SLRelay Comments file

Template:

# Xnnn

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Xnnn |  |  |  |  |  |  | vnnn | ToDo |

 **[Description]**:

**[Proposed Change]**:

**[Comments]**:

# Z451

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z451 | NR\_SL\_relay\_multihop-Core | 1 | Single hop and multi-hop type differentiation |  | ZTE (Weiqiang Du) |  | V009 | PropAgree |

 **[Description]**: For below description, differentiation of single hop and multi-hop message is needed.

4> if the UE is configured by upper layers to transmit NR sidelink L2 U2N relay discovery messages and *sl-L2U2N-Relay* is included in SIB12; or

4> if the UE is configured by upper layers to transmit NR sidelink L2 U2N relay discovery messages and *sl-L2U2N-MH-Relay* is included in SIB12; or

**[Proposed Change]**: Adopt below change for all related conditions, will submit the RIL TP to show the necessary places if needed:

4> if the UE is configured by upper layers to transmit NR sidelink L2 single hop U2N relay discovery messages and *sl-L2U2N-Relay* is included in SIB12; or

4> if the UE is configured by upper layers to transmit NR sidelink L2 MH U2N relay discovery messages and *sl-L2U2N-MH-Relay* is included in SIB12; or

**[Comments]**:

[Rapporteur]: Agree to add the clarification with the change as below. Have changed the status from “ToDo” to “PropAgree”.

4> if the UE is configured by upper layers to transmit NR sidelink L2 single hop U2N relay discovery messages and *sl-L2U2N-Relay* is included in SIB12; or

4> if the UE is configured by upper layers to transmit NR sidelink L2 multi hop U2N relay discovery messages and *sl-L2U2N-MH-Relay* is included in SIB12; or

# O500

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O500 | NR\_SL\_relay\_multihop-Core | 1 | Last relay UE monitors PO based on *sl-PagingInfo-RemoteUE* or *sl-PagingInfo-RemoteUE-List* | R2-25xxxxx | OPPO (Bingxue Leng) |  | V004 | PropAgree |

 **[Description]**: Last relay UE should monitor PO for the downstream remote UEs based on the paging information in *sl-PagingInfo-RemoteUE* or *sl-PagingInfo-RemoteUE-List*

**[Proposed Change]**:

1> if the UE is acting as a L2 U2N Relay UE in case of single hop or L2 Last U2N Relay UE, for each of the *PagingRecord*, if any, included in the *Paging* message:

2> if the *ue-Identity* included in the *PagingRecord* in the *Paging* message matches the UE identity in *sl-PagingIdentityRemoteUE* included in *sl-PagingInfo-RemoteUE* or *sl-PagingInfo-RemoteUE-List* received in *RemoteUEInformationSidelink* message from a L2 U2N Remote UE or from a child L2 U2N Relay UE:

3> inititate the Uu Message transfer in sidelink to that UE as specified in 5.8.9.9;

**[Comments]**:

[Rapporteur]: Agree to add *sl-PagingInfo-RemoteUE-List* as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# Z452

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z452 | NR\_SL\_relay\_multihop-Core | 1 | RRC connection setup/resume initiation | R2-25xxxxx | ZTE (Weiqiang Du) |  | V009 | PropAgree |

 **[Description]**: As legacy, UE is allowed initiate RRC setup or resume to transmit L2 multihop relay discovery message if *sl-L2U2N-MH-Relay* is included in in SIB12..

**[Proposed Change]**: RAN2 is to agree that UE can initiate RRC Setup and Resume if network indicate support of MH, but corresponding pool is not configured, capture new condition in 5.3.3.1a and 5.3.13.1a as below:

if the UE is configured by upper layers to transmit NR sidelink L2 U2N MH relay discovery messages and sl-L2U2N-MH-Relay is included in *SIB12*

**[Comments]**:

[Rapporteur]: Agree to capture new condition in 5.3.3.1a and 5.3.13.1a as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# O501

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O501 | NR\_SL\_relay\_multihop-Core | 1 | Unnecessary differtiation of First U2N Relay and Intermediate U2N Relay |  | OPPO (Bingxue Leng) |  | V004 | PropAgree |

 **[Description]**: Based on the definition, First U2N Relay UE is also an Intermediate U2N Relay UE, so “the L2 First U2N Relay UE” can be removed to avoid misunderstanding.

