**3GPP TSG-SA3 Meeting #88-LI-e-a *s3i230082***

**Online, , 23rd Jan 2023 - 27th Jan 2023**

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| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **33.128** | **CR** | **0477** | **rev** | **1** | **Current version:** | **18.2.0** |  |
|  |
| *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 |  | Radio Access Network |  | Core Network | **X** |

|  |
| --- |
|  |
| ***Title:***  | Location Usage Specifics |
|  |  |
| ***Source to WG:*** | SA3-LI (OTD) |
| ***Source to TSG:*** | SA3 |
|  |  |
| ***Work item code:*** | LI18 |  | ***Date:*** | 2023/01/23 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-18 |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | The current version of TS 33.128 has multiple location formats that can be used. The specifics of when each format should be used and the details of the parameters inside the different structures are currently not defined. This CR attempts to add the relevant details. |
|  |  |
| ***Summary of change:*** | Addition of tables to clause 7.3.3 with details for the usage of the various location structures. |
|  |  |
| ***Consequences if not approved:*** | It may be difficult for implementers to send the location in the correct format and locations received may be difficult for LEAs to understand. |
|  |  |
| ***Clauses affected:*** | 2, 7.3.3 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 33.128 CR 0479, 0494 |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | The tables in this CR reference ASN.1 types defined in CR 0479 and 0494. |
|  |  |
| ***This CR's revision history:*** | S3i230045 |

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

#  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 23.501: "System Architecture for the 5G System".

[3] 3GPP TS 33.126: "Lawful Interception Requirements".

[4] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[5] 3GPP TS 33.127: "Lawful Interception (LI) Architecture and Functions".

[6] ETSI TS 103 120: "Lawful Interception (LI); Interface for warrant information".

[7] ETSI TS 103 221-1: "Lawful Interception (LI); Internal Network Interfaces; Part 1: X1".

[8] ETSI TS 103 221-2: "Lawful Interception (LI); Internal Network Interfaces; Part 2: X2/X3".

 [9] ETSI TS 102 232-1: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 1: Handover specification for IP delivery".

[10] ETSI TS 102 232-7: "Lawful Interception (LI); Handover Interface and Service-Specific Details (SSD) for IP delivery; Part 7: Service-specific details for Mobile Services".

[11] 3GPP TS 33.501: "Security Architecture and Procedures for the 5G System".

[12] 3GPP TS 33.108: "3G security; Handover interface for Lawful Interception (LI)".

[13] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS)".

[14] 3GPP TS 24.007: "Mobile radio interface signalling layer 3; General Aspects".

[15] 3GPP TS 29.244: "Interface between the Control Plane and the User Plane nodes".

[16] 3GPP TS 29.502: "5G System; Session Management Services; Stage 3".

[17] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[18] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[19] 3GPP TS 23.003: "Numbering, addressing and identification ".

[20] OMA-TS-MLP-V3\_5-20181211-C: "Open Mobile Alliance; Mobile Location Protocol, Candidate Version 3.5", <https://www.openmobilealliance.org/release/MLS/V1_4-20181211-C/OMA-TS-MLP-V3_5-20181211-C.pdf>.

[21] 3GPP TS 29.540: "5G System; SMS Services; Stage 3".

[22] 3GPP TS 29.518: "5G System; Access and Mobility Management Services; Stage 3".

[23] 3GPP TS 38.413: "NG Application Protocol (NGAP)".

[24] 3GPP TS 29.572: "Location Management Services; Stage 3".

[25] 3GPP TS 29.503: "5G System; Unified Data Management Services".

[26] IETF RFC 815: "IP datagram reassembly algorithms".

[27] IETF RFC 2460: "Internet Protocol, Version 6 (IPv6) Specification".

[28] IETF RFC 793: "Transmission Control Protocol".

[29] IETF RFC 768: "User Datagram Protocol".

[30] IETF RFC 4340: "Datagram Congestion Control Protocol (DCCP)".

[31] IETF RFC 4960: "Stream Control Transmission Protocol".

[32] IANA (www.iana.org): Assigned Internet Protocol Numbers, "Protocol Numbers".

[33] IETF RFC 6437: "IPv6 Flow Label Specification".

[34] IETF RFC 791: "Internet Protocol".

[35] Open Geospatial Consortium OGC 05-010: "URNs of definitions in ogc namespace".

[36] 3GPP TS 33.107: "3G security; Lawful interception architecture and functions".

[37] 3GPP TS 37.340: "Evolved Universal Radio Access (E-UTRA) and NR-Multi-connectivity; Stage 2".

[38] 3GPP TS 36.413: "S1 Application Protocol (S1AP)".

[39] OMA-TS-MMS\_ENC-V1\_3-20110913-A: "Multimedia Messaging Service Encapsulation Protocol".

[40] 3GPP TS 23.140: "Multimedia Messaging Protocol. Functional Description. Stage 2".

[41] 3GPP TS 38.415: "NG-RAN; PDU Session User Plane Protocol".

[42] 3GPP TS 23.273: "5G System (5GS) Location Services (LCS); Stage 2".

[43] IETF RFC 4566: "SDP: Session Description Protocol".

[44] 3GPP TS 24.193: "Stage 3: Access Traffic Steering, Switching and Splitting (ATSSS)".

[45] 3GPP TS 29.509: "5G System; Authentication Server Services; Stage 3".

[46] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[47] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[48] 3GPP TS 29.504: "5G System; Unified Data Repository Services; Stage 3".

[49] 3GPP TS 29.505: "5G System; Usage of the Unified Data Repository services for Subscription Data; Stage 3".

[50] 3GPP TS 23.401 "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[51] 3GPP TS 24.301 "Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS), Stage 3".

[52] 3GPP TS 23.271 "Functional stage 2 description of Location Services (LCS)".

[53] 3GPP TS 29.172 "Evolved Packet Core (EPC) LCS Protocol (ELP) between the Gateway Mobile Location Centre (GMLC) and the Mobile Management Entity (MME); SLg interface".

[54] 3GPP TS 29.171 "LCS Application Protocol (LCS-AP) between the Mobile Management Entity (MME) and Evolved Serving Mobile Location Centre (E-SMLC); SLs interface".

[55] 3GPP TS 24.379: "Mission Critical Push to Talk (MCPTT) call control; protocol specification".

