**3GPP TSG-CT WG1 Meeting #133-eC1-216594-rev01**

**E-meeting, 11-19 November 2021 rev of C1-216594**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.301** | **CR** | **3621** | **rev** | **1** | **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 | **X** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | New reject cause #78 "PLMN not allowed to operate at the present UE location" | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | OPPO, Huawei, HiSilicon, MediaTek Inc. | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | IoT\_SAT\_ARCH\_EPS | | | | |  | ***Date:*** | | | 2021-11-12 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | IoT\_SAT\_ARCH\_EPS is to leverage as much as possible on what has been done for UE accessing 5GS through satellite NG-RAN.  As such, the NW can reject the UE's registration or request for service, if NW detects thatt the UE is in a location where NW is not allowed to operate.  This specific reject is also introduced to 23.401 by 23.401CR3663.  Note: 23.401CR3663 at SA2#147E is S2-2108025 and at SA2#148e that is revised and in S2-2108824  Thus a new reject cause has to be introduced to EPS and in this CR, the proposal is to introduce to EMM the reject cause #78 which is the same as the reject cause used in 5GS for the same purpose. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Reject cause #78 introduced | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | There is no (new) specific reject cause the NW can use to rejct a UE to indicate that network cannot operate at the UE's present location | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.9.3.9, A.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR 23.401 CR 3663 | | |
| ***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 \* \* \*

#### 9.9.3.9 EMM cause

The purpose of the EMM cause information element is to indicate the reason why an EMM request from the UE is rejected by the network.

The EMM cause information element is coded as shown in figure 9.9.3.9.1 and table 9.9.3.9.1.

The EMM cause is a type 3 information element with 2 octets length.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| EMM cause IEI | | | | | | | | octet 1 |
| Cause value | | | | | | | | octet 2 |

Figure 9.9.3.9.1: EMM cause information element

Table 9.9.3.9.1: EMM cause information element

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cause value (octet 2) | | | | | | | | | |
|  | | | | | | | | | |
| Bits | | | | | | | | | |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | IMSI unknown in HSS |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |  | Illegal UE |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |  | IMEI not accepted |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |  | Illegal ME |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |  | EPS services not allowed |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |  | EPS services and non-EPS services not allowed |
| 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |  | UE identity cannot be derived by the network |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |  | Implicitly detached |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |  | PLMN not allowed |
| 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |  | Tracking Area not allowed |
| 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 |  | Roaming not allowed in this tracking area |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |  | EPS services not allowed in this PLMN |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |  | No Suitable Cells In tracking area |
| 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |  | MSC temporarily not reachable |
| 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |  | Network failure |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |  | CS domain not available |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |  | ESM failure |
| 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |  | MAC failure |
| 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |  | Synch failure |
| 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |  | Congestion |
| 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |  | UE security capabilities mismatch |
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |  | Security mode rejected, unspecified |
| 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |  | Not authorized for this CSG |
| 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |  | Non-EPS authentication unacceptable |
| 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |  | Redirection to 5GCN required |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |  | Requested service option not authorized in this PLMN |
| 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |  | CS service temporarily not available |
| 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |  | No EPS bearer context activated |
| 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |  | Severe network failure |
| 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |  | PLMN not allowed to operate at the present UE location |
| 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |  | Semantically incorrect message |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |  | Invalid mandatory information |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |  | Message type non-existent or not implemented |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |  | Message type not compatible with the protocol state |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |  | Information element non-existent or not implemented |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |  | Conditional IE error |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |  | Message not compatible with the protocol state |
| 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |  | Protocol error, unspecified |
|  |  |  |  |  |  |  |  |  |  |
| Any other value received by the mobile station shall be treated as 0110 1111, "protocol error, unspecified". Any other value received by the network shall be treated as 0110 1111, "protocol error, unspecified". | | | | | | | | | |
|  | | | | | | | | | |

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

# A.3 Causes related to PLMN specific network failures and congestion/authentication failures

Cause #16 – MSC temporarily not reachable

This EMM cause is sent to the UE if it requests a combined EPS attach or tracking area updating in a PLMN where the MSC is temporarily not reachable via the EPS part of the network.

Cause #17 – Network failure

This EMM cause is sent to the UE if the MME cannot service an UE generated request because of PLMN failures.

Cause #18 – CS domain not available

This EMM cause is sent to the UE if the MME cannot service an UE generated request because CS domain is not available and SMS in MME is not supported.

Cause #19 – ESM failure

This EMM cause is sent to the UE when there is a failure in the ESM message contained in the EMM message.

Cause #20 – MAC failure

This EMM cause is sent to the network if the USIM detects that the MAC in the AUTHENTICATION REQUEST message is not fresh (see 3GPP TS 33.401 [19]).

Cause #21 – Synch failure

This EMM cause is sent to the network if the USIM detects that the SQN in the AUTHENTICATION REQUEST message is out of range (see 3GPP TS 33.401 [19]).

Cause #22 – Congestion

This EMM cause is sent to the UE because of congestion in the network (e.g. no channel, facility busy/congested etc.).

Cause #23 – UE security capabilities mismatch

This EMM cause is sent to the network if the UE detects that the UE security capability does not match the one sent back by the network.

Cause #24 – Security mode rejected, unspecified

This EMM cause is sent to the network if the security mode command is rejected by the UE if the UE detects that the nonceUE does not match the one sent back by the network or for unspecified reasons.

Cause #26 – Non-EPS authentication unacceptable

This EMM cause is sent to the network in S1 mode if the "separation bit" in the AMF field of AUTN is set to 0 in the AUTHENTICATION REQUEST message (see 3GPP TS 33.401 [19]).

Cause #39 – CS service temporarily not available

This EMM cause is sent to the UE when the CS fallback or 1xCS fallback request cannot be served temporarily due to O&M reasons or a mobile terminating CS fallback call is aborted by the network during call establishment (see 3GPP TS 29.118 [16A]).

Cause #42 – Severe network failure

This EMM cause is sent to the UE when the network has determined that the requested procedure cannot be completed successfully due to network failure. The failure is not expected to be temporary and repeated request is not likely to succeed in near future.

Cause #78 –PLMN not allowed to operate at the present UE location

This EMM cause is sent to the UE to indicate that the PLMN is not allowed to operate at the present UE location.

NOTE: This cause is only used by the network towards UE accessing the network through a satellite E-UTRA cell.

\* \* \* End of Changes \* \* \*