**3GPP TSG-RAN WG2 Meeting #116-e R2-211xxxx**

**E-Meeting, November 1-12, 2021**

**Title:** LS on non-relay discovery

**Response to:**

**Release:** Rel-17

**Work Item:** NR\_SL\_Relay-Core

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

**To:** SA2

**Cc:**

**Contact Person:**

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**Attachments:** none

1. **Overall Description:**

In RAN2 #116-e meeting, RAN2 has considered non-relay discovery specific issues, as well as whether the previous RAN2 agreements particularly made for relay discovery are applicable for non-relay discovery or not.

The following agreements are made for non-relay discovery.

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| 1. **RAN2 confirm that the following relay-discovery related agreements are also applicable to non-relay discovery.**   One new SL-SRB4 is used for all discovery messages. Its parameters will be fixed and defined as SCCH configuration in 38.331. (FFS on the LCH priority in Proposal 8b)  No ciphering and integrity protection in PDCP layer is needed for the discovery messages.  ~~Shared resource pool shall be the baseline for discovery message transmission/reception.~~  ~~Relay UE and remote UE (IC) in RRC CONNECTED can use the discovery configuration provided via dedicated signalling if available.~~  ~~Relay UE and remote UE (IC) in RRC IDLE or RRC INACTIVE shall use the discovery configuration provided via SIB if available.~~  ~~L2 relay UE will always use the discovery configuration provided by gNB (either via SIB or dedicated signalling).~~  ~~RAN2 confirm the SI conclusion that for L2 remote UE which is out-of-coverage, and is neither in RRC\_CONNECTED nor RRC\_IDLE/INACTIVE, it can rely on pre-configuration.~~  ~~RAN2 confirm the SI conclusion that for L3 remote UE which is out-of-coverage, and is neither in RRC\_CONNECTED nor RRC\_IDLE/INACTIVE, it should follow pre-configuration.~~  ~~RAN2 agree that for L2 remote UE which is out-of-coverage, but connected to network via a relay UE (i.e., either in RRC CONNECTED or RRC IDLE/INACTIVE), it should follow network configuration, i.e., SIB or dedicated signalling, if available.~~  ~~RAN2 agree that for relay/remote UE in RRC IDLE/INACTIVE state, in-coverage on the serving frequency, and the serving frequency is not shared with concerned frequency, if the configuration of concerned SL frequency is absent within the SIB of the serving frequency or if there is no discovery related SIB on the serving frequency~~  ~~If there is Uu deployedcoverage at the concerned SL frequency, UE shall 1) rely on the discovery related SIB, if any broadcasted in the concerned SL frequency; Or 2) if there is no discovery related SIB on the concerned SL frequency, UE does not perform SL discovery transmission/reception on the concerned frequency.~~  ~~If there is no Uu deployedcoverage at the concerned frequency, UE shall rely on pre-configuration.~~  ~~RAN2 agree that for relay/remote UE in RRC IDLE/INACTIVE state, in-coverage on the serving frequency，if the serving frequency is shared with concerned SL frequency~~  ~~If there is no discovery related SIB broadcasted on the serving carrier, UE does not perform SL discovery transmission/reception on the concerned frequency.~~  ~~RAN2 agrees to reuse Rel-16 power control mechanism for transmission of discovery messages.~~  The same PDCP data PDU format as SL-SRB0 is used for sidelink discovery message (SL-SRB4), and the SDU type field is not used for SL-SRB4.  RAN2 rely on SA2 on the L2 ID design for discovery message. No LS is needed.  De-prioritize additional condition for discovery transmission/reception in Rel-17.  ~~RAN2 agrees that for relay/remote UE in RRC IDLE/INACTIVE state, and in-coverage on the serving frequency, if there is discovery related SIB broadcasted on the serving frequency, and if the configuration of concerned SL frequency is included within the SIB of the serving frequency but the Tx resource pool configuration is absent, UE shall enter RRC CONNECTED state to acquire dedicated configuration on Tx resource pool.~~  ~~RAN2 agree that RRC\_CONNECTED relay/remote UE which are in-coverage on the serving frequency, if there is discovery related SIB broadcasted on the serving frequency, and if the configuration of concerned SL frequency is included within the SIB of the serving frequency, it can only use the SL discovery Tx resource configuration provided by dedicated signalling if provided, or not transmit discovery if not provided.