**3GPP TSG-** **RAN2 Meeting #121 R2-2301922**

**Athens, Greece, 27 February – 3 March 2023**

**Agenda item:** 6.5.2

**Title:** [Pre121][402][Relay] Summary of agenda item 6.5.2 on relay control plane (Huawei)

**Source:** Huawei, HiSilicon

**Document for:** Discussion and decision

1. Introduction

This is to summarize the company contributions in AI 6.5.2.

2. Discussion

There are 15 contributions submitted to AI 6.5.2 and one RRC CR in R2-2301019 submitted to AI 6.5.3. The changes and proposals are classified into 3 parts:

* Part 1: editorial changes, and text enhancements. To be discussed in 2.1.
* Part 2: changes on procedural text or field description which may have impact on UE behaviour. To be discussed in 2.2.
* Part 3: changes on asn.1 which have impact on network as well UE. To be discussed in 2.3.

## 2.1 TDoc Classifications and Part I Editorial changes

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| --- | --- | --- | --- | --- |
| TDoc number | TDoc title | Source | Change summary | Rapp’s suggestions |
| [**R2-2300137**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300137.zip) | Discussion on left issues for CP | OPPO | Proposal 1 R2 does not pursue further work to allow pre-configured Tx pool usage by in-coverage UE due to exceptional pool configuration being absent.  Proposal 2 For pre-configured Tx pool usage by out-of-coverage UE, RAN2 limit the discussion, if needed, to the case where SIB is available, including the concerned PC5 frequency, but including neither normal nor exceptional Tx pool. For this case, R2 at least does not puruse normative change. | To be discussed in 2.2. |
| [**R2-2300388**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300388.zip) | Correction on remote UE's resource allocation | Xiaomi, Ericsson, CATT, ZTE | Add a NOTE to clarify If serving cell doesn’t include*sl-TxPoolSelectedNormal*and*sl-TxPoolExceptional* in *SIB12*, remote UE in RRC\_IDLE/RRC\_INACTIVE and out of coverage, may use the sidelink resource in*SidelinkPreconfigNR* to initiate RRC connection establishment or RRC connection resume via relay UE, until reception of an*RRCReconfiguration* including *sl-ConfigDedicatedNR*, or receiving an *RRCRelease* or an *RRCReject.* |
| [**R2-2300389**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300389.zip) | Correction on 38.331 | Xiaomi | Clarify *PhysCellID* and *DownlinkConfigCommon* is mandatory present during the path switch from a L2 U2N relay UE to a serving cell. | To be discussed in 2.3. |
| [**R2-2300686**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300686.zip) | Correction on SRAP entity release | vivo | In sub-clause 5.3.5.15.1, clarify that the SRAP entity shall be released by the L2 U2N Relay UE when the network indicates release of the relay operation related configurations to the L2 U2N Relay UE.  In sub-clause 5.3.5.16, clarify that the SRAP entity shall be released by the L2 U2N Remote UE when the network indicates release of the relay operation related configurations to the L2 U2N Remote UE. | To be discussed in 2.2. |
| [**R2-2300863**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300863.zip) | Issues on L2 ID(s) for D2I path switching of L2 U2N relay | CATT | Proposal 1: Suggest RAN2 to confirm that for D2I path switching, the L2 ID of the Remote UE contained in the RRC reconfiguration message in step 2 should be the sidelink discovery L2 ID.  Proposal 2: Suggest RAN2 to confirm that for D2I path switching, the L2 ID of Remote UE used in step 4 is a sidelink communication L2 ID, and it is different from the L2 ID of Remote UE contained in the RRC reconfiguration message of step 2.  Proposal 3: Suggest RAN2 to confirm that Relay UE cannot determine the mapping between the sidelink communication L2 ID and the corresponding SRAP configuration since the SRAP configuration sent by gNB in step 2 is based on the sidelink discovery L2 ID.  Proposal 4: Send LS to SA2/CT1 to check:   * Q1: Whether the upper layer of Relay UE can aware the linkage between the Remote UE’s sidelink discovery L2 ID and the Remote UE’s sidelink communication L2 ID? * Q2: If the answer of Q1 is Yes, whether and when the upper layer can inform this linkage to AS layer? | To be discussed in 2.2. |
| [**R2-2300864**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300864.zip) | LS on L2 ID issue for D2I path switching of L2 U2N relay | CATT | RAN2 wants to confirm the following questions with SA2 and CT1:   * Q1: Whether the upper layer of Relay UE can aware the linkage between the Remote UE’s sidelink discovery L2 ID and the Remote UE’s sidelink communication L2 ID? * Q2: If the answer of Q1 is Yes, whether and when the upper layer can inform this linkage to AS layer? |
