**3GPP TSG-CT WG1 Meeting #136-eC1-223379**

**E-Meeting, 12th – 20th May 2022**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **554** | **CR** | **0076** | **rev** | **-** | **Current version:** | **.0.0** |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Messages transmitted over the PC3ch interface | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CATT | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_ProSe | | | | |  | ***Date:*** | | | 2022-05-05 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Messages transmitted over the PC3ch interface are to be defined to support 5G ProSe charging as specified in TS 32.277. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add descriptions of messages transmitted over the PC3ch interface. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | 5G ProSe charging cannot be supported, without defining the messages to be used. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 10.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:*** | |  | | | | | | | | |

\* \* \* First Change \* \* \* \*

## 10.x Messages transmitted over the PC3ch interface

### 10.x.1 General

This subclause defines XML schema and MIME type related to messages transmitted over the PC3ch interface.

### 10.x.2 application/3gpp-5g-prose-pc3ch+xml

The MIME type is used to carry information related to message transmitted over the PC3ch interface. It shall be coded as an XML document compliant to the XML schema in subclause 10.x.3 containing one of the following messages:

- PROSE\_USAGE\_INFORMATION\_REPORT\_LIST; or

- PROSE\_USAGE\_INFORMATION\_REPORT\_LIST\_RESPONSE.

Each of those messages is presented in the XML document as an XML element named after the corresponding message.

### 10.x.3 XML Schema

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

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

xmlns="urn:3GPP:ns:5GProSe:PC3ch:2022"

elementFormDefault="qualified"

targetNamespace="urn:3GPP:ns:5GProSe:PC3ch:2022">

<xs:annotation>

<xs:documentation>

Syntax of messages transmitted over the PC3ch interface

</xs:documentation>

</xs:annotation>

<!-- Types defined for parameters with complicate structure -->

<xs:complexType name="SUPI-info">

<xs:sequence>

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

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

<xs:element name="MSIN" type="xs:integer"/>

<xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:simpleType name="IPAddress-type">

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

</xs:simpleType>

<xs:simpleType name="Layer2Id-type">

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

</xs:simpleType>

<xs:simpleType name="NCGI-type">

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

</xs:simpleType>

<xs:simpleType name="AppSpecificInfo-type">

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

</xs:simpleType>

<xs:simpleType name="RadioResourcesIndicator-type">

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

</xs:simpleType>

<xs:simpleType name="RadioFrequency-type">

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

</xs:simpleType>

<!-- XML attribute for any future extensions -->

<xs:complexType name="anyExtType">

<xs:sequence>

<xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

</xs:complexType>

<xs:complexType name="UsageInformationReportList-Info">

<xs:sequence>

<xs:element name="transaction-ID" type="xs:integer"/>

<xs:element name="UE-identity" type="SUPI-info"/>

<xs:element name="usage-information-report" type="UsageInformationReport-Info"

minOccurs="1" maxOccurs="unbounded"/>

<xs:element name="app-specific-info" type="AppSpecificInfo-type" minOccurs="0" maxOccurs="unbounded"/>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="UsageInformationReport-Info">

<xs:sequence>

<xs:element name="coverage" type="Coverage-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="group" type="Group-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="unicast" type="Unicast-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="radio-parameter-set" type="RadioParameterSet-info" minOccurs="0" maxOccurs="unbounded"/>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="sequence-number" type="xs:integer"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="Coverage-info">

<xs:sequence>

<xs:element name="location" type="Location-info" minOccurs="0" maxOccurs="unbounded"/>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="in-coverage" type="xs:boolean"/>

<xs:attribute name="timestamp" type="xs:dateTime" use="optional"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="Location-info">

<xs:sequence>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="NCGI" type="NCGI-type" use="optional"/>

<xs:attribute name="timestamp" type="xs:dateTime" use="optional"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="RadioParameterSet-info">

<xs:sequence>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="timestamp" type="xs:dateTime" use="required"/>

<xs:attribute name="params" type="xs:hexBinary"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="Group-info">

<xs:sequence>

<xs:element name="UE-source-IP-address" type="IPAddress-type"/>

<xs:element name="UE-source-layer2-id" type="Layer2Id-type"/>

<xs:element name="transmitter" type="Transmitter-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="transmission" type="Transmission-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="reception" type="Reception-info" minOccurs="0" maxOccurs="unbounded"/>

