3GPP TSG-RAN WG2 Meeting #113-e R2-210xxxx

Electronic, 25th Jan - 5th Feb, 2021

**Agenda item: 8.7.3**

**Source: CATT**

**Title: [AT113-e][607][Relay] Continuation of discovery open issues**

**Document for: Discussion and Decision**

# 1 Introduction

This contribution is used to further collect information for the summary R2-2102224, in order to converge on the critical proposals.

# 2 Contact Information

To make it easier to find the correct contact delegate in each company for potential follow-up questions, the rapporteur encourages the delegates who provide input to provide their contact information in this table:

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| --- | --- |
| Company | Contact: Name (E-mail) |
| CATT | Hao Xu(xuhao@catt.cn) |
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# 3 Discussion

## 3.1 Questions for Easy Proposals

According to the current TR 38.836 [1], there are still two editor notes in section 4.2 on sidelink discovery which marked with Editor note:

*Editor note: For Remote UE out of coverage, it is FFS whether transmission of discovery message is based on configuration from network if the Remote UE is already connected with network through a Relay UE.*

*Editor note: For Remote UE in RRC\_CONNECTED, the detail of configuration provided by serving gNB is FFS.*

Regarding to the 2nd editor note (marked with green), [9] proposed:

Proposal 3 For Remote UE in RRC\_CONNECTED, it may be configured with dedicated transmission resources and whether the UE is allowed to transmit remote UE related sidelink communication using the configured dedicated transmission resources.

But more companies [5][6][8][17][22] proposed to left it to WI phase.

**Q1-1: Do companies agree to remove the editor note and address this isssue in WI phase:**

**“Editor note: For Remote UE in RRC\_CONNECTED, the detail of configuration provided by serving gNB is FFS.”**

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Regarding to the discovery model, in RAN2#111-e meeting, RAN2 has agreed to adopt model A and model B as a working assumption for both U2N relay and U2U relay. This has been captured in current TR 38.836 [1]. According to SA2 LS [27], it confirmed that both model A and model B are supported. Hence, contributions [5][11] [22] [26] are all suggested to confirm that for both L2 and L3 U2U relay, discovery model A and model B are agreed as discovery model.

**Q1-2: Do companies agree that for both L2 and L3 U2N and U2U relay, discovery model A and model B are agreed as discovery model?**

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Regarding to the sidelink discovery resource pool design, one possible method is to adopt a separate resource pool for sidelink discovery. With the separate resource pool, one open issue was whether to introduce a new LCID for discovery message. Contributions [5][6][9][19] discussed this issue and all supported to introduce a new LCID for discovery message in case of separate resource pool.

**Q1-3: Do companies agree to introduce a new LCID for discovery message for separate resource pool same as shared resource pool?**

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## 3.2 Questions for Proposals can be further discussed in SI stage

According to the current TR 38.836 [1], there are still two editor notes in section 4.2 on sidelink discovery which marked with FFS:

*Editor note: For Remote UE out of coverage, it is FFS whether transmission of discovery message is based on configuration from network if the Remote UE is already connected with network through a Relay UE.*

*Editor note: For Remote UE in RRC\_CONNECTED, the detail of configuration provided by serving gNB is FFS.*

Regarding to the 1st editor note (marked with yellow), it was discussed in email discussion #623 on discovery [4]. The summary of this topic is “13 out of 24 companies answer no while the rest 10 answer yes. Considering the solution is rather an optimization, rapporteur recommends not pursuing this”. In this meeting, contributions [5][6][8][9][10][12][15][17][20][22] discussed this question. There are mainly two options:

* Option 1: For OOC Remote UE connected to network via Layer 2 UE-to-NW relay, the discovery transmission is based on pre-configuration([5][6][8])
* Option 2: For OOC Remote UE connected to network via Layer 2 UE-to-NW relay, the transmission of discovery message is based on NW configuration([9][10][12][15][17][20][22]).

The rapporteur understands that it is technically feasible for gNB to provide discovery configuration to remote OOC UE through a relay UE, but the benefit is not obvious.

