**3GPP TSG-RAN WG2 Meeting #112-e R2-201xxxx**

**Online, November, 2020**

**Title:** [Draft] Reply LS on Direct Discovery and Relay

**Response to:**  S2-2006587

**Release:** Release 17

**Work Item:** FS\_NR\_SL\_Relay, FS\_5G\_ProSe

**Source:** OPPO [to be RAN2]

**To:** SA2

**CC:** RAN1

**Contact Person:**

#### Name: Qianxi Lu

E-mail Address: qianxi.lu@oppo.com

**Send any reply LS to: 3GPP Liaisons Coordinator,** **mailto:3GPPLiaison@etsi.org**

**Attachments:** R2-201xxxx, R2-2008939

**1. Overall Description:**

3GPP TSG RAN2 thanks SA2 for their input on direct discovery and relay. RAN2 discussed the following issues, and feedback is as follows:

There are two issues that need to be replied to from RAN2, listed below:

*SA2 assumes Direct Discovery message will be transmitted in PC5 communication channel, RAN2 is kindly asked to confirm this assumption.*

**Answer**: RAN2 confirm this assumption.

*SA2 has agreed “Destination L2 ID, Source L2 ID; Discovery Group ID” will be included in discovery messages, RAN2 is kindly ask whether they can be included in an AS layer, e.g. in MAC header.*

**Answer**: RAN2 assumes Rel-16 MAC PDU format is reused to carry discovery message, i.e., source L2 ID and destination L2 ID are carried jointly by SCI at PHY layer and MAC header at MAC layer

- 8 bit in SCI and 16 bit in MAC header, for source L2 ID

- 16 bit in SCI and 8 bit for MAC header, for destination L2 ID

In Rel-16, Group ID is reflected as the destination L2 ID for Group-cast.

*SA2 kindly requests RAN2 to provide the progress and work plan if any to help SA2 evaluation and conclusion.*

**Answer**: RAN2 is studying Direct Discovery procedure, UE-to-Network Relay and UE-to-UE Relay solutions in the study on NR Sidelink Relay (FS\_NR\_SL\_Relay). In this study, both Layer-2 based Relay architecture and Layer-3 based Relay architecture are discussed in RAN2 and both have been found feasible, for which the latest study progress is summarized in TR 38.836 (as attached in R2-201xxxx). The study phase is to be completed at RAN2#113-E (with the latest work planning as attached in R2-2008939).

Furthermore, RAN2 identified the following aspects for which RAN2 relies on SA2 decision and looks forward to the corresponding SA2 evaluation:

1) Architecture / Protocol stack decision for L3 relay;

2) QoS mechanism decision for L3 relay;

3) Security mechanism decision for L3 relay;

4) PC5-S layer procedure design;

5) Discovery procedure for both UE-to-UE and UE-to-Network Relay;

6) Service continuity procedure for L3 UE-to-Network relay

Furthermore, for 1) above, in L3 relay N3IWF solution (solution#23 in TR 23.752),

1. RAN2 understanding is that remote UE’s NAS is sent over PC5/Uu-DRB, and
2. RAN2 conclude that outer IP header on each hop can be compressed by ROHC "ESP/IP profile”, but the inner IP header can’t be compressed by the AS layer, whose impact could be evaluated by SA2.

And RAN2 respectively request SA2 feedback on the following question:

**Q1**: Whether discovery message could be taken as PC5-S signalling or other new signalling in upper layer?

**2. Actions:**

**To: SA2**

**ACTION:** RAN2 respectfully asks SA2 to take the above information into account, and feedback on Q1 above.

**3. Date of Next RAN WG2 Meetings:**

RAN-WG2 Meeting #113 Electronic 25 January - 5 February, 2021

RAN-WG2 Meeting #113b Electronic 12 April - 27 April, 2021