**3GPP TSG- Meeting #**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** |  | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | Sa3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | LEAs have a requirement to get the UE's current location in the network. The CR adds the capability to acquire UE (network) location in EPC and aligns the 5G and EPC procedures. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add location acquisition capability for EPC and align the 5G and EPC procedures. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | CSP will be unable to meet the LI requirements for location acquisition capability. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.11.2, 5.12.2, 6.3.2.2.5, 7.3.5.4, 7.3.5.6.1, 7.3.5.6.2, urn\_3GPP\_ns\_li\_3GPPXLAExtensions.xsd, urn\_3GPP\_ns\_li\_3GPPLIQueryExtensions.xsd | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | XSD part of this change can be found on the Forge:  Merge Request: <https://forge.3gpp.org/rep/sa3/li/-/merge_requests/167>  Commit hash: <https://forge.3gpp.org/rep/sa3/li/-/merge_requests/167/diffs?commit_id=8b3769d106ece5c5fac86e1fbc2d57cf7705eebd> | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | s3i230207 | | | | | | | | |

## \*\*\*\* START OF FIRST CHANGE (MAIN DOCUMENT) \*\*\*

### 5.11.2 Usage for realising LI\_HILA

#### 5.11.2.1 Request structure

LI\_HILA requests are represented by issuing a CREATE request for an LDTaskObject (see ETSI TS 103 120 [6] clause 8.3), populated as follows:

Table 5.11.2.1-1: LDTaskObject representation of LI\_HILA request

|  |  |  |
| --- | --- | --- |
| Field | Value | M/C/O |
| Reference | The LDID (as in ETSI TS 103 280 [97] with country code, unique LEA identifier, and the LIID used in the warrant as unique request identifier. | M |
| DesiredStatus | Shall be set to "AwaitingDisclosure". | M |
| RequestDetails | Set according to table 5.11.2.1-2 below. | M |

The use of any other LDTaskObject parameter is outside the scope of the present document.

Table 5.11.2.1-2: RequestDetails structure

|  |  |  |
| --- | --- | --- |
| Field | Value | M/C/O |
| Type | Shall be set to one of the HILARequestType values as defined in table 5.11.2.1-3. | M |
| ReqCurrentLoc | Indicates whether the current location of the UE is requested.  If set to true, the LARF shall:  - in case of the EPC, invoke the Insert Subscriber Data Procedure with the IDR-Flags with the "EPS Location Information Request" and the "Current Location Request" bit set (TS 29.272 [108] clause 5.2.2.1.2) at the MME, as described in clause 7.3.5.4.2.  - in case of the 5GC, invoke a ProvideLocationInfo service operation (see TS 29.518 [16] clause 5.5.2.4) as described in clause 7.3.5.4.3.  If set to false, the LARF shall use the location information in the UE context at the MME/AMF. | M |
| RequestValues | Set to the target identifier (see clause 5.11.2.2). | M |

Table 5.11.2.1-3: RequestType Dictionary for LI\_HILA

|  |  |
| --- | --- |
| Dictionary Owner | Dictionary Name |
| 3GPP | RequestType |
|  |  |
| Defined DictionaryEntries | |
| Value | Meaning |
| LocationAcquisition | A request for location information of the target, consisting at least of the TAI and the ECGI/NCGI. |

#### 5.11.2.2 Request parameters

The RequestValues field shall contain at least one of the following:

- IMSI, given in the IMSI format as defined in ETSI TS 103 120 [6] clause C.2.

- MSISDN, given in the E.164 format as as defined in ETSI TS 103 120 [6] clause C.2.

- SUPI, given in either SUPIIMSI or SUPINAI formats as defined in ETSI TS 103 120 [6] clause C.2.

#### - GPSI, given in either GPSIMSISDN or GPSINAI formats as defined in ETSI TS 103 120 [6] clause C.2.5.11.2.3 Response structure

The LI\_HILA request is used to generate a request to the LARF over LI\_XLA (see clause 5.12.2) to retrieve the target's network-provided location.