**[Proposed Change]**:

The L2 U2N Remote UE or L2 Intermediate U2N Relay UE indicates to upper layers to trigger PC5 unicast link release with its connected parent L2 U2N Relay UE.

**[Comments]**:

[Rapporteur]: Agree to remove First U2N Relay UE as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# O502

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O502 | NR\_SL\_relay\_multihop-Core | 1 | Clarification on the relationship between L2 U2N Relay UE and L2 Last U2N Relay UE |  | OPPO (Bingxue Leng) |  | V004 | PropAgree |

 **[Description]**: In the current RRC specification, for the procedures applicable to both single-hop U2N Relay UE and the Last Relay UE, sometimes it uses “L2 U2N Relay UE in case of single hop or the L2 Last U2N Relay UE”, sometimes it uses “L2 U2N Relay UE or the L2 Last U2N Relay UE”. The description should be aligned to avoid confusion

**[Proposed Change]**:

L2 U2N Relay UE in case of single hop or L2 Last U2N Relay UE

**[Comments]**:

[Rapporteur]: Agree to clarify on the relationship between L2 U2N Relay UE and L2 Last U2N Relay UE as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# J011

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| J011 | NR\_SL\_relay\_multihop-Core | 1 | Add intermedia relay UE behavior for SRB1 in Remote UE Addition procedure |  | Sharp (LIU Lei) |  | V006 | ToDo |

 **[Description]**: The SRAP spec has described how to determine egress RLC channel for SRB1, but RRC spec only includes the description applied for single hop relay UE and last relay UE. The behaviour of intermedia relay UE for SRB1 in Remote UE Addition procedure should be added.

**[Proposed Change]**:

1> for each *sl-L2IdentityRemote* value included in the *sl-RemoteUE-ToAddModList* that is not part of the current UE configuration (L2 U2N Remote UE Addition):

2> configure the parameters to SRAP entity in accordance with the *sl-SRAP-ConfigRelay* or *sl-SRAP-ConfigRelay-ToAddModList* if applicable;

2> for L2 U2N Relay UE in case of single hop or L2 Last U2N Relay UE:

3> if SRB1 is included in *sl-MappingToAddModList*, and *sl-EgressRLC-ChannelPC5* is configured:

4> release SL-RLC1, if established;

4> associate the PC5 Relay RLC channel as indicated by *sl-EgressRLC-ChannelPC5* with SRB1;

3> else: (i.e. SRB1 is not included in *sl-MappingToAddModList*, or SRB1 is included in *sl-MappingToAddModList*, but *sl-EgressRLC-ChannelPC5* is not configured)

4> if SL-RLC1 is not established:

5> apply the default configuration of SL-RLC1 as specified in clause 9.2.4 and associate it with the SRB1;

2> for L2 Intermediate U2N Relay UE:

3> if SRB1 is included in *sl-MappingToAddModList*, and *sl-EgressRLC-Channel-DL* is configured:

4> release SL-RLC1, if established;

4> associate the PC5 Relay RLC channel as indicated by *sl-EgressRLC-Channel-DL* with SRB1;

3> else: (i.e. SRB1 is not included in *sl-MappingToAddModList*, or SRB1 is included in *sl-MappingToAddModList*, but *sl-EgressRLC-Channel-DL* is not configured)

4> if SL-RLC1 is not established:

5> apply the default configuration of SL-RLC1 as specified in clause 9.2.4 and associate it with the SRB1;

 **[Comments]**:

[Rapporteur]: The field description of the ***sl-EgressRLC-Channel-DL*** mentions that it Indicates the egress RLC channel on PC5 Hop for downlink transmissions at the L2 Intermediate U2N Relay UE. We can discuss if such clarification is needed in the procedural text and companies . I will recommend "ToDo" status for this RIL.

