**3GPP TSG-SA5 Meeting #155 *S5-244231rev1***

**Maastricht, NL, 19 - 23 August 2024**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **32.291** | **CR** | **0579** | **rev** | **-** | **Current version:** | **18.6.1** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  |
| ***Title:***  | Introduce Data Type for Ranging and Sidelink Positioning charging |
|  |  |
| ***Source to WG:*** | China Telecom |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | Ranging\_SL\_CH |  | ***Date:*** | 2024-08-09 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-19 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
|  |  |
| ***Reason for change:*** | The corresponding Data type and feature negotiation of Ranging and Sidelink Positioning is missing. |
|  |  |
| ***Summary of change:*** | Add specific Data Type and feature negotiation for for Ranging and Sidelink Positioning. |
|  |  |
| ***Consequences if not approved:*** | Charging for Ranging and Sidelink Positioning will not be supported |
|  |  |
| ***Clauses affected:*** | 2, 6.1.6.2.x, 6.1.8 |
|  |  |
|  | **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:*** | The ref number 6.2y.1.2.1 in the first paragraph of clase 6.1.6.2.x.1 is linkage to TS 32.271 CR 0025 6.2x.1.2.1. |
|  |  |
| ***This CR's revision history:*** |  |

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| **First change** |

# 2 References

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

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

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

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

[1] 3GPP TS 32.240: "Telecommunication management; Charging management; Charging architecture and principles".

[2] - [13] Void.

[14] 3GPP TS 32.254: "Telecommunication management; Charging management; Exposure function Northbound Application Program Interfaces (APIs) charging ".

[15] - [28] Void.

[29] 3GPP TS 32.274: "Telecommunication management; Charging management;Short Message Service (SMS) charging".

[30] 3GPP TS 32.255: "Telecommunication management; Charging management; 5G Data connectivity domain charging; stage 2".

[31] 3GPP TS 32.256: "Telecommunication management; Charging management; 5G connection and mobility domain charging; stage 2".

[32] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".

[33] 3GPP TS 32.275: "Telecommunication management; Charging management; MultiMedia Telephony (MMTel) charging".

[34] 3GPP TS 32.281: " Telecommunication management; Charging management; Announcement

[35] 3GPP TS 32.277: "Telecommunication management; Charging management; Proximity-based Services (ProSe) charging".

[36] 3GPP TS 32.257: "Telecommunication management; Charging management; Edge computing domain charging; stage 2".

[37] 3GPP TS 32.270: "Telecommunication management; Charging management; Multimedia Messaging Service (MMS) charging".

[xx] 3GPP TS 32.271: "Telecommunication management; Charging management; Location Services (LCS) charging".

[38] - [42] Void.

[43] 3GPP TS 32.282: "Charging management; Time-Sensitive Networking (TSN) charging".

[44] - [57] Void.

[58] 3GPP TS 32.290: "Telecommunication management; Charging management; 5G system; Services, operations and procedures of charging using Service Based Interface (SBI).

[59] - [69] Void.

[70] 3GPP TS 28.201: "Charging management; Network slice performance and analytics charging in the 5G System (5GS); Stage 2".

[71] 3GPP TS 28.202: "Charging management; Network slice management charging in the 5G System (5GS); Stage 2".

[72] 3GPP TS 28.203: "Charging management; Network slice admission control charging in the 5G System (5GS)".

[73] 3GPP TS 28.204: "Charging management; Network slice-specific authentication and authorization charging in the 5G System (5GS)".

[74] - [99] Void.

[100] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[101] 3GPP TR 21.900: "Technical Specification Group working methods".

[102] 3GPP TS 24.605: "Conference (CONF) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification".

[103] - [199] Void

[200] - [252] Void

[253] 3GPP TS 28.532: "Management and orchestration; Management services".

[254] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3".

[255] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

[256] 3GPP TS 28.554: "Management and orchestration;5G end to end Key Performance Indicators (KPI)".

[257] 3GPP TS 28.623: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions".

[258] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP; Stage 3".

[259] 3GPP TS 29.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification".".

[260] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx interface; signalling flows and message contents".

[261] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[262] 3GPP TS 28.550: "Management and orchestration; Performance assurance ".

[263] 3GPP TS 28.552: "Management and orchestration; 5G performance measurements ".

[264] - [297] Void

[298] 3GPP TS 29.244: "Interface between the Control Plane and the User Plane nodes"

[299] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[300] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[301] 3GPP TS 29.594: "5G System; Spending Limit Control Service; Stage 3".

[302] 3GPP TS 29.512: "5G System; Session Management Policy Control Service; Stage 3".

[303] 3GPP TS 24.501: "Non-Access-Stratum (NAS) Protocol for 5G System (5GS); Stage 3".

[304] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP)".

[305] 3GPP TS 29.510: "Network Function Repository Services; Stage 3".

[306] 3GPP TS 29.520: "5G System; Network Data Analytics Services;Stage 3".

[307] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol specification".