If delivery via the LI\_HI2 is required, the LARF will send the acquisition response as either an AMFLocationUpdate (in case of the 5GC) or an MMELocationUpdate (in case of the EPC) xIRI record to the MDF2 via LI\_X2\_LA. Full details are given in clause 7.3.5.6.

If delivery via the LI\_HILA is required, the LARF returns the acquisition response as part of the LI\_XLA response, which the LAF then transforms into a LI\_HILA response given as a LocationResponseDetails structure (see table 5.11.2.3-1). Full details are given in clause 7.3.5. LocationResponseDetails contains LocationOutcome records.

The fields of the LocationResponseDetails structure shall be set as follows:

Table 5.11.2.3-1: LocationResponseDetails

|  |  |  |
| --- | --- | --- |
| Field | Description/Value | M/C/O |
| LocationOutcomes | Locations of the target if determined by the network, or failure causes. The format of each LocationOutcome shall be set as defined in table 5.11.2.3-3 in case of EPC or as defined in table 5.11.2.3-2 in case of 5GC. | C |

Table 5.11.2.3-2: LocationOutcome

|  |  |  |
| --- | --- | --- |
| Field | Description/Value | M/C/O |
| SUPI | SUPI associated with the UE for which location is returned. | M |
| GPSI | GPSI associated with the UE for which location is returned. Shall be included if the GPSI of the UE for which location is returned is known. | C |
| Location | Location of the target if determined by the network. It shall include a JSON ProvideLocInfo structure as defined in TS 29.518 [22] clause 6.4.6.2.6, in base-64 encoding, in case the location could be determined. | C |
| FailureCause | If the location acquisition procedure fails, this parameter shall be included.  The values for this parameter shall be derived from values of the failure response received from the AMF.  If a ProblemDetails structure is returned, the errorDetails field shall be populated with a JSON ProblemDetails structure as defined in TS 29.571 [17] clause 5.2.4.1 in base-64 encoding. | C |

Table 5.11.2.3-3: EPCLocationOutcome

|  |  |  |
| --- | --- | --- |
| Field | Description/Value | M/C/O |
| IMSI | IMSI associated with the UE for which location is returned. | M |
| MSISDNs | List of MSISDNs associated with the UE for which location is returned, if available. | C |
| Location | Location of the target if determined by the network.  It shall include the MME-Location-Information AVP as defined in TS 29.272 [108] clause 7.3.115, in base-64 encoding, in case the location could be determined. | C |
| FailureCause | If the location acquisition procedure fails, this parameter shall be included.  The value of this parameter shall be set to the Result-Code as returned from the MME. | C |

## \*\*\*\* NEXT CHANGE (MAIN DOCUMENT) \*\*\*

### 5.12.2 Usage for realising LI\_XLA

LI\_XLA requests are realised using ETSI TS 103 221-1 [7] to transport the LocationAcquisitionRequest and LocationAcquisitionResponse messages (which are derived from X1RequestMessage and X1ResponseMessage respectively, as defined in ETSI TS 103 221-1 [7]), see Annex I. The LocationAcquisitionRequest message is populated as follows:

Table 5.12.2.1-1: LocationAcquisitionRequest representation for an XLA request

|  |  |  |
| --- | --- | --- |
| Field | Description | M/C/O |
| RequestValues | Set to the target identifier specified in the LI\_HILA request (see clause 5.11.2). | M |
| ReqCurrentLoc | Indicates whether the current location of the UE is requested.  If set to true, the LARF shall:  - in case of the EPC, invoke the Insert Subscriber Data Procedure with the IDR-Flags with the "EPS Location Information Request" and the "Current Location Request" bit set (TS 29.272 [108] clause 5.2.2.1.2) at the MME, as described in clause 7.3.5.4.2.  - in case of the 5GC, invoke a ProvideLocationInfo service operation (see TS 29.518 [16] clause 5.5.2.4) as described in clause 7.3.5.4.3.  If set to false, the LARF shall use the location information in the UE context at the MME/AMF.  This parameter shall be set to true if the request received over LI\_HILA had the ReqCurrentLoc flag set and shall be set to false if the request received over LI\_HILA did not have the ReqCurrentLoc flag. | M |
| HILADelivery | Based on the information received over the LI\_HI1 interface (see 5.4.3). If set, the LARF shall return the location information to the LAF (see NOTE). | C |
| HI2Delivery | Based on the information received from the LI\_HI1 interface (see 5.4.3). If present, the format shall be as defined in table 5.12.2.1-2 (See NOTE). | C |
| NOTE: At least one delivery method is required | | |

