**3GPP TSG-CT WG1 Meeting #133-bis-eC1-22xxxx**

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

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **24.571** | **CR** | **0008** | **rev** | **1** | **Current version:** | **17.0.0** |  |
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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 | **x** |

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| ***Title:***  | Clarification on multiplePositioningProtocolPDUs IE |
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| ***Source to WG:*** | vivo, Huawei, HiSilicon |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5G\_eLCS\_ph2 |  | ***Date:*** | 2022-01-07 |
|  |  |  |  |  |
| ***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:*** | In the MO-LR operation, the multiplePositioningProtocolPDUs IE is allowed to carry multiple UE positioning information LPP messages (e.g. UE location measurements or UE capabilities) to the LMF. The maximum number of LPP messages to be carried is three per TS 24.080. But whether different types of LPP messages can be encapsulated in one multiplePositioningProtocolPDUs IE or not is not specified.With transferring more than one type of information in LCS components in the MO-LR operation at the same time, the network can obtain or update more than one type of information, which could help accelerate LCS procedures processing without doubt. Therefore, different types of LPP messages can be allowed to be carried in one multiplePositioningProtocolPDUs IE. For example, two LPP messages containing UE location measurements and one LPP message containing UE capability are allowed to be encapsulated in one multiplePositioningProtocolPDUs IE. |
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| ***Summary of change:*** | Clarification that there are no restrictions on the types of multiple LPP messages to be encapsulated in one multiplePositioningProtocolPDUs IE. |
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| ***Consequences if not approved:*** | Ambiguous specification on the types of the LPP messages in the MO-LR operation. |
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| ***Clauses affected:*** | 5.2.2.1.2 |
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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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*\*\* First 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

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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

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Facility (Return error (Error))

RELEASE COMPLETE

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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

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

RELEASE COMPLETE

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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 1: 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 2: 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 messages is specified. There is one or more types of multiple LPP messages can be encapsulated in one multiplePositioningProtocolPDUs IE.

\*\*\*\*\* End of change \*\*\*\*\*