**3GPP TSG- Meeting #**

**, , -**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **x** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The cell identities reported in the identity and location query and response structure does not include cell site information. The objective of this change is to provide a structure for the IQF to deliver cell site information. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Adding structure in the QueryExtentions xsd to enable the IQF to deliver cell site information related to the reported cell identity. Added a flag in the LI\_HIQR to request this new information. An editorial change in 7.3.3.2.1 to correct a reference. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The query architecture will be unable to meet the requirements to provide cell site information when a cell identity is reported. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.7.2.2, 5.7.2.3, 7.3.3.2.1, Annex L (urn\_3GPP\_ns\_li\_3GPPLIQueryExtensions.xsd), Attachment TS33128Dictionaries.xml | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 has the following changes in the forge:  Merge Request: [!268](https://forge.3gpp.org/rep/sa3/li/-/merge_requests/268)  Commit Hash: [2ae801ed5acfc36158e8e1b6da9634bfd6fc56bd](https://forge.3gpp.org/rep/sa3/li/-/merge_requests/268/diffs?commit_id=2ae801ed5acfc36158e8e1b6da9634bfd6fc56bd) | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | s3i240448 | | | | | | | | |

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

#### 5.7.2.2 Request parameters

The RequestValues field shall contain one of the following:

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

- SUCI, given as defined in table 5.7.2-4 below.

- 5G-S-TMSI, given as defined in table 5.7.2-4 below.

- 5G-GUTI, given as defined in table 5.7.2-4 below.

If the RequestType is "OngoingIdentityAssociation" (see table 5.7.2-3), SUPI is the only valid identity type in the RequestValues field. If the RequestType is "OngoingIdentityAssociation" and any other identity type is provided, the IQF shall signal the error by setting the LDTaskObject Status to "Invalid" (see ETSI TS 103 120 [6] clause 8.3.3).

If a temporary identity is provided, the following may also be present as RequestValues:

- NRCellIdentity, given as defined in table 5.7.2-4 below.

If a temporary identity is provided, the following shall also be present as RequestValues:

- TrackingAreaCode, given as defined in table 5.7.2-4 below.

The following RequestValue FormatTypes (see ETSI TS 103 120 [6] clause 8.3.5.4) are defined (which are not otherwise defined elsewhere).

Table 5.7.2-4: RequestValue FormatType extensions for LI\_HIQR Requests

| Format Owner | Format Name | Description | Format |
| --- | --- | --- | --- |
| 3GPP | SUCI | Subscription Concealed Identifier as per TS 23.003 [19] clause 2.2B. | TS 29.509 [45] clause 6.1.6.3.2 |
| 3GPP | 5GSTMSI | Shortened form of the 5G-GUTI as defined in TS 23.003 [19] clause 2.11. Given as a hyphen-separated concatenation of:  - The string "5gstmsi".  - The AMF Set ID given as three hexadecimal digits (10 bits).  - The AMF Pointer given as two hexadecimal digits (6 bits).  - The 5G-TMSI given as eight hexadecimal digits (32 bits). | Matches regular expression:  ^(5gstmsi-([0-3][0-9A-Fa-f]{2})-([0-3][0-9A-Fa-f])-([0-9A-Fa-f]{8}))$ |
| 3GPP | 5GGUTI | As defined in TS 23.003 [19] clause 2.10. Given as a hyphen separated concatenation of:  - The string "5gguti".  - MCC given as a three decimal digits.  - MNC given as a two or three digit decimal digits.  - AMF Region ID given as two hexadecimal digits (8 bits).  - The AMF Set ID, AMF Pointer and 5G-TMSI as defined above in 5GSTMSI. | Matches regular expression:  ^(5gguti-([0-9]{3})-([0-9]{2,3})-([0-9A-Fa-f]{2})-([0-3][0-9A-Fa-f]{2})-([0-3][0-9A-Fa-f])-([0-9A-Fa-f]{8}))$ |
| 3GPP | NRCellIdentity | NR Cell ID (NCI), as defined in TS 23.003 [19] clause 19.6A. | TS 29.571 [17] clause 5.4.2 |
| 3GPP | TrackingAreaCode | Tracking area code as defined in TS 23.003 [19] clause 19.4.2.3. | TS 29.571 [17] clause 5.4.2 |

The LDTaskObject may also contain LDTaskFlags (see table 5.7.2-4A). If the IncludeNCGIInResponse LDTaskFlag is present for such a query, then the response shall contain the NR Cell Global Identity associated with the SUPI at the time of association (see table 5.7.2-5). If additional CGIs are available at the IEF when the identity association is reported, the additional CGIs that are available shall be delivered in the AdditionalCGIs field in the response (see table 5.7.2-5).