Table 5.12.2.1-2: HI2Delivery structure

|  |  |  |
| --- | --- | --- |
| Field | Description | M/C/O |
| XID | The value shall be used by the LARF to fill the XID field of the X2 PDUs. The value shall be the same as the one provisioned on the MDF2 (see clause 7.3.5.6.2). | C |
| ListOfDestinations | Delivery endpoints for LI\_X2\_LA for the LARF in the MME/AMF. This field shall be present unless the delivery details are known via other means. | C |

Successful LI\_XLA responses are returned using the LocationAcquisitionResponse message. Error conditions are reported using the normal error reporting mechanisms described in ETSI TS 103 221-1 [7].

LI\_XLA query responses are represented in XML following the LocationAcquisitionResponse schema (see Annex I). If delivery via the LI\_HILA was specified, the fields of the LocationAcquisitionResponse record shall be populated as described in clause 5.11.2.3. If delivery via the LI\_HI2 was specified in the original request, the LARF shall leave the LocationAcquisitionResponse record field unpopulated.

## \*\*\*\* NEXT CHANGE (MAIN DOCUMENT) \*\*\*

##### 6.3.2.2.5 Tracking Area/EPS Location update

When the reporting of location information is authorised, the IRI-POI in the MME shall generate an xIRI containing an MMELocationUpdate record each time the IRI-POI present in an MME detects that the target UE location is updated due to target UE mobility or as a part of an MME service procedure. The generation of such separate xIRI is not required if the updated UE location information is obtained as a part of a procedure producing some other xIRIs (e.g. mobility registration). In that case the location information is included into the respective xIRI.

In addition to the Tracking Area Update described in TS 23.401 [50], clause 5.3.3, the UE mobility events resulting in generation of an MMELocationUpdate xIRI include the *S1 Path Switch Request* (*intra E-UTRAN handover* *X2 based handover* procedure described in TS 23.401 [50] clause 5.5.1.1) and the *S1 Handover Notify* (*Intra E-UTRAN S1 based handover* procedure described in TS 23.401 [50] clause 5.5.1.2).

The MMELocationUpdate xIRI is also generated when the MME receives an E-UTRAN S1AP *ERAB Modification Indication* message as a result of Dual Connectivity activation/release for the target UE, as described in TS 37.340 [37] clause 10.

Based on regulatory requirements and operator policy, the location information obtained by the MME from E-UTRAN or the E-SMLC in the course of some service operations may result in the generation of the MMELocationUpdate xIRI record. Additionally, the IRI-POI in the MME shall capture the location information in the scenarios described in TS 23.271 [52] clause 4.4.2. Also, in the case of Mobile Originated LCS service invoked by the target, the location information may be derived from the Location Service Response sent to the target UE via the MME (see TS 23.271 [52] clause 9.2.6).

Optionally, based on regulatory and operator policy, other MME messages that do not generate separate xIRI but carry location information such as emergency services or LCS may trigger the generation of an MMELocationUpdate xIRI record.

The MMELocationUpdate record is also used by LARF to deliver location acquisition responses to MDF2, as described in clause 7.3.5.6. For the responses to location acquisition requests initiated by LARF, as described in TS 33.127 [5] the MMELocationUpdate xIRIs shall not be generated.