[308] 3GPP TS 24.334: " Proximity-services (ProSe) User Equipment (UE) to ProSe function protocol aspects; Stage 3".

[309] 3GPP TS 29.558: "Enabling Edge Applications; Application Programming Interface (API) specification; stage 3".

[310] 3GPP TS 28.538: "Management and orchestration; Edge Computing Management".

[311] 3GPP TS 24.558: "Enabling Edge Applications; Protocol specification".

[312] 3GPP TS 29.122: "T8 reference point for Northbound Application Programming Interfaces (APIs)".

[313] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[314] - [370] Void

[371] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[372] - [389] Void

[390] 3GPP TS 33.501: "Security architecture and procedures for 5G System".

[391] - [399] Void

[400] Void.

[401] Void.

[402] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format ".

[403] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[404] IETF RFC 3986: "Uniform Resource Identifiers (URI): Generic Syntax".

[405] IETF RFC 7315: "Private Extensions to the Session Initiation Protocol (SIP) for the 3rd Generation Partnership Projects (3GPP)".

[406] IETF RFC 3261: "SIP: Session Initiation Protocol".

[407] IETF RFC 8866: "SDP: Session Description Protocol".

[408] IETF RFC 5646: "Tags for Identifying Languages".

[409] OMA "Multimedia Messaging Service; Encapsulation Protocol".

[410] - [499] Void.

[500] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[501] - [599] Void.

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| **Next change** |

##### 6.1.6.2.x Ranging and Sidelink Positioning Specified Data Type

###### 6.1.6.2.x.1 Type ChargingDataRequest

This clause specifies additional attributes of the type ChargingDataRequest defined in clause 6.2y.1.2.1 Ranging and Sidelink Positioning charging described in 3GPP TS 32.271 [xx].

Table 6.1.6.2.x.1-1: Ranging and Sidelink Positioning Specified attribute of type ChargingDataRequest

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| rangingSLChargingInformation | RangingSLChargingInformation | OC | 0..1 | This field holds the Ranging and Sidelink Positioning specific information. | Ranging and Sidelink Positioning |

###### 6.1.6.2.x.2 Type ChargingDataResponse

This clause specifies additional attributes of the type ChargingDataResponse defined in clause 6.2y.1.2.2 Ranging and Sidelink Positioning charging described in 3GPP TS 32.271 [xx].

Table 6.1.6.2.x.2-1: Ranging and Sidelink Positioning specified attribute of type ChargingDataResponse

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
|  |  |  |  |  |  |

###### 6.1.6.2.x.3 Type RangingSLChargingInformation

Table  6.1.6.2.x.3-1: Definition of type RangingSLChargingInformation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| targetUEID | Supi | OC | 0..1 | The identity of Target UE in Ranging/Sidelink positioning |  |
| sLReferenceUEID | Supi | OC | 0..1 | The identity of SL Reference UE in Ranging/Sidelink positioning |  |
| sLPositioningServerUEID | Supi | OC | 0..1 | The identity of SL Positioning Server UE in Ranging/Sidelink positioning |  |
| locatedUEID | Supi | OC | 0..1 | The identity of Located UE in Ranging/Sidelink positioning |  |
| locationType | LocationType | OC | 0..1 | This field holds the type of location information being requested. |  |
| locationEstimate | LocationEstimate | OC | 0..1 | This field denotes the location of a Target UE and the accuracy of the estimate. |  |

###### 6.1.6.2.x.4 Type LocationEstimate

Table 6.1.6.2.x.5-1: Definition of type LocationEstimate

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| userLocationInformation | UserLocation | OC | 0..1 | provides information on the location |  |
| horizontalAccuracy | String | OC | 0..1 | This field indicates the required horizontal accuracy of the location estimate. |  |
| verticalAccuracy | String | OC | 0..1 | This field indicates the required vertical accuracy of the location estimate. |  |

