3GPP TSG-RAN WG2 Meeting #119bis-e R2-2210914

Electronic Meeting, October, 2022

Agenda: 8.9.2

Source: InterDigital

Title: Summary of [AT119bis-e][427][Relay] Remaining proposals on UE-to-UE relay (InterDigital)

Document for: Discussion, Decision

# 1 Introduction

* [AT119bis-e][427][Relay] Remaining proposals on UE-to-UE relay (InterDigital)

Scope: Discuss P4.2/P6.1/P8.2/P9.1 of R2-2210893.

Intended outcome: Report to CB session

Deadline: Monday 2022-10-17 1700 UTC

The following document summarizes the discussion.

# 2 Discussion

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### 2.1 P4.2

The original P4.2 from R2-2210893 is as follows.

*Proposal 4.2: RAN2 discuss whether the dedicated discovery resource pool introduced in Rel-17 for U2N relay discovery is used for U2U relay discovery as well.*

**Q1.1) Do you agree that the dedicated discovery resource pool introduced in Rel-17 for U2N relay discovery is used for U2U relay discovery as well?**

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| --- | --- | --- |
| Company | Response (Y/N) | Comments |
| InterDigital | Yes | No need to deviate from Rel17. Furthermore, to avoid resource fragmentation, the same pool can be used for U2N and U2U. |
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### 2.2 P6.1

The original P6.1 from R2-2210893 is as follows.

*Proposal 6.1: RAN2 discusses the conditions at the relay and remote UE for transmission of discovery message among among 1) upper layer trigger; 2) channel quality between remote and relay UE; 3) conditions on the nieghbour list at the relay UE; 4) conditions on the contents of discovery received by another relay UE; 5) detection of RLF; 6) notification message received from a remote UE.*

For the different conditions mentioned by company papers in section 8.9.2, it would be best to discuss which triggers are applicable to the relay UE and which are applicable to the remote UE. Rapporteur notices that some conditions are clearly related to the relay or remote UE, while other conditions could be applicable to both and company inputs are needed.

**Q2.1) Which of the following conditions should be used to allow transmission of the discovery message at the relay UE?**

1. **Upper layer**
2. **Channel quality between remote and relay UE**
3. **Conditions on the neighbor list at the relay UE**
4. **Conditions on the contents of discovery received by another relay UE**
5. **Others (please specify)**

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| Company | Response | Comments |
| InterDigital | A, B, C, D | B is needed as a condition for forwarding the discovery message by the relay. For C, it is useful to avoid a UE configured as a relay to transmit discovery when it has no remote UEs it is serving, or it cannot serve the remote UEs adequately (e.g. low RSRP). For D, it is useful to avoid two relays serving the same set of UEs to both occupy sidelink discovery resources when only one can do the job. |
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**Q2.2) Which of the following conditions should be used to allow transmission of the discovery message at the remote UE?**

1. **Upper layer**
2. **Channel quality between remote and relay UE**
3. **Detection of RLF**
4. **PC5 link release from relay to remote**
5. **Conditions on the contents of discovery received by another relay UE**
6. **Others (please specify)**

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| Company | Response | Comments |
| InterDigital | A, B, C, D | B, C, and D are all needed to help the remote UE search for another relay when the relay is no longer adequate and should be considered. |
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### 2.3 P8.2

The original P9.1 from R2-2210893 is as follows.

*Proposal 8.2: RAN2 discusses the relay (re)selection criteria for U2U relay among 1) channel quality between remote and relay UE (first and/or second hop); 2) relay load; 3) Whether the PC5 link of the second hop is already established 4) PLMN ID; 5) Cell ID/gNB; 6) Prioritization of the direct link over a relayed link.*

Different to triggers which were discussed online, the above proposal addresses criteria to be used to determine which relay(s) can be selected by the remote UE once (re)selection is triggered.

**Q2.3) Which of the following criteria can be used by the remote UE to select a relay once relay (re)selection is triggered?**

1. **Channel quality between the remote UE and the relay**
2. **Channel quality between the relay and the destination (second hop)**
3. **Relay load**
4. **Whether PC5 link of the second hop is already established or not**
5. **PLMN ID**
6. **Cell ID/gNB**
7. **Prioritization of the direct link over the relayed link**
8. **Others (please specify)**

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| Company | Response | Comments |
| InterDigital | A, B, C, D | For A and B, although the relay selection can be upto UE implementation (as in Rel17), the remote UE should be able to have access to the channel quality of both hops.  It is not clear whether E and F are needed for U2U relay. As for G, this can be taken into account by the reselection triggering. |
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### 2.4 P9.1

The original P9.1 from R2-2210893 is as follows.

Proposal 9.1: RAN2 to discuss whether the indication is needed for whether the gNB is capable of U2U relay discovery

**Q4.1) Is the indication for whether the gNB is capable of U2U relay discovery needed?**

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| Company | Response (Y/N) | Comments |
| InterDigital | No, with comments | Considering the agreement to strive for simplified gNB involvement, we think an indication is not needed. However, we are fine to leave this discussion to later when we have further defined U2U relay and the required gNB involvement. |
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# 4 Conclusion

Rapporteur suggests the following proposals

# 4 References

1. R2-2210893 Summary of AI 8.9.2 – UE to UE Relay (InterDigital) – InterDigital