Table 6.3.2-5: Payload for MMELocationUpdate record

|  |  |  |
| --- | --- | --- |
| Field name | Description | M/C/O |
| iMSI | iMSI associated with the location update. | M |
| iMEI | iMEI associated with the location update, if available. | C |
| mSISDN | mSISDN associated with the location update, if available as part of the subscription profile. | C |
| gUTI | GUTI assigned during the location update, if available, see TS 24.301 [50]. | C |
| location | Updated location information determined by the network. Depending on the service or message type from which the location information is extracted, it may be encoded in several forms (Annex A). | M |
| oldGUTI | GUTI used to initiate the location update, if available, see TS 24.301 [50]. | C |
| sMSServiceStatus | Indicates the availability of SMS Services. Shall be provided if present in the TRACKING AREA UPDATE ACCEPT. | C |

## \*\*\*\* NEXT CHANGE (MAIN DOCUMENT) \*\*\*

#### 7.3.5.4 Location acquisition procedure at the LARF

##### 7.3.5.4.1 General description

Upon the receipt of a location acquisition request over LI\_XLA, the LARF shall first check that the UE is registered at the MME/AMF. If it is registered the LARF will check the UE context at the MME/AMF to see if the current location for the UE is known.

The LARF/MME/AMF shall override any user consent, privacy and paging restrictions concerned with location acquisition that may apply to the target UE. The LARF/MME/AMF shall ensure that overriding these restrictions does not result in additional detectability issues.

##### 7.3.5.4.2 Location acquisition procedure at the LARF in case of EPC

The procedure is as follows:

- If the ReqCurrentLoc parameter (see table 5.12.2.1-1) is set to true in the location acquisition request message received over LI\_XLA, the LARF shall invoke the Insert Subscriber Data procedure, with the IDR-Flags with the "EPS Location Information Request" bit and the "Current Location Request" bit set (TS 29.272 [108] clause 5.2.2.1.2) using the information received in the location acquistion request message.

##### - If the ReqCurrentLoc parameter (see table 5.12.2.1-1) is set to false in the location acquisition request message received over LI\_XLA, the LARF shall use the location information in the UE context at the MME to generate and deliver a location acquisition response based on the provisioned delivery method as described in clauses 7.3.5.5 and 7.3.5.6.7.3.5.4.3 Location acquisition procedure at the LARF in case of 5GC

The procedure is as follows:

- If the ReqCurrentLoc parameter (see table 5.12.2.1-1) is set to true in the location acquisition request message received over LI\_XLA, the LARF shall invoke a ProvideLocationInfo service operation in the AMF (see TS 29.518 [22] clause 5.5.2.4) using the information received in the location acquistion request message to generate the RequestLocInfo parameters. The LARF shall set the reqCurrentLoc parameter of the RequestLocInfo IE to true (see TS 29.518 [22] clause 5.5.2.4).

- If the ReqCurrentLoc parameter (see table 5.12.2.1-1) is set to false in the location acquisition request message received over LI\_XLA, the LARF shall use the location information in the UE context at the AMF to generate and deliver a location acquisition response based on the provisioned delivery method as described in clauses 7.3.5.5 and 7.3.5.6.

## \*\*\*\* NEXT CHANGE (MAIN DOCUMENT) \*\*\*

##### 7.3.5.6.1 Provisioning of the MDF2

The MDF2 listed as the delivery endpoint for xIRI generated by the LARF in the MME/AMF shall be provisioned over LI\_X1 by the LIPF using the X1 protocol as described in clause 5.2.2 prior to issuing of LI\_XLA requests for the given target. Table 7.3.5.6.2-1 shows the minimum details of the LI\_X1 ActivateTask message used for provisioning the MDF2.

The MDF2 shall support the following target identifier formats in the ETSI TS 103 221-1 [7] messages (or equivalent if ETSI TS 103 221-1 [7] is not used):

- SUPIIMSI.

- SUPINAI.

- GPSIMSISDN.

- GPSINAI.

- IMSI.