Table 5.7.2-4A: LDTaskFlags for LI\_HIQR Requests

|  |  |
| --- | --- |
| Dictionary Owner | Dictionary Name |
| 3GPP | LIHIQRFlags |
| Defined DictionaryEntries | |
| Value | Meaning |
| IncludeNCGIInResponse | A request for returning the NCGI and additional CGIs in the response. |
| IncludeCSIInResponse | If the IncludeNCGIInResponse flag is set to true, the IncludeCSIInResponse flag may also be set to true to return cell site information (see clause 5.7.2.3). |

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

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

#### 5.7.2.3 Response structure

The LI\_HIQR request is used to generate a request to the ICF over LI\_XQR (see clause 5.8). The response received over LI\_XQR is then transformed into an LI\_HIQR response.

LI\_HIQR responses and updates are represented as XML following the IdentityResponseDetails type definition (see Annex E).

When an NCGI is present within a response details structure and the IncludeCSIInResponse flag is set to true in the LI\_HIQR request, the IQF shall retrieve the cell site information and associated cell radio related information (e.g. OAM system or CSP cell database information) for the reported cell and deliver the same to the LEMF within the LI\_HIQR response message.

NOTE: For cells with mobility, the CSP should ensure that the cell site information (e.g. cell site location) reported correlates to the observed NCGI and NCGItime that is in the IdentityAssociationRecord.

Responses and updates are delivered within a DELIVER Request (see ETSI TS 103 120 [6] clause 6.4.10) containing a DeliveryObject (see ETSI TS 103 120 [6] clause 10).

IdentityResponseDetails contain IdentityAssociation records. The fields of each IdentityAssociationRecord shall be set as follows:

Table 5.7.2-5: IdentityAssociationRecord

|  |  |  |
| --- | --- | --- |
| Field | Value | M/C/O |
| SUPI | SUPI associated with the provided identity. | M |
| SUCI | SUCI associated with the provided identity, if available. | C |
| 5G-GUTI | 5G GUTI associated with the provided identity, provided in the form given in the request (see table 5.7.2-4). | M |
| PEI | PEI associated with the provided identity during the association period, if known. | C |
| AssociationStartTime | The time that the association between the SUPI and the temporary identity became valid. (see NOTE). | M |
| AssociationEndTime | The time that the association between the SUPI and the temporary identity ceased to be valid. Shall be omitted if the association is still valid (see NOTE). | C |
| FiveGSTAIList | List of tracking areas associated with the registration area within which the UE was or is registered in the lifetime of the reported association, if available. See clause 7.6.2.4 for details. | C |
| GPSI | GPSI associated with the provided identity during the association period, if known. | C |
| NCGI | NR Cell Global Identity associated with the SUPI at the time of association between the SUPI and the temporary identity. Shall be sent if the "IncludeNCGIInResponse" flag is set. | C |
| AdditionalCGIs | The additional CGIs that are associated with the SUPI and present at the IEF at the time of the reported association. Shall be sent if the "IncludeNCGIInResponse" flag is set and if additional CGIs are available at the IEF. | C |
| NOTE: The AssociationStartTime and AssociationEndTime represent the lifespan of the SUPI to 5G-GUTI association. When a SUCI is present, the AssociationStartTime also represents the time of the SUCI's validity. | | |

If no association is found which matches the criteria provided in the LI\_XQR request, then the LI\_XQR response contains zero IdentityAssociationRecords. Similarly, the LI\_HIQR response contains zero IdentityAssociationRecords.