**Q2-1: Do companies agree that for the OOC remote UE connected to network via L2 relay, whether the discovery transmission can be based on pre-configuration or based on NW configuration should be discussed in SI phase?**

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**Q2-2: If the answer of Q2-1 is Yes, which option do companies prefer?**

* **Option 1: Based on pre-configuration;**
* **Option 2: Based on NW configuration received from relay UE;**
* **Option 3: Based on pre-configuration or NW configuration received from relay UE.**

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In [5], it is also mentioned that for L3 U2U relay there is additional alternative i.e. Integrated PC5 unicast link establishment procedure (as described in sol#8 in[2]) apart from discovery model A and model B. Regarding to this issue, contributions[11][22] think that relay discovery integrated into the PC5 unicast link establishment procedure is considered to be supported by SA2 for both L2/L3 UE-to-UE Relay, so integrated PC5 unicast link establishment procedure should also be captured for U2U architecture. Contribution [26] proposed that RAN2 should discuss this question. Contribution [21] proposed that PC5 discovery should not necessarily lead to establishment of PC5 RRC Connection.

Rapporteur thinks that the intention of discussing this issue is to capture valuable conclusions from SA2 in order to further perfect our work from a technical point of view. The reality is that the decision for whether relay discovery integrated into the PC5 unicast link establishment procedure for U2U is out of RAN2 scope. And SA2 is going to discuss the detail further at next SA2 meeting.

**Q2-3: Do companies agree that the relay discovery integrated into the PC5 unicast link establishment procedure for U2U relay should be captured in TR38. 836?**

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Based on the SA2 reply LS [30], SA2 agree that direct discovery message will be taken as new signalling in ProSe layer separately from PC5-S signalling. ProSe layer will indicate to AS layer whether the signalling is discovery message or PC5-S signaling.

Hence [5][9][18] propose that according to SA2’s reply, the protocol stack for discovery message is Discovery/PDCP/RLC/MAC/PHY, which is shown in the following Figure-1:



**Figure-1 Sidelink discovery protocol stack**

However, [8] and [22] point that in the latest SA2 spec TR 23.752[2], the related descriptions are as below:

# **8 Conclusions**

Editor's note: This clause will list conclusions that have been agreed during the course of the study item activities.

**8.1 Key Issue #1: ProSe Direct discovery**

For Key Issue #1 (ProSe Direct discovery), the following aspects are concluded:

- For discovery procedure over PC5 for commercial services and public safety, both model A and model B as defined in TS 23.303 [9] are recommended to be standardized.

NOTE 1: Mechanism for discovering a UE-to-Network Relay and UE-to-UE Relay can be concluded in KI#3 and KI#4.

- 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.

NOTE 2: Whether PC5-S signalling or any other new signalling in upper layer is used will be decided during the normative phase based on the protocol stack and the message structures/formats to be defined for PC5 direct discovery.

According to the above descriptions marked with yellow, SA2 has not decided whether it is PC5-S signalling or any other new signalling in upper layer, the detailed design will be decided during the normative phase. Hence, [8] and [22] suggests leaving it to WI phase. In addition, [8] also suggests to send LS for further clarification on whether the discovery message is a new PC5-S signalling or a new type of signalling different from PC5-S.

**Q2-4: Do companies agree to update TR 38.836 to clarify that the sidelink discovery protocol stack depends on SA2?**

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Regarding to the sidelink discovery resource pool design, one possible method is to adopt a shared resource pool for sidelink discovery. With the shared resource pool, Contributions [5][10] discussed how to identify the discovery messages. In [5], it preferred not to introduce dedicated destination ID for discovery message.

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| Proposal 6: for shared resource pool, not to introduce dedicated destination ID for discovery message. |

While in [10], the following three options were provided:

* Option 1: Phy layer indication. For example, the UE could use one of the reserved bits in the SCI to indicate the presence of the discovery message.
* Option 2: Dedicated L1/L2 destination ID for discovery message. Specifically, SA2 would need to set aside a dedicated L2 destination ID for discovery message. This solution is feasible as long as SA2 does not plan to transmit discovery message with different existing L2 IDs (e.g. the L2 ID associated with the service).
* Option 3: A new L1 destination ID for discovery message. Specifically, AS may reserve a new L1 ID for the indication of a discovery message. In this case, the UE needs an alternative way convey the actual L2 destination ID. A new MAC header can be designed to convey the full L2 destination ID.

