**3GPP TSG-CT WG1 Meeting #150C1-244498**

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

**Source: CATT**

**Title: New WID on CT aspects of Proximity-based Services in 5GS Phase 3**

**Document for: Approval**

**Agenda Item: 19.1.1**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: CT aspects of Proximity-based Services in 5GS Phase 3

Acronym: 5G\_ProSe\_Ph3

Unique identifier: to be assigned

Potential target Release: Rel-19

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others (specify) |
| **Yes** |  | X |  | X |  |
| **No** | X |  | X |  | X |
| **Don't know** |  |  |  |  |  |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Study  |
|  | Normative – Stage 1 |
|  | Normative – Stage 2 |
| X | Normative – Stage 3 |
|  | Normative – Other\* |

**\* Other = e.g. testing**

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| 5G\_ProSe\_Ph3 | SA2 | 1040030 | Proximity-based Services in 5GS Phase 3 |
|  |  |  |  |

## 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
| 910018 | CT aspects of proximity based services in 5GS | Rel-17 CT work item, which specifies the protocol for proximity based services in 5GS |
| 790001 | New Services and Markets Technology Enablers – Phase 2 | SA1 work item to define requirements for 5GS, which contains proximity services requirements. |
| 780002 | Removal of 'over LTE' limitation from Mission Critical Specifications | SA1 work item on MC Services requirements. |
| 840030 | WID on Network Controlled Interactive Service(NCIS) Requirements | SA1 work item, which specifies the requirements for interactive service. |
| 900007 | System enhancement for Proximity based Services in 5GS | Rel-17 SA2 work item, which specifies 5G system enhancement to support proximity based services. |
| 930008 | Security Aspects of Proximity based Services (ProSe) in the 5G System (5GS) | Rel-17 SA3 work item, which specifies security aspects of proximity based services in 5GS. |
| 940028 | Charging aspects of Enhanced Proximity-based Services in 5GC | Rel-17 SA5 work item, which specifies charging aspects of proximity based services in 5GS. |
| 860042 | WID on NR Sidelink enhancement | Rel-17 RAN work item, which specifies enhancements of NR sidelink. |
| 911005 | NR Sidelink Relay | Rel-17 RAN work item, which specifies NR sidelink relay. |
| 630006 | CT aspects of Proximity-based Services (Stage 3) | CT work item, which specifies the protocol for proximity based services for 4G/EPS. |
| 940077 | Study on Proximity-based Services in 5GS Phase 2 | Rel-18 SA2 study item, which studies 5G system enhancements to support proximity based services in phase 2. |
| 950024 | Study on Security Aspects of Proximity Based Services Phase 2 | Rel-18 SA3 study item, which studies new security requirements related to proximity based services in 5GS Phase 2. |
| 970027 | ProSe Secondary Authentication | Rel-18 SA3 work item, which defines support of 5G ProSe secondary authentication procedure when 5G ProSe UE-to-Network relay control plane based security procedure is used. |
| 941002 | NR sidelink relay enhancements | Rel-18 RAN work item on NR sidelink relay enhancements. |
| 1020066 | Study on Proximity-based Services in 5GS Phase 3 | Rel-19 SA2 study item, which studies 5G system enhancements to support proximity based services in phase 3. |
| 1030034 | Study on Security Aspects of Enhancement for Proximity Based Services in 5GS Phase 3 | Rel-19 SA3 study item, which studies new security requirements related to proximity based services in 5GS Phase 3. |
| TBD | NR sidelink multi-hop relay | Rel-19 RAN work item on NR sidelink multi-hop relay |

# 3 Justification

Proximity based services in 5GS Phase 3 is a Rel-19 SA WGs work item which impacts the CT WGs:

a) SA WG2 is enhancing the 5GC and the UE as studied and concluded in TR 23.700-03 for support of Proximity-based Services in 5GS Phase 3, and a new WID has been approved (see [SP-240988](https://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_104_Shanghai_2024-06/Docs/SP-240988.zip));

b) SA WG3 is studying on the security aspects of enhancement for Proximity-based Services in 5GS Phase 3.

Besides, RAN WGs are enhancing NG-RAN for sidelink relay, particularly multi-hop Layer-2 UE-to-Network relay.

Therefore, it is necessary to set up a new CT work item to implement the stage-2 requirements and address the stage 3 protocol enhancements for support of Proximity-based Services in 5GS Phase 3.

# 4 Objective

The objective of this work is to specify the CT aspects of Proximity-based Services in 5GS Phase 3 in order to enhance the CT WGs specifications based on the stage-2 requirements. The CT WGs work will be based on to be developed normative work by SA WGs (for 5G ProSe L3 multi-hop UE-to-UE relay and 5G ProSe multi-hop UE-to-Network relays) and potential input received from RAN WGs regarding 5G ProSe L2 multi-hop UE-to-Network relays.

