**3GPP TSG-RAN WG2 Meeting #119bis R2-221xxxx**

**Electronic, 10th – 19th Oct, 2022**

**Source: CATT**

**Title:****Summary of 6.7.2.4 on Discovery and re-selection**

**Agenda Item:** **6.7.2.4**

**Document for:** **Discussion and Decision**

# Introduction

This contribution provides summary of contributions under 6.7.2.4 on discovery and re-selection.

# Discussion

### 2.1 Hierarchy alignment for the procedure for reselection pool selection in single and multiple MAC PDUs

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| R2-2209501[1] | Miscellaneous corrections for NR sidelink Relay in TS 38.321 | OPPO |

In [1], the “else if NR sidelink communication is available in the logical channel” check condition in clause 5.22.1.1 is added with the reason that the hierarchy of the procedure for reselection pool selection for discovery transmission and SL data transmission in multiple MAC PDUs section is not aligned with that in single MAC PDU section. Without the change, the proponent raises that Rel-17 U2N UE cannot select the correct SL communication transmission resource pool for multiple MAC PDUs transmission.

**Rapporteur’s view:** the proposed change is not involving new functions for sidelink relay discovery and re-selection, it is reasonable to merge it into MAC rapporteur’s discussion for final determination.

**Proposal 1: Merge R2-2209501 into MAC rapporteur’s discussion for further discussion.**

### 2.2 The judgement condition for checking whether available suitable NR sidelink U2N relay UE(s) is selected or not

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| R2-2209894[2] | Correction on relay (re-)selection for remote UE | CATT |

It is common understanding that when remote UE (re-)select U2N relay UE, it will check the AS and high layer criteria, and finally consider one relay UE to be selected or no relay UE to be selected. In [2], one logical vague point was pointed out that for the branch of no NR sidelink U2N relay UE to be selected, where only AS criteria is checked, while the high layer criteria is missing. Then the NR sidelink U2N relay UE will be wrongly selected when high layer criteria is not matched while AS criteria is matched. In order to solve this issue, in subclause 5.8.15.3, add “if there is any candidate NR sidelink U2N Relay UE can be regarded as suitable NR sidelink U2N Relay UE” as branch of succeed to (re-)select U2N relay UE, and the else case as branch of failed to (re-)select U2N relay UE.

**Rapporteur’s view:** the proposed change is not involving new functions for sidelink relay discovery and re-selection, it is reasonable to merge it into RRC rapporteur’s discussion for final determination.

**Proposal 2: Merge R2-2209894 into RRC rapporteur’s discussion for further discussion.**

### 2.3 SL CG for discovery message

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| --- | --- | --- |
| R2-2210111[3] | Support of SL CG for discovery message  | Huawei, HiSilicon, Nokia, Kyocera |

This issue (SL CG for discovery message) had been discussed in [AT119-e][418][Relay] without conclusion. During last meeting, some companies expressed their concern that there is no discovery message traffic pattern defined, so it is not suitable for UE to provide any assistance information for SL CG for discovery message to gNB. At this meeting, the proponent companies offer more information to show that the discovery message transmissions for both Model A and Model B are indeed periodic from the very beginning of the Proximity-based services design and this is already specified in the Proximity-based services (ProSe); Stage 2 specification 23.3037 [6], Sections 5.3.1.2 and 5.4.4.1. That is to say, the proponent companies further clarify the need of the assistance information from the UE to the gNB to appropriately allocate the SL CG resources for SL discovery message and then provide the text proposal for the proposed changes for 38.331.

**Rapporteur’s view:** With more information shared to solve the concern about the need of the assistance information from the UE to the gNB to appropriately allocate the SL CG resources for SL discovery message, it is reasonable to ask companies to discuss the proposals again. Hence, rapporteur suggest the below proposals.

**Proposal 3a: RAN2 to discuss whether new assistance information similar to SL-TrafficPatternInfo should be introduced in UEAssistanceInformation message to assist gNB to configure** **SL CG type 1 for discovery.**

**Proposal 3b: If proposal 3a is agreed, RAN2 to discuss whether the assistance information can include Discovery message periodicity, Timing offset and the message size information. If yes, adopt TP in** [**R2-2210111**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2208228.zip) **as baseline.**

### 2.4 Correction for relay selection for entering IDLE or INACTIVE

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| --- | --- | --- |
| R2-2210169[4] | Correction for relay selection for entering IDLE or INACTIVE | Lenovo |

For the current spec, in re-establishment procedure (5.3.7.2), when T311 for cell selection and relay selection is running, if the UE is acting as L2 U2N Remote UE and the PC5-RRC connection is released, the UE shall perform either cell selection, or relay selection, or both. Otherwise (when UE is not acting as L2 U2N Remote UE), the UE performs cell selection. In [4], it raised that the ‘relay selection’ for a remote UE is missing in section 5.3.8.3 and section 5.3.11, the below two changes should be accepted:

1) In 5.3.8.3 for release message, upon reception of the RRCRelease including suspendConfig by the UE, UE shall enter RRC\_INACTIVE and perform cell selection as specified in TS 38.304. However, the ‘relay selection’ for the remote UE is missing in the above description, in case of UE is acting as L2 U2N Remote UE. That is to say, in section 5.3.8.3, ‘relay selection’ for a remote UE should be added.