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| **Next change** |

##### 6.1.6.3.4 Enumeration: NodeFunctionality

Table 6.1.6.3.4-1: Enumeration NodeFunctionality

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| SMF | This field identifies that NF is a SMF. |  |
| AMF | This field identifies that NF is a AMF. |  |
| SMSF | This field identifies that NF service consumer is a SMSF. |  |
| PGW\_C\_SMF | This field identifies that NF is a SMF+PGW-C. |  |
| NEF | This field identifies that NF is a NEF. |  |
| SGW | This field identifies that node is an SGW, only applicable for interworking with EPC. |  |
| I\_SMF | This field identifies that node is an I-SMF, only applicable for PDU session served by SMF + I-SMF. | ETSUN |
| ePDG | This field identifies that node is an ePDG, only applicable for interworking with EPC/ePDG. | 5GIEPC\_CH |
| CEF | This field identifies that NF is a CEF. |  |
| MnS\_Producer | This field identifies that NF is a MnS Producer |  |
| SGSN | This field identifies that node is an SGSN, only applicable when SMF+PGW-C serves GERAN/UTRAN access. | TEI17\_NIESGU |
| V\_SMF | This field identifies that node is a V-SMF, may be used instead of SMF in roaming scenarios. |  |
| 5G\_DDNMF | This field identifies that NF is a 5G DDNMF | 5G ProSe |
| IMS\_Node | This field identifies that NF is an IMS Node. A further breakdown of IMS Node type may be available in IMS Charging Information | IMS |
| EES | This field identifies that NF is an EES. | EdgeComputing |
| PCF | This field identifies that NF is PCF. Only applicable for API Target Network Function |  |
| UDM | This field identifies that NF is UDM. Only applicable for API Target Network Function |  |
| UPF | This field identifies that NF is UPF. Only applicable for API Target Network Function |  |
| TSN AF | This field identifies that NF is a TSN AF. | TSN |
| TSCTSF | This field identifies that NF is a TSCTSF. | TSN |
| MB\_SMF | This field identifies that NF is a MB-SMF. |  |
| CHF | This field identifies that NF is a CHF. | INTER\_CHF |
| GMLC | This field identifies that NF is a GMLC. | Ranging and Sidelink Positioning |

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| **Next change** |

##### 6.1.6.3.a Enumeration: LocationType

**Table 6.1.6.3.a-1: Enumeration LocationType**

|  |  |  |
| --- | --- | --- |
| **Enumeration value** | **Description** | **Applicability** |
| CURRENT\_LOCATION | This value is used to indicate current location. |  |
| LAST\_KNOWN\_LOCATION | This value is used to indicate last known location. |  |
| INITIAL\_LOCATION | This value is used to indicate initial location for an emergency services call. |  |
| DEFERRED\_LOCATION | This value is used to indicate deferred location event type |  |
| NOTIFICATION\_VERIFICATION | This value is used to indicate notification verification only |  |

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| **Next change** |

### 6.1.8 Feature negotiation

The optional features in table 6.1.8-1 are defined for the Nchf\_ConvergedCharging API. They shall be negotiated using the extensibility mechanism defined in subclause 6.6 of 3GPP TS 29.500 [299].

Table 6.1.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | CHFCQM | CHF-controlled quota management i.e. support for temporary offline. |
| 2 | AF\_Charging\_Identifier | Indicates the support of long character strings as charging identifiers. |
| 3 | 5GIEPC\_CH | 5GS interworking with EPC. |
| 4 | ATSSS | This feature indicates support of Access Traffic Steering, Switching, Splitting (ATSSS). |
| 5 | ETSUN | This feature indicates support of Enhancing Topology of SMF and UPF in 5G Networks (ETSUN). |
| 6 | EnhancedDiagnostics | Support the enhanced diagnostics. |
| 7 | AMF\_subs\_PRA | PRA(s) subscription by CHF in AMF. |
| 8 | FilterRuleList | Support of multiple filter rules in the final unit indication. |
| 9 | TEI17\_NIESGU | This feature indicates support of GERAN/UTRAN access. |
| 10 | IMS | This feature indicates support of IMS. |
| 11 | QoSMonitoring | This feature indicates support of QoS Monitoring. |
| 12 | Announcement | This feature indicates support of announcements. |
| 13 | 5GLAN | This feature indicates support of 5G LAN-type services. |
| 14 | URLLC | This feature indicates support of URLLC. |
| 15 | NotifyInfoResponse | This feature indicates support of response with information for a notification. |
| 16 | ES4xx | Extended Support of HTTP 400, 403, 404 allowing use of either ChargingDataResponse or ProblemDetails in the response. |
| 17 | ES3xx | Extended Support of HTTP 307 and 308 redirections, an NF that does not support this feature does only support HTTP redirection as specified for 3GPP Release 15 and 16. |
| 18 | EdgeComputing | This feature indicates support of edge computing domain charging. |
| 19 | 5GSCIoT | This feature indicates support of 5GS control plane CIoT optimization. |
| 20 | SMF\_Charging\_Id | Indicates the support of strings as SMF charging identifiers. |
| 21 | SNPN | This feature indicates support of Stand-alone Non-Public Network. |
| 22 | IDC\_CH | This feature indicates support of IMS Data Channel charging. |
| 23 | 5MBS\_CH | This feature indicates 5G multicast-broadcast services charging. |
| 24 | SatelliteAccess | This feature indicates support of NR satellite access.  |
| 25 | NSREP | This feature indicates support of Network slice replacement charging. |
| 26 | TSN | This feature indicates support of time sensitive networking. |
| 27 | 5GSATB | This feature indicates support of satellite backhaul. |
| 28 | NSAC\_CH | This feature indicates support of Network slice admission control charging |
| 29 | NSSAA | This feature indicates support of Network slice-specific authentication and authorization charging |
| 30 | ProSe | This feature indicates support of 5G ProSe. |
| 31 | INTER\_CHF | This feature indicates support of inter-CHF communication. |
| xy | RangingSL | This feature indicates support of Ranging and Sidelink Positioning. |

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| **End of changes** |