[56] OMA-TS-PoC-System\_Description-V2\_1-20110802-A: "OMA PoC System Description".

[57] 3GPP TS 29.541: "5G System; Network Exposure (NE) function services for Non-IP Data Delivery (NIDD); Stage 3".

[58] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[59] 3GPP TS 29.338: "Diameter based protocols to support Short Message Service (SMS) capable Mobile Management Entities (MMEs); Stage 3".

[60] 3GPP TS 29.337: "Diameter-based T4 interface for communications with packet data networks and applications".

[61] 3GPP TS 24.250: "Protocol for Reliable Data Service; Stage 3".

[62] 3GPP TS 29.128: "Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) interfaces for interworking with packet data networks and applications".

[63] 3GPP TS 29.122: "T8 reference point for Northbound APIs".

[64] 3GPP TS 29.598: "5G System; Unstructured Data Storage Services; Stage3".

[65] 3GPP TS 33.535: "Authentication and Key Management for Applications (AKMA) based on 3GPP credentials in the 5G System (5GS)".

[66] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2".

[67] GSMA IR.88: "IR.88 LTE and EPC Roaming Guidelines".

[68] GSMA NG.114 "IMS Profile for Voice, Video and Messaging over 5GS".

[69] IETF RFC 8225: "PASSporT: Personal Assertion Token".

[70] IETF RFC 8224: "Authenticated Identity Management in the Session Initiation Protocol (SIP)".

[71] IETF RFC 8588: "Personal Assertion Token (PaSSporT) Extension for Signature-based Handling of Asserted information using toKENs (SHAKEN)".

[72] 3GPP TS 24.196: "Enhanced Calling Name (eCNAM)".

[73] IETF draft-ietf-stir-passport-rcd-17: "PASSporT Extension for Rich Call Data".

NOTE: The above document cannot be formally referenced until it is published as an RFC.

[74] 3GPP TS 24.229: "IP multimedia call control protocol based on Session Initiation Protocol (SIP)and Session Description Protocol (SDP); Stage 3".

[75] IANA Session Initiation Protocol (SIP) Parameters: <https://www.iana.org/assignments/sip-parameters/sip-parameters.xhtml>

[76] IETF RFC 8946: "Personal Assertion Token (PASSporT) Extension for Diverted Calls".

[77] 3GPP TS 23.204: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Support of Short Message Service (SMS) over generic 3GPP Internet Protocol (IP) access; Stage 2".

[78] GSMA RCC.07: "Rich Communication Suite – Advanced Communications Services and Client Specification".

[79] IETF RFC 4975: "The Message Session Relay Protocol (MSRP)".

[80] IETF RFC 3862: "Common Presence and Instant Messaging (CPIM): Message Format".

[81] IETF RFC 5438: "Instant Message Disposition Notification (IMDN)".

[82] OMA-TS-CPM\_System\_Description-V2\_2-20170926-C: "OMA Converged IP Messaging System Description".

[83] IETF RFC 4566: "SDP: Session Description Protocol".

[84] 3GPP TS 36.455: "Evolved Universal Terrestrial Radio Access (E-UTRA); LTE Positioning Protocol A (LPPa) ".

[85] 3GPP TS 37.355: "LTE Positioning Protocol (LPP)".

[86] 3GPP TS 38.455: "NG-RAN; NR Positioning Protocol A (NRPPa)".

[87] 3GPP TS 29.274: "3GPP Evolved Packet System (EPS); Evolved General Packet Radio Service (GPRS) Tunnelling Protocol for Control plane (GTPv2-C); Stage 3".

[88] 3GPP TS 29.513: "5G System; Policy and Charging Control signalling flows and QoS parameter mapping".

[89] 3GPP TS 29.512: "5G System; Session Management Policy Control Service; Stage 3".

[90] 3GPP TS 29.508: "5G System; Session Management Event Exposure Service; Stage 3".

[91] 3GPP TS 29.514: "5G System; Policy Authorization Service; Stage 3".

[92] 3GPP TS 29.214: "Policy and Charging Control over Rx reference point".

[93] 3GPP TS 24.558: "Enabling Edge Applications; Protocol specification".

[94] 3GPP TS 29.558: "Enabling Edge Applications; Application Programming Interface (API) specification".

[95] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".

[96] 3GPP TS 29.551: "5G System; Packet Flow Description Management Service; Stage 3".

[97] ETSI TS 103 280: "Lawful Interception (LI); Dictionary for common parameters".

[98] 3GPP TS 26.512: "5G Media Streaming (5GMS); Protocols".

[99] 3GPP TS 26.247: "Transparent end-to-end Packet-switched Streaming Service (PSS); Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH)".

[100] 3GPP TS 29.563: "5G System; Home Subscriber Server (HSS) services for interworking with Unified Data Management (UDM); Stage 3".

[101] 3GPP TS 29.562: "5G System; Home Subscriber Server (HSS) Services; Stage 3".

[102] 3GPP TS 24.341 "Support of SMS over IP networks, Stage 3".

[Re1] 3GPP TS 23.032 "Universal Geographical Area Description (GAD)".

[Re2] ITU-T Recommendation Q.763 (1999): "Specifications of Signalling System No.7; Formats and codes".

[Re3] 3GPP TS 29.272 " Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) related interfaces based on Diameter protocol".

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

### 7.3.3 Use of the Location structure

#### 7.3.3.1 General description

The Location structure (see Annex A) is used to convey access network location information and geolocation information. While the data types defined in the clauses below are generally modelled on data types from the Service Based Interfaces (SBIs) defined for specific NFs, the data types defined below shall be used by any POI in order to send all location information available at the NF where the POI is located.

When location information is reported, unless otherwise specified, all location information present at the NF for the target shall be reported. If a single parameter within the Location type is unable to carry all the types of location information available at the NF, multiple parameters within the Location type shall be used.

