**3GPP TSG-CT WG1 Meeting #137-eC1-224913**

**E-Meeting, 18th – 26th August 2022**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **24.301** | **CR** |  | **rev** | **-** | **Current version:** | **17.7.0** |  |
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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 | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:***  | NAS signalling Connection maintenance for PLMN selection |
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| ***Source to WG:*** | MediaTek Inc. |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2022-08-08 |
|  |  |  |  |  |
| ***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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | There are various cases that the UE will enter state EMM-DEREGISTERED.PLMN-SEARCH or EMM-REGISTERED.PLMN-SEARCH to perform PLMN selection.However, the UE won’t start T3440 for all cases which enter state EMM-DEREGISTERED.PLMN-SEARCH or EMM-REGISTERED.PLMN-SEARCH. The UE might not be able to perform a PLMN selection if the UE is still in EMM-CONNECTED mode.  |
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| ***Summary of change:*** | The UE may locally release the NAS connection when entering EMM-DEREGISTERED.PLMN-SEARCH or EMM-REGISTERED.PLMN-SEARCH and didn’t start T3440. |
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| ***Consequences if not approved:*** | If the network didn’t release the connection and timer T3440 wasn’t started, the UE won’t be able to perform a PLMN selection. |
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| ***Clauses affected:*** | 5.3.1.2.1 |
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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:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

**\*\*\*\*\*\*\***

\* \* \* First Change \* \* \* \*

##### 5.3.1.2.1 General

The signalling procedure for the release of the NAS signalling connection is initiated by the network.

In S1 mode, when the RRC connection has been released, the UE shall enter EMM-IDLE mode and consider the NAS signalling connection released.

If the UE is configured for eCall only mode as specified in 3GPP TS 31.102 [17] then:

- if the NAS signalling connection that was released had been established for eCall over IMS, the UE shall start timer T3444; and

- if the NAS signalling connection that was released had been established for a call to an HPLMN designated non-emergency MSISDN or URI for test or terminal reconfiguration service, the UE shall start timer T3445.

The UE shall start the SGC timer T3447 with the service gap time value available in the UE when the NAS signalling connection is released if:

- the UE supports SGC feature, and the service gap timer value is available in the UE and does not indicate zero; and

- the NAS signalling connection that was released had been established for mobile originated request for transfer of uplink data.

If the UE receives the "Extended wait time" from the lower layers when no attach, tracking area updating or service request procedure is ongoing, the UE shall ignore the "Extended wait time".

To allow the network to release the NAS signalling connection, the UE:

a) shall start the timer T3440 if the UE receives any of the EMM cause values #11, #12, #13, #14 (not applicable to the service request procedure), #15, #25, #31, #35 or #42;

b) shall start the timer T3440 if:

- the UE receives a TRACKING AREA UPDATE ACCEPT message which does not include a UE radio capability ID deletion indication IE;

- the UE has not set the "active" flag in the TRACKING AREA UPDATE REQUEST message;

- the UE has not set the "signalling active" flag in the TRACKING AREA UPDATE REQUEST message;

- the tracking area updating or combined tracking area updating procedure has been initiated in EMM-IDLE mode, or the UE has set Request type to "NAS signalling connection release" in the UE request type IE in the TRACKING AREA UPDATE REQUEST message and the NAS signalling connection release bit is set to "NAS signalling connection release supported" in the EPS network feature support IE of the TRACKING AREA UPDATE ACCEPT message; and

- the user plane radio bearers have not been set up;

c) shall start the timer T3440 if the UE receives a DETACH ACCEPT message and the UE has set the detach type to "IMSI detach" in the DETACH REQUEST message and user plane radio bearers have not been set up;

d) shall start the timer T3440 if the UE receives a TRACKING AREA UPDATE REJECT message indicating:

- any of the EMM cause values #9 or #10 and the UE has no CS fallback emergency call, CS fallback call, 1xCS fallback emergency call, or 1xCS fallback call pending; or

- the EMM cause values #40, the TRACKING AREA UPDATE message was not triggered due to receiving a paging for CS fallback or a paging for 1xCS fallback, and the UE has no CS fallback emergency call, CS fallback call, 1xCS fallback emergency call, or 1xCS fallback call pending;

e) shall start the timer T3440 if the UE receives a SERVICE REJECT message indicating any of the EMM cause values #9, #10 or #40 as a response to a SERVICE REQUEST message CONTROL PLANE SERVICE REQUEST message, or an EXTENDED SERVICE REQUEST message with service type set to "packet services via S1";

f) may start the timer T3440 if the UE receives any of the EMM cause values #3, #6, #7 or #8 or if it receives an AUTHENTICATION REJECT message;

g) shall start the timer T3440 if the UE receives a SERVICE REJECT message indicating the EMM cause value #39 and the UE has initiated EXTENDED SERVICE REQUEST in EMM-IDLE and the user plane radio bearers have not been set up;

h) shall start the timer T3440 if the UE receives a SERVICE REJECT, SERVICE ACCEPT, ATTACH ACCEPT or TRACKING AREA UPDATE ACCEPT message with control plane data back-off timer;

i) shall start the timer T3440 if the UE receives the EMM cause value #22 along with a T3346 value, and the value indicates that the timer T3346 is neither zero nor deactivated;

j) shall start the timer T3440 if the UE receives a SERVICE ACCEPT message and the UE has set Request type to "NAS signalling connection release" or to "Rejection of paging" in the UE request type IE in the EXTENDED SERVICE REQUEST or CONTROL PLANE SERVICE REQUEST message;

k) shall start the timer T3440 if the UE receives a SERVICE ACCEPT message, the UE has set the Control plane service type of the CONTROL PLANE SERVICE REQUEST message to "mobile terminating request" and the "active" flag in the Control plane service type IE to 0, the user plane radio bearers have not been set up, and the CONTROL PLANE SERVICE REQUEST message was sent from EMM-IDLE mode; or

l) shall start the timer T3440 if the UE receives a DETACH ACCEPT message and the UE has set the detach type to "EPS detach" or "combined EPS/IMSI detach" in the DETACH REQUEST message.