# Z453

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z453 | NR\_SL\_relay\_multihop-Core | 1 | SUI initiation for MH |  | ZTE (Weiqiang Du) |  | V009 | PropAgree |

 **[Description]**: As legacy, My understanding is that for each condition for *sl-L2U2N-Relay*, there should be a corresponding new condition for *sl-L2U2N-MH-Relay*. Will submit the CR to show all the necessary changes, if needed.

**[Proposed Change]**:In clause 5.8.3.3, review all conditions of *sl-L2U2N-Relay*, and create new conditions for *sl-L2U2N-MH-Relay* correspondingly, if necessary, for example:

2> if configured by upper layer to receive NR sidelink L2 U2N single hop relay discovery messages on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-L2U2N-Relay*;if configured by upper layer to receive NR sidelink L2 U2N MH relay discovery messages on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-L2U2N-MH-Relay* or if configured by upper layer to receive NR sidelink L3 U2N relay discovery messages on the frequency included in *sl-FreqInfoList* in *SIB12* of the PCell including *sl-L3U2N-RelayDiscovery*

**[Comments]**:

[Rapporteur]: Agree to new condition for *sl-L2U2N-MH-Relay* as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# O503

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O503 | NR\_SL\_relay\_multihop-Core | 1 | SUI initiation for discovery transmission resource requesting  | R2-25xxxxx | OPPO (Bingxue Leng) |  | V004 | ToDo |

 **[Description]**: In legacy, the SUI for discovery transmission resource requesting is initiated if discovery transmission condition is met (as specified in clause 5.8.13.3), i.e., the threshold condition, this should be followed in multo-hop U2N Relay. For MH-U2N Relay, the following condition is defined:

For the last relay UE, 1) Uu lower bound is defined (same value as single-hop U2N Relay UE); 2) PC5 threshold is defined for Model-B respond message transmission if there is no PC5 connection with the child node;

For the intermediate relay UE, 1) Uu upper bound is defined (same value as single-hop U2N Remote UE); 2) PC5 threshold is defined for Model-B solicitation message transmission.

**[Proposed Change]**:

4> if the UE is capable of U2N Relay UE in case of single hop, and if *SIB12* includes *sl-RelayUE-ConfigCommon*, and if the U2N Relay UE UE threshold conditions as specified in 5.8.14.2 are met; or

4> if the UE is capable of Last U2N Relay UE, and if *SIB12* includes *sl-RelayUE-ConfigCommon*, and if the Last U2N Relay UE UE threshold condition as specified in 5.8.14.2 are met when the UE has the PC5 connection with the Child UE; Or if the UE is capable of Last U2N Relay UE, and if *SIB12* includes *sl-RelayUE-ConfigCommon* and *sl-RelayUE-ConfigCommonMH*, and if the Last U2N Relay UE UE threshold condition as specified in 5.8.14.2 and 5.8.XX.2 are met when the UE has no PC5 connection with the Child UE; or

4> if the UE is capable of Intermediate U2N Relay UE, and if *SIB12* includes *sl-RemoteUE-ConfigCommon*, and if the U2N Remote UE threshold conditions as specified in 5.8.15.2 are met when the UE has the PC5 connection with the Parent UE; Or if the UE is capable of Intermediate U2N Relay UE, and if SIB12 includes *sl-RemoteUE-ConfigCommon* and *sl-RelayUE-ConfigCommonMH*, and if the U2N Remote UE threshold conditions as specified in 5.8.15.2 and Intermediate Relay UE threshold as specified in 5.8.XX.2 are both met when the UE has no PC5 connection with the Parent UE; or

**[Comments]**:

[Rapporteur]: In Rapporteur view the intermediate relay UE does not need to check U2N Remote UE threshold conditions for transmitting the discovery message when the UE has no PC5 connection with the Parent UE. We can discuss this further and contributions from companies are invited on this aspect.

# Z454

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z454 | NR\_SL\_relay\_multihop-Core | 1 | Source L2 ID report | R2-25xxxxx | ZTE (Weiqiang Du) |  | V009 | ToDo |

 **[Description]**: In legacy, for D2I path switch, remote UE will report it’s source L2 ID to network, so that network can send SRAP configuration to target relay UE before remote UE switch to target path.