#### 7.3.3.X Location structure data types

##### 7.3.3.X.1 Simple data types for location

Table 7.3.3.X.1-1: Simple Types for Location

|  |  |  |
| --- | --- | --- |
| Type name | Type definition | Description |
| Altitude | UTF8String | Contains a string representation of the altitude reported in meters. |
| Angle | INTEGER (0..360) | Integer value of the angle in degrees. |
| BSSID | UTF8String | The BSSID of the access point being reported. |
| 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. |
| 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. |
| 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.  |
| 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. |
| InnerRadius | INTEGER (0..327675) | Indicates the inner radius of an ellipsoid arc from 0 to 327675 meters. |
| IPv4Address | OCTET STRING (SIZE(4)) | The IPv4 address being reported in binary representation. |
| IPv6Address | OCTET STRING (SIZE(16)) | The IPv6 address being reported in binary representation. |
| 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 9.3.1.5.7. |
| SSID | UTF8String | The SSID of the access point being reported. |
| Timestamp | GeneralizedTime | Unless otherwised specified, the timestamp shall be given qualified with time zone information (i.e. as UTC or offset from UTC, not as local time. |
| TimeZone | UTF8String | String containing the contents defined in TS 29.571 [17], table 5.2.2-1. |
| 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. |

##### 7.3.3.X.2 Type: Location

Table 7.3.3.X.2-1 contains the details for the Location type.

Table 7.3.3.X.2-1: Definition of type Location

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| locationInfo | LocationInfo | 0..1 | Location information type derived from the data present in the ProvideLocInfo structure defined in TS 29.518 [22] clause 6.4.6.2.6. This parameter shall be used any time information from the ProvideLocInfo structure needs to be reported. This parameter shall also be used whenever information from the UserLocation type needs to be reported. | C |
| positioningInfo | PositioningInfo | 0..1 | Location information type derived from the data present in the ProvidePosInfo structure defined in TS 29.518 [22] clause 6.4.6.2.3. This parameter shall be used any time information from LCS operations needs to be reported from the 5GC. This structure may also be used any time information from the ProvidePosInfo structure needs to be reported. | C |
| locationPresenceReport | LocationPresenceReport | 0..1 | Location information type derived from the data present in the AMFEventReport structure defined in TS 29.518 [22] clause 6.2.6.2.5. This parameter shall be used any time location information from Namf\_EventExposure Service operations needs to be reported.  | C |
| fourGPositioningInfo | FourGPositioningInfo | 0..1 | Location information type derived from the data present in the Location-Report-Answer structure defined in TS 29.172 [53] clause 7.3.2 and the Provide Subscriber Location Answer defined in TS 29.172 [53] Table 6.2.2-2. This parameter shall be used any time information from LCS operations needs to be reported from the EPC. This structure may also be used any time information from the Provide-Location-Answer structure needs to be reported. | C |
| fourGLocationInfo | FourGLocationInfo | 0..1 | Location information type derived from the data present in the EPS-Location-Info structure defined in TS 29.272 [Re3] clause 7.3.111 and the User Location Information structure defined in TS 29.274 [87] clause 8.21. This parameter shall be used any time information from the EPSLoocationInformation structure needs to be reported. This parameter shall also be used whenever information from the EPSUserLocation type needs to be reported. | C |

##### 7.3.3.X.3 Type: LocationInfo

The LocationInfo type is derived from the data present in the ProvideLocInfo type (see TS 29.518 [22] clause 6.4.6.2.6). If the NF has locations from multiple RAT types, all appropriate location fields within the userLocation parameter shall be used.

Table 7.3.3.X.3-1 contains the details for the LocationInfo type.

Table 7.3.3.X.3-1: Definition of type LocationInfo

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| userLocation | UserLocation | 0..1 | Location information type derived from the data defined in the UserLocation type defined in TS 29.571 [17] clause 5.4.4.7. See clause 7.3.3.X.4 for details on this data type.This IE shall be used to convey one or more of the following: - E-UTRA user location. - NR user location. - Non-3GPP access user location. - UTRA Location. - GERA Location. | C |
| currentLoc | BOOLEAN | 0..1 | This parameter shall be present if it can be determined for the reported location.When present, this parameter shall be set as following: - true: the current location of the UE is returned. - false: the last known location of the UE is returned. | C |
| geoInfo | GeographicArea | 0..1 | This parameter shall be present if the geoInfo parameter of the ProvideLocInfo structure (see TS 29.518 [22] clause 6.4.6.2.6) if used. See clause 7.3.3.X.10 for details on this structure. | C |
| rATType | RATType | 0..1 | This parameter shall be present if the RATType of the UE is known at the NF. See clause 7.3.3.X.20 for details on this structure. | C |
| timeZone | TimeZone | 0..1 | This parameter shall be present if the local timeZone of the UE is known at the NF. | C |
| additionalCellIDs | SEQUENCE OF CellInformation | 0..MAX | This parameter shall be present if the NF has additional cell information for the UE. Shall be used whenever Dual Connectivity is activated or whenever secondary cell information is available at the NF where the POI is located. | C |

##### 7.3.3.X.4 Type: UserLocation

The UserLocation type is derived from the data present in the UserLocation type defined in TS 29.571 [17] clause 5.4.4.7. If the NF has locations from multiple RAT types, all appropriate location fields within the userLocation parameter shall be used.

Table 7.3.3.X.4-1 contains the details for the UserLocation type.

Table 7.3.3.X.4-1: Definition of type UserLocation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| eUTRALocation | EUTRALocation | 0..1 | Location information type derived from the data present in the EutraLocation type defined in TS 29.571 [17] clause 5.4.4.8. See clause 7.3.3.X.5 for details on this data type.This parameter shall be present if an EUTRA Location is available at the NF. | C |
| nRLocation | NRLocation | 0..1 | Location information type derived from the data present in the NrLocation type defined in TS 29.571 [17] clause 5.4.4.9. See clause 7.3.3.X.6 for details on this data type.This parameter shall be present if an NR Location is available at the NF. | C |
| n3GALocation | N3GALocation | 0..1 | Location information type derived from the data present in the N3gaLocation type defined in TS 29.571 [17] clause 5.4.4.10. See clause 7.3.3.X.7 for details on this data type.This parameter shall be present if a non-3GPP access Location is available at the NF. | C |
| uTRALocation | UTRALocation | 0..1 | Location information type derived from the data present in the UtraLocation type defined in TS 29.571 [17] clause 5.4.4.52. See clause 7.3.3.X.8 for details on this data type.This parameter shall be present if a UTRAN Access Location is available at the NF. | C |
| gERALocation | GERALocation | 0..1 | Location information type derived from the data present in the GeraLocation type defined in TS 29.571 [17] clause 5.4.4.53. See clause 7.3.3.X.9 for details on this data type.This parameter shall be present if a GERAN Access Location is available at the NF. | C |

##### 7.3.3.X.5 Type: EUTRALocation

The EUTRALocation type is derived from the data present in the EutraLocation type defined in TS 29.571 [17] clause 5.4.4.8.