2) In 5.3.11 for going into IDLE, UE shall enter RRC\_IDLE and perform cell selection upon going to RRC\_IDLE upon reception of the RRCRelease without including suspendConfig. However, the ‘relay selection’ for the remote UE is missing, as in the above description i.e., when UE is acting as L2 U2N Remote UE. That is to say, in section 5.3.11, ‘relay selection’ for a remote UE is added.

**Rapporteur’s view:** the proposed change is not involving new functions for sidelink relay discovery and re-selection, it is reasonable to merge it into RRC rapporteur’s discussion for final determination.

**Proposal 4: Merge R2-2210169 into RRC rapporteur’s discussion for further discussion.**

### 2.5 Resource allocation scheme when sensing result is not available for NR sidelink discovery

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| R2-2210633[5] | Discussion on Resource Allocation for Sidelink Discovery | CATT |

When mode2 is selected for NR sidelink discovery transmission and the UE is executing resource pool selection, if is allowed by sl-AllowedResourceSelectionConfig, the whole resource allocation method selected cases are listed as below:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Case | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Resource allocation method | **F**ull sensing | **P**artial sensing | **R**andom selection | **F**ull sensing+ **P**artial sensing | **F**ull sensing+ **R**andom selection | **P**artial sensing+ **R**andom selection | **F**ull sensing+ **P**artial sensing+ **R**andom selection |

In the current RRC spec, UE will use exceptional pool in the following two cases:

Case1: when discovery pool is configured, if partial/full sensing is selected and is allowed by sl-AllowedResourceSelectionConfig, and the sensing result is not available.

Case2: when discovery pool is not configured, if partial/full sensing for common pool is selected and is allowed by sl-AllowedResourceSelectionConfig, and the sensing result is not available.

For case5, case6 and case7, [5] raised that UE can also use random selection on discovery/common pool after sensing result is not available. With this enhancement, the pressure on the exceptional pool can be reduced.

**Rapporteur’s view:** for case1,case2 and case4, the current spec procedure is no doubt. But for case5, case6 and case7, when the sensing result is not available, the reason why RAN2 need to limit the UE to use exceptional pool needs to be clarified and other solution can be further discussed.

**Proposal 5a: RAN2 to discuss whether UE can use random selection on discovery/common pool, when the sensing result is not available, and random selection is also allowed by configuration.**

**Proposal 5b: If proposal 5a is agreed, RAN2 to discuss whether the procedure that UE can use random selection on discovery/common pool, when the sensing result is not available, and random selection is also allowed by configuration can be added. If yes, adopt TP in R2-2210633 as baseline.**

# Conclusion

Following proposals are made,

**[easy decision]**

**Proposal 1: Merge R2-2209501 into MAC rapporteur’s discussion for further discussion.**

**Proposal 2: Merge R2-2209894 into RRC rapporteur’s discussion for further discussion.**

**Proposal 4: Merge R2-2210169 into RRC rapporteur’s discussion for further discussion.**

 **[to be discussed]**

**Proposal 3a: RAN2 to discuss whether new assistance information similar to SL-TrafficPatternInfo should be introduced in UEAssistanceInformation message to assist gNB to configure SL CG type 1 for discovery.**

**Proposal 3b: If proposal 3a is agreed, RAN2 to discuss whether the assistance information can include Discovery message periodicity, Timing offset and the message size information. If yes, adopt TP in** [**R2-2210111**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2208228.zip) **as baseline.**

**Proposal 5a: RAN2 to discuss whether UE can use random selection on discovery/common pool, when the sensing result is not available, and random selection is also allowed by configuration.**

**Proposal 5b: If proposal 5a is agreed, RAN2 to discuss whether the procedure that UE can use random selection on discovery/common pool, when the sensing result is not available, and random selection is also allowed by configuration can be added. If yes, adopt TP in R2-2210633 as baseline.**

# Reference

1. R2-2209501 Miscellaneous corrections for NR sidelink Relay in TS 38.321 OPPO
2. R2-2209894 Correction on relay (re-)selection for remote UE CATT
3. R2-2210111 Support of SL CG for discovery message Huawei, HiSilicon, Nokia, Kyocera
4. R2-2210169 Correction for relay selection for entering IDLE or INACTIVE Lenovo
5. R2-2210633 Discussion on Resource Allocation for Sidelink Discovery CATT
6. TS 23.303 Proximity-based services (ProSe); Stage 2 V17.0.0