**3GPP TSG-CT WG1 Meeting CT1#137-eC1-22xxxx**

**E-Meeting, 18th - 26th August 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.554** | **CR** | **0121** | **rev** | **1** | **Current version:** | **17.1.0** |  |
|  | | | | | | | | |
| *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 |  |

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|  | | | | | | | | | | |
| ***Title:*** | Update match report procedures based on 33.503 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | OPPO | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_ProSe | | | | |  | ***Date:*** | | | 2022-7-5 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | In TS 33.503, there is the following requirement the DDNMF provides the current time to UE in the match report procedures:  For open discovery:  15. The 5G DDNMF in the HPLMN of the Monitoring UE acknowledges the MIC check result to the Monitoring UE. The 5G DDNMF returns the parameter ProSe Application ID to the UE. It also provides the CURRENT\_TIME parameter, by which the UE (re)sets its ProSe clock. The 5G DDNMF in the HPLMN of the Monitoring UE may optionally modify the received Match Report refresh timer based on local policy and then include the Match Report refresh timer in the message to the Monitoring UE.  For restricted discovery:  15. The 5G DDNMF in the HPLMN of the Monitoring UE returns to the Monitoring UE an acknowledgement that the integrity check passed. It also provides the CURRENT\_TIME parameter, by which the UE (re)sets its ProSe clock. The 5G DDNMF in the HPLMN of the Monitoring UE included the Match Report refresh timer in the message to the Monitoring UE. The Match Report refresh timer indicates how long the UE will wait before sending a new Match Report for the ProSe Restricted Code.  The current time is missing in the current match report procedure for both open and restricted discovery. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the current time in the match report procedure for both open and restricted discovery. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Not align with stage 2 requirement. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.8.3, 6.2.8.4, 6.2.9.3, 6.2.9.4, 6.2.10.3, 6.2.10.4, 10.5.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \*\*\*\*\*

#### 6.2.8.3 Match report procedure accepted by the 5G DDNMF

Upon receiving a MATCH\_REPORT message, the 5G DDNMF shall check whether there is an existing context for the UE identified by its SUPI. If there is no associated UE context, the 5G DDNMF checks with the UDM whether the UE is authorized for open 5G ProSe direct discovery monitoring as described in 3GPP TS 29.503 [10].

The 5G DDNMF shall also check the PLMN ID in the ProSe application code received from the UE. If the PLMN ID in the ProSe application code is not the same of that of the PLMN to which the 5G DDNMF belongs, the 5G DDNMF shall execute the procedures defined in 3GPP TS 29.555 [9]. Otherwise, the 5G DDNMF shall check whether the received ProSe application code is authorized to be transmitted on the monitored PLMN indicated in the Monitored PLMN ID in the received message.

If the ProSe application code is PLMN-specific, the 5G DDNMF shall verify if the PLMN ID in the ProSe application code is the same as the PLMN of the 5G DDNMF. If so, the 5G DDNMF shall map the ProSe application code to the corresponding ProSe application ID from the PLMN-specific database. If the ProSe application code is country-specific, as specified in clause 24.3 of 3GPP TS 23.003 [4], the 5G DDNMF shall check whether the MCC of the PLMN ID part of the ProSe application code corresponds to the country of the 5G DDNMF. If so, the 5G DDNMF shall map the ProSe application code to the corresponding ProSe application ID from the country-specific database. If the ProSe application code is global as specified in clause 24.3 of 3GPP TS 23.003 [4], the 5G DDNMF shall map the ProSe application code to the corresponding ProSe application ID from the global database. If the ProSe application code contains a ProSe application code prefix, the 5G DDNMF maps the ProSe application code prefix to the corresponding ProSe application ID.

The 5G DDNMF shall analyze the ProSe application code received from the UE and determine the validity of the ProSe application code.

NOTE: This might require the 5G DDNMF to execute procedures defined in 3GPP TS 29.555 [9].

The 5G DDNMF shall check if the MIC value and its corresponding UTC-based counter are valid, as defined in 3GPP TS 33.503 [34].

The 5G DDNMF uses the information (e.g. ProSe application code, monitored PLMN ID, VPLMN ID if included) received from the UE in the DISCOVERY\_REQUEST message, UE identity in GBA or AKMA information related to TLS tunnel transporting the DISCOVERY\_REQUEST message, and other information for charging purposes as specified in 3GPP TS 32.277 [45].

