value #78..

The Access re-attempt restriction is a type 4 information element with a length of 4 octets.

The Access re-attempt restriction information element is coded as shown in figure 9.11.3.x2.1 and table 9.11.3.x2.1.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
|  | Access re-attempt restriction IEI | octet 1 |
|  | Length of Access re-attempt restriction contents | octet2 |
|  | Time unit | Timer value | octet 3 |
|  | Distance unit | Distance value | octet 4 |

Figure 10.5.146/3GPP TS 24.008: Access re-attempt restrictioninformation element

Table 9.11.3.2A.1: Access re-attempt restriction information element

|  |
| --- |
| Timer value (octet 3)Bits 5 to 1 represent the binary coded timer value.Bits 6 to 8 defines the timer value unit for Access re-attempt restriction timer as follows:Bits **8 7 6**0 0 0 value is incremented in multiples of 2 seconds0 0 1 value is incremented in multiples of 10 seconds0 1 0 value is incremented in multiples of 1 minute0 1 1 value is incremented in multiples of decihours1 1 1 value indicates that the timer is deactivated.Other values shall be interpreted as multiples of 2 seconds in this version of the protocol.Distance value (octet 4)Bits 5 to 1 represent the binary coded distance value.Bits 6 to 8 defines the distance value unit for Access re-attempt restriction distance as follows:Bits **8 7 6**0 0 0 value is incremented in multiples of 1 meter0 0 1 value is incremented in multiples of 10 meters 0 1 0 value is incremented in multiples of 100 meters0 1 1 value is incremented in multiples of 1 kilometers1 0 0 value is incremented in multiples of 10 kilometers1 0 1 value is incremented in multiples of 100 kilometers1 1 1 value indicates that no distance value shall be applied.Other values shall be interpreted as multiples of 1 kilometer in this version of the protocol. |

\*\*\* last change \*\*\*