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

<xs:element name="qos-flow" type="QoSFlow-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="prose-layer2-group-ID" type="Layer2Id-type"/>

<xs:attribute name="prose-group-IP-multicast-address" type="IPAddress-type"/>

<xs:attribute name="first-transmission-timestamp" type="xs:dateTime" use="optional"/>

<xs:attribute name="first-reception-timestamp" type="xs:dateTime" use="optional"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="Unicast-info">

<xs:sequence>

<xs:element name="UE-source-IP-address" type="IPAddress-type"/>

<xs:element name="UE-source-layer2-id" type="Layer2Id-type"/>

<xs:element name="transmitter" type="Transmitter-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="receiver" type="Receiver-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="transmission" type="Transmission-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="reception" type="Reception-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="relay-UE" type="RelayUE-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="relay" type="Relay-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="qos-flow" type="QoSFlow-info" minOccurs="0" maxOccurs="unbounded"/>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="first-transmission-timestamp" type="xs:dateTime" use="optional"/>

<xs:attribute name="first-reception-timestamp" type="xs:dateTime" use="optional"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="Transmitter-info">

<xs:sequence>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="source-IP-address" type="IPAddress-type"/>

<xs:attribute name="source-layer2-id" type="Layer2Id-type"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="Transmission-info">

<xs:sequence>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="in-coverage" type="xs:boolean"/>

<xs:attribute name="NCGI" type="NCGI-type" use="optional"/>

<xs:attribute name="amount" type="xs:integer"/>

<xs:attribute name="timestamp" type="xs:dateTime" use="optional"/>

<xs:attribute name="radio-resources-ind" type="RadioResourcesIndicator-type" use="optional"/>

<xs:attribute name="radio-frequency" type="RadioFrequency-type" use="optional"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="Reception-info">

<xs:sequence>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="in-coverage" type="xs:boolean"/>

<xs:attribute name="NCGI" type="NCGI-type" use="optional"/>

<xs:attribute name="amount" type="xs:integer"/>

<xs:attribute name="timestamp" type="xs:dateTime" use="optional"/>

<xs:attribute name="radio-resources-ind" type="RadioResourcesIndicator-type" use="optional"/>

<xs:attribute name="radio-frequency" type="RadioFrequency-type" use="optional"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="Receiver-info">

<xs:sequence>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="target-IP-address" type="IPAddress-type"/>

<xs:attribute name="target-layer2-id" type="Layer2Id-type"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="RelayUE-info">

<xs:sequence>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="relay-UE-IP-address" type="IPAddress-type"/>

<xs:attribute name="relay-UE-layer2-id" type="Layer2Id-type"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="Relay-info">

<xs:sequence>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="NCGI" type="NCGI-type" use="optional"/>

<xs:attribute name="amount" type="xs:integer"/>

<xs:attribute name="timestamp" type="xs:dateTime" use="optional"/>

<xs:attribute name="radio-resources-ind" type="RadioResourcesIndicator-type" use="optional"/>

<xs:attribute name="radio-frequency" type="RadioFrequency-type" use="optional"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="QoSFlow-info">

<xs:sequence>

<xs:element name="qos-parameter-set" type="QosParameterSet-info" minOccurs="0" maxOccurs="unbounded"/>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="timestamp" type="xs:dateTime" use="optional"/>

<xs:attribute name="qos-flow-id" type="xs:hexBinary" minOccurs="0" maxOccurs="unbounded"/>

<xs:attribute name="amount" type="xs:integer"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="QosParameterSet-info">

<xs:sequence>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:attribute name="pqi" type="xs:hexBinary"/>

<xs:attribute name="gfbr" type="xs:hexBinary"/>

<xs:attribute name="mfbr" type="xs:hexBinary"/>

<xs:attribute name="averaging-window" type="xs:hexBinary"/>

<xs:attribute name="Resource-type" type="xs:hexBinary"/>

<xs:attribute name="default-priority-level" type="xs:hexBinary"/>

<xs:attribute name="packet-delay-budget" type="xs:hexBinary"/>

<xs:attribute name="packet-error-rate" type="xs:hexBinary"/>

<xs:attribute name="default-maximum-data-burst-volume" type="xs:hexBinary"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="UsageInformationReportListResponse-Info">