- MSISDN

Table 7.3.5.6.1-1: ActivateTask message for MDF2

|  |  |  |
| --- | --- | --- |
| ETSI TS 103 221-1 [7] field name | Description | M/C/O |
| XID | XID assigned by LIPF. | M |
| TargetIdentifiers | One or more of the target identifiers listed in the paragraph above. | M |
| DeliveryType | Set to “X2Only”. (Ignored by the MDF2). | M |
| ListOfDIDs | Delivery endpoints of LI\_HI2. These delivery endpoints shall be configured using the CreateDestination message as described in ETSI TS 103 221-1 [7] clause 6.3.1 prior to first use. | M |
| ListOfMediationDetails | Sequence of Mediation Details, see table 7.3.5.6.1-2. | M |

Table 7.3.5.6.1-2: Mediation Details for MDF2

|  |  |  |
| --- | --- | --- |
| ETSI TS 103 221-1 [7] field name | Description | M/C/O |
| LIID | Lawful Intercept ID associated with the task. | M |
| DeliveryType | Set to “HI2Only”. | M |
| ListOfDIDs | Details of where to send the IRI for this LIID. Shall be included if deviation from the ListofDIDs in the ActivateTask message is necessary. If included, the ListOfDIDs in the Mediation Details shall be used instead of any delivery destinations authorised by the ListOfDIDs field in the ActivateTask Message. | C |

## \*\*\*\* NEXT CHANGE (MAIN DOCUMENT) \*\*\*

##### 7.3.5.6.2 LI\_X2\_LA delivery

The LARF shall generate the MMELocationUpdate xIRI in case of the EPC or the AMFLocationUpdate xIRI in case of the 5GC only when it detects that MME/AMF returns the location for the corresponding LARF transaction.

In case of the 5GC, the acquisition response shall be given as a AMFLocationUpdate xIRI record. In case of the EPC, the acquisition response shall be given as an MMELocationUpdate xIRI record. The XID of the xIRI record shall be set to the XID specified in the original request (see clause 5.12.2).

## \*\*\*\* END OF MAIN DOCUMENTS CHANGES \*\*\*

## \*\*\*\* START OF ATTACHMENT CHANGES \*\*\*

## \*\*\*\* START OF FIRST CHANGE (ATTACHMENT urn\_3GPP\_ns\_li\_3GPPXLAExtensions.xsd) \*\*\*

<?xml version="1.0" encoding="utf-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"

xmlns="urn:3GPP:ns:li:3GPPXLAExtensions:r18:v1"

xmlns:x1="http://uri.etsi.org/03221/X1/2017/10"

xmlns:common="http://uri.etsi.org/03280/common/2017/07"

xmlns:liqr="urn:3GPP:ns:li:3GPPLIQueryExtensions:r18:v1"

targetNamespace="urn:3GPP:ns:li:3GPPXLAExtensions:r18:v1"

elementFormDefault="qualified">

<xs:import namespace="http://uri.etsi.org/03221/X1/2017/10"/>

<xs:import namespace="http://uri.etsi.org/03280/common/2017/07"/>

<xs:import namespace="urn:3GPP:ns:li:3GPPLIQueryExtensions:r18:v1"/>

<xs:complexType name="LocationAcquisitionRequest">

<xs:complexContent>

<xs:extension base="liqr:LIQueryRequest">

<xs:sequence>

<xs:element name="ReqCurrentLoc" type="xs:boolean" default="false" />

<xs:element name="HILADelivery" type="xs:boolean" minOccurs="0" />

<xs:element name="HI2Delivery" type="MDF2DeliveryStructure" minOccurs="0" />

</xs:sequence>

</xs:extension>

</xs:complexContent>

</xs:complexType>

<xs:complexType name="LocationAcquisitionResponse">

<xs:complexContent>

<xs:extension base="x1:X1ResponseMessage">

<xs:sequence>

<xs:element name="ResponseDetails" type="LocationResponseDetails" minOccurs="0"/>

</xs:sequence>

</xs:extension>

</xs:complexContent>

</xs:complexType>

<xs:complexType name="MDF2DeliveryStructure">

<xs:sequence>

<xs:element name="XID" type="x1:XId" />

<xs:element name="ListOfDestinations" type="ListOfDestinations" />

</xs:sequence>

</xs:complexType>

<xs:element name="LIHILAResponse" type="LocationResponseDetails"/>

<xs:complexType name="ListOfDestinations">

<xs:sequence>

<xs:element name="Destination" type="x1:DestinationDetails" maxOccurs="unbounded"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="LocationResponseDetails">

