**3GPP TSG-SA5 Meeting #135-e *S5-211207rev1***

electronic meeting, online, 25 January - 3 February 2021

**Source: CATT**

**Title: pCR Add use cases for ProSe Direct Discovery**

**Document for: Approval**

**Agenda Item: 7.5.3**

# 1 Decision/action requested

***The group is asked to discuss and agree on the proposal.***

# 2 References

[1] 3GPP TR 32.846: “Study on charging aspects of Proximity-based Services in 5GS”.

[2] 3GPP TR 23.752: “Study on system enhancement for Proximity based Services (ProSe) in the 5G System (5GS)”.

# 3 Rationale

SA2 study has concluded some apects for 5G ProSe Direct Discovery in TR 23.752[2] for KeyIssue#1.This contribution adds use cases for ProSe Direct Discovery.

# 4 Detailed proposal

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| **1st Modified Section** |

### 6.1.1 General description and assumptions

As indicated in TS 32.277 [4], the offline and online charging description for the Proximity-based Services was specified based on EPS system, including the support of charging support of ProSe Direct Discovery, one-to-many Direct Communication, and one-to-one Direct Communication including UE-to-Network Relay (for public safety use), and EPC based discovery.

When mapped to 5GS, the study will focus on how to accommodate charging ProSe Direct Discovery and Direct Communication over NR based PC5 for commercial services and public safety based on the 5G service-based architecture.

#### 6.1.1.1 ProSe Direct Discovery scenarios

5G ProSe Direct Discovery is defined as a procedure employed by a ProSe-enabled UE to discover other ProSe-enabled UEs in its vicinity by using only the capabilities of the two UEs with NR technology.

There are two types of 5G ProSe Direct Discovery: open and restricted. Open is the case where there is no explicit permission that is needed from the UE being discovered, whereas restricted discovery only takes place with explicit permission from the UE that is being discovered.

There are two models for 5G ProSe Direct Discovery: Model A and Model B. For discovery procedure over NR based PC5 for commercial services and public safety in 5GS, the definition for Model A and Model B is re-used as defined in clause 5.3.1.2 of TS 23.303 [8].

For dynamic ProSe Direct Discovery, 5G DDNMF in the 5GS is used for ProSe Discovery Code management (including allocation, and resolution). The architecture defined in TR 23.752[3] Annex B.2 option 1 will be adopted as the reference architecture, and reuse the PC3 procedures defined in TS 23.303 [8] clause 5.3 for UE and 5G DDNMF interactions.When 5G DDNMF successfully reponse to different Discovery Request and Discovery Report message, the Charging Data Request [Event] may be generated and forward them to CHF.

For ProSe Direct Discovery over PC5, PC5 communication channel is used to carry the discovery message over PC5 and discovery message over PC5 is differentiated with other PC5 messages by AS layer. When the UE decides that reporting criteria are met, according to the pre-configuration, the UE creates the corresponding usage information report and forward to 5G Network.

Editor’s Note: It is FFS for supporting of Direct Discovery between UE-to-Network Relay and UE-to-UE Relay.

#### 6.1.1.2 ProSe Direct Communication scenarios

5G ProSe Direct Communication is defined as a communication between two or more UEs in proximity that are ProSe-enabled, by means of user plane transmission using NR technology via a path not traversing any network node.

5G ProSe Direct Communication over NR based PC5 reference point supports broadcast mode, groupcast mode, and unicast mode. Each communication mode is supported when the UE is served by NR and when the UE is outside of NR coverage.

5G ProSe Direct Communication supports both the case of public safety and commercial service.

5G ProSe Direct Communication supports both event based and session based charging;

Editor’s Note: It is FFS for supporting of Direct Communication between UE-to-Network Relay and UE-to-UE Relay.

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| **End of Modified Sections** |