| [**R2-2300865**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300865.zip) | Correction on the Description of RRC Functions | CATT | In subclause 4.4, add that RRC function should support “Configuration of SRAP entity and Uu/PC5 Relay RLC channels for the support of L2 U2N relay”. | The change is ok but not essential. Considering the separate CR would have a higher bar since this meeting, the rapporteur propose not to pursue the change in separate CR, but if there can be a rapporteur misc correction CR, the change can be merged into the rapp CR. |
| [**R2-2300998**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300998.zip) | Correction in Remote UE synchronization | Nokia, Nokia Shanghai Bell | The NOTE 1 in clause 5.8.6.2 is revised in the following way: “When an out of coverage L2 U2N Remote UE receives SIB12 with *sl-SyncPriority* set to *gnbEnb*, the L2 U2N Remote UE continues using the current synchronization source (GNSS or SyncRef UE) until higher priority synchronization source is found or the current synchronization source becomes unreliable.” | To be discussed in 2.2. |
| [**R2-2301212**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301212.zip) | Discussion on Sidelink Synchronization Reference | Ericsson España S.A. | 1. When the sl-SyncPriority in SIB12 is set to gNBeNB, the choice of synchronization source for an OOC U2N remote UE is the U2N relay UE directly synchronized to the gNB/eNB. 2. Adopt the changes to TS 38.331 as captured in R2-2301017 |
| [**R2-2301017**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301017.zip) | Correction on Sidelink Synchronisation Reference | Ericsson España S.A. | Section 5.8.6   * Updated the NOTE 1 to reflect the priority of sidelink synchronization reference based on Rel-16   When *sl-SyncPriority* in SIB12is set to *gnbEnb*, the synchronization source for an out of coverage L2 U2N Remote UE follows the sidelink synchronization source reference of the associated L2 U2N Relay UE. |
| [**R2-2301121**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301121.zip) | Miscellaneous corrections to TS 38.331 for SL relay | ZTE Corporation, Sanechips | 1. In clause 5.3.3.1a, change “or” to “and”. 2. In clause 5.8.9.1.2, add the description for assigning LCID for PC5 Relay RLC channel. 3. In clause 5.8.9.1.2, move the sl-RLC-ChannelToReleaseListPC5 to the front. 4. In clause 5.8.9.7.1, change sl-RLC-ChannelID / sl-RLC-ChannelID-PC5 to SL-RLC-ChannelID. 5. Some minor corrections. | Change #1, #2, #4 are correct.  Change #3 are not necessary.  Change 5 are ok. |
| [**R2-2301122**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301122.zip) | Corrections on SL discovery | ZTE Corporation, Sanechips | 1. In clause 5.8.13.3, use the correct IE name. Add sl-PreconfigDiscConfig-Relay-r17 SL-RelayUE-Config in SL-PreconfigurationNR. 2. In SL-RequestedSIB-List in RemoteUEInformationSidelink, change the size to (1..maxSIB). 3. Some minor corrections. | To be discussed in 2.3. |
| [**R2-2301167**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301167.zip) | Correction for receiving PC5 unicast link release during path switching | Lenovo | In section 5.3.7.2, one NOTE is added.  NOTE 1: The L2 U2N Remote UE may ignore the PC5 unicast link release if it does not release the PC5 unicast link in source side yet during an indirect-to-direct path switch, i.e. T304 is running. | To be discussed in 2.2. |
| [**R2-2301174**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301174.zip) | Correction for Uu message transfer procedure | Lenovo | 1. ‘perform the Uu message transfer procedure in accordance with 5.8.9.9’ is added in 5.8.9.8.3. 2. In 5.3.2.3, ‘perform the Uu message transfer procedure in accordance with 5.8.9.9’ is replaced by ‘inititate the Uu Message transfer in sidelink to that UE as specified in 5.8.9.9’. | Change #1 seems ok. The other way is to delete “3> else” and promote “perform the Uu message transfer procedure in accordance with 5.8.9.9;” to a common 3>.  Change #2 is ok, but not essential. |
| [**R2-2301175**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301175.zip) | Clarification on dl-P0-PSBCH, dl-P0-PSSCH-PSCCH and dl-P0-PSFCH for OoC Remote UE | Huawei, HiSilicon | In 6.3.5,  Add a sentence in the field description of *dl-P0-PSBCH, dl-P0-PSSCH-PSCCH* and *dl-P0-PSFCH*, to clarify that the OoC Remote UE should consider that DL pathloss based power control is disabled for PBSCH/PSCCH/PSSCH/PSFCH even when *dl-P0-PSBCH, dl-P0-PSSCH-PSCCH* and *dl-P0-PSFCH* are included in SIB12. | To be discussed in 2.2. |
| **R2-2301019** | Correction on Field Description for SRAP Config | Ericsson España S.A. | 1. For the sl-MappingToReleaseList, details added as to which bearer mappings are to be released and that this is applicable to U2N remote UE.  2. For sl-EgressRLC-ChannelUu, egress channel applicable only to uplink transmissions for L2 U2N relay UE  3. For sl-EgressRLC-ChannelPC5, details for egress channel applicable to both uplink and downlink. In addition, the corresponding | The changes are editorial, and can be merged into rapporteur CR. |