<xs:sequence>

<xs:element name="response-accept" type="UsageInformationReportListResponseAccept-Info" minOccurs="0"/>

<xs:element name="response-reject" type="UsageInformationReportListResponseReject-Info" minOccurs="0"/>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="UsageInformationReportListResponseAccept-Info">

<xs:sequence>

<xs:element name="transaction-ID" type="xs:integer"/>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="UsageInformationReportListResponseReject-Info">

<xs:sequence>

<xs:element name="transaction-ID" type="xs:integer"/>

<xs:element name="cause-value" type="xs:integer"/>

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

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:element name="prose-pc3ch-message">

<xs:complexType>

<xs:choice>

<xs:element name="PROSE\_USAGE\_INFORMATION\_REPORT\_LIST" type="UsageInformationReportList-Info"/>

<xs:element name="PROSE\_USAGE\_INFORMATION\_REPORT\_LIST\_RESPONSE" type="UsageInformationReportListResponse-Info"/>

<xs:element name="anyExt" type="anyExtType"/>

<xs:any namespace="##other" processContents="lax"/>

</xs:choice>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

</xs:element>

</xs:schema>

### 10.x.4 Semantics

#### 10.x.4.1 General

The <prose-pc3ch-message> element is the root element of this XML document.

The <prose-pc3ch-message> element contains one of the following:

a) <PROSE\_USAGE\_INFORMATION\_REPORT\_LIST> element;

b) <PROSE\_USAGE\_INFORMATION\_REPORT\_LIST\_RESPONSE> element;

c) <anyExt> element containing elements defined in future releases; or

d) one or more elements from other namespace defined in future releases.

The <prose-pc3ch-message> element contains zero, one or more attributes defined in future releases.

#### 10.x.4.2 Semantics of <PROSE\_USAGE\_INFORMATION\_REPORT\_LIST>

The <PROSE\_USAGE\_INFORMATION\_REPORT\_LIST> element contains:

a) a <transaction-ID> element containing the parameter defined in subclause 11.x.2.1;

b) a <UE-identity> element containing the parameter defined in subclause 11.x.2.2;

c) one or more <usage-information-report> elements;

d) zero, one or more <app-specific-info> element;

e) zero or one <anyExt> element containing elements defined in future releases;

f) zero, one or more elements from other namespaces defined in future releases; and

g) zero, one or more attributes defined in future releases.

The <usage-information-report> element carries one usage information report. The <usage-information-report> element contains:

a) mandatory "sequence-number" attribute containing the parameter defined in subclause 11.x.2.3;

b) zero, one or more <coverage> elements;

c) zero, one or more <group> element;

d) zero, one or more <unicast> element;

e) zero, one or more <radio-parameter-set> elements;

f) zero or one <anyExt> element containing elements defined in future releases;

g) zero, one or more elements from other namespaces defined in future releases; and

h) zero, one or more attributes defined in future releases.

The <coverage> element carries information whether the UE was in NG-RAN coverage or out of NG-RAN coverage. The <coverage> element contains:

a) mandatory "in-coverage" attribute containing the parameter defined in subclause 11.x.2.4;

b) optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time when the information given in the element start being valid;

c) if the UE was in NG-RAN coverage, zero, one or more <location> elements;

d) zero or one <anyExt> element containing elements defined in future releases;

e) zero, one or more elements from other namespaces defined in future releases; and

f) zero, one or more attributes defined in future releases.

The <location> element carries information about an NG-RAN cell where the UE was camping on or which the UE used in the 5GMM-CONNECTED mode. The <location> element contains:

a) an optional "NCGI" attribute containing the parameter defined in subclause 11.x.2.5;

b) an optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time when the information given in the element start being valid;

c) zero or one <anyExt> element containing elements defined in future releases;

d) zero, one or more elements from other namespaces defined in future releases; and

e) zero, one or more attributes defined in future releases.

The <radio-parameter-set> element carries information about the configured radio parameters for the ProSe direct communication applicable in the geographical area of the UE. The <radio-parameter-set> element contains:

a) a mandatory "params" attribute containing the parameter defined in subclause 11.x.2.6;

b) a mandatory "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time when the information given in the element start being valid;

c) zero or one <anyExt> element containing elements defined in future releases;

d) zero, one or more elements from other namespaces defined in future releases; and

e) zero, one or more attributes defined in future releases.