For responses or updates providing a currently valid SUPI to 5G-GUTI identity association, the AssociationEndTime shall be absent. The AssociationStartTime shall indicate when the 5G-GUTI became associated with the SUPI. The SUCI field shall be populated if it was present in the IEF record for the association (see clause 6.2.2A.2.1). The PEI and TAI List fields may be populated as well, see clause 7.6.2.4 for details.

In the case of ongoing updates, the presence of the AssociationEndTime indicates the SUPI to 5G-GUTI identity disassociation. Such updates shall only happen when no new association is replacing the outgoing one.

The DeliveryObject Reference field (see ETSI TS 103 120 [6] clause 10.2.1) shall be set to the Reference of the LDTaskObject used in the request, to provide correlation between request and response. The DeliveryID, SequenceNumber and LastSequence fields shall be set according to ETSI TS 103 120 [6] clause 10.2.1.

The content manifest (see ETSI TS 103 120 [6] clause 10.2.2) shall be set to indicate the present document, using the following Specification Dictionary extension.

Table 5.7.2-6: Specification Dictionary

|  |  |
| --- | --- |
| Dictionary Owner | Dictionary Name |
| 3GPP | ManifestSpecification. |
|  | |
| Defined DictionaryEntries | |
| Value | Meaning |
| LIHIQRResponse | The delivery contains IdentityResponseDetails (see Annex E) |