**Proposal 1: The changes in R2-2300865, R2-2301121 (change #1#2#4#5), R2-2301174, and R2-2301019 are agreeable, and could be merged into one Rapporteur’s miscellaneous correction CR.**

## 2.2 Changes on procedural text/field description

**Resource allocation for remote UE’s MSG3**

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| [**R2-2300137**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300137.zip) | Discussion on left issues for CP | OPPO | Proposal 1 R2 does not pursue further work to allow pre-configured Tx pool usage by in-coverage UE due to exceptional pool configuration being absent.  Proposal 2 For pre-configured Tx pool usage by out-of-coverage UE, RAN2 limit the discussion, if needed, to the case where SIB is available, including the concerned PC5 frequency, but including neither normal nor exceptional Tx pool. For this case, R2 at least does not puruse normative change. |
| [**R2-2300388**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300388.zip) | Correction on remote UE's resource allocation | Xiaomi, Ericsson, CATT, ZTE | Add a NOTE to clarify If serving cell doesn’t include*sl-TxPoolSelectedNormal*and*sl-TxPoolExceptional* in *SIB12*, remote UE in RRC\_IDLE/RRC\_INACTIVE and out of coverage, may use the sidelink resource in*SidelinkPreconfigNR* to initiate RRC connection establishment or RRC connection resume via relay UE, until reception of an*RRCReconfiguration* including *sl-ConfigDedicatedNR*, or receiving an *RRCRelease* or an *RRCReject.* |

In previous RAN2 meetings, one scenario was raised by company that network provides neither normal Tx RP nor exceptional Tx RP in SIB12, resulting in no sidelink resource for remote UE to send msg3 through the connected relay UE. The original proposal was to let remote UE use the RP configuration in Preconfig. But the concern is that allowing IC remote UEs to use RP configuration in Preconfig violates the design principle of sidelink resource allocation and will interference other sidelink communication. The proponent companies agree with the comments and think IC remote UE can initiate RRC connection via Uu cell and request the RP configuration from network, and only allow OoC UEs to use the RP in Preconfig, which means an idle/inactive UE cannot establish/resume RRC connection via a L2 Relay UE even when it is IC. Then it would be quite strange why network provide such configuration but not include normal Tx RP or exceptional RP in SIB12.

In 0137 and 0388, different views are expressed, therefore the rapporteur suggest to have further discussion in the meeting.

**Proposal 2: RAN2 to discuss how to ensure that OoC L2 Remote UEs have sidelink resource to send MSG.3 via L2 U2N Relay UE:**

* **Option 1: it is left to network implementation, e.g. NW includes normal Tx RP and/or exceptional RP in SIB12 if it wants to support L2 U2N.** **(No further spec change.)**
* **Option 2: by allowing OoC Remote UE to use resource configuration in Preconfig when SIB12 does not include either normal Tx RP or exceptional RP on the concerned frequency.**

**SRAP release**

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| [**R2-2300686**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300686.zip) | Correction on SRAP entity release | vivo | In sub-clause 5.3.5.15.1, clarify that the SRAP entity shall be released by the L2 U2N Relay UE when the network indicates release of the relay operation related configurations to the L2 U2N Relay UE.  In sub-clause 5.3.5.16, clarify that the SRAP entity shall be released by the L2 U2N Remote UE when the network indicates release of the relay operation related configurations to the L2 U2N Remote UE. |

For change 1, it is not correct to force relay UE to release SRAP entity, because relay UE needs SRAP entity and SL-RLC0 to receive other remote UE’s MSG3.