Table 7.3.3.X.5-1 contains the details for the EUTRALocation type.

Table 7.3.3.X.5-1: Definition of type EUTRALocation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| tAI | TAI | 1 | Tracking Area Identity of the target.The TAC of the TAI shall be set to one reserved value (e.g. 0x0000, see clause 19.4.2.3 of 3GPP TS 23.003 [19]) and the value of the ignoreTAI parameter shall be set to TRUE if the TAI information is not available. | M |
| eCGI | ECGI | 1 | E-UTRA Cell Identity for the cell where the target is located. | M |
| ageOfLocationInfo | INTEGER | 0..1 | The value represents the elapsed time in minutes since the last network contact of the mobile station.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 eNB when the UE is in connected mode.Any other value than "0" indicates that the location information is the last known one.Shall be present if known at the NF where the POI is located. | C |
| uELocationTimestamp | Timestamp | 0..1 | The value represents the UTC time when the EUTRALocation information was acquired. Shall be present if known at the NF where the POI is located. | C |
| geographicalInformation | UTF8String | 0..1 | Shall be present if known at the NF where the POI is located. If present, this parameter shall be populated with the Hexidecimal value of the location encoded as described in TS 23.032 [Re1] clauses 6 and 7.3.  | C |
| geodeticInformation | UTF8String | 0..1 | Shall be present if known at the NF where the POI is located. If present, this parameter shall be populated with the Hexidecimal value of the location encoded as described in ITU-T Recommendation Q.763 (1999) [Re2] clause 3.88. | C |
| globalNGENbID | GlobalRANNodeID | 0..1 | Indicates the global identity of the ng-eNodeB in which the UE is currently located. Shall be present if known at the NF where the POI is located. | C |
| cellSiteInformation | CellSiteInformation | 0..1 | Contains location information for the cell site being reported. Shall be present if known at the NF where the POI is located or known at the MDF. | C |
| globalENbID | GlobalRANNodeID | 0..1 | Indicates the global identity of the eNodeB in which the UE is currently located. Shall be present if known at the NF where the POI is located. | C |
| ignoreTAI | BOOLEAN | 0..1 | This flag, when present, shall indicate if the tAI shall be ignored.When present, it shall be set as follows: - TRUE: tAI shall be ignored.- FALSE: tAI shall not be ignored. | C |
| ignoreECGI | BOOLEAN | 0..1 | This flag, when present, shall indicate if the eCGI shall be ignored.When present, it shall be set as follows: - TRUE: eCGI shall be ignored. - FALSE: eCGI shall not be ignored. | C |

##### 7.3.3.X.6 Type: NRLocation

The NRLocation type is derived from the data present in the NrLocation type defined in TS 29.571 [17] clause 5.4.4.9.

Table 7.3.3.X.6-1 contains the details for the NRLocation type.

Table 7.3.3.X.6-1: Definition of type NRLocation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| tAI | TAI | 1 | Tracking Area Identity of the target.The TAC of the TAI shall be set to one reserved value (e.g. 0x0000, see clause 19.4.2.3 of 3GPP TS 23.003 [19]) and the value of the ignoreTAI parameter shall be set to TRUE if the TAI information is not available. | M |
| nCGI | NCGI | 1 | NR Cell Identity for the cell where the target is located. | M |
| ageOfLocationInfo | INTEGER | 0..1 | The value represents the elapsed time in minutes since the last network contact of the mobile station.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 eNB when the UE is in connected mode.Any other value than "0" indicates that the location information is the last known one.Shall be present if known at the NF where the POI is located. | C |
| uELocationTimestamp | Timestamp | 0..1 | The value represents the UTC time when the NRLocation information was acquired. Shall be present if known at the NF where the POI is located. | C |
| geographicalInformation | UTF8String | 0..1 | Shall be present if known at the NF where the POI is located. If present, this parameter shall be populated with the Hexidecimal value of the location encoded as described in TS 23.032 [Re1] clauses 6 and 7.3.  | C |
| geodeticInformation | UTF8String | 0..1 | Shall be present if known at the NF where the POI is located. If present, this parameter shall be populated with the Hexidecimal value of the location encoded as described in ITU-T Recommendation Q.763 (1999) [Re2] clause 3.88. | C |
| globalGNbID | GlobalRANNodeID | 0..1 | Indicates the global identity of the gNodeB in which the UE is currently located. Shall be present if known at the NF where the POI is located. | C |
| cellSiteInformation | CellSiteInformation | 0..1 | Contains location information for the cell site being reported. Shall be present if known at the NF where the POI is located or known at the MDF. | C |
| ignoreNCGI | BOOLEAN | 0..1 | This flag, when present, shall indicate if the nCGI shall be ignored.When present, it shall be set as follows: - TRUE: nCGI shall be ignored. - FALSE: nCGI shall not be ignored. | C |

##### 7.3.3.X.7 Type: N3GALocation

The N3GALocation type is derived from the data present in the N3gaLocation type defined in TS 29.571 [17] clause 5.4.4.10.

Table 7.3.3.X.7-1 contains the details for the N3GALocation type.