If the outcome of above processing is successful, the 5G DDNMF shall send a MATCH\_REPORT\_ACK message containing a <match-ack> element with:

a) the transaction ID set to the value of the transaction ID received in the MATCH\_REPORT message from the UE;

b) the ProSe application ID set to the ProSe application ID provided by the 5G DDNMF and corresponding to the ProSe application code contained in the MATCH\_REPORT message;

c) the validity timer T5072 set to indicate for how long this ProSe application ID is valid;

d) the match report refresh timer T5074 set to indicate for how long the UE will wait before sending a new match report for this ProSe application code;

e) the current time set to the current UTC-based time at the 5G DDNMF; and

f) optionally, the metadata set to the metadata information associated with the ProSe application code received in the MATCH\_REPORT message and set the metadata index mask to the metadata index mask allocated by the 5G DDNMF for the ProSe application code received in the MATCH\_REPORT message, if the UE has set the metadata flag to indicate that it wishes to receive metadata information associated with the ProSe application ID.

\*\*\*\*\* Next change \*\*\*\*\*

#### 6.2.8.4 Match report procedure completion by the UE

Upon receipt of the MATCH\_REPORT\_ACK message, if the transaction ID contained in the <match-ack> element matches the value sent by the UE in a MATCH\_REPORT message, the UE shall store the mapping between the ProSe application code and ProSe application ID locally, start timers T5072 and T5074 and may inform the upper layers of this match of the ProSe application ID. If the metadata index mask is contained in the MATCH\_REPORT\_ACK message, the UE shall also store the metadata index mask with the ProSe application code and the ProSe application ID locally. If there is a locally stored mapping between the ProSe application ID and a ProSe application code, the UE shall delete the old mapping. Otherwise, the UE shall discard the MATCH\_REPORT\_ACK message. The UE shall update the ProSe clock (see 3GPP TS 33.503 [34]) to the value of the received current time parameter.

Upon receipt of the MATCH\_REPORT\_ACK message, if the transaction ID contained in the <match-reject> element matches the value sent by the UE in a MATCH\_REPORT message and if the received PC3a control protocol cause value is #5 "Invalid MIC", as specified in clause 6.2.8.5, the UE shall stop timer T5072 if it is running.

NOTE 1: It is an implementation specific choice whether the UE informs the upper layers every time a ProSe application ID triggers a match event, or only the first time this match occurs.

NOTE 2: The UE can also inform the upper layers if a ProSe application ID is no longer matched, because the validity timer T5072 of the corresponding ProSe application code expires.

NOTE 3: The UE can also inform the upper layers if a ProSe application ID is no longer matched, because the validity timer T5072 of the corresponding ProSe application code is stopped upon receiving MATCH\_REPORT\_ACK message with a <match-reject> element with PC3a control protocol cause value #5 "Invalid MIC".

\*\*\*\*\* Next change \*\*\*\*\*

#### 6.2.9.3 Match report procedure accepted by the 5G DDNMF

Upon receiving a MATCH\_REPORT message, the 5G DDNMF shall check whether there is an existing context for the UE identified by its SUPI.

The 5G DDNMF shall analyze the ProSe restricted code received from the UE in the MATCH\_REPORT message. If the MIC value and its corresponding UTC-based counter are included, the 5G DDNMF shall check whether the MIC value and the UTC-based counter are valid and within the acceptable range respectively as defined in 3GPP TS 33.503 [34]. The 5G DDNMF shall then check in the UE context if the ProSe restricted code matches any restricted discovery filter(s) allocated for the particular application identified by the ProSe identifier received in the MATCH\_REPORT message. If such a discovery filter exists, the target RPAUID associated with the filter(s) shall be identified as the corresponding RPAUID for this code. Optionally, the 5G DDNMF may further invoke the procedure defined in 3GPP TS 29.503 [10] to verify if the target RPAUID is allowed to be discovered by the RPAUID of the requesting UE that has sent the MATCH\_REPORT message, or to retrieve metadata associated for the target RPAUID if metadata flag is set to "True" in the MATCH\_REPORT message and the 5G DDNMF does not have the latest metadata.

