**3GPP TSG-WG SA2 Meeting #152E e-meeting *S2-220xxxx***

**Elbonia, August 17 – 26, 2022 (revision of S2-220xxxx)**

**Source: Huawei, HiSilicon**

**Title: KI#7,Sol#42,Update: EN removal**

**Document for: Approval**

**Agenda Item: 9.26**

**Work Item / Release: FS\_5G\_ProSe\_Ph2 / Rel-18**

*Abstract: This paper proposes to update Sol#42 for handling of emergency services for L3 (with/without N3IWF) and L2 relay operations, based on dedicated emergency RSC.*

# 1. Introduction/Discussion

The solution update mainly covers the Policy/Parameter Provisioning, UE-to-Network Relay Discovery and Connection establishment for Emergency Service.

# 2. Text Proposal

It is proposed to capture the following changes vs. TR 23.700-33.

\* \* \* \* First change \* \* \* \*

## 6.42 Solution #42: Emergency Services for UE to Network Relaying

### 6.42.1 Description

This solution address Key Issue #7 for "Support of Emergency Services for UE to Network Relaying".

Editor's note: Dependent on SA WG1 response to SA WG2 LS S2-2203130 (sent in SA2#150E), solution may need update.

Under the assumptions that a UE responsible for another UE's emergency service is compliant with local regulation and the Relay UE and the Remote UE belong to the same PLMN, this solution contains the following aspects:

- Provisioning emergency service support using the Rel-17 policy and parameter providing with the following additions:

- ProSe Relay Discovery policy/parameters for 5G ProSe UE-to-Network Relay/Remote UE includes a dedicated emergency Relay Service Code associated with emergency service (as Emergency RSC). The Emergency RSC needs to be defined as a unique value in 3GPP standards.

- A 5G ProSe UE-to-Network Relay advertises its support of emergency service only when the UE receives emergency support indication in Registration Accept (Layer 3 only) or and indication in system information (Layer 2 only), and has been provisioned with the policy for the dedicated emergency RSC.

Editor's note: It is FFS whether the 5G ProSe relay enabled UE can act the role of relay in limited service.

- A 5G ProSe Remote UE becomes aware whether a 5G ProSe UE-to-Network Relay can support emergency services during discovery from the dedicated emergency RSC.

- A 5G ProSe Remote UE indicates emergency access request to the 5G ProSe UE-to-Network Relay using the dedicated emergency RSC during PC5 link establishment, and 5G ProSe UE-to-Network Relay informs its network (both Radio and Core) of the emergency service.

- If the 5G ProSe Remote UE completes the emergency call, it may wait for a configurable period of time before initiating release of PC5 link for emergency service. This is to prepare for any possible call back.

- When the PC5 link for emergency service is released, for Layer-2 UE-to-Network relaying, if the 5G ProSe UE-to-Network Relay is not involved in emergency service from any remote UE, the relay UE informs the AMF of remove the emergency indication.

Editor's note: Whether a dedicated PC5 link to be established for an emergency service and also how the release of PC5 link and the associated timer would work when the PC5 link is shared between emergency and non-emergency services is FFS.

### 6.42.2 Procedures

This clause captures the changes to the following (existing) procedures in TS 23.304 [3]:

- clause 5.1.4.1 Policy/Parameter provisioning for 5G ProSe UE-to-Network Relay

The dedicated Relay Service Code is used to support and identify emergency services over a UE-to-Network Relay. ProSe Relay Discovery policy/parameters for 5G ProSe UE-to-Network Relay includes the dedicated emergency Relay Service Code and any associated parameters.

- clause 5.4.3 Mobility Restrictions for 5G ProSe UE-to-Network Relaying

- Reflect the support of emergency service.

Editor's note: The details of the description are FFS.

- clause 6.3.2.3 5G ProSe UE-to-Network Relay Discovery

- The dedicated emergency RSC is included in the UE-to-Network Relay Discovery messages including Model A and Model B discovery, if the Relay Discovery is for emergency service. The 5G ProSe UE-to-Network Relay and the 5G ProSe Remote UE can recognise the discovery and the subsequent procedure (e.g. PC5 connection setup or management) which are for emergency service based on the dedicated emergency RSC.

- For Layer-3 UE-to-Network Relay case, a UE-to-Network relay includes the dedicated emergency RSC when it receives the Emergency Services Support indication from AMF in the Registration Accept message. Emergency Services Support indication indicates that the 5G ProSe UE-to-Network Relay can setup emergency PDU Session to obtain emergency services. For Layer-2 UE-to-Network Relay case, a UE-to-Network relay includes the dedicated emergency RSC only includes dedicated emergency RSC when the serving NG-RAN indicates the support of emergency services, such as *ims-EmergencySupport* in SIB1 message as defined in TS 38.331.

- For 5G ProSe UE-to-Network Discovery with Model B, 5G ProSe Remote UE requests emergency service for relaying. For Layer-3 UE-to-Network Relay case, a UE-to-Network Relay responsed to the discovery message only when 5G ProSe UE-to-Network Relay receives the Emergency Services Support indication from AMF in the Registration Accept message. For Layer-2 UE-to-Network Relay case, UE-to-Network Relay responsed to the discovery message only the serving NG-RAN indicates the support of emergency services, such as *ims-EmergencySupport* in SIB1 message as defined in TS 38.331.- If the 5G ProSe UE-to-Network Relay UE's state is in RRC\_IDLE, then the Relay UE set RRC establishment cause to "emergency".

- clause 6.5.1.1 5G ProSe Communication via 5G ProSe Layer-3 UE-to-Network Relay without N3IWF

For Layer-3 UE-to-Network Relay case, the connection establishment defined in clause 6.5.1.1 and clause 6.5.1.2 of TS 23.304 is reused. When the Remote UE sends the Direct Communication Request message including the dedicated emergency RSC, the UE-to-Network Relay sets up the emergency PDU session for relaying or modifies the emergency PDU session for support of Remote UE’s emergency service.

- clause 6.5.1.2 5G ProSe Communication via 5G ProSe Layer-3 UE-to-Network Relay with N3IWF support

- Although an N3IWF can support emergency access, to allow the serving network to handle and prioritise the relayed emergency access 5G ProSe Communication via 5G ProSe Layer-3 UE-to-Network Relay without N3IWF shell be used for L3 relay.- clause 6.5.2 5G ProSe Communication via 5G ProSe Layer-2 UE-to-Network Relay

- The following addition is to be added:

- If the 5G ProSe UE-to-Network Relay UE's state is in RRC\_IDLE, then the Relay UE set RRC establishment cause to "emergency".

- If the 5G ProSe UE-to-Network Relay UE's state is in RRC\_CONNECTED, the 5G ProSe UE-to-Network Relay needs to inform its CN over NAS that the UE is involved in emergency service for a 5G ProSe UE-to-Network Remote UE, so that the 5G ProSe UE-to-Network Relay UE can be exempted from e.g., overload control.

Editor's note: When the 5G ProSe UE-to-Network Relay's state is in RRC-CONNECTED without emergency treatment, how the 5G ProSe UE-to-Network Relay get emergency treatment in NG-RAN is to be determined.

For the Layer-2 UE-to-Network Relay case, the connection establishment defined in clause 6.5.2.2 of TS 23.304 is reused. If the Layer-2 Remote UE does not receive the Emergency Services Support indication from AMF in the relayed Registration Accept message, the Layer-2 Remote UE may release the PC5 connection associated with Emergency RSC with the Layer-2 UE-to-Network Relay.

### 6.42.3 Impacts on services, entities and interfaces

Editor's note: This clause captures impacts on existing services, entities and interfaces.

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