Table 7.3.3.X.7-1: Definition of type N3GALocation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| tAI | TAI | 0..1 | Tracking Area Identity used by the target for non-3GPP access. Shall be present if known at the NF where the POI is located. | C |
| n3IWFID | N3IWFIDNGAP | 0..1 | This IE shall contain the N3IWF identifier received over NGAP if it is known at the NF where the POI is located. | C |
| uEIPAddr | IPAddr | 0..1 | The IP address used by the UE on the non-3GPP access network. Shall be present if known at the NF where the POI is located. | C |
| portNumber | INTEGER | 0..1 | The source port number used by the UE for non-3GPP access. Shall be present if known at the NF where the POI is located. | C |
| tNAPID | TNAPID | 0..1 | The TNAP Identifier for the TNAP in use by the UE. Shall be present if known at the NF where the POI is located. | C |
| tWAPID | TWAPID | 0..1 | The TWAP Identifier for the TWAP in use by the UE. Shall be present if known at the NF where the POI is located. | C |
| hFCNodeID | HFCNodeID | 0..1 | This IE shall contain the HFC Node Identifier received over NGAP. It shall be present for a 5G-CRG/FN-CRG accessing the 5GC via wireline access network. | C |
| gLI | GLI | 0..1 | The Global Line Identifier for the access network being used by the UE. It shall be present for a 5G-BRG/FN-BRG accessing the 5GC via wireline access network. | C |
| w5GBANLineType | W5GBANLineType | 0..1 | Indicates the type of wireline access. Shall be present if known at the NF where the POI is located. | C |
| gCI | GCI | 0..1 | The Global Cable Identifier for the wireline access device used by the UE to access the core network. Shall be present if known at the NF where the POI is located. | C |
| ageOfLocationInfo | INTEGER | 0..1 | The value represents the elapsed time in minutes since the last network contact of the mobile station.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 eNB when the UE is in connected mode.Any other value than "0" indicates that the location information is the last known one.Shall be present if known at the NF where the POI is located. | C |
| uELocationTimestamp | Timestamp | 0..1 | The value represents the UTC time when the NRLocation information was acquired. Shall be present if known at the NF where the POI is located. | C |
| protocol | TransportProtocol | 0..1 | Indicates the transport protocol used by the UE to access the core network via a trusted or untrusted non-3GPP access and NAT is detected. Shall be present if known at the NF where the POI is located. | C |

##### 7.3.3.X.8 Type: UTRALocation

The UTRALocation type is derived from the data present in the EutraLocation type defined in TS 29.571 [17] clause 5.4.4.52.

Table 7.3.3.X.8-1 contains the details for the UTRALocation type.

Table 7.3.3.X.8-1: Definition of type UTRALocation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| cGI | CGI | 0..1 | The Cell Global Identification for the UTRA Cell the UE is currently located in. Shall be present if known at the NF where the POI is located. | C |
| sAI | SAI | 0..1 | Service Area Identity of the target.Shall be present if known at the NF where the POI is located. | C |
| lAI | LAI | 0..1 | Location Area Identity of the target.Shall be present if known at the NF where the POI is located. | C |
| rAI | RAI | 0..1 | Routing Area Identity of the target.Shall be present if known at the NF where the POI is located. | C |
| ageOfLocationInfo | INTEGER | 0..1 | The value represents the elapsed time in minutes since the last network contact of the mobile station.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 eNB when the UE is in connected mode.Any other value than "0" indicates that the location information is the last known one.Shall be present if known at the NF where the POI is located. | C |
| uELocationTimestamp | Timestamp | 0..1 | The value represents the UTC time when the EUTRALocation information was acquired. Shall be present if known at the NF where the POI is located. | C |
| geographicalInformation | UTF8String | 0..1 | Shall be present if known at the NF where the POI is located. If present, this parameter shall be populated with the Hexidecimal value of the location encoded as described in TS 23.032 [Re1] clauses 6 and 7.3.  | C |
| geodeticInformation | UTF8String | 0..1 | Shall be present if known at the NF where the POI is located. If present, this parameter shall be populated with the Hexidecimal value of the location encoded as described in ITU-T Recommendation Q.763 (1999) [Re2] clause 3.88. | C |
| cellSiteInformation | CellSiteInformation | 0..1 | Contains location information for the cell site being reported. Shall be present if known at the NF where the POI is located or known at the MDF. | C |

##### 7.3.3.X.9 Type: GERALocation

The GERALocation type is derived from the data present in the GeraLocation type defined in TS 29.571 [17] clause 5.4.4.53.

Table 7.3.3.X.9-1 contains the details for the GERALocation type.

Table 7.3.3.X.9-1: Definition of type GERALocation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| locationNumber | GERALocationNumber | 0..1 | The Location Number within the PLMN where the UE is currently located. Shall be present if known at the NF where the POI is located. | C |
| cGI | CGI | 0..1 | The Cell Global Identification for the GERA Cell the UE is currently located in. Shall be present if known at the NF where the POI is located. | C |
| rAI | RAI | 0..1 | Routing Area Identity of the target.Shall be present if known at the NF where the POI is located. | C |
| sAI | SAI | 0..1 | Service Area Identity of the target.Shall be present if known at the NF where the POI is located. | C |
| lAI | LAI | 0..1 | Location Area Identity of the target.Shall be present if known at the NF where the POI is located. | C |
| vLRNumber | UTF8String | 0..1 | The VLR Number for the VLR where the UE is currently registered. Shall be present if known at the NF where the POI is located. | C |
| mSCNumber | UTF8String | 0..1 | The MSC Number for the MSC currently serving the UE. Shall be present if known at the NF where the POI is located. |  |
| ageOfLocationInfo | INTEGER | 0..1 | The value represents the elapsed time in minutes since the last network contact of the mobile station.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 eNB when the UE is in connected mode.Any other value than "0" indicates that the location information is the last known one.Shall be present if known at the NF where the POI is located. | C |
| uELocationTimestamp | Timestamp | 0..1 | The value represents the UTC time when the EUTRALocation information was acquired. Shall be present if known at the NF where the POI is located. | C |
| geographicalInformation | UTF8String | 0..1 | Shall be present if known at the NF where the POI is located. If present, this parameter shall be populated with the Hexidecimal value of the location encoded as described in TS 23.032 [Re1] clauses 6 and 7.3.  | C |
| geodeticInformation | UTF8String | 0..1 | Shall be present if known at the NF where the POI is located. If present, this parameter shall be populated with the Hexidecimal value of the location encoded as described in ITU-T Recommendation Q.763 (1999) [Re2] clause 3.88. | C |
| cellSiteInformation | CellSiteInformation | 0..1 | Contains location information for the cell site being reported. Shall be present if known at the NF where the POI is located or known at the MDF. | C |

##### 7.3.3.X.10 Type: GeographicArea

The GeographicArea type is derived from the data present in the GeographicArea type defined in TS 29.572 [24] clause 6.1.6.2.5.

Table 7.3.3.X.10-1 contains the details for the GeographicArea type.