For change 2, the only case the remote UE is configured to release *sl-SRAP-configRemoteUE* is I2D path switch, and according to clause 5.3.5.5.2 remote UE shall release the PC5 unicast link, so there seems no big issue to keep the SRAP entity. And for a UE connected via Uu cell but capable of L2 U2N Remote UE, it can initiate RRC reestablish via a L2 Relay UE. Please note that in current spec what has been specified for SRAP establishment is to establish a SRAP entity if **not established yet**, which allows UE to establish SRAP entity before the configuration. Thus there seems no need to require the remote UE to release SRAP entity upon release of the configuration.

Based on the above discussion, the rapporteur suggest not to pursue the CR.

**L2 ID**

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| [**R2-2300863**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300863.zip) | Issues on L2 ID(s) for D2I path switching of L2 U2N relay | CATT | Proposal 1: Suggest RAN2 to confirm that for D2I path switching, the L2 ID of the Remote UE contained in the RRC reconfiguration message in step 2 should be the sidelink discovery L2 ID.  Proposal 2: Suggest RAN2 to confirm that for D2I path switching, the L2 ID of Remote UE used in step 4 is a sidelink communication L2 ID, and it is different from the L2 ID of Remote UE contained in the RRC reconfiguration message of step 2.  Proposal 3: Suggest RAN2 to confirm that Relay UE cannot determine the mapping between the sidelink communication L2 ID and the corresponding SRAP configuration since the SRAP configuration sent by gNB in step 2 is based on the sidelink discovery L2 ID.  Proposal 4: Send LS to SA2/CT1 to check:   * Q1: Whether the upper layer of Relay UE can aware the linkage between the Remote UE’s sidelink discovery L2 ID and the Remote UE’s sidelink communication L2 ID? * Q2: If the answer of Q1 is Yes, whether and when the upper layer can inform this linkage to AS layer? |
| [**R2-2300864**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300864.zip) | LS on L2 ID issue for D2I path switching of L2 U2N relay | CATT | RAN2 wants to confirm the following questions with SA2 and CT1:   * Q1: Whether the upper layer of Relay UE can aware the linkage between the Remote UE’s sidelink discovery L2 ID and the Remote UE’s sidelink communication L2 ID? * Q2: If the answer of Q1 is Yes, whether and when the upper layer can inform this linkage to AS layer? |

In RAN2 #117 meeting, RAN2 made the following agreement which already confirmed that the remote UE ID configured to target relay UE is the source L2 ID to be used for DCR (see more discussion in offline #615, the report is in R2-2203991).

*Agreements:*

*[9/12] Proposal 2 (modified): Remote UE in RRC\_CONNECTED shall report source L2 ID to be used to establish PC5 link with L2 relay UE (i.e., used to send DCR message) to network which is to be configured to the target relay UE during path switch*.

The rapporteur does not see the issue of above RAN2 agreement, and suggest not to reopen the discussion.

**OoC Remote UE’s synchronization source selection**

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| [**R2-2300998**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300998.zip) | Correction in Remote UE synchronization | Nokia, Nokia Shanghai Bell | The NOTE 1 in clause 5.8.6.2 is revised in the following way: “When an out of coverage L2 U2N Remote UE receives SIB12 with *sl-SyncPriority* set to *gnbEnb*, the L2 U2N Remote UE continues using the current synchronization source (GNSS or SyncRef UE) until higher priority synchronization source is found or the current synchronization source becomes unreliable.” |
| [**R2-2301212**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301212.zip) | Discussion on Sidelink Synchronization Reference | Ericsson España S.A. | 1. When the sl-SyncPriority in SIB12 is set to gNBeNB, the choice of synchronization source for an OOC U2N remote UE is the U2N relay UE directly synchronized to the gNB/eNB. 2. Adopt the changes to TS 38.331 as captured in R2-2301017 |
| [**R2-2301017**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301017.zip) | Correction on Sidelink Synchronisation Reference | Ericsson España S.A. | Section 5.8.6   * Updated the NOTE 1 to reflect the priority of sidelink synchronization reference based on Rel-16   When *sl-SyncPriority* in SIB12is set to *gnbEnb*, the synchronization source for an out of coverage L2 U2N Remote UE follows the sidelink synchronization source reference of the associated L2 U2N Relay UE. |

In last meeting, the original intention to add NOTE 1 was to let OoC Remote UE skip the first branch for the case when *sl-SyncPriority* in SIB12is set to *gnbEnb*. The sentence in NOTE 1 was revised to “up to UE implementation” during online discussion to avoid the sensitive wording of “UE ignore network configuration”.