The <group> element carries information about a 5G ProSe group. The <group> element contains:

a) a mandatory "prose-layer2-group-ID" attribute containing the parameter defined in subclause 11.x.2.9;

b) a mandatory "prose-group-IP-multicast-address" attribute containing the parameter defined in subclause 11.x.2.10;

c) an optional "first-transmission-timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first transmission to the ProSe Group IP multicast address in the collection period;

d) an optional "first-reception-timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first reception from the ProSe Group IP multicast address in the collection period;

e) a <UE-source-IP-address> element containing the parameter defined in subclause 11.x.2.11, of the UE;

f) a <UE-source-layer2-id> element containing the parameter defined in subclause 11.x.2.12, of the UE;

g) zero, one or more <transmitter> element;

h) zero, one or more <transmission> element;

i) zero, one or more <reception> element;

j) zero, one or more <qos-flow> elements;

k) zero or one <anyExt> element containing elements defined in future releases;

l) zero, one or more elements from other namespaces defined in future releases; and

m) zero, one or more attributes defined in future releases.

The <unicast> element carries information about an unicast mode 5G ProSe direct communication. The <unicast> element contains:

a) an optional "first-transmission-timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first transmission in the unicast mode 5G ProSe direct communication in the collection period;

b) an optional "first-reception-timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first reception in the unicast mode 5G ProSe direct communication in the collection period;

c) a <UE-source-IP-address> element containing the parameter defined in subclause 11.x.2.11, of the UE;

d) a <UE-source-layer2-id> element containing the parameter defined in subclause 11.x.2.12, of the UE;

e) zero, one or more <transmitter> element;

f) zero, one or more <receiver> element;

g) zero, one or more <transmission> element;

h zero, one or more <reception> element;

i) zero, one or more <relay-UE> element;

j) zero, one or more < relay> element;

k) zero, one or more <qos-flow> elements;

l) zero or one <anyExt> element containing elements defined in future releases;

m) zero, one or more elements from other namespaces defined in future releases; and

n) zero, one or more attributes defined in future releases.

The <transmitter> element carries information about a transmitter in a 5G ProSe group or in an unicast mode 5G ProSe direct communication. The <transmitter> element contains:

a) a mandatory "source-IP-address" attribute containing the parameter defined in subclause 11.x.2.11, of the transmitter;

b) a mandatory "source-layer2-id" attribute containing the parameter defined in subclause 11.x.2.12, of the transmitter;

c) zero or one <anyExt> element containing elements defined in future releases;

d) zero, one or more elements from other namespaces defined in future releases; and

e) zero, one or more attributes defined in future releases.

The <receiver> element carries information about a receiver in an unicast mode 5G ProSe direct communication. The <receiver> element contains:

a) a mandatory "target-IP-address" attribute containing the parameter defined in subclause 11.x.2.11, of the receiver;

b) a mandatory "target-layer2-id" attribute containing the parameter defined in subclause 11.x.2.12, of the receiver;

c) zero or one <anyExt> element containing elements defined in future releases;

d) zero, one or more elements from other namespaces defined in future releases; and

e) zero, one or more attributes defined in future releases.

The <transmission> element carries information about a transmission in a ProSe group or in an unicast mode 5G ProSe direct communication. The <transmission> element contains:

a) a mandatory "in-coverage" attribute containing the parameter defined in subclause 11.x.2.4;

b) if the UE was in NG-RAN coverage when transmitting the data, an optional "NCGI" attribute containing the parameter defined in subclause 11.x.2.5, indicating NG-RAN Cell Global Identification of the NG-RAN cell where the UE was camping on or which the UE used in the 5GMM-CONNECTED mode when transmitting the data;

c) if the UE was in NG-RAN coverage and the "NCGI" attribute is included:

1) a mandatory "amount" attribute containing the parameter defined in subclause 11.x.2.13 indicating the amount of octets transmitted to the ProSe group or in an unicast mode 5G ProSe direct communication:

- when the UE was camping on a cell identified by the "NCGI" attribute when transmitting the data; or

- when the UE used in the 5GMM-CONNECTED mode a cell identified by the "NCGI" attribute when transmitting the data; and

2) an optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first transmission in the NG-RAN cell;

d) if the UE was in NG-RAN coverage and the "NCGI" attribute is not included:

