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| **3GPP TSG-SA5 Meeting #142-e *S5-222313rev2*****e-meeting, 4 - 12 April 2022**

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| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **32.277** | **CR** | **0037** | **rev** | **0** | **Current version:** |  |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |

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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **x** |
|  |
| ***Title:***  | Introduction of 5G ProSe converged charging information |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** | SA5 |
|  |  |
| ***Work item code:*** | 5G\_ProSe |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 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:*** | Charging information for 5G Prose converged charging is missing |
|  |  |
| ***Summary of change:*** | Introduce new clause on Charging information for 5G Prose converged charging |
|  |  |
| ***Consequences if not approved:*** | No converged charging for 5G ProSe. |
|  |  |
| ***Clauses affected:*** | 6.x (new) |
|  |  |
|  | **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's revision history:*** |  |

|  |
| --- |
| **1st modified section** |

## 6.x Definition of the 5G ProSe converged charging information

### 6.x.1 General

The Charging Information parameter used for 5G ProSe converged charging is provided in the following sub-clauses.

|  |
| --- |
| **Next change** |

### 6.x.2 Definition of 5G ProSe charging information

#### 6.x.2.1 Definition of the PC5 link Charging Information

The fields of the ProSe specific charging information used for 5G ProSe is provided within the Service Specification Information.

The detailed structure of the PC5 link Charging Information can be found in table 6.x.2.1.1.

Table 6.x.2.1.1: Structure of PC5 link Charging Information

|  |  |  |
| --- | --- | --- |
| Information Element | Category | Description |
| User Information | OM | Group of user information. |
| User Identifier | OC | This field contains the identification of the user (i.e. GPSI). |
| User Equipment Info  | OC | This field holds the identification of the terminal (i.e. PEI, MAC Address) It is used for identifying the user in case SUPI is not present during emergency service.  |
| unauthenticatedFlag | OC | This field indicates the served SUPI is not authenticated. |
| ProSe Information | OM | Described in table 6.3.1.2.1. |
| Announcing PLMN ID | OC | Described in table 6.3.1.2.1. |
| Announcing UE HPLMN Identifier | OM | Described in table 6.3.1.2.1. |
| Announcing UE VPLMN Identifier | OC | Described in table 6.3.1.2.1. |
| Monitoring UE HPLMN Identifier | OC | Described in table 6.3.1.2.1. |
| Monitoring UE VPLMN Identifier | OC | Described in table 6.3.1.2.1. |
| Discoverer UE HPLMN Identifier | OM | Described in table 6.3.1.2.1. |
| Discoverer UE VPLMN Identifier | OC | Described in table 6.3.1.2.1. |
| Discoveree UE HPLMN Identifier | OC | Described in table 6.3.1.2.1. |
| Discoveree UE VPLMN Identifier | OC | Described in table 6.3.1.2.1. |
| Monitored PLMN Identifier | OC | Described in table 6.3.1.2.1. |
| ProSe Application ID | Oc | Described in table 6.3.1.2.1. |
| Application ID | Oc | Described in table 6.3.1.2.1. |
| Application Specific Data | Oc | Described in table 6.3.1.2.1. |
| ProSe functionality | Oc | This IE holds the ProSe functionality UE is requesting, e.g. direct discovery (Announcing, Monitoring, or Match Report), direct communication. |
| ProSe Event Type | Oc | Described in table 6.3.1.2.1. |
| Direct Discovery Model | Oc | Described in table 6.3.1.2.1. |
| Validity Period | Oc | Described in table 6.3.1.2.1. |
| Role of UE | Oc | Described in table 6.3.1.2.1. |
| ProSe Request Timestamp | Oc | Described in table 6.3.1.2.1. |
| PC3 Protocol Cause | Oc | Described in table 6.3.1.2.1. |
| Monitoring UE Identifier | Oc | Described in table 6.3.1.2.1. |
| Requestor PLMN Identifier | OC | Described in table 6.3.1.2.1. |
| Requested Application Layer User ID | Oc | Described in table 6.3.1.2.1. |
| Requested PLMN Identifier | Oc | Described in table 6.3.1.2.1. |
| Time Window | Oc | Described in table 6.3.1.2.1. |
| Range Class | Oc | Described in table 6.3.1.2.1. |
| Proximity Alert Indication | Oc | Described in table 6.3.1.2.1. |
| Proximity Alert Timestamp | Oc | Described in table 6.3.1.2.1. |
| Proximity Cancellation Timestamp | Oc | Described in table 6.3.1.2.1. |
| Relay IP address | Oc | Described in table 6.3.1.2.1. |
| ProSe UE-to-Network Relay UE ID  | Oc | Described in table 6.3.1.2.1. |
| ProSe Destination Layer-2 ID | Oc | The identifier of a link-layer that identifies a device or a group of devices that are recipients of ProSe communication frames. |
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Editor’s note: it is FFS for the structure of the ProSe Information and it is to be revisited.

#### 6.x.2.2 Definition of PC5 Container Information

Used Unit Container, described in table 6.2x.1.2.1, specific charging information used for 5G ProSe charging is provided within the PC5 Container Information described in table 6.x.2.2.1.