Table 7.3.3.X.10-1: Definition of Choices for GeographicArea

|  |  |  |
| --- | --- | --- |
| CHOICE | Type | Description |
| point | Point | Geographical area consisting of a single point, represented by its longitude and latitude. |
| pointUncertaintyCircle | PointUncertaintyCircle | Geographical area consisting of a point and an uncertainty value.  |
| pointUncertaintyEllipse | PointUncertaintyEllipse | Geographical area consisting of a point, plus an uncertainty ellipse and a confidence value. |
| polygon | Polygon | Geographical area consisting of a list of points (between 3 to 15 points). |
| pointAltitude | PointAltitude | Geographical area consisting of a point and an altitude value. |
| pointAltitudeUncertainty | PointAltitudeUncertainty | Geographical area consisting of a point, an altitude value and an uncertainty value. |
| ellipsiodArc | EllipsoidArc | Geographical area consisting of an ellipsoid arc. |

##### 7.3.3.X.11 Type: Point

The Point type is derived from the data present in the Point type defined in TS 29.572 [24] clause 6.1.6.2.6.

Table 7.3.3.X.11-1 contains the details for the Point type.

Table 7.3.3.X.11-1: Definition of type Point

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| geographicalCoordinates | GeographicalCoordinates | 1 | Indicates a geographic point represented by its longitude and latitude. | M |

##### 7.3.3.X.12 Type: geoCoord

The GeographicalCoordinates type is derived from the data present in the GeographicalCoordinates type defined in TS 29.572 [24] clause 6.1.6.2.4.

Table 7.3.3.X.12-1 contains the details for the GeographicalCoordinates type.

Table 7.3.3.X.12-1: Definition of type GeographicalCoordinates

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| latitude | UTF8String | 1 | Shall contain a string representation of the latitude. | M |
| longitude | UTF8String | 1 | Shall contain a string representation of the longitude. | M |
| mapDatumInformation | OGCURN | 0..1 | The reference datum used for the GeographicalCoordinates. Shall be present if known by the operator. | C |
| NOTE: The order of the latitude and longitude parameters in the localy defined GeographicalCoordinates type are different than the order of the parameters defined by the GeographicalCoordinates type defined in TS 29.572 [24] clause 6.1.6.2.4. |

##### 7.3.3.X.13 Type: PointUncertaintyCircle

The PointUncertaintyCircle type is derived from the data present in the PointUncertaintyCircle type defined in TS 29.572 [24] clause 6.1.6.2.7.

Table 7.3.3.X.13-1 contains the details for the PointUncertaintyCircle type.

Table 7.3.3.X.13-1: Definition of type PointUncertaintyCircle

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| geographicalCoordinates | GeographicalCoordinates | 1 | Indicates the geographic point for the center of the circle represented by its longitude and latitude. | M |
| uncertainty | Uncertainty | 1 | This parameter has been deprecated and shall always be set to 0. | M |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| uncertaintySBI | UncertaintySBI | 0..1 | Indicates the radius of the uncertainty circle. Expressed in meters. | M |

##### 7.3.3.X.14 Type: PointUncertaintyEllipse

The PointUncertaintyEllipse type is derived from the data present in the PointUncertaintyEllipse type defined in TS 29.572 [24] clause 6.1.6.2.8.

Table 7.3.3.X.14-1 contains the details for the PointUncertaintyEllipse type.

Table 7.3.3.X.14-1: Definition of type PointUncertaintyEllipse

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| geographicalCoordinates | GeographicalCoordinates | 1 | Indicates a geographic point for the center of the ellipse represented by its longitude and latitude. | M |
| uncertainty | UncertaintyEllipse | 1 | Describes an uncertainty ellipse. | M |
| confidence | Confidence | 1 | Indicates the confidence of the location as a percentage. | M |

##### 7.3.3.X.15 Type: UncertaintyEllipse

The UncertaintyEllipse type is derived from the data present in the UncertaintyEllipse type defined in TS 29.572 [24] clause 6.1.6.2.22.

Table 7.3.3.X.15-1 contains the details for the UncertaintyEllipse type.

Table 7.3.3.X.15-1: Definition of type UncertaintyEllipse

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| semiMajor | Uncertainty | 1 | This parameter has been deprecated and shall always be set to 0. | M |
| semiMinor | Uncertainty | 1 | This parameter has been deprecated and shall always be set to 0. | M |
| orientationMajor | Orientation | 1 | Indicates the orientation of the major axis in degrees. | M |
| semiMajorSBI | UncertaintySBI | 1 | Indicates the semi-major axis of the uncertainty ellipse in meters. | M |
| semiMinorSBI | UncertaintySBI | 1 | Indicates the semi-minor axis of the uncertainty ellipse in meters. | M |

##### 7.3.3.X.16 Type: Polygon

The Polygon type is derived from the data present in the Polygon type defined in TS 29.572 [24] clause 6.1.6.2.9.

Table 7.3.3.X.16-1 contains the details for the Polygon type.

Table 7.3.3.X.16-1: Definition of type Polygon

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| pointList | SET OF GeographicalCoordinates | 3..15 | Contains a list of 3-15 points defining the corners of a polygon. | M |

##### 7.3.3.X.17 Type: PointAltitude

The PointAltitude type is derived from the data present in the PointAltitude type defined in TS 29.572 [24] clause 6.1.6.2.10.

Table 7.3.3.X.17-1 contains the details for the PointAltitude type.

Table 7.3.3.X.17-1: Definition of type PointAltitude

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| geographicalCoordinates | GeographicalCoordinates | 1 | Indicates a geographic point represented by its longitude and latitude. | M |
| altitude | Altitude | 1 | Indicates the altitude of the UE in meters. | M |

##### 7.3.3.X.18 Type: PointAltitudeUncertainty

The PointAltitudeUncertainty type is derived from the data present in the PointAltitudeUncertainty type defined in TS 29.572 [24] clause 6.1.6.2.11.

Table 7.3.3.X.18-1 contains the details for the PointAltitudeUncertainty type.

Table 7.3.3.X.18-1: Definition of type PointAltitudeUncertainty

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| geographicalCoordinates | GeographicalCoordinates | 1 | Indicates a geographic point represented by its longitude and latitude. | M |
| altitude | Altitude | 1 | Indicates the altitude of the UE in meters. | M |
| uncertaintyEllipse | UncertaintyEllipse | 1 | Describes an uncertainty ellipse. | M |
| uncertaintyAltitude | Uncertainty | 1 | This parameter has been deprecated and shall be set to 0. | M |
| confidence | Confidence | 1 | Indicates the confidence of the location as a percentage. | M |
| uncertaintyAltitudeSBI | UncertaintySBI | 1 | Indicates the uncertainty of the altitude in meters. | M |

##### 7.3.3.X.19 Type: EllipsoidArc

The EllipsoidArc type is derived from the data present in the EllipsoidArc type defined in TS 29.572 [24] clause 6.1.6.2.12.