1) a mandatory "amount" attribute containing the parameter defined in subclause 11.x.2.13 indicating the amount of octets transmitted to the ProSe group or in an unicast mode 5G ProSe direct communication during the in NG-RAN coverage period: and

2) an optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first transmission during the in NG-RAN coverage period;

e) if the UE was out of NG-RAN coverage:

1) a mandatory "amount" attribute containing the parameter defined in subclause 11.x.2.13 indicating the amount of octets transmitted to the ProSe group or in an unicast mode 5G ProSe direct communication during the out of NG-RAN coverage period; and

2) an optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first transmission during the out of NG-RAN coverage period;

f) an optional "radio-resources-ind" attribute containing the parameter defined in subclause 11.x.2.14;

g) an optional "radio-frequency" attribute containing the parameter defined in subclause 11.x.2.15;

i) zero or one <anyExt> element containing elements defined in future releases;

j) zero, one or more elements from other namespaces defined in future releases; and

k) zero, one or more attributes defined in future releases.

The <reception> element carries information about a reception in a ProSe group or in an unicast mode 5G ProSe direct communication. The <reception> element contains:

a) a mandatory "in-coverage" attribute containing the parameter defined in subclause 11.x.2.4 indicating whether the UE was in NG-RAN coverage when receiving the data;

b) if the UE was in NG-RAN coverage when receiving the data, an optional "NCGI" attribute containing the parameter defined in subclause 11.x.2.5 indicating NG-RAN Cell Global Identification of the NG-RAN cell where the UE was camping on or which the UE used in the 5GMM-CONNECTED mode when receiving the data;

c) if the UE was in NG-RAN coverage and the "NCGI" attribute is included:

1) a mandatory "amount" attribute containing the parameter defined in subclause 11.x.2.13 indicating the amount of octets received from the ProSe group or in an unicast mode 5G ProSe direct communication:

- when the UE was camping on a cell identified by the "NCGI" attribute when receiving the data; or

- when the UE used in the 5GMM-CONNECTED mode a cell identified by the "NCGI" attribute when receiving the data; and

2) an optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first reception in the NG-RAN cell;

d) if the UE was in NG-RAN coverage and the "NCGI" attribute is not included:

1) a mandatory "amount" attribute containing the parameter defined in subclause 11.x.2.13 indicating the amount of octets received from the ProSe group or in an unicast mode 5G ProSe direct communication during the in NG-RAN coverage period: and

2) an optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first reception during the in NG-RAN coverage period;

e) if the UE was out of NG-RAN coverage:

1) a mandatory "amount" attribute containing the parameter defined in subclause 11.x.2.13 indicating the amount of octets received from the ProSe group or in an unicast mode 5G ProSe direct communication during the out of NG-RAN coverage period; and

2) an optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first reception during the out of NG-RAN coverage period;

f) an optional "radio-resources-ind" attribute containing the parameter defined in subclause 11.x.2.14;

g) an optional "radio-frequency" attribute containing the parameter defined in subclause 11.x.2.15;

h) zero or one <anyExt> element containing elements defined in future releases;

i) zero, one or more elements from other namespaces defined in future releases; and

j) zero, one or more attributes defined in future releases.

The <relay-UE> element carries information about a 5G ProSe UE-to-network relay UE. The <relay-UE> element contains:

a) a mandatory "relay-UE-IP-address" attribute containing the parameter defined in subclause 11.x.2.11, of the 5G ProSe UE-to-network relay UE;

b) a mandatory "relay-UE-id" attribute containing the parameter defined in subclause 11.x.2.12, of the 5G ProSe UE-to-network relay UE;

c) zero or one <anyExt> element containing elements defined in future releases;

d) zero, one or more elements from other namespaces defined in future releases; and

e) zero, one or more attributes defined in future releases.