## \*\*\*\* END OF SECOND CHANGE (MAIN DOCUMENT) \*\*\*\*

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

##### 7.3.3.2.1 Simple data types for location

Table 7.3.3.2.1-1: Simple Types for Location

| Type name | Type definition | Description |
| --- | --- | --- |
| AgeOfLocation | INTEGER (0..32767) | Integer value of the age of the location information or location estimate, expressed in minutes.  Value "0" indicates that the location information was obtained after a successful paging procedure for Active Location Retrieval when the UE is in idle mode or after a successful NG-RAN location reporting procedure with the gNB when the UE is in connected mode.  Any other value than "0" indicates that the location information is the last known one.  See TS 29.572 [24] table 6.1.6.3.2-1 and TS 29.571 [17] tables 5.4.4.8-1, 5.4.4.9-1, 5.4.4.52-1 and 5.4.4.53-1. |
| Altitude | UTF8String | Contains a string representation of the altitude reported in meters. |
| Angle | INTEGER (0..360) | Integer value of the angle in degrees. |
| BarometricPressure | INTEGER (30000..115000) | This IE specifies the measured uncompensated atmospheric pressure in units of Pascal (Pa).  Minimum: 30000. Maximum: 115000. Described in TS 29.572 [24] clause 6.1.6.3.2. |
| BSSID | UTF8String | The BSSID of the access point being reported. |
| CellID | OCTET STRING (SIZE (2)) | Cell Identity, defined in TS 23.003 [19] clause 4.3.1. |
| CellPortionID | INTEGER (0..4095) | This parameter gives the current Cell Portion location of the target UE. The Cell Portion ID is the unique identifier for a cell portion within a cell. Defined in TS 29.171 [54] clause 7.4.31. |
| CivicAddressBytes | OCTET STRING | Contains the original binary data (i.e. the value of the YAML field after the base64 encoding is removed). See 29.571 [17] tables 5.4.4.64-2 and 5.4.4.64-1 for additional details. |
| Confidence | INTEGER (0..100) | Indicates the confidence of the location in percentage. |
| EPSUserLocationInformation | OCTET STRING | An extendable IE derived from the User Location Information IE (ULI) defined in TS 29.274 [87] clause 8.21. |
| EUTRACellID | BIT STRING (SIZE(28)) | The E-UTRA Cell Identity being reported. The EUTRACellID is derived from the E-UTRA Cell Identity parameter of the E-UTRA CGI defined in TS 38.413 [23] clause 9.3.1.9. |
| GCI | UTF8String | Global Cable Identifier uniquely identifying the line connecting the 5G-BRG or FN-BRG to the 5GS. See TS 23.003 [19] clause 28.15.4. See TS 29.571 [17] table 5.4.2-1 for encoding. |
| GeodeticInformationOctet | OCTET STRING (SIZE (10)) | Contains the geodetic information of the user. Derived from the GeodeticInformation type defined in TS 29.002 [47] clause 17.7.1. |
| GeographicalInformationOctet | OCTET STRING (SIZE (8)) | Contains the geographical information of the user. Derived from the GeographicalInformation type defined in TS 29.002 [47] clause 17.7.1. |
| GERANGANSSPositioningData | OCTET STRING | Contains the encoded content of the "GERAN-GANSS-Positioning-Data" parameter defined in TS 29.172 [53] clause 7.4.31. |
| GERANPositioningData | OCTET STRING | Contains the encoded content of the "GERAN-Positioning-Data" parameter defined in TS 29.172 [53] clause 7.4.30. |
| GLI | OCTET STRING (SIZE(0..150)) | Global Line Identifier uniquely identifying the line connecting the 5G-BRG or FN-BRG to the 5GS. See TS 23.003 [19] clause 28.16.4. |
| GNbID | BIT STRING (SIZE(22..32)) | The gNodeB identifier being reported. The GNbID is derived from the gNB ID parameter of the Global gNB ID defined in TS 38.413 [23] clause 9.3.1.6. |
| HFCNodeID | UTF8String | Contains the identifier of the HFC node Id as described in TS 29.571 [17] clause 5.4.4.36 and table 5.4.2-1. It is provisioned by the wireline operator as part of wireline operations and may contain up to six characters. |
| HorizontalSpeed | UTF8String | Contains the string representation of the horizontal speed being reported, expressed in kilometres per hour. See TS 29.572 [24] table 6.1.6.3.2-1. |
| InnerRadius | INTEGER (0..327675) | Indicates the inner radius of an ellipsoid arc from 0 to 327675 meters. |
| MethodCode | INTEGER (16..31) | This parameter shall carry the decimal code value of the network specific positioning method as described in TS 29.572 [24] clause 6.1.6.2.15. |
| N3IWFIDNGAP | BIT STRING (SIZE (16)) | The N3IWFIDNGAP type is used to report the N3IWF Identity received over NGAP. The N3IWFIDNGAP type is derived from the data present in the N3IWF ID parameter of the Global N3IWFID defined in TS 38.413 [23] clause 9.3.1.57. |
| N3IWFIDSBI | UTF8String | The N3IWFIDSBI type is used to report the N3IWF Identity received over SBI. The N3IWFIDSBI type is derived from the data present in the N3IWFID parameter of the GloalRanNodeID defined in TS 29.571[17] clause 5.4.4.28. |
| NRCellID | BIT STRING (SIZE(36)) | The New Radio Cell Identity being reported. The NRCellID is derived from the NR Cell Identity parameter of the NR CGI defined in TS 38.413 [23] clause 9.3.1.7. |
| OGCURN | UTF8String | Open Geospatial Consortium URN, reference datum used for a latitude and longitude. The reference datum identity shall be specified as an Open Geospatial Consortium URN, as defined in OGC 05-010 [35]. |
| Orientation | INTEGER (0..180) | Integer value of the orientation angle, expressed in degrees. Encoded as per TS 29.572 [24] table 6.1.6.3.2-1. |
| SIPAccessInfo | UTF8String | Contains the contents of the access-info parameter of the specified Header Field of the SIP Message. See TS 24.229 [74] clauses 7.2A.4.2 and 7.2A.4.3. |
| SIPCellularAccessInfo | UTF8String | Contains the contents of the cellular-access-info parameter of the specified Header Field of the SIP Message. See TS 24.229 [74] clause 7.2.15. |
| SpeedUncertainty | UTF8String | Contains the string representation of the speed uncertainty being reported, expressed in kilometres per hour. See TS 29.572 [24] table 6.1.6.3.2-1. |
| SSID | UTF8String | The SSID of the access point being reported. |
| TNGFID | UTF8String | This represents the identifier of the TNGF ID. The TNGFID is derived from the TngfId parameter in TS 29.571 [17] clause 5.4.4.28 and table 5.4.2-1. |
| Uncertainty | INTEGER (0..127) | This type has been deprecated and shall always be set to 0. |
| UncertaintySBI | UTF8String | Contains a string representation of the uncertainty reported in meters. See TS 29.572 [24] table 6.1.6.3.2-1. |
| UTRANAdditionalPositioningData | OCTET STRING | Contains the encoded content of the "UTRAN-Additional-Positioning-Data" parameter defined in TS 29.172 [53] clause 7.4.63. |
| UTRANGANSSPositioningData | OCTET STRING | Contains the encoded content of the "UTRAN-GANSS-Positioning-Data" parameter defined in TS 29.172 [53] clause 7.4.34. |
| UTRANPositioningData | OCTET STRING | Contains the encoded content of the "UTRAN-Positioning-Data" parameter defined in TS 29.172 [53] clause 7.4.33. |
| VerticalSpeed | UTF8String | Contains the string representation of the vertical speed being reported, expressed in kilometres per hour. See TS 29.572 [24] table 6.1.6.3.2-1. |
| WAGFID | UTF8String | This represents the identifier of the W-AGF ID. The WAGFID is derived from the WAgfId parameter in TS 29.571 [17] clause 5.4.4.28 and table 5.4.2-1. |

