**3GPP TSG-CT WG1 Meeting #134-e *C1-221991***

**E-Meeting, 17th – 25th February 2022 was C1-221718**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.301** | **CR** | **3723** | **rev** | **1** | **Current version:** | **17.5.0** |  |
|  | | | | | | | | |
| *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:*** | Taking GNSS fix time into account in UE NAS layer | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MediaTek Inc. | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | IOT\_SAT\_ARCH\_EPS | | | | |  | ***Date:*** | | | 2022-02-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***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:*** | | Based on the RAN2 LS in R2-2111612, the lower layers need to acquire GNSS data for timing and frequency pre-compensation prior to uplink transmission over satellite access. If the GNSS data is not available, uplink (UL) messages from UE to NW cannot be transmitted. The acquisition time for the GNSS position varies between ~ 2s (GNSS hot state) and more than 100s (GNSS cold state), depending on the GNSS fix acquisition state in the lower layers.  E.g. at initiation of an EMM procedure the UE enters an XYZ-INITIATED substate and starts a specific control timer at sending the message e.g. sending ATTACH REQUEST message the UE enters EMM-REGISTERED-INITIATED and starts T3510 (15 seconds). If the GNSS fix time is not taken into account and e.g. cold state applies in the AS (e.g. delay ~100 seconds), the NAS timers expires before the GNSS is acquired.  It’s noted that the UE NAS layer needs to take into account that UL NAS message will take longer due to GNSS fix in lower layers. | | | | | | | | |
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| ***Summary of change:*** | | Added a NOTE for the UE NAS layer to take into account possible GNSS fix in lower layers delaying UL NAS message transmission. | | | | | | | | |
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| ***Consequences if not approved:*** | | It’s not clear how GNSS fix time impacts on the UE NAS layer. | | | | | | | | |
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| ***Clauses affected:*** | | 5.1.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

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

### 5.1.1 General

This clause describes the procedures used for mobility management for EPS services (EMM) at the radio interface (reference point "LTE-Uu").

The main function of the mobility management sublayer is to support the mobility of a user equipment, such as informing the network of its present location and providing user identity confidentiality.

A further function of the mobility management sublayer is to provide connection management services to the session management (SM) sublayer and the short message services (SMS) entity of the connection management (CM) sublayer.

All the EMM procedures described in this clause can only be performed if a NAS signalling connection has been established between the UE and the network. Else, the EMM sublayer has to initiate the establishment of a NAS signalling connection (see 3GPP TS 36.331 [22]).

NOTE: In a satellite E-UTRAN access, a GNSS fix time in lower layers can delay transmission of an initial UL NAS message up to 100 seconds (GNSS cold state).

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