**[Proposed Change]**: Suggest RAN2 to agree MH remote UE will report it’s own SRC L2 ID to network and capture below text:

3> if *SIB12* includes *sl-L2U2N-Relay* or *sl-L2U2N-MH-Relay* and the UE is capable of L2 U2N remote UE:

4> include *sl-SourceIdentityRemoteUE* corresponding to the upstream direction and set it to the source identity configured by upper layer for NR sidelink L2 U2N relay communication transmission;

**[Comments]**:

[Rapporteur]: First change is ok however the second change is not needed as it is clear that it is the *sl-SourceIdentityRemoteUE* of the remote UE. If agreeable, the status can be changed from from “ToDo” to “PropAgree” and the first change can be included in the CR.

# Z455

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z455 | NR\_SL\_relay\_multihop-Core | 1 | Paging ID report | R2-25xxxxx | ZTE (Weiqiang Du) |  | V009 | ToDo |

 **[Description]**: In legacy, relay UE will report paging ID information of it’s connected remote UE, each paging ID is associated to L2 ID of connected remote UE. For MH relay, relay UE may also receives the more than one unconnected child UE’s paging information from it’s connected child UE, all these paging information will be associated to connected child UE’s L2 ID. In last RAN2 meeting, we have agreed to introduce a paging ID list in PC5 remote UE information message to solve this issue. We think same rule shall be applied in SUI message.

**[Proposed Change]**: RAN2 is to agree to introduce a paging ID list in *SL-TxResourceReqL2U2N-Relay-r17*.

**[Comments]**:

[Rapporteur]: In Rapporteur view the change is not essential. However we can discuss this further and contributions from companies are invited on this aspect. The status is “ToDo” for this RIL

# Z456

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z456 | NR\_SL\_relay\_multihop-Core | 1 | UE type in SUI message | R2-25xxxxx | ZTE (Weiqiang Du) |  | V009 | ToDo |

 **[Description]**: For intermediate relay UE, it has both relay UE and remote UE functionality. In SUI message, UE should report the requirements of discovery message and set the UE type to remote UE or relay UE. How intermediate relay UE set the UE type in *sl-TxResourceReqListDisc* is not clear.

4> include *sl-TxResourceReqListDisc* and set its fields (if needed) as follows for each destination for which it requests network to assign NR sidelink discovery messages resource:

\*\*\*\*

5> if the UE is acting as L2/L3 U2U Relay UE:

6> include *ue-TypeU2U* and set it to *relayUE*;

5> if the UE is acting as L2/L3 U2U Remote UE:

6> include *ue-TypeU2U* and set it to *remoteUE*;

**[Proposed Change]**:

Solution1: Clarify that intermediate relay UE will use different L2 ID for remote UE discovery and relay UE discovery, which may need double check with SA2.

Solution2: If it is possible that UE use same L2 ID for remote UE and relay UE discovery, a new UE type is needed.

**[Comments]**:

[Rapporteur]: Rapporteur recommends "ToDo" status for this RIL. Since there might be alternative solutions, companies can discuss it in their contributions along with the text proposal.

# Z457

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z457 | NR\_SL\_relay\_multihop-Core | 1 | Paging info list reception handling |  | ZTE (Weiqiang Du) |  | V009 | PropAgree |

**[Description]**:operation related to sl-PagingInfo-RemoteUE-List is missing in clause 5.8.9.8.3

**[Proposed Change]**:

2> if the UE is in RRC\_IDLE or RRC\_INACTIVE:

3> if the *sl-PagingInfo-RemoteUE or sl-PagingInfo-RemoteUE-List* is set to *setup*:

4> monitor the *Paging* message at the L2 U2N Remote UE's paging occasion calculated according to *sl-PagingIdentityRemoteUE* and *sl-PagingCycleRemoteUE* included in *sl-PagingInfo-RemoteUE*;

3> else (the *sl-PagingInfo-RemoteUEor sl-PagingInfo-RemoteUE-List* is set to *release*):