The following areas of work are expected to be covered:

CT1:

- Support 5G ProSe multi-hop UE-to-network relays, i.e. relaying of user plane packets between 5G ProSe remote UE and the network via intermediate relay(s) and UE-to-network relay, including:

- multi-hop UE-to-network relay discovery (both model A and model B);

- multi-hop UE-to-network relay selection/reselection;

- multi-hop unicast mode layer-3 and layer-2 UE-to-network relay communication (with IP, Ethernet or unstructured traffic types);

- IP address/prefix allocation for layer-3 multi-hop UE-to-network relay communication;

- end-to-end QoS between 5G ProSe remote UE and the network via multi-hop UE-to-network relay; and

- possible enhancements on remote UE report and additional parameters announcement.

- Support 5G ProSe layer-3 multi-hop UE-to-UE relay, i.e. relaying of user plane packets between 5G ProSe end UEs via intermediate relay(s) and UE-to-UE relay over NR PC5 interface, including:

- for PDU type IP:

- multi-hop layer-3 UE-to-UE relay path management based on MANET protocol; and

- for PDU type Ethernet and Unstructured:

- multi-hop layer-3 UE-to-UE relay discovery (both model A and model B);

- multi-hop layer-3 UE-to-UE relay selection/reselection;

- multi-hop unicast mode layer-3 UE-to-UE relay communication (with Ethernet or unstructured traffic types); and

- end-to-end QoS for the 5G ProSe end UEs over the path via multiple 5G ProSe UE-to-UE relay UEs.

- Update of UE policy to support the above features for Proximity-based Services in 5GS Phase 3.

CT3:

- Potential update to the NEF northbound interface to support Proximity-based Services in 5GS Phase 3, e.g. provisioning configuration parameters from the AF for 5G ProSe multi-hop UE-to-network relay and multi-hop UE-to-UE relay; and

- Potential update to PCF for support of Proximity-based Services in 5GS Phase 3, e.g. provisioning UE policy for 5G ProSe multi-hop UE-to-network relay and multi-hop UE-to-UE relay.

CT4:

- Potential update to UDR service for the feature control of new subscription data and polices.

CT6:

- Potential update to support of Proximity-based Services in 5GS Phase 3 by means of using the USIM, e.g. configuration for 5G ProSe multi-hop UE-to-network relay and multi-hop UE-to-UE relay, configuration to support 5G ProSe in NPN.

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR Number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
|  |  |  |  |
|  |  |  |  |
| TS 24.554 | Support 5G ProSe multi-hop UE-to-network relays and support 5G ProSe multi-hop UE-to-UE relay.Update of UE policy for Proximity-based Services in 5GS Phase 3. | TSG CT#109(September 2025) | CT1 |
| TS 24.555 | Support 5G ProSe multi-hop UE-to-network relays and support 5G ProSe multi-hop UE-to-UE relay.Update of UE policy for Proximity-based Services in 5GS Phase 3. | TSG CT#109(September 2025) | CT1 |
|  |  |  |  |
| TS 29.519 | Potential update to support Proximity-based Services in 5GS Phase 3, e.g. provisioning configuration parameters for 5G ProSe multi-hop UE-to- network relay and multi-hop UE-to-UE relay. | TSG CT#109(September 2025) | CT3 |
| TS 29.522 | Potential update to the Nnef\_ServiceParameter service to support Proximity-based Services in 5GS Phase 3, e.g. provisioning configuration parameters from the AF for 5G ProSe multi-hop UE-to- network relay and multi-hop UE-to-UE relay. | TSG CT#109(September 2025) | CT3 |
| TS 29.525 | Potential update to support Proximity-based Services in 5GS Phase 3 in UE policy control service, e.g. provisioning UE policy for 5G ProSe multi-hop UE-to- network relay and multi-hop UE-to-UE relay. | TSG CT#109(September 2025) | CT3 |
|  |  |  |  |
| TS 29.504 | Potential update for the new feature control. | TSG CT#109(September 2025) | CT4 |
|  |  |  |  |
| TS 29.571 | Potential update to the common data type. | TSG CT#109(September 2025) | CT4 |
| TS 31.102 | Potential update to support Proximity-based Services in 5GS Phase 3, e.g. configuration for 5G ProSe multi-hop UE-to- network relay and multi-hop UE-to-UE relay. | TSG CT#109(September 2025) | CT6 |

NOTE: Other impacted existing TS can be identified based on progress in normative work in Stage 2.

# 6 Work item Rapporteur(s)

Zhao, Xiaoxue, CATT, zhaoxiaoxue@cictmobile.com

# 7 Work item leadership

CT1

# 8 Aspects that involve other WGs

SA3 for the security aspects,

RAN for the RAN related issues.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| CATT |
| InterDigital Inc. |
| LG Electronics |
| ASUSTeK |
| China Telecom |
| Philips |
| SHARP |
| China Mobile |
| Nokia |