If the outcome of the above processing is successful, the 5G DDNMF shall send a MATCH\_REPORT\_ACK message containing a <restricted-match-ack> element with:

a) the transaction ID set to the value of the transaction ID received in the MATCH\_REPORT message from the UE;

b) the RPAUID set to the target RPAUID retrieved from the UE context at the 5G DDNMF which corresponds to the ProSe restricted code contained in the MATCH\_REPORT message;

c) the validity timer T5076 set to indicate for how long this ProSe restricted code is valid;

d) the match report refresh timer T5077 to indicate for how long the UE will wait before sending a new match report for this ProSe restricted code if the MIC value and the UTC-based counter are included in the MATCH\_REPORT message;

e) the current time set to the current UTC-based time at the 5G DDNMF; and

f) the metadata set to the associated metadata information, if there exists metadata information associated with this target RPAUID and the metadata flag is set to "True" in the MATCH\_REPORT message.

If the corresponding PDUID of the target RPAUID does not belong to the HPLMN of the requesting UE, the 5G DDNMF may optionally invoke the procedure defined in 3GPP TS 29.555 [9] to inform the 5G DDNMF of the announcing UE about the match event.

The 5G DDNMF uses the information (e.g. application identity) received from the UE in the MATCH\_REPORT message, UE identity in GBA or AKMA information related to TLS tunnel transporting the MATCH\_REPORT message, and other information for charging purposes as specified in 3GPP TS 32.277 [45].

\*\*\*\*\* Next change \*\*\*\*\*

#### 6.2.9.4 Match report procedure completion by the UE

Upon receipt of the MATCH\_REPORT\_ACK message, if the transaction ID contained in the <restricted-match-ack> element matches the value sent by the UE in a MATCH\_REPORT message, the UE shall store the mapping between the ProSe restricted code and RPAUID locally, start timers T5076 and T5077 and may inform the upper layers of this match of the RPAUID. Otherwise, the UE shall discard the MATCH\_REPORT\_ACK message. The UE shall update the ProSe clock (see 3GPP TS 33.503 [34]) to the value of the received current time parameter.

Upon receipt of the MATCH\_REPORT\_ACK message, if the transaction ID contained in the <match-reject> element matches the value sent by the UE in a MATCH\_REPORT message and if the received PC3a control protocol cause value is #5 "Invalid MIC", as specified in clause 6.2.9.5, the UE shall stop timer T5016 if it is running.

NOTE 1: It is an implementation specific choice whether the UE informs the upper layers every time an RPAUID triggers a match event, or only the first time this match occurs.

NOTE 2: The UE can also inform the upper layers if an RPAUID is no longer matched, because the validity timer T5076 of the corresponding ProSe restricted code expires.

NOTE 3: The UE can also inform the upper layers if a ProSe restricted code is no longer matched, because the validity timer T5016 of the corresponding ProSe restricted code is stopped upon receiving MATCH\_REPORT\_ACK message with a <match-reject> element with PC3a control protocol cause value #5 "Invalid MIC".

\*\*\*\*\* Next change \*\*\*\*\*

#### 6.2.10.3 Match report procedure accepted by the 5G DDNMF

Upon receiving a MATCH\_REPORT message, the 5G DDNMF shall check whether there is an existing discoverer UE context for the UE identified by its SUPI.

The 5G DDNMF shall analyze the ProSe response code received from the UE in the MATCH\_REPORT message. If the MIC value and its corresponding UTC-based counter are included, the 5G DDNMF shall check whether the MIC value and the UTC-based counter are valid and within the acceptable range respectively, as defined in 3GPP TS 33.503 [34]. The 5G DDNMF shall then check in the UE context if the ProSe response code matches any discovery response filter(s) allocated for the particular application identified by the ProSe identifier received in the MATCH\_REPORT message. If such a discovery filter exists, the target RPAUID associated with the filter(s) shall be identified as the corresponding RPAUID for this code. Optionally, the 5G DDNMF may further invoke the procedure defined in 3GPP TS 29.503 [10] to verify if the target RPAUID is allowed to be discovered by the RPAUID of the requesting UE that has sent the MATCH\_REPORT message, or to retrieve metadata associated for the target RPAUID if metadata flag is set to "True" in the MATCH\_REPORT message and the 5G DDNMF does not have the latest metadata.