4> stop monitoring the *Paging* message at the L2 U2N Remote UE's paging occasion;

4> release the received paging information in *sl-PagingInfo-RemoteUE*;

2> else:

3> if the *sl-PagingInfo-RemoteUEor sl-PagingInfo-RemoteUE-List* is set to *setup*:

4> include the received *sl-PagingIdentityRemoteUE* in *SidelinkUEInformationNR* message and perform Sidelink UE information transmission in accordance with 5.8.3;

3> else (the *sl-PagingInfo-RemoteUE or sl-PagingInfo-RemoteUE-List* is set to *release*):

4> initiate transmission of the *SidelinkUEInformationNR* message to release the *sl-PagingIdentityRemoteUE* in *SidelinkUEInformationNR* message in accordance with 5.8.3;

4> release the received paging information in *sl-PagingInfo-RemoteUE*;

**[Comments]**:

[Rapporteur]: Agree to add the clarification with the change as below. Have changed the status from “ToDo” to “PropAgree”.

# O504

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O504 | NR\_SL\_relay\_multihop-Core | 1 | For Intermediate relay UE, the Paging/SIB associated with the downstream remote UEs may comes from Parent instead of the network | R2-25xxxxx | OPPO (Bingxue Leng) |  | V004 | ToDo |

 **[Description]**: The Paging/SIB/posSIB acquisition at the Intermediate Relay UE, it may from the Parent UE instead of the network.

**[Proposed Change]**:

1> upon receiving *Paging* message related to the connected L2 U2N Remote UE or the Child UE from network (including *Paging* message within *RRCReconfiguration* message) or Parent UE;

1> upon acquisition of the SIB(s) requested by the connected L2 U2N Remote UE or by the Child UE (as indicated in *sl-RequestedSIB-List* in the *RemoteUEInformationSidelink*) or upon receiving the updated SIB(s) from network or Parent UE which has been requested by the connected L2 U2N Remote UE or by the Child UE;

1> upon acquisition of the posSIB(s) requested by the connected L2 U2N Remote UE or by the Child UE (as indicated in *sl-RequestedPosSIB-List* in the *RemoteUEInformationSidelink*) or upon receiving the updated posSIB(s) from network or Parent UE which have been requested by the connected L2 U2N Remote UE or by the Child UE;

1> upon unsolicited SIB1 forwarding to the connected L2 U2N Remote UE or by the Child UE or upon receiving the updated *SIB1* from network or Parent UE;

For each associated L2 U2N Remote UE or for each associated Child UE, the L2 U2N Relay UE shall set the contents of *UuMessageTransferSidelink* message as follows:

1> include *sl-PagingDelivery* if the *Paging* message received from network or Parent UE containing the *ue-Identity* of the L2 U2N Remote UE;

**[Comments]**:

[Rapporteur]: Agree to add the clarification with the change as below. Have changed the status from “ToDo” to “PropAgree”.

# O505

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O505 | NR\_SL\_relay\_multihop-Core | 1 | Whether sl-PagingDelivery in multi-hop case needs to be a list for multipe child UEs | R2-25xxxxx | OPPO (Bingxue Leng) |  | V004 | ToDo |

 **[Description]**: It is agreed the Paging request can be a list for signalling efficiency. The same logic can be followd for the Paging delivery in UuMessageTransfer.

**[Proposed Change]**:

1> include *sl-PagingDelivery/ sl-PagingDelivery-List* if the *Paging* message(s) received from network or Parent UE containing the *ue-Identity* of the L2 U2N Remote UE(s);

**[Comments]**:

[Rapporteur]: Rapporteur recommends "ToDo" status for this RIL as this is a signalling optimisation. Companies can discuss it whether this is essential or not in their contributions.

# O506

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O506 | NR\_SL\_relay\_multihop-Core | 1 | Notification trigger at the Intermediate Relay UE | R2-25xxxxx | OPPO (Bingxue Leng) |  | V004 | PropReject |

 **[Description]**: RRC connection failure case is also applicable to Intermediate Relay UE. Consideirng many trigger conditions for single hop can be reused for multihop, we can capture the trigger conditions together instead of duplicated capturing of the trigger conditions.