Table 7.3.3.X.19-1 contains the details for the EllipsoidArc type.

Table 7.3.3.X.19-1: Definition of type EllipsoidArc

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| geographicalCoordinates | GeographicalCoordinates | 1 | Indicates a geographic point represented by its longitude and latitude. | M |
| innerRadius | InnerRadius | 1 | Indicates the inner radius of the ellipsoid arc in meters. | M |
| uncertaintyRadius | Uncertainty | 1 | This parameter has been deprecated and shall be set to 0. | M |
| offsetAngle | Angle | 1 | Indicates the angle from North to the first defining radius of the arc in degrees. | M |
| includedAngle | Angle | 1 | Indicates the angle from the first defining radus of the arc to the second in degrees. | M |
| confidence | Confidence | 1 | Indicates the confidence of the location as a percentage. | M |
| uncertaintyRadiusSBI | UncertaintySBI | 1 | Indicates the width of the uncertainty arc in meters. | M |

##### 7.3.3.X.20 Type: RATType

The RATType type is derived from the data present in the RATType type defined in TS 29.571 [17] clause 5.4.3.2.

Table 7.3.3.X.20-1 contains the details for the RATType type.

Table 7.3.3.X.20-1: Enumeration for RATType

|  |  |
| --- | --- |
| Enumeration | Description |
| nR | New Radio |
| eUTRA | (WB) Evolved Universal Terrestrial Radio Access |
| wLAN | Untrusted Wireless LAN (IEEE 802.11) access |
| nBIOT | NB IoT |
| wireline | Wireline access |
| wirelineCable | Wireline Cable Access |
| wirelineBBF | Wireline BBF Access |
| lTEM | LTE-M. Also used when a Category M UE using E-UTRA has brovided a Category M indication to the NG-RAN |
| nRU | New Radio in unlicensed bands |
| eUTRAU | (WB) Evolved Universal Terrerestrial Radio Access in unlicensed bands |
| trustedN3GA | Trusted Non-3GPP access |
| trustedWLAN | Trusted Wireless LAN (IEEE 802.11) access |
| uTRA | UMTS Terrestrial Radio Access |
| gERA | GSM EDGE Radio Access Network |
| nRLEO | NR (LEO) satellite access type |
| nRMEO | NR (MEO) satellite access type |
| nRGEO | NR (GEO) satellite access type |
| nROTHERSAT | NR (OTHERSAT) satellite access type |
| nRREDCAP | NR RedCap access type |

##### 7.3.3.X.21 Type: CellInformation

Table 7.3.3.X.21-1 contains the details for the CellInformation type.

Table 7.3.3.X.21-1: Definition of type CellInformation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| rANCGI | RANCGI | 1 | The RAN CGI for the cell being reported. | M |
| cellSiteInformation | CellSiteInformation | 0..1 | Contains location information for the cell site being reported. Shall be present if known at the NF where the POI is located or at the MDF. | C |
| timeOfLocation | Timestamp | 0..1 | The time the cell site information was determined. | C |

##### 7.3.3.X.22 Type: RANCGI

Table 7.3.3.X.22-1 contains the details for the RANCGI type.

Table 7.3.3.X.22-1: Definition of Choices for RANCGI

|  |  |  |
| --- | --- | --- |
| CHOICE | Type | Description |
| eCGI | ECGI | Shall be used to report the E-UTRA Cell Identity. |
| nCGI | NCGI | Shall be used to report the NR Cell Identity. |
| CGI | CGI | Shall be used to report the GERA or UTRA Cell Identity. |

##### 7.3.3.X.23 Type: TAI

The TAI type is used to report the Tracking Area Identity. The TAI type is derived from the data present in the EutraLocation type defined in TS 29.571 [17] clause 5.4.4.4.

Table 7.3.3.X.23-1 contains the details for the TAI type.

Table 7.3.3.X.23-1: Definition of type TAI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| pLMNID | PLMNID | 1 | The PLMN Identity of the TAI. | M |
| tAC | TAC | 1 | The Tracking Area Code for the Tracking Area being reported. | M |
| nID | NID | 0..1 | Network Identifier of the Tracking Area being reported. Shall be be present if the TAI being reported belongs to an SNPN. | C |

##### 7.3.3.X.24 Type: ECGI

The ECGI type is used to report the E-UTRA Cell Identity. The ECGI type is derived from the data present in the ECGI type defined in TS 29.571 [17] clause 5.4.4.5.

Table 7.3.3.X.24-1 contains the details for the ECGI type.

Table 7.3.3.X.24-1: Definition of type ECGI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| pLMNID | PLMNID | 1 | The PLMN Identity of the cell being reported. | M |
| eUTRACellID | EUTRACellID | 1 | The E-UTRA Cell Identity for the cell being reported. | M |
| nID | NID | 0..1 | Network Identifier of the cell being reported. Shall be be present if the cell being reported belongs to an SNPN. | C |

##### 7.3.3.X.25 Type: GlobalRANNodeID

The GlobalRANNodeID type is derived from the data present in the GlobalRANNodeID type defined in TS 29.571 [17] clause 5.4.4.28.

Table 7.3.3.X.25-1 contains the details for the GlobalRANNodeID type.

Table 7.3.3.X.25-1: Definition of type GlobalRANNodeID

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| pLMNID | PLMNID | 1 | The PLMN Identity of the RAN Node. | M |
| aNNodeID | ANNodeID | 1 | The Global Identifier for the Access Node. | M |
| nID | NID | 0..1 | Network Identifier of the cell being reported. Shall be be present if the cell being reported belongs to an SNPN. | C |

##### 7.3.3.X.26 Type: ANNodeID

The ANNodeID type is derived from the data present in the GlobalRANNodeID type defined in TS 29.571 [17] clause 5.4.4.28.

Table 7.3.3.X.26-1 contains the details for the ANNodeID type.