If the outcome of the above processing is successful, the 5G DDNMF shall send a MATCH\_REPORT\_ACK message containing a <restricted-match-ack> element with:

a) the transaction ID set to the value of the transaction ID received in the MATCH\_REPORT message from the UE;

b) the RPAUID set to the target RPAUID retrieved from the UE context at the 5G DDNMF which corresponds to the ProSe response code contained in the MATCH\_REPORT message;

c) the validity timer T5076 set to indicate for how long the RPAUID is matched;

d) the match report refresh timer T5077 set to indicate for how long the UE will wait before sending a new match report for this ProSe response code if the MIC value and the UTC-based counter are included in the MATCH\_REPORT message;

e) the current time set to the current UTC-based time at the 5G DDNMF; and

f) optionally, the metadata set to the associated metadata information, if there exists metadata information associated with this target RPAUID.

If the corresponding PDUID of the target RPAUID does not belong to the HPLMN of the requesting UE, the 5G DDNMF may optionally invoke the procedure defined in 3GPP TS 29.555 [9] to inform the 5G DDNMF of the discoveree UE about the match event.

The 5G DDNMF uses the information (e.g. application identity) received from the UE in the MATCH\_REPORT message, UE identity in GBA or AKMA information related to TLS tunnel transporting the MATCH\_REPORT message, and other information for charging purposes as specified in 3GPP TS 32.277 [45].

\*\*\*\*\* Next change \*\*\*\*\*

#### 6.2.10.4 Match report procedure completion by the UE

Upon receipt of the MATCH\_REPORT\_ACK message, if the transaction ID contained in the <restricted-match-ack> element matches the value sent by the UE in a MATCH\_REPORT message, the UE shall store the mapping between the ProSe response code and the RPAUID locally, start timers T5076 and T5077 and may inform the upper layers of this match of the RPAUID. Otherwise, the UE shall discard the MATCH\_REPORT\_ACK message. The UE shall update the ProSe clock (see 3GPP TS 33.503 [34]) to the value of the received current time parameter.

Upon receipt of the MATCH\_REPORT\_ACK message, if the transaction ID contained in the <match-reject> element matches the value sent by the UE in a MATCH\_REPORT message and if the received PC3a control protocol cause value is #5 "Invalid MIC", as specified in clause 6.2.10.5, the UE shall stop timer T5076 if it is running.

NOTE 1: It is an implementation specific choice whether the UE informs the upper layers every time a RPAUID triggers a match event, or only the first time this match occurs.

NOTE 2: The UE can also inform the upper layers if an RPAUID is no longer matched, because the validity timer T5076 of the corresponding ProSe response code expires.

NOTE 3: The UE can also inform the upper layers if a ProSe response code is no longer matched, because the validity timer T5076 of the corresponding ProSe response code is stopped upon receiving MATCH\_REPORT\_ACK message with a <match-reject> element with PC3a control protocol cause value #5 "Invalid MIC".

\*\*\*\*\* Next change \*\*\*\*\*

### 10.5.3 XML schema

Implementations in compliance with the present document shall implement the XML schema defined below for messages used in 5G ProSe direct discovery procedures over PC3a interface.

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

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

xmlns="urn:3GPP:ns:5GProSe:Discovery:2021"

elementFormDefault="qualified"

targetNamespace="urn:3GPP:ns:5GProSe:Discovery:2021">

<xs:annotation>

<xs:documentation>

Info for 5G ProSe Discovery Control Messages Syntax

</xs:documentation>

</xs:annotation>

<!-- Complex types defined for parameters with complicated structure -->

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

<xs:sequence>

<xs:element name="OS-ID">

<xs:simpleType>

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

<xs:length value="16"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="OS-App-ID" type="xs:string"/>

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

</xs:sequence>

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

</xs:complexType>

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

<xs:sequence>

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

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

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

</xs:sequence>

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

</xs:complexType>

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

<xs:sequence>

<xs:element name="ProSe-Application-Code" type="xs:hexBinary"/>

<xs:element name="ProSe-Application-Mask" type="xs:hexBinary" maxOccurs="unbounded"/>

<xs:element name="TTL-timer-T5064" type="xs:integer"/>

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

</xs:sequence>

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

</xs:complexType>

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

<xs:sequence>

<xs:element name="Code" type="xs:hexBinary"/>

<xs:element name="Mask" type="xs:hexBinary" 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="DUCK-info">