And either an explicit indication in SCI or by introducing a reserved L1 destination ID was preferred.

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| Proposal 4: For shared resource pool, discovery message can be identified with either an explicit indication in SCI, or by introducing a reserved L1 destination ID. |

**Q2-5: Do companies agree that whether the discovery message should be identified in L1 in case of shared resource pool should be discussed in SI phase?**

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**Q2-6: If the answer of Q2-5 is Yes, which option do companies prefer?**

* **Option 1: the discovery message should be identified in L1;**
* **Option 2: the discovery message should not be identified in L1.**

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In RAN2#111-e meeting, agreement has been made that LTE principle can be reused for relay UE in IDLE/INACTIVE state to decide whether it is allowed to transmit/receive discovery message.

But in the TR38.836 [1], according to the yellow part, it means both the minimum and maximum Uu thresholds need to be satisfied if gNB provided. The UE behaviour is unclear in the case only one threshold is configured or both are not configured. The LTE principle is not correctly captured.

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| For Relay UE of UE-to-Network Relay, - The Relay UE needs to be within a minimum and a maximum Uu signal strength threshold(s) if provided by gNB before it can transmit discovery message when in RRC\_IDLE or in RRC\_INACTIVE state.  |

Contributions [8] proposed that TR should be modified to correctly reflect the agreement reached on RAN2#111-e meeting.

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| Proposal 6: Modify the TR 38.836 to correctly reflect the agreement reached on RAN2#111-e meeting. |

**Q2-7: Do companies agree to update the description in TR 38.836 to correctly reflect the agreement reached on RAN2#111-e meeting?**

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**Q2-8: If the answer of Q2-7 is Yes, do compaines agree the following revision? If not agree, please give your preferred description.**

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| For Relay UE of UE-to-Network Relay, - The Relay UE needs to ~~be within~~ respect a minimum and/or a maximum Uu signal strength threshold(s) if provided by gNB before it can transmit discovery message when in RRC\_IDLE or in RRC\_INACTIVE state.  |

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## 3.3 Questions for Issues can be left to WI stage

For the contents of discovery message, contribution [6] discussed this question. It thinks that Cell ID of the serving cell of candidate relay UE is useful for L2 U2N relay, and relay’s PLMN ID is also useful for L2 relays during the relay (re)selection procedure to select a relay UE in allowed PLMNs. Hence it is proposed in [6]:

Proposal 2: Include relay’s serving cell ID and PLMN ID in discovery message for both L3 and L2 relay.

Considering only one company raises this question, and it is the last meeting for this study item, it is proposed the detailed design of the discovery message can be left to WI phase.

**Q3-1: Do compaines agree that the details of the discovery message design can be postponed to WI phase?** **If not agree, Please give the necessary and sufficient reasons for discussion in SI stage.**

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Further, in [5], it is suggested to reuse Rel-16 PHY solution to transmit discovery message and no enhancement on RAN1 aspects are needed in principle:

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| Proposal8: For separate resource pool, reuse Rel16 PHY solution to transmit discovery message and no enhancement on RAN1 aspects are needed in principle. |

Since only one company provided the view on it and this is detail of discovery message transmission, rapporteur suggests the details can be discussed in the WI phase.

**Q3-2: Do compaines agree that for separate resource pool, the detail of discovery message transmission can be postponed to WI phase? If not agree, Please give the necessary and sufficient reasons for discussion in SI stage.**

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Contributions [9][10] discussed logical priority of discovery message. In [9], it is suggested to configure a dedicated priority value for discovery message:

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| Proposal 4: RAN2 is suggested to configure a dedicated priority value for discovery message which can be different from other SL SRBs. |

In [10], it is suggested to use non-fixed priority for discovery message:

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| Proposal 5: Non-fixed priority for the discovery LCID is supported for the shared pool scenario. Details can be discussed in the WI phase.Proposal 9: Non-fixed priority for the discovery LCID is supported for the dedicated resource pool scenario. Details can be discussed in the WI phase. |

Since only 2 companies provided the view on this issue, and logical priority of discovery message is too detail for study item, hence, rapporteur suggests to postpone it to the WI phase.

