**3GPP TSG-CT WG1 Meeting #133-eC1-216541 was C1-216541**

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

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **24.571** | **CR** | **0004** | **rev** | **1** | **Current version:** | **16.2.0** |  |
|  |
| *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 | **X** |

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| ***Title:***  | TS reference update and multiplePositioningProtocolPDUs limit clarification |
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| ***Source to WG:*** | CATT |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5G\_eLCS\_ph2 |  | ***Date:*** | 2021-10-29 |
|  |  |  |  |  |
| ***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)* |
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| ***Reason for change:*** | 1. 3GPP TS 23.273 claims that up to three LPP positioning messages can be included in MO-LR Request message. But the appeal is not included in TS 24.571.
2. it is said by 3GPP TS 23.273 that LPP protocol specification has been updated to TS 37.355, by RAN WG.
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| ***Summary of change:*** | 1. The MO-LR Request message can include up to three LPP positioning message.
2. Change the reference to LPP protocol from 36.355 to 37.355.
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| ***Consequences if not approved:*** | The descriptions are not refelected in stage3.  |
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| ***Clauses affected:*** | 2, 5.2.2.1.2 |
|  |  |
|  | **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:*** |  |

\*\*\*\*\* BEGIN 1st CHANGE \*\*\*\*\*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.273: "5G System (5GS) Location Services (LCS); Stage 2".

[3] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[4] 3GPP TS 37.355: "LTE Positioning Protocol (LPP)".

[5] 3GPP TS 24.080: "Mobile radio interface layer 3 supplementary services specification; Formats and coding".

[6] 3GPP TS 29.572: "5G System; Location Management Services; Stage 3".

\*\*\*\*\* 2nd CHANGE \*\*\*\*\*

##### 5.2.2.1.2 Normal operation

The UE invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component. SS Version Indicator value 1 or above shall be used.

The receiving network entity shall initiate the handling of location request in the network. The network shall pass the result of the location procedure to the UE by sending a FACILITY message to the UE containing a LCS-MOLR return result component. When location estimate is kept in the network entity and this information satisfies the requested accuracy and the requested maximum age of location, then the network may reuse this information and the positioning measurement procedure may be skipped.

The network shall pass the result of the location procedure to the UE only if the location estimate is given in a format that the UE supports, as indicated by either the presence (and content) or the absence of the parameter supportedGADShapes, which may be sent by the UE in the LCS-MOLR operation.

The UE may terminate the dialogue by sending a RELEASE COMPLETE message in the case of single location request (see figure 5.2.2.1.1-1). The UE may also initiate another location request operation by sending a FACILITY message to the network containing a LCS-MOLR invoke component (see figure 5.2.2.1.1-2). After the last location request operation the UE shall terminate the dialogue by sending a RELEASE COMPLETE message.

If the network is unable to successfully fulfil the request received from the UE (e.g. to provide a location estimate or location assistance information), it shall clear the transaction by sending a RELEASE COMPLETE message containing a return error component. Error values are specified in 3GPP TS 24.080 [5]. If the network is unable to provide a location estimate due to lack of support in the UE for the type of shape of the location estimate, then it shall use the error Facility Not Supported.

If the network has returned a result to the UE in a FACILITY message but, after some PLMN administered time period has elapsed, has not received either a new location request operation in a FACILITY message or a RELEASE COMPLETE message from the UE, the network may clear the transaction by sending a RELEASE COMPLETE message.

During the MO-LR operation the UE shall run a timer T(LCSL). This timer is started when the operation is sent, and stopped when a response is received from the network. If this timer expires the UE shall assume that the operation has failed, and may terminate the dialogue by sending a RELEASE COMPLETE message, and shall inform the user of the failure.

**UE Network**

REGISTER

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Facility (Invoke = LCS-MOLR (molr-Type, lcs-QoS, lcsClientExternalID, mlc-Number, supportedGADShapes, lcsServiceTypeID, ageOfLocationInfo, locationType, pseudonymIndicator, h-gmlc-address,multiplePositioningProtocolPDUs))

FACILITY

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Facility (Return result = LCS-MOLR (locationEstimate, velocityEstimate, add-LocationEstimate, decipheringKeys))

RELEASE COMPLETE

<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

Facility (Return error (Error))

RELEASE COMPLETE

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Facility (Reject (Invoke\_problem))

RELEASE COMPLETE

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Figure 5.2.2.1.1-1: Single mobile originated location request

**UE Network**

REGISTER

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Facility (Invoke = LCS-MOLR Request (molr-Type, lcs-QoS, lcsClientExternalID, mlc-Number, supportedGADShapes, lcsServiceTypeID, ageOfLocationInfo, locationType, pseudonymIndicator, h-gmlc-address, multiplePositioningProtocolPDUs))

FACILITY

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(Return result = LCS-MOLR (locationEstimate, velocityEstimate, add-LocationEstimate, decipheringKeys))

RELEASE COMPLETE

<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

Facility (Return error (Error))

RELEASE COMPLETE

<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

Facility (Reject (Invoke\_problem))

FACILITY

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Facility (Invoke = LCS-MOLR (molr-Type, lcs-QoS, lcsClientExternalID, mlc-Number, supportedGADShapes, lcsServiceTypeID, ageOfLocationInfo, locationType, pseudonymIndicator, h-gmlc-address, multiplePositioningProtocolPDUs))

FACILITY

<------------------------------------------------------------------------------------------------------------------------

(Return result = LCS-MOLR (locationEstimate, velocityEstimate, add-LocationEstimate, decipheringKeys))

RELEASE COMPLETE

<- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

Facility (Return error (Error))

RELEASE COMPLETE

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Facility (Reject (Invoke\_problem))

RELEASE COMPLETE

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Figure 5.2.2.1.1-2: Multiple mobile originated location requests

NOTE: Only the following IEs defined in MO-LR operations in 3GPP TS 24.080 [5] are used for NG-RAN LCS:

- molr-Type

- lcs-QoS

- lcsServiceTypeID

- ageOfLocationInformation

- locationType

- mlc-Number

- lcsClientExternalID

- pseudonymIndicator

- supportedGADShapes

- multiplePositioningProtocolPDUs

- locationEstimate

- h-gmlc-address

- decipheringKeys

NOTE: multiplePositioningProtocolPDUs IE is added to the MO-LR Request to allow for passing multiple UE positioning information LPP messages (e.g. UE location measurements or UE capabilities) to the LMF for NG-RAN LCS. Its ASN.1 description is given in 3GPP TS 24.080 [5] , where the maximum number of LPP message is specified.

\*\*\*\*\* End of CHANGE \*\*\*\*\*