~~  ~~RAN2 agree that RRC\_CONNECTED L3 relay/remote UE or layer 2 remote UE which are in-coverage on the serving frequency, and the serving frequency is not shared with concerned frequency, if the configuration of concerned SL frequency is absent within the SIB of the serving frequency or if there is no discovery related SIB on the serving frequency,~~  ~~If there is Uu coverage at the concerned SL frequency, UE shall 1) rely on the discovery related SIB, if any broadcasted in the concerned SL frequency; Or 2) if there is no discovery related SIB on the concerned SL frequency, UE does not perform SL discovery transmission/reception on the concerned frequency.~~  ~~RAN2 agree that for L2 remote UE which is out-of-coverage, but connected to network via a relay UE and in RRC IDLE/INACTIVE state, if the network configuration is not available, i.e., SIB, remote UE shall rely on pre-configuration to perform discovery.~~  ~~RAN2 agrees to down-prioritize discovery specific resource allocation optimization in this release.~~  RAN2 agrees to down-prioritize the support of discovery gaps in this release.  ~~RAN2 agree that for L2 remote UE which is out-of-coverage, but connected to network via a relay UE and in RRC CONNECTED state, if the network configuration is not available, i.e., SIB or dedicated signalling, remote UE shall rely on pre-configuration to perform discovery.~~  ~~RAN2 agrees dedicated discovery resource pool is supported besides shared resource pool configuration, whether it is configured is based on network implementation. And PHY layer parameters and design shall reuse the Rel-16 legacy resource pool design (including resource allocation design).~~  RAN2 agrees to fix the priority value as 1 of sidelink discovery message in the specification.  No ciphering and integrity protection in PDCP layer is needed for the discovery messages.  ~~Shared resource pool shall be the baseline for discovery message transmission/reception.~~  ~~For mode 1, if agreed that both shared and dedicated resource pools can be configured, it is up to gNB which one the UE should use to transmit discovery message. For mode 2, if agreed that both shared and dedicated resource pools can be configured, downselect from the following options: a) Left to UE implementation; b) Dedicated pool should be prioritized; c) Shared pool should be prioritised~~  **2. RAN2 confirm that the following relay-discovery related agreements are not applicable to non-relay discovery.**  As in LTE, the RRC\_IDLE/RRC\_INACTIVE relay UE is able to perform discovery message transmission, in case:  Uu RSRP is above a configured minimum threshold by a hysteresis and below a configured maximum threshold by a hysteresis, or  only minimum threshold is provided and Uu RSRP is above the minimum threshold by a hysteresis, or  only maximum threshold is provided and Uu RSRP is below the maximum threshold by a hysteresis  As in LTE, the RRC\_IDLE/RRC\_INACTIVE remote UE is able to perform discovery message transmission, if and only if Uu RSRP of serving cell is below a configured minimum threshold by a hysteresis.  Define threshHighRelay and threshLowRelay for relay UE and threshHighRemote for remote UE. The value range for the three thresholds can be half of RSRP-Range specified in TS 38.331.  For determining whether remote UE and/or relay UE in RRC CONNECTED can trigger discovery message transmission, i.e., the remote UE and relay UE in the RRC\_CONNECTED can use the threshold based methods as in IDLE/INACTIVE, to determine whether it is allowed to perform discovery message transmission.  **3. RAN2 confirm that the SL-SRB4 is also applicable to group-based discovery.**  **4. RAN2 confirm not support discovery range for non-relay discovery in Rel-17.** |

In addition, to avoid repetitive discussion in the future for non-relay discovery, RAN2 has agreed on the following way forward:

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| **Way Forward: RAN2 confirm that since R2 #116, unless an agreement is specifically mentioned for “relay discovery” or “non-relay discovery”, it is applicable to both relay and non-relay discovery.** |

**2. Actions:**

**To SA2**: RAN2 respectfully asks SA2 to take the above agreements into account in their future work.

**3. Dates of Next TSG-RAN WG2 Meetings:**

TSG RAN WG2 Meeting #116-bis-e 17 January – 25 January 2022 Online

TSG RAN WG2 Meeting #117-e 21 February - 3 March 2022 Online