<xs:sequence>

<xs:element name="discovery-user-confidentiality-key" type="xs:hexBinary"/>

<xs:element name="encrypted-bitmask" type="xs:hexBinary"/>

</xs:sequence>

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

</xs:complexType>

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

<xs:sequence>

<xs:element name="filter" type="MatchingFilter-info" maxOccurs="unbounded"/>

<xs:element name="TTL-timer-T5066" type="xs:integer"/>

<xs:element name="RPAUID" type="xs:string" minOccurs="0" />

<xs:element name="metadata-indicator" type="xs:integer" minOccurs="0"/>

<xs:element name="metadata" type="xs:string" 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="RestrictedCodeSuffixRange-info">

<xs:sequence>

<xs:element name="beginning-suffix-code" type="xs:hexBinary" />

<xs:element name="ending-suffix-code" type="xs:hexBinary" 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="RestrictedMonitoringUpdate-info">

<xs:sequence>

<xs:element name="updated-filter" type="RestrictedDiscFilter-info" 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="RestrictedAnnouncingUpdate-info">

<xs:sequence>

<xs:element name="ProSe-Restricted-Code" type="xs:hexBinary" />

<xs:element name="validity-timer-T5062" type="xs:integer" />

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

</xs:sequence>

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

</xs:complexType>

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

<xs:sequence>

<xs:element name="updated-filter" type="DiscFilter-info" 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="AnnouncingUpdate-info">

<xs:sequence>

<xs:element name="ProSe-Application-Code" type="xs:hexBinary" />

<xs:element name="validity-timer-T5060" type="xs:integer" />

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

</xs:sequence>

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

</xs:complexType>

<xs:complexType name="Update-Option-info">

<xs:choice>

<xs:element name="update-info-restricted-announce" type="RestrictedAnnouncingUpdate-info" />

<xs:element name="update-info-restricted-monitor" type="RestrictedMonitoringUpdate-info" />

<xs:element name="update-info-open-annnounce" type="AnnouncingUpdate-info" />

<xs:element name="update-info-open-monitor" type="MonitoringUpdate-info"/>

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

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

</xs:choice>

</xs:complexType>

<xs:complexType name="Restricted-Code-Option-info">

<xs:choice>

<xs:element name="ProSe-Restricted-Code" type="xs:hexBinary" />

<xs:element name="ProSe-Response-Code" type="xs:hexBinary" />

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

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

</xs:choice>

</xs:complexType>

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

<xs:sequence>

<xs:element name="ProSe-Rquery-Code" type="xs:hexBinary" />

<xs:element name="response-filter" type="MatchingFilter-info" maxOccurs="unbounded"/>

<xs:element name="validity-timer-T5070" type="xs:integer"/>

<xs:element name="code-sending-security-parameter" type="Restricted-Security-info" />

<xs:element name="code-receiving-security-parameter" type="Restricted-Security-info" minOccurs="0" />

<xs:element name="RPAUID" type="xs:string" minOccurs="0" />

<xs:element name="metadata" type="xs:string" 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="Restricted-Security-info">

<xs:sequence>

<xs:element name="DUSK" type="xs:hexBinary" minOccurs="0" />

<xs:element name="DUIK" type="xs:hexBinary" minOccurs="0" />

<xs:element name="DUCK" type="DUCK-info" minOccurs="0" />

<xs:element name="MIC-check-indicator" type="xs:boolean" 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="ApplicationCodeSuffixRange-info">

<xs:sequence>

<xs:element name="beginning-suffix-code" type="xs:hexBinary" />

<xs:element name="ending-suffix-code" type="xs:hexBinary" 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="ProSeApplicationCodeACE-info">

<xs:sequence>

<xs:element name=" ProSe-Application-Code-Prefix" type="xs:hexBinary" />

<xs:element name=" ProSe-Application-Code-Suffix-Range" type="ApplicationCodeSuffixRange-info" maxOccurs="unbounded" />

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

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

</xs:sequence>

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<xs:element name="user-plane-integrity-protection-policy" type="xs:integer"/>

<xs:element name="user-plane-ciphering-policy" type="xs:integer"/>

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<!-- Complex types defined for transaction-level -->

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<xs:element name="ProSe-Application-Code-ACE" type="ProSeApplicationCodeACE-info" minOccurs="0"/>