The contributions in 0998 and 1212 both propose to further specify the UE behavior instead of leaving it to UE implementation, but with opposite proposals.

0998 proposes that remote UE reuses the previous synchronization source which is based on Preconfig which is likely tobe GNSS.

1212 suggests to let remote UE synchronize relay UE because when gNBeNB is configured in SIB12 and cell is not available, peer UE connected to network should be prioritized according to legacy synchronization design. However, the proposed change seems not consider the case that relay UE may not broadcast SLSS.

Based on the above contribution, the rapporteur suggests to further discuss the possible change in the meeting.

**Proposal 3: RAN2 to discuss how does an OoC L2 Remote UE select synchronization source when gNBeNB is configured in SIB12:**

* **Option 1: it is left to UE implementation (No further spec change.)**
* **Option 2: Remote UE continues to use the existing synchronization source which is based on Preconfig.**
* **Option 3: Remote UE changes the synchronization source to the connected Relay UE.**

**Reestablishment triggered by source link release during I2D path switch**

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| [**R2-2301167**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301167.zip) | Correction for receiving PC5 unicast link release during path switching | Lenovo | In section 5.3.7.2, one NOTE is added.  NOTE 1: The L2 U2N Remote UE may ignore the PC5 unicast link release if it does not release the PC5 unicast link in source side yet during an indirect-to-direct path switch, i.e. T304 is running. |

During I2D path switch, although stage 2 spec allows relay UE and remote UE to keep the unicast link a while, it should be clear to relay UE and remote UE that the source path is to be released soon. The rapporteur does not think a source link release will lead to a remote UE’e RRC reestablishment, therefore the change is not needed.

**DL pathloss based power control for OoC Remote UE**

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| [**R2-2301175**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301175.zip) | Clarification on dl-P0-PSBCH, dl-P0-PSSCH-PSCCH and dl-P0-PSFCH for OoC Remote UE | Huawei, HiSilicon | In 6.3.5,  Add a sentence in the field description of *dl-P0-PSBCH, dl-P0-PSSCH-PSCCH* and *dl-P0-PSFCH*, to clarify that the OoC Remote UE should consider that DL pathloss based power control is disabled for PBSCH/PSCCH/PSSCH/PSFCH even when *dl-P0-PSBCH, dl-P0-PSSCH-PSCCH* and *dl-P0-PSFCH* are included in SIB12. |

In Rel-16/Rel-17 a UE performs power control for SL transmission as describled in clause 16.2 in TS 38.213, according to which DL pathloss based power control is enabled when:

* For PSBCH, if *dl-P0-PSBCH* is provided;
* For PSSCH/PSCCH, if *dl-P0-PSSCH-PSCCH* is provided;
* For PSFCH, if *dl-P0-PSFCH* is provided.

During L2 U2N relay operation, a Remote UE that is out of coverage, can receive SIBs from the connected L2 U2N Relay UE, which means it can receive *dl-P0-PSBCH/ dl-P0-PSSCH-PSCCH/ dl-P0-PSFCH* when they are included in SIB12. However, the Remote UE cannot perform the DL pathloss based power control for SL transmission as the DL path loss info is not available to remote UE in this case.

Therefore, the CR propose to clarify that a L2 U2N Remote UE which is out of coverage should disable the DL pathloss based power control even when *dl-P0-PSBCH/ dl-P0-PSSCH-PSCCH/ dl-P0-PSFCH* are included in SIB12.

**Proposal 4: A L2 U2N Remote UE which is out of coverage considers the DL pathloss based power control is disabled even when dl-P0-PSBCH/ dl-P0-PSSCH-PSCCH/ dl-P0-PSFCH are included in SIB12.**

## 2.3 Asn.1 related changes

**PCI present condition**

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| [**R2-2300389**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2300389.zip) | Correction on 38.331 | Xiaomi | Clarify *PhysCellID* and *DownlinkConfigCommon* is mandatory present during the path switch from a L2 U2N relay UE to a serving cell. |

According to the current description, the PCI and downlink frequency are mandatory during I2D and D2I path switch. The proposed change is to make the two information not present during D2I path switch, which is NBC and will lead to inter-operability issue between network and UE. The mandatory present of the two information has no harm to the UE handing and may help the remote UE to determine if the relay UE has changed its serving cell. With this regard, the rapporteur thinks the change is not needed.