The <relay> element carries information about a data relay in an unicast mode 5G ProSe direct communication between the remote UE and the 5G ProSe UE-to-network relay UE,. The <relay> element contains:

a) a mandatory "NCGI" attribute containing the parameter defined in subclause 11.x.2.5, indicating NG-RAN Cell Global Identification of the NG-RAN cell where the UE was camping on or which the UE used in the 5GMM-CONNECTED mode when relaying the data;

b a mandatory "amount" attribute containing the parameter defined in subclause 11.x.2.13 indicating the amount of octets relayed by the UE used in the 5GMM-CONNECTED mode a cell identified by the "NCGI" attribute when relaying the data; and

c) a mandatory "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time of the first data relay in the NG-RAN cell;

d) an optional "radio-resources-ind" attribute containing the parameter defined in subclause 11.x.2.14;

e) an optional "radio-frequency" attribute containing the parameter defined in subclause 11.x.2.15;

f) zero or one <anyExt> element containing elements defined in future releases;

g) zero, one or more elements from other namespaces defined in future releases; and

h) zero, one or more attributes defined in future releases.

The <app-specific-info> element contains an application specific data received from upper layers during the collection period.

The <qos-flow> element carries information of PC5 QoS flows used by the UE for 5G ProSe direct communication. The <qos-flow> element contains:

a) a mandatory "qos-flow-id" attribute containing the parameter defined in subclause 11.x.2.16;

b) zero, one or more "<qos-parameter-set> " element;

c) an optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time when the information given in the element start being valid;

d) an optional "timestamp" attribute containing the parameter defined in subclause 11.x.2.8 indicating date and time when the information given in the element stop being valid;

e) a mandatory "amount" attribute containing the parameter defined in subclause 11.x.2.13 indicating the amount of octets of the QoS flow transmitted or received; and

f) zero or one <anyExt> element containing elements defined in future releases;

g) zero, one or more elements from other namespaces defined in future releases; and

h) zero, one or more attributes defined in future releases.

The <qos-parameter-set> element carries information of QoS parameters for the PC5 QoS flows used by the UE for 5G ProSe direct communication. The <qos-parameter-set> element contains:

a) a mandatory "pqi" attribute containing the parameter defined in subclause 11.x.2.17;

b) an optional "gfbr" attribute containing the parameter defined in subclause 11.x.2.18;

c) an optional "mfbr" attribute containing the parameter defined in subclause 11.x.2.19;

d) an optional "averaging-window" attribute containing the parameter defined in subclause 11.x.2.20;

e) an optional "Resource-type" attribute containing the parameter defined in subclause 11.x.2.21;

f) an optional "default-priority-level" attribute containing the parameter defined in subclause 11.x.2.22;

g) an optional "packet-delay-budget" attribute containing the parameter defined in subclause 11.x.2.23;

h) an optional "packet-error-rate" attribute containing the parameter defined in subclause 11.x.2.24;

i) an optional "default-maximum-data-burst-volume" attribute containing the parameter defined in subclause 11.x.2.25;

j) zero or one <anyExt> element containing elements defined in future releases;

k) zero, one or more elements from other namespaces defined in future releases; and

l) zero, one or more attributes defined in future releases.

#### 10.x.4.3 Semantics of <PROSE\_USAGE\_INFORMATION\_REPORT\_LIST\_RESPONSE>

The <PROSE\_USAGE\_INFORMATION\_REPORT\_LIST\_RESPONSE> element contains:

a) one of <response-accept> element and <response-reject> element;

b) zero or one <anyExt> element containing elements defined in future releases;

c) zero, one or more elements from other namespaces defined in future releases; and

d) zero, one or more attributes defined in future releases.

The <response-accept> element indicates that a related PROSE\_USAGE\_INFORMATION\_REPORT\_LIST message was accepted. The <response-accept> element contains:

a) <transaction-ID> element containing the parameter defined in subclause 11.x.2.1 indicating the value of the transaction ID of the related PROSE\_USAGE\_INFORMATION\_REPORT\_LIST message;

b) zero or one <anyExt> element containing elements defined in future releases;

c) zero, one or more elements from other namespaces defined in future releases; and

d) zero, one or more attributes defined in future releases.

The <response-reject> element indicates that a related PROSE\_USAGE\_INFORMATION\_REPORT\_LIST message was rejected. The <response-reject> element contains:

a) <transaction-ID> element containing the parameter defined in subclause 11.x.2.1 indicating the value of the transaction ID of the related PROSE\_USAGE\_INFORMATION\_REPORT\_LIST message;

b) <cause-value> element containing the parameter defined in subclause 11.x.2.7;

c) zero or one <anyExt> element containing elements defined in future releases;

d) zero, one or more elements from other namespaces defined in future releases; and

e) zero, one or more attributes defined in future releases.

\* \* \* End of Changes \* \* \* \*