## \*\*\*\* END OF THIRD CHANGE (MAIN DOCUMENT) \*\*\*\*

## \*\*\*\* START OF FIRST CHANGE (ATTACHMENTS TS33128Dictionaries.xml) \*\*\*\*

---a/33128/r18/TS33128Dictionaries.xml  
+++b/33128/r18/TS33128Dictionaries.xml

@@ -70,6 +70,10 @@

70 70 <Value>IncludeNCGIInResponse</Value>

71 71 <Meaning>A request for returning the NCGI and additional CGIs in the response.</Meaning>

72 72 </DictionaryEntry>

73 + <DictionaryEntry>

74 + <Value>IncludeCSIInResponse</Value>

75 + <Meaning>A request for returning CellSupplementalInformation in the response.</Meaning>

76 + </DictionaryEntry>

73 77 </DictionaryEntries>

74 78 </Dictionary>

75 79 <Dictionary> <!--LIHILAFlags: see Clause 5.11.2.2 Table 5.11.2.2-1 -->

## \*\*\*\* END OF FIRST CHANGE (ATTACHMENTS TS33128Dictionaries.xml) \*\*\*\*

## \*\*\*\* START OF SECOND CHANGE (ATTACHMENTS urn\_3GPP\_ns\_li\_3GPPLIQueryExtensions.xsd) \*\*\*\*

---a/33128/r18/urn\_3GPP\_ns\_li\_3GPPLIQueryExtensions.xsd  
+++b/33128/r18/urn\_3GPP\_ns\_li\_3GPPLIQueryExtensions.xsd

@@ -163,6 +163,7 @@

163 163 <xs:element name="NRCellID" type="NRCellID"/>

164 164 <xs:element name="NID" type="NID" minOccurs="0"/>

165 165 <xs:element name="NCGITime" type="common:QualifiedMicrosecondDateTime"/>

166 + <xs:element name="CellSupplementalInformation" type="CellSupplementalInformation" minOccurs="0"/>

166 167 </xs:sequence>

167 168 </xs:complexType>

168 169

@@ -199,4 +200,316 @@

199 200 </xs:sequence>

200 201 </xs:complexType>

201 202

203 + <xs:complexType name="CellSupplementalInformation">

204 + <xs:sequence>

205 + <xs:element name="RANCGI" type="RANCGI" minOccurs="0"/>

206 + <xs:element name="CellSiteInformation" type="CellSiteInformation" minOccurs="0"/>

207 + <xs:element name="CellRadioRelatedInformation" type="CellRadioRelatedInformation" minOccurs="0"/>