**Q3-3: Do compaines agree that the logical priority of discovery message can be postponed to WI phase? If not agree, Please give the necessary and sufficient reasons for discussion in SI stage.**

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Contribution [10] proposed that for L2 relay UE, relay load can be used as a criteria for whether to transmit discovery messages.

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| Proposal 2: For L2 relay UE, relay load is used as a criteria for whether to transmit discovery messages. |

Contribution [5] proposed that once remote UE is triggered to do relay reselection, then it should be allowed to transmit discovery message for discovery model B. And it is actually general correct for both UE-to-UE relay and UE-to-Network relay, for both L3 and L2 solutions. The following is the proposal verbatim from the paper:

Proposal2: when remote UE is triggered to reselect relay, it should be allowed to transmit discovery message.

[21] proposed that the RLF should be used to triggered to transmit/receive the discovery message for U2N relay.

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| Proposal 6: The remote UE is triggered to transmit/receive the discovery message when the remote UE declares the sidelink RLF in the L2/L3 U2N relay case. |

In [23] proposed that relay-UE may perform the discovery procedure, only if the QoS requirements of the relay service can be fulfilled, based on the information obtained from gNB.

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| Proposal 7: gNB may indicate the services, whose QoS requirements can be fulfilled by sidelink relay, to the serving relay-UEs.Proposal 8: A relay-UE may perform the discovery procedure, only if the QoS requirements of the relay service can be fulfilled, based on the information obtained from gNB. |

Rapporteur think that [10] [21] [23] are all enhancements based on the current triggers. Considering the deadline of this SI, these proposals should be postponed to WI phase.

**Q3-4: Do compaines agree that the additional triggers/conditions for transmitting the sidelink discovery message in case of U2N relay can be postponed to WI phase? If not agree, Please give the necessary and sufficient reasons for discussion in SI stage.**

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Contibution [16] proposed PC5 signal strength to be a trigger to transmit or receive discovery message：

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| Proposal 1: For U2U relay, RAN2 to discuss whether relay UE or remote UE is allowed to transmit or receive discovery message can be based on PC5 signal strength.Proposal 2: In order to check whether the UE is allowed to transmit or receive discovery message, AS layer needs an indication from the upper layer to differentiate U2N relay and U2U relay |

Contribution [5] proposed that once remote UE is triggered to do relay reselection, then it should be allowed to transmit discovery message for discovery model B. And it is actually general correct for both UE-to-UE relay and UE-to-Network relay, for both L3 and L2 solutions. The following is the proposal verbatim from the paper:

Proposal2: when remote UE is triggered to reselect relay, it should be allowed to transmit discovery message.

Contibution [21] proposed the RLF (bewteen relay UE and receiving remote UE\between relay UE and sending remote UE) should be used to triggered to transmit/receive the discovery message for U2U relay.

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| Proposal 7: The remote UE should transmit/receive the discovery message when the sidelink RLF on the link between the relay UE and the receiving UE happens in the L2/L3 U2U relay case;Proposal 8: The remote UE is triggered to transmit/receive the discovery message when the remote UE declares the sidelink RLF in the L2/L3 U2U relay case; |

Rapporteur think that the above mechanisms are both enhancements based on the current triggers. Considering the deadline of this SI, these proposals should be postponed to WI phase.

**Q3-5: Do compaines agree tha the additional triggers/conditions for transmitting the sidelink discovery message in case of U2U relay can be postponed to WI phase? If not agree, Please give the necessary and sufficient reasons for discussion in SI stage.**

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For the last meeting, below agreements were reached for the definition of non SL Relay Capable gNB.