Table 7.3.3.X.26-1: Choices for ANNodeID

|  |  |  |
| --- | --- | --- |
| CHOICE | Type | Description |
| n3IWFID | N3IWFIDSBI | Shall be chosen if the AN node represents a N3IWF. When present, this IE shall contain the identifier of the N3IWF. |
| gNBID | GNBID | Shall be chosen if the RAN Node ID represents a gNB. When present, this IE shall contain the identifier of the gNB. |
| nGENbID | NGENbID | Shall be chosen if the RAN Node ID represents a NG-eNB. When present, this IE shall contain the identifier of the NG-eNB. |
| eNbID | ENbID | Shall be chosen if the RAN Node ID represents a eNB. When present, this IE shall contain the identifier of the eNB. |
| wAGFID | WAGFID | if the RAN Node ID represents a WAGF. When present, this IE shall contain the identifier of the WAGF. |
| tNGFID | TNGFID | Shall be present if the RAN Node ID represents a TNGF. When present, this IE shall contain the identifier of the TNGF. |

##### 7.3.3.X.27 Type: NgENBID

The nGENbID type is derived from the data present in the NgeNbId type defined in TS 29.571 [17] table 5.4.2-1.

Table 7.3.3.X.27-1 contains the details for the NGENbID type.

Table 7.3.3.X.27-1: Definition of type NGENbID

|  |  |  |
| --- | --- | --- |
| CHOICE | Type | Description |
| macroNGENbID | BIT STRING (SIZE(20)) | Shall be chosen if the ng-eNB ID is a Macro ng-eNB ID. Shall be encoded as described in TS 38.413 [23] clause 9.3.1.8. |
| shortMacroNGENbID | BIT STRING (SIZE(18)) | Shall be chosen if the ng-eNB ID is a Short Macro ng-eNB ID. Shall be encoded as described in TS 38.413 [23] clause 9.3.1.8. |
| longMacroNGENbID | BIT STRING (SIZE(21)) | Shall be chosen if the ng-eNB ID is a Long Macro ng-eNB ID. Shall be encoded as described in TS 38.413 [23] clause 9.3.1.8. |

##### 7.3.3.X.28 Type: NCGI

The NCGI type is used to report the NR Cell Identity. The NCGI type is derived from the data present in the NCGI type defined in TS 29.571 [17] clause 5.4.4.6.

Table 7.3.3.X.28-1 contains the details for the NCGI type.

Table 7.3.3.X.28-1: Definition of type NCGI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| pLMNID | PLMNID | 1 | The PLMN Identity of the cell being reported. | M |
| nRCellID | NRCellID | 1 | The NR Cell Identity for the cell being reported. | M |
| nID | NID | 0..1 | Network Identifier of the cell being reported. Shall be be present if the cell being reported belongs to an SNPN. | C |

##### 7.3.3.X.29 Type: IPAddr

The IPAddr type is used to report IP Addresses.

Table 7.3.3.X.29-1 contains the details for the IPAddr type.

Table 7.3.3.X.29-1: Definition of type IPAddr

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| iPv4Address | IPv4Address | 0..1 | The IPv4 address being reported. Shall be included if known at the NF where the POI is located. | C |
| iPv6Address | IPv6Address | 0..1 | The IPv6 address being reported. Shall be included if known at the NF where the POI is located. | C |

##### 7.3.3.X.30 Type: TNAPID

The TNAPID type is used to report the TNAP Identity. The TNAPID type is derived from the data present in the TnapId type defined in TS 29.571 [17] clause 5.4.4.62.

Table 7.3.3.X.30-1 contains the details for the TNAPID type.

Table 7.3.3.X.30-1: Definition of type TNAPID

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| sSID | SSID | 0..1 | The SSID of the access point to which the UE is attached. This parameter shall be present when the UE is accessing the 5GC via a trusted WLAN or if known at the NF where the POI is located. | C |
| bSSID | BSSID | 0..1 | The SSID of the access point to which the UE is attached. This parameter shall be present if known at the NF where the POI is located. | C |
| civicAddress | CivicAddressBytes | 0..1 | The civic address of the TNAP to which the UE is attached including the associated Location-Information and Location-Data (see TS 29.571 [17] Table 5.4.4.62-1. This parameter shall be present if known at the NF where the POI is located. | C |

##### 7.3.3.X.31 Type: TWAPID

The TWAPID type is used to report the TWAP Identity. The TWAPID type is derived from the data present in the TwapId type defined in TS 29.571 [17] clause 5.4.4.63.

Table 7.3.3.X.31-1 contains the details for the TWAPID type.

Table 7.3.3.X.31-1: Definition of type TWAPID

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Field name | Type | Cardinality | Description | M/C/O |
| sSID | SSID | 0..1 | The SSID of the access point to which the UE is attached. | MD |
| bSSID | BSSID | 0..1 | The SSID of the access point to which the UE is attached. This parameter shall be present if known at the NF where the POI is located. | C |
| civicAddress | CivicAddressBytes | 0..1 | The civic address of the TNAP to which the UE is attached including the associated Location-Information and Location-Data (see TS 29.571 [17] Table 5.4.4.62-1. This parameter shall be present if known at the NF where the POI is located. | C |

##### 7.3.3.X.33 Enumeration: TransportProtocol

The TransportProtocol indicates the transport protocol used to connect to the 5GS. The TransportProtocol type is derived from the data present in the TransportProtocol type defined in TS 29.571 [17] clause 5.4.4.10 and table 5.4.3.38.

Table 7.3.3.X.33-1 contains the details for the clause 5.4.4.10 and table 5.4.3.38 type.

Table 7.3.3.X.33-1: Enumeration clause 5.4.4.10 and table 5.4.3.38

|  |  |
| --- | --- |
| Enumeration value | Description |
| uDP(1) | UDP is in use. |
| tCP(2) | TCP is in use. |

##### 7.3.3.X.32 Enumeration: W5GBANLineType

The W5GBANLineType indicates the type of wireline access used connect to the 5GS. The W5GBANLineType type is derived from the data present in the LineType type defined in TS 29.571 [17] clause 5.4.3.33.

Table 7.3.3.X.32-1 contains the details for the W5GBANLineType type.

Table 7.3.3.X.32-1: Enumeration W5GBANLineType

|  |  |
| --- | --- |
| Enumeration value | Description |
| dSL(1) | DSL Line |
| pON(2) | PON Line |

#### 7.3.3.Y Reference datum

When the reference datum used for a latitude and longitude given in the GeographicalCoordinates structure is known by the operator, the reference datum shall be identified in the mapDatumInformation field. The reference datum identity shall be specified as an Open Geospatial Consortium URN, as defined in OGC 05-010 [35].

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

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