208 + <xs:element name="Band" type="RFBand" minOccurs="0"/>

209 + </xs:sequence>

210 + </xs:complexType>

211 +

212 + <xs:complexType name="RANCGI">

213 + <xs:choice>

214 + <xs:element name="RANNCGI" type="NCGIWithoutAssociationTime"/>

215 + <xs:element name="CGI" type="CGI"/>

216 + </xs:choice>

217 + </xs:complexType>

218 +

219 + <xs:complexType name="CGI">

220 + <xs:sequence>

221 + <xs:element name="LAI" type="LAI"/>

222 + <xs:element name="CellID" type="CellID"/>

223 + </xs:sequence>

224 + </xs:complexType>

225 +

226 + <xs:complexType name="LAI">

227 + <xs:sequence>

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

229 + <xs:element name="LAC" type="LAC"/>

230 + </xs:sequence>

231 + </xs:complexType>

232 +

233 + <xs:simpleType name="LAC">

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

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

236 + </xs:restriction>

237 + </xs:simpleType>

238 +

239 + <xs:simpleType name="CellID">

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

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

242 + </xs:restriction>

243 + </xs:simpleType>

244 +

245 + <xs:complexType name="CellSiteInformation">

246 + <xs:sequence>

247 + <xs:element name="GeographicalCoordinates" type=" GeographicalCoordinates"/>

248 + <xs:element name="Azimuth" type="Azimuth" minOccurs="0"/>

249 + <xs:element name="OperatorSpecificInformation" type="OperatorSpecificInformation" minOccurs="0"/>