RAN2#112-e agreements:

Proposal 9: L3 U2N relay UE is allowed to transmit discovery message based on at least pre-configuration when it is connected to a non\_SL Relay\_Capable gNB whose serving carrier is not shared with SL carrier. Detailed definition of non\_SL Relay\_Capable gNB can be left for WI phase but at least should include the case that the gNB does not provide SL relay configuration, e.g. no discovery configuration.

Contribution [24] has discussed that one left issue is handling of potential cases where the serving gNB is not sidelink-capable and scenario regarding gNB capability. The following are the proposals verbatim from the paper:

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| Proposal 1: RAN2 to confirm L2 sidelink relay capable gNB shall support NR Sidelink. NR sidelink capable gNB may not be able to support L2 sidelink relay.Proposal 2: L2 sidelink relay capable gNB can be identified by UE in AS.Proposal 3: In L2 relay, UE should not transmit discovery message using sidelink communication resource pool provided by sidelink capable gNB, which is not relay capable.Proposal 4: Capture these scenarios where L2 remote UE connects to Non relay capable gNB in TR and consider how to support relay discovery for L2 remote UE.Proposal 5: It’s FFS whether L3 sidelink relay capable gNB can be identified by UE in AS. |

Since it was agreed that the detailed definition of non SL Relay Capable gNB can be left for WI phase, hence the non SL Relay Capable gNB related issues should be postponed to WI phase.

**Q3-6: Do compaines agree that the Non SL Relay Capable gNB related issues can be postponed to WI phase (We follow previously reached agreement)? If not agree, Please give the necessary and sufficient reasons for discussion in SI stage.**

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In [10], some proposals on resource selection for discovery message were provided.

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| Proposal 6: For the shared pool scenario, NR V2X resource selection is re-used for transmission of discovery message by a mode 2 UE.Proposal 7: For the shared pool scenario, resource selection rules for the retransmission resource are used to ensure frequency diversity by a mode 2 UE. Details can be discussed in the WI phase. Proposal 8: For the shared pool scenario, the UE applies the same principle related to CBR for transmission of both discovery and data.Proposal 10: For the dedicated resource pool scenario, introduce a new resource selection mechanism for mode 2 UE in the dedicated discovery resource pool which supports 1) random resource selection, 2) TX-probability-based transmission 3) frequency hopping for discovery retransmission.Proposal 11: For the dedicated resource pool scenario, RAN2 assumes that discovery and data resources can occur in the same slot (on different resource pools)Proposal 12: In the dedicated pool scenario, RAN2 studies mechanisms to avoid latency incurred on discovery transmission caused by slot-level collision between discovery and data transmissions. |

Only one company provided the view on details of resource selection for discovery message. In the Rapporteur ‘s understanding, it can be left to WI phase.

**Q3-7: Do compaines agree that details of resource selection for discovery message can be postponed to WI phase? If not agree, Please give the necessary and sufficient reasons for discussion in SI stage.**

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Contribution [11] discussed the security related issue with the below proposals:

1. It is unnecessary to apply security protection in PDCP, since DDNMF is already available to provide security protection for discovery message.
2. Disabling security protection in PDCP is beneficial to reduce PDCP processing time for delay critical public safety services.
3. RAN2 confirms that discovery messages can be protected via DDNMF, therefore security protection (i.e., ciphering and integrity protection) is not performed in PDCP for discovery.

Regarding security, Rapporteur think we should wait for more information from SA3 because security topic is in the charge of SA3, for this reason, it is suggested to discuss this topic in the WI phase.

**Q3-8: Do compaines agree that details of security can be postponed to WI phase? If not agree, Please give the necessary and sufficient reasons for discussion in SI stage.**

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# 4 Conclusion

Based on the discussion in section 3, the proposals of summary document of AI 8.7.3 can be updated as below:

**TBD**

# 5 References

1. TR 38.836 V1.0.0 Study on NR sidelink relay (Release 17)
2. TR 23.752 V0.7.0 Study on system enhancement for Proximity based Services(ProSe) in the 5G System (5GS) (Release 17)
3. Draft R2-20xxxxx - [606][Relay] discovery model and procedure\_summary
4. R2-2010661 Summary of [Post111-e][623][Relay]Remaining issues on relay discovery (rapporteur)
5. R[2-2100100](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100100.zip) Remaining issues of Relay discovery and (re)selection OPPO discussion Rel-17 FS\_NR\_SL\_relay
6. R[2-2100126](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100126.zip) Remaining issues on discovery and relay (re)selection Qualcomm Incorporated discussion Rel-17
7. R[2-2100152](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100152.zip) Proposal of items to be examined on discovery and relay (re-)selection for UE-to-UE relay in WI phase Mitsubishi Electric Co. discussion Rel-17
8. R[2-2100204](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100204.zip) Miscellaneouse Issues on Relay Discovery CATT discussion Rel-17 FS\_NR\_SL\_relay
9. R[2-2100308](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100308.zip) Discussion on remaining issues for sidelink discovery ZTE Corporation discussion
10. R[2-2100522](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100522.zip) Discovery Procedure for sidelink relay InterDigital discussion Rel-17 FS\_NR\_SL\_relay
11. R[2-2100533](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100533.zip) Remaining aspects for discovery Ericsson discussion Rel-17 FS\_NR\_SL\_relay R2-2009228
12. R[2-2100624](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100624.zip) On SL discovery for relaying Intel Corporation Intel discussion Rel-17 FS\_NR\_SL\_relay
13. R[2-2100658](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100658.zip) Discussion on remaining issues on relay discovery Spreadtrum Communications discussion Rel-17 FS\_NR\_SL\_relay
14. R[2-2100707](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100707.zip) Relay reselection based on discovery Kyocera discussion Rel-17
15. R[2-2100726](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100726.zip) Relay discovery considerations Kyocera discussion Rel-17
16. R[2-2100804](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100804.zip) Discussion on sidelink relay discovery SHARP Corporation discussion
17. R[2-2100868](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100868.zip) Discussion on remaining issues on relay discovery Apple discussion Rel-17 FS\_NR\_SL\_relay
18. R[2-2100924](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100924.zip) Protocol stack for discovery message Samsung Electronics discussion Rel-17 FS\_NR\_SL\_relay
19. R[2-2100925](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100925.zip) Clarification on AS layer differentiation for discovery message Samsung Electronics discussion Rel-17 FS\_NR\_SL\_relay
20. R[2-2100926](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2100926.zip) Discovery configuration for Remote UE out of coverage Samsung Electronics discussion Rel-17 FS\_NR\_SL\_relay
21. R[2-2101108](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2101108.zip) Relay Discovery in L2 and L3 relay case Lenovo, Motorola Mobility discussion Rel-17
22. R[2-2101181](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2101181.zip) Remaining issues of sidelink relay discovery procedure vivo discussion Rel-17
23. R[2-2101211](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2101211.zip) UE-to-Nwk Relay Discovery and (Re)selection for Path Switching in SL Relay Nokia, Nokia Shanghai Bell discussion Rel-17 FS\_NR\_SL\_relay
24. R[2-2101597](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2101597.zip) Discussion on relay discovery regarding non SL relay capable gNB Xiaomi communications discussion
25. R[2-2101624](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2101624.zip) Relay discovery and (re)selection CMCC discussion Rel-17 FS\_NR\_SL\_relay
26. R[2-2101783](file:///C%3A%5CUsers%5Cxuhao%5CDesktop%5CPre%20R2-113%5CTdocs%5CR2-2101783.zip) Discussion on the discovery procedure Huawei, HiSilicon discussion Rel-17 FS\_NR\_SL\_relay
27. R2-2010693 LS on SA2 progress on UE-to-Network Relay and UE-to-UE Relay (S2-2007945; contact: OPPO) SA2 LS in Rel-17 FS\_5G\_ProSe To:RAN2, SA3
28. S2-2008296 Interim conclusion for L3 UE-to-Network Relay solutions for Key Issue#3
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30. R2-2100070 Reply LS to Reply LS on Direct Discovery and Relay (S2-2009229; contact: OPPO) SA2 LS in Rel-17 FS\_5G\_ProSe To:RAN2