**SIB request and L3 Relay UE’s SL discovery based on Preconfig**

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| [**R2-2301122**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_121/Docs/R2-2301122.zip) | Corrections on SL discovery | ZTE Corporation, Sanechips | 1. In clause 5.8.13.3, use the correct IE name. Add sl-PreconfigDiscConfig-Relay-r17 SL-RelayUE-Config in SL-PreconfigurationNR. 2. In SL-RequestedSIB-List in RemoteUEInformationSidelink, change the size to (1..maxSIB). 3. Some minor corrections. |

The intention of Change #2 is to reduce unnecessary signaling overhead of SIB request, and seems reasonable. The current signaling requires the remote UE to signal 33 SIB info, which causes signaling overhead. The change can enable remote UE only to signal the SIB it has interest in and save signaling overhead. However the change is NBC. At this stage, NBC change should be avoid as much as possible, so if the intention is to be agreed, the change should be done in a BC way from signaling point of view. For instance,

RemoteUEInformationSidelink-r17-IEs ::= SEQUENCE {

sl-RequestedSIB-List-r17 SetupRelease { SL-RequestedSIB-List-r17} OPTIONAL, -- Need M

sl-PagingInfo-RemoteUE-r17 SetupRelease { SL-PagingInfo-RemoteUE-r17} OPTIONAL, -- Need M

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RemoteUEInformationSidelink-v17xx-IEs OPTIONAL

}

RemoteUEInformationSidelink-v17xx-IEs ::= SEQUENCE {

sl-RequestedSIB-List2-r17 SetupRelease { SL-RequestedSIB-List2-r17} OPTIONAL, -- Need M

nonCriticalExtension SEQUENCE {} OPTIONAL

}

SL-RequestedSIB-List-r17 ::= SEQUENCE (SIZE (maxSIB-MessagePlus1-r17)) OF SL-SIB-ReqInfo-r17

SL-RequestedSIB-List2-r17 ::= SEQUENCE (SIZE (1..maxSIB)) OF SL-SIB-ReqInfo2-r17

SL-PagingInfo-RemoteUE-r17 ::= SEQUENCE {

sl-PagingIdentityRemoteUE-r17 SL-PagingIdentityRemoteUE-r17,

sl-PagingCycleRemoteUE-r17 PagingCycle OPTIONAL -- Need M

}

SL-SIB-ReqInfo-r17 ::= ENUMERATED { sib1, sib2, sib3, sib4, sib5, sib6, sib7, sib8, sib9, sib10, sib11, sib12, sib13,

sib14, sib15, sib16, sib17, sib18, sib19, sib20, sib21, spare11, spare10, spare9,

spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1, ... }

SL-SIB-ReqInfo2-r17 ::= ENUMERATED { sib1, sib2, sib3, sib4, sib5, sib6, sib7, sib8, sib9, sib10, sib11, sib12, sib13,

sib14, sib15, sib16, sib17, sib18, sib19, sib20, sib21, spare11, spare10, spare9,

spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1}

**Proposal 5: RAN2 to discuss whether to enable variable size of SIB request list, and if so how to make the change in BC way.**

The proponent company clarified via reflector that the intention of change #1 is to address the misalignment between procedural text in clause 5.8.13.3 and the configuration specified in SidelinkPreconfigNR. To be specific, in clause 5.8.13.3, it seems to allow a UE to become a L3 Relay UE (i.e. AS threshold is met) based on Preconfig and transmit discovery message when there is no SIB12 broadcasted or SIB12 does not include the concerned SL discovery frequency. However, from signaling point of view, no relay UE’s AS threshold is included in SidelinkPreconfigNR. Then there seems to be misalignment in spec. The rapporteur understand the procedural text was added according to the early agreement made for sidelink discovery, i.e. “WA: L3 relay UE uses pre-configuration for discovery, only if the discovery SIB configuration is not provided by gNB, in case its serving carrier is not shared with carrier for sidelink operation. Otherwise, L3 relay UE uses the configuration for discovery provided by gNB.”. But after more discussion RAN2 agreed that “the UE can determine from SIB12 whether the gNB supports relay discovery and/or non-relay discovery. “ in RAN2#116bis meeting. That is why *sl-L2U2N-Relay/ sl-L3U2N-RelayDiscovery* are added in SIB12. The reason behind is that to support relay discovery, there are network capability for relay, and if a UE just blindly act as a relay and allow other remote UE to access the network via it, then the RAN and/or CN may not support the relay services, which lead to error cases. According to the above agreement, it is not appropriate to use Preconfig to determine whether relay operation can be performed that is why relay UE threshold was removed from Preconfig during CR review. With this regards, the rapporteur tends to think the current signaling can be kept without change, but the procedural text can be fixed, like below:

1> else if out of coverage on the concerned frequency for NR sidelink discovery:

2> if the UE is acting as L3 U2N Relay UE and if the NR sidelink U2N Relay UE threshold conditions as specified in 5.8.14.2 are met ~~based on sl-RelayUE-ConfigCommon in SidelinkPreconfigNR~~; or

There is one option suggested by xiaomi in reflector which is the UE should consider this case as “threshHighRelay is not configured”, and follow the existing procedural text in clause 5.8.14.2:

5.8.14.2          NR sidelink U2N Relay UE threshold conditions

A UE capable of NR sidelink U2N Relay UE operation shall:

1>  if the threshold conditions specified in this clause were not met:

2>  if *threshHighRelay* is not configured; or the RSRP measurement of the PCell, or the cell on which the UE camps, is below *threshHighRelay* by *hystMaxRelay* if configured; and

2>  if *threshLowRelay* is not configured; or the RSRP measurement of the PCell, or the cell on which the UE camps, is above *threshLowRelay* by *hystMinRelay* if configured:

3>  consider the threshold conditions to be met (entry);

The rapporteur suggest to further discuss the details in the meeting.

* **Proposal 6: RAN2 to further discuss how to address the misalignment between the procedural text in clause 5.8.13.3 and SidelinkPreconfigNR for the case of L3 relay is out of coverage.Option 1: fix procedural text;**
* **Option 2: add configuration of relay UE’s AS threshold in SidelinkPreconfigNR; (asn.1 impact);**
* **Option 3: UE considers this case as “threshHighRelay is not configured”, and follows the existing procedural text in clause 5.8.14.2.**

# 3. Conclusion

**Proposal 1: The changes in R2-2300865, R2-2301121 (change #1#2#4#5), R2-2301174, and R2-2301019 are agreeable, and could be merged into one Rapporteur’s miscellaneous correction CR.**

**Proposal 2: RAN2 to discuss how to ensure that OoC L2 Remote UEs have sidelink resource to send MSG.3 via L2 U2N Relay UE:**

* **Option 1: it is left to network implementation, e.g. NW includes normal Tx RP and/or exceptional RP in SIB12 if it wants to support L2 U2N.** **(No further spec change.)**
* **Option 2: by allowing OoC Remote UE to use resource configuration in Preconfig when SIB12 does not include either normal Tx RP or exceptional RP on the concerned frequency.**

**Proposal 3: RAN2 to discuss how does an OoC L2 Remote UE select synchronization source when gNBeNB is configured in SIB12:**

* **Option 1: it is left to UE implementation (No further spec change.)**
* **Option 2: Remote UE continues to use the existing synchronization source which is based on Preconfig.**
* **Option 3: Remote UE changes the synchronization source to the connected Relay UE.**

**Proposal 4: A L2 U2N Remote UE which is out of coverage considers the DL pathloss based power control is disabled even when dl-P0-PSBCH/ dl-P0-PSSCH-PSCCH/ dl-P0-PSFCH are included in SIB12.**

**Proposal 5: RAN2 to discuss whether to enable variable size of SIB request list, and if so how to make the change in BC way.**

**Proposal 6: RAN2 to further discuss how to address the misalignment between the procedural text in clause 5.8.13.3 and SidelinkPreconfigNR for the case of L3 relay is out of coverage.**

* **Option 1: fix procedural text;**
* **Option 2: add configuration of relay UE’s AS threshold in SidelinkPreconfigNR; (asn.1 impact);**
* **Option 3: UE considers this case as “threshHighRelay is not configured”, and follows the existing procedural text in clause 5.8.14.2.**