<xs:element name="validity-timer-T5060" type="xs:integer" minOccurs="0" />

<xs:element name="discovery-key" type="xs:hexBinary" minOccurs="0" />

<xs:element name="discovery-entry-ID" type="xs:integer" minOccurs="0" />

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<xs:element name="discovery-entry-ID" type="xs:integer" minOccurs="0" />

<xs:element name="Requested-Timer" type="xs:integer" minOccurs="0" />

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<xs:element name="Announcing-PLMN-ID" type="PLMN-info" minOccurs="0" />

<xs:element name="ACE-enabled-indicator" type="xs:integer" minOccurs="0"/>

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

<xs:element name="RPAUID" type="xs:string"/>

<xs:element name="application-identity" type="AppID-info"/>

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

<xs:element name="PC5-UE-ciphering-algorithm-capability" type="xs:integer"/>

<xs:element name="ACE-enabled-indicator" type="xs:integer" minOccurs="0"/>

<xs:element name="announcing-type" type="xs:integer" minOccurs="0"/>

<xs:element name="application-level-container" type="xs:hexBinary" minOccurs="0"/>

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<xs:element name="Announcing-PLMN-ID" type="PLMN-info" minOccurs="0" />

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<xs:element name="on-demand-announcing-enabled-indicator" type="xs:boolean" minOccurs="0" />

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<xs:element name="PC5-security-policies" type="xs:PC5-Security-Policies-info" minOccurs="0" />

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<xs:element name="code-sending-security-parameter" type="Restricted-Security-info" />

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<xs:element name="ProSe-PC5-discovery-message" type="xs:hexBinary"/>

<xs:element name="Monitored-PLMN-ID" type="PLMN-info"/>

<xs:element name="VPLMN-ID" type="PLMN-info" minOccurs="0"/>

<xs:element name="UTC-based-counter" type="xs:hexBinary"/>

<xs:element name="Metadata-flag" type="xs:boolean"/>

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

<xs:element name="application-identity" type="AppID-info"/>

<xs:element name="RPAUID" type="xs:string"/>

<xs:element name="Restricted-Code-Discovered" type="Restricted-Code-Option-info" minOccurs="0"/>

<xs:element name="ProSe-PC5-discovery-message" type="xs:hexBinary" minOccurs="0"/>

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<xs:element name="RPAUID" type="xs:string"/>

<xs:element name="validity-timer-T5076" type="xs:integer"/>

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<xs:element name="response-monitor" type="MonitorRsp-info" minOccurs="0" maxOccurs="unbounded"/>

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<xs:element name="restricted-monitor-response" type="RestrictedMonitorRsp-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="restricted-discoveree-response" type="RestrictedDiscovereeRsp-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="restricted-discoverer-response" type="RestrictedDiscovererRsp-info" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="response-reject" type="RejectRsp-info" minOccurs="0" maxOccurs="unbounded"/>

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<xs:element name="restricted-match-ack" type="RestrictedMatchAck-info" minOccurs="0" maxOccurs="unbounded"/>

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<!-- extension allowed -->

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<!-- Top levelDiscovery Message definition -->

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<xs:element name="DISCOVERY\_RESPONSE" type="prose-direct-discovery-response"/>

<xs:element name="MATCH\_REPORT" type="prose-direct-discovery-match-report"/>

<xs:element name="MATCH\_REPORT\_ACK" type="prose-direct-discovery-match-report-ack"/>

<xs:element name="DISCOVERY\_UPDATE\_REQUEST" type="prose-direct-discovery-update-request"/>

<xs:element name="DISCOVERY\_UPDATE\_RESPONSE" type="prose-direct-discovery-update-response"/>

<xs:element name="ANNOUNCING\_ALERT\_REQUEST" type="prose-direct-discovery-announcing-alert-request"/>

<xs:element name="ANNOUNCING\_ALERT\_RESPONSE" type="prose-direct-discovery-announcing-alert-response"/>

<xs:element name="PROSE\_5GPKMF\_ADDRESS\_REQUEST" type="prose-5gpkmf-address-request"/>

<xs:element name="PROSE\_5GPKMF\_ADDRESS\_RESPONSE" type="prose-5gpkmf-address-response"/>

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An entity receiving the XML body ignores any unknown XML element and any unknown XML attribute.

\*\*\*\*\* End of changes \*\*\*\*\*