250 + </xs:sequence>

251 + </xs:complexType>

252 +

253 + <xs:simpleType name="Azimuth">

254 + <xs:restriction base="xs:integer">

255 + <xs:minInclusive value="0"/>

256 + <xs:maxInclusive value="359"/>

257 + </xs:restriction>

258 + </xs:simpleType>

259 +

260 + <xs:simpleType name="OperatorSpecificInformation">

261 + <xs:restriction base="common:LongString"/>

262 + </xs:simpleType>

263 +

264 + <xs:complexType name="GeographicalCoordinates">

265 + <xs:sequence>

266 + <xs:element name="Latitude" type="common:ShortString"/>

267 + <xs:element name="Longitude" type="common:ShortString"/>

268 + <xs:element name="MapDatumInformation" type="OGCURN" minOccurs="0"/>

269 + </xs:sequence>

270 + </xs:complexType>

271 +

272 + <xs:simpleType name="OGCURN">

273 + <xs:restriction base="common:LongString"/>

274 + </xs:simpleType>

275 +

276 + <xs:complexType name="CellRadioRelatedInformation">

277 + <xs:choice>

278 + <xs:element name="NGInformation" type="NGInformation"/>

279 + <xs:element name="F1Information" type="F1Information"/>

280 + </xs:choice>

281 + </xs:complexType>

282 +

283 + <xs:complexType name="NGInformation">

284 + <xs:sequence>

285 + <xs:element name="GlobalRANNodeID" type="GlobalRANNodeID"/>

286 + <xs:element name="RANNodeName" type="RANNodeName" minOccurs="0"/>

287 + <xs:element name="SupportedTAList" type="SupportedTAList" minOccurs="0"/>

288 + <xs:element name="ExtendedRANNodeName" type="RANNodeName" minOccurs="0"/>

289 + <xs:element name="PLMNSupportList" type="PLMNSupportList"/>

290 + <xs:element name="IABSupported" type="xs:boolean" minOccurs="0"/>

291 + </xs:sequence>

292 + </xs:complexType>

293 +

294 + <xs:complexType name="GlobalRANNodeID">

295 + <xs:sequence>

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

297 + <xs:element name="ANNodeID" type="ANNodeID"/>

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

299 + </xs:sequence>

300 + </xs:complexType>

301 +

302 + <xs:complexType name="ANNodeID">

303 + <xs:choice>

304 + <xs:element name="N3IWFID" type="N3IWFIDSBI"/>

305 + <xs:element name="GNbID" type="GNbID"/>

306 + <xs:element name="NGENbID" type="NGENbID"/>

307 + <xs:element name="ENbID" type="ENbID"/>

308 + <xs:element name="WAGFID" type="WAGFID"/>

309 + <xs:element name="TNGFID" type="TNGFID"/>

310 + </xs:choice>

311 + </xs:complexType>

312 +

313 + <xs:simpleType name="N3IWFIDSBI">

314 + <xs:restriction base="common:ShortString">

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

316 + </xs:restriction>

317 + </xs:simpleType>

318 +

319 + <xs:simpleType name="GNbID">

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

321 + <xs:pattern value="([A-Fa-f0-9]{6,32})"/>

322 + </xs:restriction>

323 + </xs:simpleType>

324 +

325 + <xs:complexType name="NGENbID">

326 + <xs:choice>

327 + <xs:element name="MacroNGENbID" type="MacroNGENbID"/>

328 + <xs:element name="ShortMacroNGENbID" type="ShortMacroNGENbID"/>

329 + <xs:element name="LongMacroNGENbID" type="LongMacroNGENbID"/>

330 + </xs:choice>

331 + </xs:complexType>

332 +

333 + <xs:simpleType name="MacroNGENbID">

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

335 + <xs:pattern value="([A-Fa-f0-9]{5,20})"/>

336 + </xs:restriction>

337 + </xs:simpleType>

338 +

339 + <xs:simpleType name="ShortMacroNGENbID">

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

341 + <xs:pattern value="([A-Fa-f0-9]{5,18})"/>

342 + </xs:restriction>

343 + </xs:simpleType>

344 +

345 + <xs:simpleType name="LongMacroNGENbID">

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

347 + <xs:pattern value="([A-Fa-f0-9]{6,21})"/>

348 + </xs:restriction>

349 + </xs:simpleType>

350 +

351 + <xs:complexType name="ENbID">

352 + <xs:choice>

353 + <xs:element name="MacroENbID" type="MacroENbID"/>

354 + <xs:element name="HomeENbID" type="HomeENbID"/>

355 + <xs:element name="ShortMacroENbID" type="ShortMacroENbID"/>

356 + <xs:element name="LongMacroENbID" type="LongMacroENbID"/>

357 + </xs:choice>

358 + </xs:complexType>

359 +

360 + <xs:simpleType name="MacroENbID">

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

362 + <xs:pattern value="([A-Fa-f0-9]{5,20})"/>

363 + </xs:restriction>

364 + </xs:simpleType>

365 +

366 + <xs:simpleType name="HomeENbID">

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

368 + <xs:pattern value="([A-Fa-f0-9]{7,28})"/>

369 + </xs:restriction>

370 + </xs:simpleType>

371 +

372 + <xs:simpleType name="ShortMacroENbID">

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

374 + <xs:pattern value="([A-Fa-f0-9]{5,18})"/>

375 + </xs:restriction>

376 + </xs:simpleType>

377 +

378 + <xs:simpleType name="LongMacroENbID">

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

380 + <xs:pattern value="([A-Fa-f0-9]{6,21})"/>

381 + </xs:restriction>

382 + </xs:simpleType>

383 +

384 + <xs:simpleType name="WAGFID">

385 + <xs:restriction base="common:LongString"/>

386 + </xs:simpleType>

387 +

388 + <xs:simpleType name="TNGFID">

389 + <xs:restriction base="common:LongString"/>

390 + </xs:simpleType>

391 +

392 + <xs:complexType name="RANNodeName">

393 + <xs:choice>

394 + <xs:element name="RANNodeNameVisible" type="RANNodeNameVisible"/>

395 + <xs:element name="RANNodeNameString" type="common:LongString"/>

396 + </xs:choice>

397 + </xs:complexType>

398 +

399 + <xs:simpleType name="RANNodeNameVisible">

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

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

402 + </xs:restriction>

403 + </xs:simpleType>

404 +

405 + <xs:complexType name="SupportedTAList">

406 + <xs:sequence>

407 + <xs:element name="TAItem" type="TAItem" minOccurs="1" maxOccurs="unbounded"/>

408 + </xs:sequence>

409 + </xs:complexType>

410 +

411 + <xs:complexType name="TAItem">

412 + <xs:sequence>

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

414 + <xs:element name="BroadcastPLMNItem" type="BroadcastPLMNItem" minOccurs="1" maxOccurs="unbounded"/>