Table 6.x.2.2.1: Structure of PC5 Container Information

| Information Element | Category | Description  |
| --- | --- | --- |
| Coverage Info | Oc | This IE provides information on the coverage status (i.e., whether the UE is served by NG-RAN or not) and the time when the coverage status changed to its current state. When in NG-RAN coverage, additionally includes a list of location changes (i.e., NCGI change) and associated time for each change. |
| Radio Parameter Set Info | Oc | Described in table 6.3.1.2.1.. |
| Transmitter Info | Oc | Described in table 6.3.1.2.1. |
| Time of First Transmission | Oc | Described in table 6.3.1.2.1. |
| Time of First Reception | Oc | Described in table 6.3.1.2.1. |
| Transmitter Info | Oc | Described in table 6.3.1.2.1. |
| Time of First Transmission | Oc | Described in table 6.3.1.2.1. |
| Time of First Reception | Oc | Described in table 6.3.1.2.1. |
| Transmission Data Container | OC | Described in table 6.3.1.2.1. |
| Local Sequence Number | Oc | Described in table 6.3.1.2.1. |
| Change Time | Oc | Described in table 6.3.1.2.1. |
| Coverage status | Oc | Whether UE is served by NG-RAN or not, i.e. in coverage, out of coverage. |
| User Location Information | Oc | The location of the UE, e.g. NCGI. |
| Data Volume Transmitted | Oc | Described in table 6.3.1.2.1. |
| Change Condition | Oc | Described in table 6.3.1.2.1. |
| VPLMN Identifier | Oc | Described in table 6.3.1.2.1. |
| Usage information report sequence number | Oc | Described in table 6.3.1.2.1. |
| Radio Resources indicator | Oc | Described in table 6.3.1.2.1. |
| Radio Frequency | Oc | Described in table 6.3.1.2.1. |
| Reception Data Container | Oc | Described in table 6.3.1.2.1. |
| Local Sequence Number | Oc | Described in table 6.3.1.2.1. |
| Change Time | Oc | Described in table 6.3.1.2.1. |
| Coverage status | Oc | Described in table 6.3.1.2.1. |
| User Location Information | Oc | The location of the UE, e.g. NCGI. |
| Data Volume Received | Oc | Described in table 6.3.1.2.1. |
| Change Condition | Oc | Described in table 6.3.1.2.1. |
| VPLMN Identifier | Oc | Described in table 6.3.1.2.1. |
| Usage information report sequence number | Oc | Described in table 6.3.1.2.1. |
| Radio Resources indicator | Oc | Described in table 6.3.1.2.1. |
| Radio Frequency | Oc | Described in table 6.3.1.2.1. |
| PC5 Radio Technology | OM | Described in table 6.3.1.2.1. |

#### 6.x.2.3 Definition of PC5 QBC information

PC5 QBC specific charging information used for 5G ProSe Direct Communication charging is provided within the PC5 QBC information

The detailed structure of the PC5 QBC Information can be found in table 6.x.2.3.1.

Table 6.x.2.3.1: Structure of PC5 link Container Information

|  |  |  |
| --- | --- | --- |
| Information Element | Category | Description |
| Multiple PFI container | OC | This field holds a list of PFI containers. It may have multiple occurrences |
| Triggers | OC | This field holds the reason for closing the PFI unit container. |
| Trigger Timestamp | OC | This field holds the timestamp of the trigger. |
| Time | OC | This field holds the amount of used time. |
| Total Volume | OC | This field holds the amount of used volume in both uplink and downlink directions. |
| Uplink Volume | OC | This field holds the amount of used volume in uplink direction. |
| Downlink Volume | OC | This field holds the amount of used volume in downlink direction. |
| Local Sequence Number | M | This field holds a PFI data container sequence number |
| PFI Container information | OC | This field holds the PFI data container information defined in clause 6.x.2.3. |

Editor's note: The full list of information elements is FFS.

#### 6.x.2.4 Definition of PFI Container information

PFI Container information specific charging information used for 5G ProSe Direct Communication charging is provided within the PFI Container Information described in table 6.x.2.4.1.

Table 6.x.2.4.1: Structure of PFI Container Information

| Information Element | Category | Description  |
| --- | --- | --- |
| PC5 QoS Flow Id | M | This field holds the PC5 QoS flow Identifier (PFI) |
| Time of First Usage | OC | This field holds the Timestamp when the first transmitted IP packet of the service data flow matching the current PFI data container |
| Time of Last Usage | OC | This field holds the Timestamp when the last transmitted IP packet of the service data flow matching the current PFI data container  |
| QoS Information | OC | This field holds the PC5 QoS applied during the PFI data container interval |
| QoS Characteristics | OC | This field holds the PC5 QoS characteristics applied for PC5 QoS information. It is only be used when the non-standardized PQI is present in PC5 QoS information.  |
| User Location Information | OC | This field holds the user location during the PFI data container interval |
| UE Time Zone | OC | This field holds the Time Zone of where the UE is located, during the PFI data container interval |
| Presence Reporting Area Information | OC | This field holds the Presence Reporting Area Information of UE during the PFI data container interval. |
| Report Time | M | This field holds the Timestamp when the PFI data container was closed |

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| **End of changes** |