**3GPP WG-SA2 Meeting #159 S2-23xxxxx**

**Xiamen, China, 09 – 13 October 2023** **(revision of SP-231060/ S2-2309915)**

**Source: MediaTek Inc. (Moderator of Rel-19 ProSe)**

**Title: New SID on System Enhancement for Proximity-based Services in 5GS - Phase 3**

**Document for: Approval**

**Agenda Item: 30.1**

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: Study on System Enhancement for Proximity-based Services in 5GS - Phase 3

Acronym: FS\_5G\_ProSe\_Ph3

Unique identifier:

Potential target Release: Rel-19

# 1 Impacts

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

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

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

## 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) |
| AIPN-SAE | SA1 | 320022 | Requirements for evolution of the 3GPP system architecture |
| SMARTER | SA1 | 720005 | New Services and Markets Technology Enablers |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 900007 | Proximity based Services in 5GS | Rel-17 Stage 2 5G\_ProSe work item. |
| 970016 | Proximity-based Services in 5GS Phase 2 | Rel-18 Stage 2 5G\_ProSe\_Ph2 work item. |
| 941002 | NR sidelink relay enhancements | Rel-18 RAN work item on NR sidelink relay enhancements |

# 3 Justification

The 5GS has been enhanced to support Proximity Services in the past releases (Rel-17 and Rel-18) as specified in TS 23.304, based on the service requirements defined in TS 22.278, TS 22.261 and TS 22.115.

However, some remaining (and new) requirements about Proximity Services captured in TS 22.278 and TS 22.261, e.g. Multi-hop support for UE-to-Network /UE-to-UE Relays or Multi-path transmission via different UE-to-Network Relays which impose additional architecture enhancements to be addressed by Rel-19 study item.

# 4 Objective

The study item aims at further investigating 5G System enhancements to support Proximity Services (beyond what has been specified in Rel-17 and Rel-18) considering the services requirements defined in TS 22.278, TS 22.261 and TS 22.115.

The detailed objectives are to investigate potential 5GS enhancements in order to support the followings:

* WT-1: Enhance ProSe to support multi-hop over NR PC5 reference point
  + WT-1.1: for UE-to-Network Relay
  + WT-1.2: for UE-UE Relay
* WT-2: Void
* WT-3: Enhance Layer-3 UE-to-Network Relay functionality of ProSe to support Non-3GPP RAT (e.g. Wi-Fi or Bluetooth) over NR PC5 reference point.
* WT-4: Void
* WT-5: Support Multi-path communications via different UE-to-Network Relays.

NOTE 1: The study considers 2 UE-to-Network Relays only. Combination of Layer-2 UE-to-Network Relay and Layer-2 UE-to-Network Relay (subject to RAN WGs coordination) or combination of Layer-3 UE-to-Network Relay and Layer-3 UE-to-Network Relay to be studied (inclusion of Layer-3 UE-to-Network Relay with N3IWF is FFS); Combination of Layer-2 UE-to-Network Relay and Layer-3 UE-to-Network Relay is FFS.

* WT-6: Void
* WT-7: Void
* WT-8: Void
* WT-9: Void
* WT-10: Void
* WT-11: Void
* WT-12: Void
* WT-13: Void
* WT-14: Void
* WT-15: Void

NOTE 2: The UE-to-Network Relay and UE-to-UE Relay in the above WTs include both Layer-3 and Layer-2 Relays unless explicitly stated otherwise.

NOTE 3: WT-1, WT-3, WT-5 require coordination with RAN WGs.

## TU estimates and dependencies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Work Task ID** | **TU Estimate**  **(Study)** | **TU Estimate**  **(Normative)** | **RAN Dependency**  **(Yes/No/Maybe)** | **Inter Work Tasks Dependency** |
| WT-1 | 2 | 2 | Yes | WT-1 is self-contained |
| WT-1.1 | 1 | 1 |  |  |
| WT-1.2 | 1 | 1 |  |  |
| WT-3 | 1 | 0.5 | No | WT-3 is self-contained |
| WT-5 | 1 | 1 | Yes | WT-5 is self-contained |
| All Void WTs | 0 | 0 | N/A | N/A |

**Total TU estimates for the study phase: 4**

**Total TU estimates for the normative phase: 3.5**

**Total TU estimates: 7.5**

# 5 Expected Output and Time scale

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type | TS/TR number | Title | For info  at TSG# | For approval at TSG# | Rapporteur |
| Internal TR | 23.xyz | Study on System enhancement for Proximity based Services in the 5GS - Phase 3 | TSG#104  Jun. 2024 | TSG#104  Jun. 2024 | TBD |

# 6 Work item Rapporteur(s)

TBD

# 7 Work item leadership

SA2

# 8 Aspects that involve other WGs

RAN aspects require coordination with RAN WGs.

Security aspects require coordination with SA3.

Charging aspects require coordination with SA5.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
|  |
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|  |