Upon expiry of T3440,

- in cases a, b, c, f, h, i, j and l, the UE shall locally release the established NAS signalling connection; or

- in cases d and e, the UE shall locally release the established NAS signalling connection and the UE shall initiate the attach procedure as described in clause 5.5.3.2.5, 5.5.3.3.5 or 5.6.1.5.

In cases b, c and g,

- upon an indication from the lower layers that the user plane radio bearers are set up, the UE shall stop timer T3440 and may send uplink signalling via the existing NAS signalling connection or user data via the user plane bearers. If the uplink signalling is for CS fallback for emergency call, or for establishing a PDN connection for emergency bearer services, the UE shall send the uplink signalling via the existing NAS signalling connection; or

In cases b, c, g and j,

- upon receipt of a DETACH REQUEST message, the UE shall stop timer T3440 and respond to the network initiated detach as specified in clause 5.5.2.3.

In case b, j and k,

- upon receiving a request from upper layers to send NAS signalling not associated with establishing either a CS emergency call or a PDN connection for emergency bearer services, the UE shall wait for the local release of the established NAS signalling connection upon expiry of timer T3440 or T3440 being stopped before proceeding;

- upon receiving a request from upper layers to establish either a CS emergency call or a PDN connection for emergency bearer services, the UE shall stop timer T3440 and shall locally release the NAS signalling connection, before proceeding as specified in clause 5.6.1;

- upon receipt of ESM DATA TRANSPORT message, as an implementation option, the UE may reset and restart timer T3440;

- upon receipt of a DOWNLINK NAS TRANSPORT or DOWNLINK GENERIC NAS TRANSPORT message, the UE which is in EMM-REGISTERED without PDN connections shall stop timer T3440 and may send uplink signalling via the existing NAS signalling connection;

- upon receipt of an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST, MODIFY EPS BEARER CONTEXT REQUEST, DEACTIVATE EPS BEARER CONTEXT REQUEST, DOWNLINK NAS TRANSPORT or DOWNLINK GENERIC NAS TRANSPORT message, if the UE is using control plane CIoT EPS optimization, the UE shall stop timer T3440 and may send uplink signalling via the existing NAS signalling connection; or

- upon initiation of tracking area updating procedure or combined tracking area updating procedure due to detecting the current TAI is not in the TAI list as specified in clause 5.5.3.2.6 for cases e, i, j, clause 5.5.3.2.2 for case a or clause 5.5.3.3.2 for case a, the UE shall stop timer T3440.

In case c,

- upon receiving a request from upper layers to send NAS signalling not associated with establishing a PDN connection for emergency bearer services, the UE shall wait for the local release of the established NAS signalling connection upon expiry of timer T3440 or T3440 being stopped before proceeding; or

- upon receiving a request from upper layers to establish a PDN connection for emergency bearer services, the UE shall stop timer T3440 and shall locally release the NAS signalling connection, before proceeding as specified in clause 5.6.1.

In cases d and e,

- upon an indication from the lower layers that the RRC connection has been released, the UE shall stop timer T3440 and perform a new attach procedure as specified in clause 5.5.3.2.5, 5.5.3.3.5 or 5.6.1.5; or

- upon receiving a request from upper layers to establish a PDN connection for emergency bearer services, the UE shall stop timer T3440 and shall locally release the NAS signalling connection, before proceeding as specified in clause 5.5.1.

In cases a and f,

- upon receiving a request from upper layers to establish a PDN connection for emergency bearer services, the UE shall stop timer T3440 and shall locally release the NAS signalling connection, before proceeding as specified in clause 5.5.1.

In case g,

- upon receiving a request from upper layers to send NAS signalling not associated with establishing either a CS emergency call or a PDN connection for emergency bearer services, the UE shall wait for the local release of the established NAS signalling connection upon expiry of timer T3440 or T3440 being stopped before proceeding; or

- upon receiving a request from upper layers to establish either a CS emergency call or a PDN connection for emergency bearer services, the UE shall stop timer T3440 and shall locally release the NAS signalling connection, before proceeding as specified in clause 5.6.1.

In case h,

- upon an indication from the lower layers that the user plane radio bearers are set up or upon receiving a request from upper layers to send NAS signalling not associated with ESM DATA TRANSPORT, the UE shall stop timer T3440; or

- the UE shall not send ESM DATA TRANSPORT message until expiry of timer T3440 or times T3440 being stopped.

In EMM-CONNECTED mode, if the UE moves to EMM-SERVICE-REQUEST-INITIATED state upon receipt of a CS SERVICE NOTIFICATION message, the UE shall stop timer T3440.

In S101 mode, when the cdma2000® HRPD radio access connection has been released, the UE shall enter EMM-IDLE mode and consider the S101 mode NAS signalling connection released.

If the timer T3440 is not running when the UE enters state EMM-DEREGISTERED.PLMN-SEARCH or EMM-REGISTERED.PLMN-SEARCH, the UE may locally release the NAS signalling connection.

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