<xs:sequence>

<xs:element name="LocationOutcomes" type="LocationOutcomes" minOccurs="0"/>

<xs:element name="EPCLocationOutcomes" type="EPCLocationOutcomes" minOccurs="0"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="LocationOutcomes">

<xs:sequence>

<xs:element name="LocationOutcome" type="LocationOutcome" maxOccurs="unbounded"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="EPCLocationOutcomes">

<xs:sequence>

<xs:element name="EPCLocationOutcome" type="EPCLocationOutcome" maxOccurs="unbounded"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="LocationOutcome">

<xs:sequence>

<xs:element name="SUPI" type="liqr:SUPI"/>

<xs:element name="GPSI" type="liqr:GPSI" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="Location" type="liqr:TS29518Location" minOccurs="0"/>

<xs:element name="FailureCause" type="liqr:ErrorInformation" minOccurs="0"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="EPCLocationOutcome">

<xs:sequence>

<xs:element name="IMSI" type="common:IMSI"/>

<xs:element name="MSISDNs" type="common:InternationalE164" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="Location" type="liqr:TS29272Location" minOccurs="0"/>

<xs:element name="FailureCause" type="liqr:ErrorInformation" minOccurs="0"/>

</xs:sequence>

</xs:complexType>

</xs:schema>

## \*\*\*\* END OF CHANGES (ATTACHMENT urn\_3GPP\_ns\_li\_3GPPXLAExtensions.xsd) \*\*\*

## \*\*\*\* START OF FIRST CHANGE (ATTACHMENT urn\_3GPP\_ns\_li\_3GPPLIQueryExtensions.xsd) \*\*\*

<?xml version="1.0" encoding="utf-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"

xmlns="urn:3GPP:ns:li:3GPPLIQueryExtensions:r18:v1"

xmlns:x1="http://uri.etsi.org/03221/X1/2017/10"

xmlns:common="http://uri.etsi.org/03280/common/2017/07"

xmlns:etsi103120common="http://uri.etsi.org/03120/common/2016/02/Common"

targetNamespace="urn:3GPP:ns:li:3GPPLIQueryExtensions:r18:v1"

elementFormDefault="qualified">

<xs:import namespace="http://uri.etsi.org/03221/X1/2017/10"/>

<xs:import namespace="http://uri.etsi.org/03280/common/2017/07"/>

<xs:import namespace="http://uri.etsi.org/03120/common/2016/02/Common"/>

<xs:complexType name="LIQueryRequest">

<xs:complexContent>

<xs:extension base="x1:X1RequestMessage">

<xs:sequence>

<xs:element name="RequestDetails" type="RequestDetails"/>

<xs:element name="Flags" type="TaskFlags"/>

</xs:sequence>

</xs:extension>

</xs:complexContent>

</xs:complexType>

<xs:complexType name="RequestDetails">

<xs:sequence>

<xs:element name="Type" type="DictionaryEntry"/>

<xs:element name="ObservedTime" type="common:QualifiedDateTime"/>

<xs:element name="RequestValues" type="RequestValues"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="TaskFlags">

<xs:sequence>

<xs:element name="TaskFlag" type="etsi103120common:DictionaryEntry" minOccurs="0" maxOccurs="unbounded" />

</xs:sequence>

</xs:complexType>

<xs:complexType name="RequestValues">

<xs:sequence>

<xs:element name="RequestValue" type="RequestValue" maxOccurs="unbounded"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="RequestValue">

<xs:sequence>

<xs:element name="FormatType" type="FormatType"/>

<xs:element name="Value" type="common:LongString"/>

</xs:sequence>

</xs:complexType>

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<xs:element name="FormatOwner" type="common:ShortString"/>

<xs:element name="FormatName" type="common:ShortString"/>

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<xs:complexType name="ErrorResponse">

