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

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

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.301** | **CR** | **3675** | **rev** | **1** | **Current version:** | **17.5.0** |  |
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| *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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | MUSIM capabilities exchange while Emergency service is ongoing in EPS | | | | | | | | | |
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| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Apple, Ericsson, vivo, Intel | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MUSIM | | | | |  | ***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)* | |
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| ***Reason for change:*** | | Stage-2 agreed CR S2-2109309 clarified that, the network shall not indicate the support of MUSIM capabilities when the UE is performing Emergency Attach, regardless whether the UE has indicated the support of MUSIM capabilities or not, in order not to possibly interrupt the Emergency services. This requirement needs to be reflected into stage-3 spec.  Also the same requirement should apply when the UE performs TAU procedure and at the same time the UE is attached for emergency bearer services. | | | | | | | | |
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| ***Summary of change:*** | | Clarifying that:  1- The network shall not indicate the support of MUSIM capabilities when the UE is performing Emergency Attach.  2- The network shall not indicate the support of MUSIM capabilities when the UE performs TAU procedure and at the same time the UE is attached for emergency bearer services. | | | | | | | | |
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| ***Consequences if not approved:*** | | The UE can wrongly use the MUSIM features even if it is in Emergency situation, leading to possible interruptions for Emergency services. | | | | | | | | |
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| ***Clauses affected:*** | | 5.5.1.1, 5.5.3.1 | | | | | | | | |
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|  | | **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:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

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

#### 5.5.1.1 General

The attach procedure is used to attach to an EPC for packet services in EPS.

The attach procedure is used for the following purposes:

- by a UE in PS mode of operation to attach for EPS services only;

- by a UE in CS/PS mode 1 or CS/PS mode 2 of operation to attach for both EPS and non-EPS services;

- by a UE supporting NB-S1 mode only in PS mode of operation to attach for EPS services and "SMS only";

- to attach for emergency bearer services; or

- an attach for access to RLOS.

The lower layers indicate to NAS that the network does not support emergency bearer services for the UE in limited service state (3GPP TS 36.331 [22]). This information is taken into account when deciding whether to initiate attach for emergency bearer services in WB-S1 mode.

If the MME does not support an attach for emergency bearer services, the MME shall reject any request to attach with an attach type set to "EPS emergency attach".

If the MUSIM capable UE initiates the attach procedure and sets the attach type to "EPS emergency attach" in the ATTACH REQUEST message, the network shall not indicate the support of:

- the NAS signalling connection release;

- the paging indication for voice services;

- the reject paging request;

- the paging restriction; or

- the paging timing collision control;

in the ATTACH ACCEPT message.

The lower layers may indicate to NAS whether the network supports access to RLOS (3GPP TS 36.331 [22]). This information is taken into account when deciding whether to initiate attach for access to RLOS in WB-S1 mode.

With a successful attach procedure, a context is established for the UE in the MME. Furthermore, if the UE requested PDN connectivity, a default bearer is established between the UE and the PDN GW, thus enabling always-on IP connectivity to the UE. In WB-S1 mode, the network may also initiate the activation of dedicated bearers as part of the attach procedure. In NB-S1 mode the network shall not initiate the activation of dedicated bearers.

With a successful attach procedure in NB-S1 mode, a context is established for the UE in the MME. If the attach request included information to request PDN connectivity, a default bearer is also established between the UE and the PDN.

If EMM-REGISTERED without PDN connection is supported by the UE and the MME, a default bearer need not be requested by the UE during the attach procedure. If EMM-REGISTERED without PDN connection is not supported by the UE or the MME, then the UE shall request establishment of a default bearer.

During the attach procedure with default bearer establishment, the UE may also obtain the home agent IPv4 or IPv6 address or both.

In a shared network, the UE shall choose one of the PLMN identities as specified in 3GPP TS 23.122 [6]. The UE shall construct the TAI of the cell from this chosen PLMN identity and the TAC received for this PLMN identity as part of the broadcast system information. The chosen PLMN identity shall be indicated to the E-UTRAN (see 3GPP TS 36.331 [22]). Whenever an ATTACH REJECT message with the EMM cause #11 "PLMN not allowed" is received by the UE, the chosen PLMN identity shall be stored in the "forbidden PLMN list" and if the UE is configured to use timer T3245 (see 3GPP TS 24.368 [15A] or 3GPP TS 31.102 [17]) then the UE shall start timer T3245 and proceed as described in clause 5.3.7a. Whenever an ATTACH REJECT message with the EMM cause #14 "EPS services not allowed in this PLMN" is received by the UE, the chosen PLMN identity shall be stored in the "forbidden PLMNs for GPRS service" and if the UE is configured to use timer T3245 (see 3GPP TS 24.368 [15A] or 3GPP TS 31.102 [17]) then the UE shall start timer T3245 and proceed as described in clause 5.3.7a. Whenever an ATTACH REJECT message is received by the UE with the EMM cause #12 "tracking area not allowed", #13 "roaming not allowed in this tracking area", or #15 "no suitable cells in tracking area", the constructed TAI shall be stored in the suitable list.

An attach attempt counter is used to limit the number of subsequently rejected attach attempts. The attach attempt counter shall be incremented as specified in clause 5.5.1.2.6. Depending on the value of the attach attempt counter, specific actions shall be performed. The attach attempt counter shall be reset when:

- the UE is powered on;

- a USIM is inserted;

- an attach or combined attach procedure is successfully completed;

NOTE: The attach procedure can be initiated in S1 or S101 mode as described in clause 5.5.1.