415 + <xs:element name="RATInformation" type="RATInformation" minOccurs="0"/>

416 + </xs:sequence>

417 + </xs:complexType>

418 +

419 + <xs:complexType name="BroadcastPLMNItem">

420 + <xs:sequence>

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

422 + <xs:element name="TAISliceSupportList" type="TAISliceSupportList"/>

423 + <xs:element name="NID" type="NID"/>

424 + </xs:sequence>

425 + </xs:complexType>

426 +

427 + <xs:simpleType name="RATInformation">

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

429 + <xs:enumeration value="Unlicensed"/>

430 + <xs:enumeration value="NBIoT"/>

431 + <xs:enumeration value="NRLEO"/>

432 + <xs:enumeration value="NRMEO"/>

433 + <xs:enumeration value="NRGEO"/>

434 + <xs:enumeration value="NROTHERSAT"/>

435 + </xs:restriction>

436 + </xs:simpleType>

437 +

438 + <xs:complexType name="TAISliceSupportList">

439 + <xs:sequence>

440 + <xs:element name="SNSSAI" type="SNSSAI" minOccurs="1" maxOccurs="unbounded"/>

441 + </xs:sequence>

442 + </xs:complexType>

443 +

444 + <xs:complexType name="SNSSAI">

445 + <xs:sequence>

446 + <xs:element name="SliceServiceType" type="SliceServiceType"/>

447 + <xs:element name="SliceDifferentiator" type="SliceDifferentiator" minOccurs="0"/>

448 + <xs:element name="MappedHPLMNSliceServiceType" type="MappedHPLMNSliceServiceType" minOccurs="0"/>

449 + <xs:element name="MappedHPLMNSliceDifferentiator" type="MappedHPLMNSliceDifferentiator" minOccurs="0"/>

450 + </xs:sequence>

451 + </xs:complexType>

452 +

453 + <xs:simpleType name="SliceServiceType">

454 + <xs:restriction base="xs:integer">

455 + <xs:minInclusive value="0"/>

456 + <xs:maxInclusive value="255"/>

457 + </xs:restriction>

458 + </xs:simpleType>

459 +

460 + <xs:simpleType name="SliceDifferentiator">

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

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

463 + </xs:restriction>

464 + </xs:simpleType>

465 +

466 + <xs:simpleType name="MappedHPLMNSliceServiceType">

467 + <xs:restriction base="xs:integer">

468 + <xs:minInclusive value="0"/>

469 + <xs:maxInclusive value="255"/>

470 + </xs:restriction>

471 + </xs:simpleType>

472 +

473 + <xs:simpleType name="MappedHPLMNSliceDifferentiator">

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

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

476 + </xs:restriction>

477 + </xs:simpleType>

478 +

479 + <xs:complexType name="PLMNSupportList">

480 + <xs:sequence>

481 + <xs:element name="PLMNSupportItem" type="PLMNSupportItem" minOccurs="1" maxOccurs="unbounded"/>

482 + </xs:sequence>

483 + </xs:complexType>

484 +

485 + <xs:complexType name="PLMNSupportItem">

486 + <xs:sequence>

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

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

489 + <xs:element name="OnboardingSupport" type="xs:boolean" minOccurs="0"/>

490 + </xs:sequence>

491 + </xs:complexType>

492 +

493 + <xs:complexType name="F1Information">

494 + <xs:sequence>

495 + <xs:element name="GNBDUID" type="GNBDUID"/>

496 + <xs:element name="GNBDUName" type="xs:string" minOccurs="0"/>

497 + <xs:element name="GNBCUName" type="xs:string" minOccurs="0"/>

498 + <xs:element name="GNBDUServedCells" type="RANCGI" minOccurs="1" maxOccurs="unbounded"/>

499 + <xs:element name="ExtendedGNBDUName" type="xs:string" minOccurs="0"/>

500 + <xs:element name="ExtendedGNBCUName" type="xs:string" minOccurs="0"/>

501 + </xs:sequence>

502 + </xs:complexType>

503 +

504 + <xs:simpleType name="GNBDUID">

505 + <xs:restriction base="xs:integer">

506 + <xs:minInclusive value="0"/>

507 + <xs:maxInclusive value="68719476735"/>

508 + </xs:restriction>

509 + </xs:simpleType>

510 +

511 + <xs:simpleType name="RFBand">

512 + <xs:restriction base="common:ShortString"/>

513 + </xs:simpleType>

514 +

202 515 </xs:schema>

## \*\*\*\* END OF SECOND CHANGE (ATTACHMENTS urn\_3GPP\_ns\_li\_3GPPLIQueryExtensions.xsd) \*\*\*\*

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