<xs:complexContent>

<xs:extension base="x1:X1ResponseMessage">

<xs:sequence>

<xs:element name="errorInformation" type="ErrorInformation"/>

</xs:sequence>

</xs:extension>

</xs:complexContent>

</xs:complexType>

<xs:complexType name="ErrorInformation">

<xs:sequence>

<xs:element name="errorCode" type="xs:integer" minOccurs="0"/>

<xs:element name="errorDescription" type="xs:string" />

<xs:element name="errorDetails" type="TS29571ProblemDetails" minOccurs="0"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="DictionaryEntry">

<xs:sequence>

<xs:element name="Owner" type="common:ShortString"/>

<xs:element name="Name" type="common:ShortString"/>

<xs:element name="Value" type="common:ShortString"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="SUPI">

<xs:choice>

<xs:element name="SUPIIMSI" type="common:SUPIIMSI"/>

<xs:element name="SUPINAI" type="common:SUPINAI"/>

</xs:choice>

</xs:complexType>

<xs:simpleType name="SUCI">

<xs:restriction base="xs:string"/>

</xs:simpleType>

<xs:simpleType name="FiveGGUTI">

<xs:restriction base="xs:string"/>

</xs:simpleType>

<xs:complexType name="PEI">

<xs:choice>

<xs:element name="PEIIMEI" type="common:PEIIMEI"/>

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<xs:element name="PEIMAC" type="common:MACAddress"/>

</xs:choice>

</xs:complexType>

<xs:complexType name="FiveGSTAIList">

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</xs:sequence>

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<xs:element name="MNC" type="MNC"/>

<xs:element name="TAC" type="TAC"/>

<xs:element name="NID" type="NID" minOccurs="0"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="GPSI">

<xs:choice>

<xs:element name="GPSIMSISDN" type="common:GPSIMSISDN"/>

<xs:element name="GPSINAI" type="common:GPSINAI"/>

</xs:choice>

</xs:complexType>

<xs:simpleType name="MCC">

<xs:restriction base="xs:string">

<xs:pattern value="[0-9]{3}"></xs:pattern>

</xs:restriction>

</xs:simpleType>

<xs:simpleType name="MNC">

<xs:restriction base="xs:string">

<xs:pattern value="[0-9]{2,3}"></xs:pattern>

</xs:restriction>

</xs:simpleType>

<xs:simpleType name="TAC">

<xs:restriction base="xs:string">

<xs:pattern value="([A-Fa-f0-9]{2}){2,3}"></xs:pattern>

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</xs:simpleType>

<xs:simpleType name="NID">

<xs:restriction base="xs:string">

<xs:pattern value="[A-Fa-f0-9]{11}"></xs:pattern>

</xs:restriction>

</xs:simpleType>

<xs:simpleType name="TS29571ProblemDetails">

<xs:restriction base="xs:base64Binary"></xs:restriction>

</xs:simpleType>

<xs:simpleType name="TS29518Location">

<xs:restriction base="xs:base64Binary"></xs:restriction>

</xs:simpleType>

<xs:simpleType name="TS29272Location">

<xs:restriction base="xs:base64Binary"></xs:restriction>

</xs:simpleType>

<xs:complexType name="NCGI">

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<xs:element name="PLMNID" type="PLMNID"/>

<xs:element name="NRCellID" type="NRCellID"/>

<xs:element name="NID" type="NID" minOccurs="0"/>

<xs:element name="NCGITime" type="common:QualifiedMicrosecondDateTime"/>

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<xs:complexType name="PLMNID">

<xs:sequence>

<xs:element name="MCC" type="MCC"/>

<xs:element name="MNC" type="MNC"/>

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<xs:simpleType name="NRCellID">

<xs:restriction base="xs:string">

<xs:pattern value="([A-Fa-f0-9]{9})"></xs:pattern>

</xs:restriction>

</xs:simpleType>

</xs:schema>

## \*\*\*\* END OF CHANGES (ATTACHMENT urn\_3GPP\_ns\_li\_3GPPLIQueryExtensions.xsd) \*\*\*

## \*\*\*\* END OF ATTACHMENT CHANGES \*\*\*

## \*\*\*\* END OF ALL CHANGES \*\*\*