- a GPRS attach or combined GPRS attach procedure is successfully completed in A/Gb or Iu mode;

- a registration procedure for initial registration performed over 3GPP access is successfully completed in N1 mode and the UE is operating in single-registration mode;

- a combined attach procedure is completed for EPS services only with cause #2, #16, #17, #18 or #22;

- an attach or combined attach procedure is rejected with cause #11, #12, #13, #14, #15, #25 or #35:

- a network initiated detach procedure is completed with cause #11, #12, #13, #14, #15 or #25; or

- a new PLMN is selected.

Additionally the attach attempt counter shall be reset when the UE is in substate EMM-DEREGISTERED.ATTEMPTING-TO-ATTACH and:

- a new tracking area is entered;

- timer T3402 expires; or

- timer T3346 is started.

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

#### 5.5.3.1 General

The tracking area updating procedure is always initiated by the UE and is used for the following purposes:

- normal tracking area updating to update the registration of the actual tracking area of a UE in the network;

- combined tracking area updating to update the registration of the actual tracking area for a UE in CS/PS mode 1 or CS/PS mode 2 of operation;

- periodic tracking area updating to periodically notify the availability of the UE to the network;

- IMSI attach for non-EPS services when the UE is attached for EPS services. This procedure is used by a UE in CS/PS mode 1 or CS/PS mode 2 of operation;

- in various cases of inter-system change from Iu mode to S1 mode or from A/Gb mode to S1 mode;

- in various cases of inter-system change from N1 mode to S1 mode if the UE operates in single-registration mode and as described in 3GPP TS 24.501 [54];

- S101 mode to S1 mode inter-system change;

- MME load balancing;

- to update certain UE specific parameters in the network;

- recovery from certain error cases;

- to indicate that the UE enters S1 mode after CS fallback or 1xCS fallback;

- to indicate to the network that the UE has selected a CSG cell whose CSG identity and associated PLMN identity are not included in the UE's Allowed CSG list or in the UE's Operator CSG list;

- to indicate the current radio access technology to the network for the support of terminating access domain selection for voice calls or voice sessions;

- to indicate to the network that the UE has locally released EPS bearer context(s); and

- to indicate to the network that the MUSIM capable UE needs to use an IMSI Offset value as specified in 3GPP TS 23.401 [10] that is used for deriving the paging occasion as specified in 3GPP TS 36.304 [21].

Details on the conditions for the UE to initiate the tracking area updating procedure are specified in clause 5.5.3.2.2 and clause 5.5.3.3.2.

While a UE has a PDN connection for emergency bearer services, the UE shall not perform manual CSG selection.

If the MUSIM capable UE is attached for emergency bearer services and initiates a tracking area updating procedure, the network shall not indicate the support of:

- the NAS signalling connection release;

- the paging indication for voice services;

- the reject paging request;

- the paging restriction; or

- the paging timing collision control;

in the TRACKING AREA UPDATE ACCEPT message.

If control plane CIoT EPS optimization is not used by the UE, a UE initiating the tracking area updating procedure in EMM-IDLE mode may request the network to re-establish the radio and S1 bearers for all active EPS bearer contexts during the procedure. If control plane CIoT EPS optimization is used by the UE, a UE initiating the tracking area updating procedure in EMM-IDLE mode may request the network to re-establish the radio and S1 bearers for all active EPS bearer contexts associated with PDN connections established without control plane only indication during the procedure.

In a shared network, the UE shall choose one of the PLMN identities as specified in 3GPP TS 23.122 [6]. The UE shall construct the TAI of the cell from this chosen PLMN identity and the TAC received for this PLMN identity on the broadcast system information. The chosen PLMN identity shall be indicated to the E-UTRAN (see 3GPP TS 36.331 [22]). Whenever a TRACKING AREA UPDATE REJECT message with the EMM cause #11 "PLMN not allowed" is received by the UE, the chosen PLMN identity shall be stored in the "forbidden PLMN list" and if the UE is configured to use timer T3245 (see 3GPP TS 24.368 [15A] or 3GPP TS 31.102 [17]) then the UE shall start timer T3245 and proceed as described in clause 5.3.7a. Whenever a TRACKING AREA UPDATE REJECT message with the EMM cause #14 "EPS services not allowed in this PLMN" is received by the UE, the chosen PLMN identity shall be stored in the "forbidden PLMNs for GPRS service". Whenever a TRACKING AREA UPDATE REJECT message is received by the UE with the EMM cause #12 "tracking area not allowed", #13 "roaming not allowed in this tracking area", or #15 "no suitable cells in tracking Area", the constructed TAI shall be stored in the suitable list.

In a shared network, if TRACKING AREA UPDATE REJECT is received as a response to a tracking area updating procedure initiated in EMM-CONNECTED mode, the UE need not update forbidden lists.

A tracking area updating attempt counter is used to limit the number of subsequently rejected tracking area update attempts. The tracking area updating attempt counter shall be incremented as specified in clause 5.5.3.2.6. Depending on the value of the tracking area updating attempt counter, specific actions shall be performed. The tracking area updating attempt counter shall be reset when:

- a normal or periodic tracking area updating or a combined tracking area updating procedure is successfully completed;

- a normal or periodic tracking area updating or a combined tracking area updating procedure is rejected with EMM cause #11, #12, #13, #14, #15, #25 or #35:

- a combined attach procedure or a combined tracking area updating procedure is completed for EPS services only with cause #2 or #18; or

- a new PLMN is selected.

Additionally the tracking area updating attempt counter shall be reset when the UE is in substate EMM-REGISTERED.ATTEMPTING-TO-UPDATE or EMM-REGISTERED.ATTEMPTING-TO-UPDATE-MM, and:

- a new tracking area is entered;

- timer T3402 expires; or

- timer T3346 is started.

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