**[Proposed Change]**:

##### 5.8.9.10.2 Initiation

The Relay UE may initiate the procedure when one of the following conditions is met:

1> if the UE is acting as U2N Relay UE:

2> upon Uu RLF as specified in 5.3.10;

2> upon reception of an *RRCReconfiguration* including the *reconfigurationWithSync*;

2> upon cell reselection;

2> upon L2 U2N Relay UE's or Last U2N Relay UE’s RRC connection failure including RRC connection reject as specified in 5.3.3.5 and 5.3.13.10, and T300 expiry as specified in 5.3.3.7, and RRC resume failure as specified in 5.3.13.5;

2> upon relay reselection;

2> upon cell selection;

2> upon PC5 RLF with its parent relay UE;

2> upon reception of an *NotificationMessageSidelink* from the parent while in RRC\_CONNECTED;

1> if the UE is acting as L2 U2U Relay UE:

2> upon detection of PC5 RLF for the hop between the L2 U2U Relay UE and L2 U2U Remote UE as specified in 5.8.9.3;

2> upon PC5-RRC connection release for the per-hop link between the L2 U2U Relay UE and L2 U2U Remote UE as specified in 5.8.9.5;

Note 1: The Notification Message may not be sent by an Intermediate U2N relay UE in RRC\_IDLE or RRC\_INACTIVE to its child UEs if the relay reselection or cell selection does not cause the change of the serving cell.

##### 5.8.9.10.3 Actions related to transmission of *NotificationMessageSidelink* message

The Relay UE shall set the indication type as follows:

1> if the UE is acting as U2N Relay UE:

2> if the UE initiates transmission of the *NotificationMessageSidelink* message due to Uu RLF:

3> set the *indicationType* as *relayUE-Uu-RLF*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message due to reconfiguration with sync:

3> set the *indicationType* as *relayUE-HO*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message due to cell reselection:

3> set the *indicationType* as *relayUE-CellReselection*;

2> if the UE initiates transmission of the *NotificationMessageSidelink* message due to Uu RRC connection establishment/Resume failure:

3> set the *indicationType* as *relayUE-Uu-RRC-Failure*;

2> if the UE initiates transmission of the *NotificationMessageSidelink* message due to relay reselection:

3> set the *indicationType* as *relayUE-RelayReselection*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message due to cell selection:

3> set the *indicationType* as *relayUE-CellSelection*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message due to PC5 RLF with its parent Relay UE:

3> set the *indicationType* as *relayUE-PC5-RLF*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message upon reception of the *NotificationMessageSidelink* message from the parent relay UE:

3> set the *indicationType* as received from the parent relay UE;

2> submit the *NotificationMessageSidelink* message to lower layers for transmission.

**[Comments]**:

[Rapporteur]: Combining the trigger conditions and actions for the Last and intermediatie relay UE will be confusing hence Rapporteur recommends " PropReject " status for this RIL and suggests to keep them separate.

# O507

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| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O507 | NR\_SL\_relay\_multihop-Core | 1 | Missing Notification trigger at the intermediate relay UE | R2-25xxxxx | OPPO (Bingxue Leng) |  | V004 | PropReject |

 **[Description]**:PC5 link release case is missed, and for the Notification reception from the parent, seems no reason to only restrict to CONNECTED case.

**[Proposed Change]**:

##### 5.8.9.10.2 Initiation

The Relay UE may initiate the procedure when one of the following conditions is met:

1> if the UE is acting as U2N Relay UE or Last U2N Relay UE:

2> upon Uu RLF as specified in 5.3.10;

2> upon reception of an *RRCReconfiguration* including the *reconfigurationWithSync*;

2> upon cell reselection;

2> upon L2 U2N Relay UE's or Last U2N Relay UE’s RRC connection failure including RRC connection reject as specified in 5.3.3.5 and 5.3.13.10, and T300 expiry as specified in 5.3.3.7, and RRC resume failure as specified in 5.3.13.5;

1> if the UE is acting as Intermediate U2N Relay UE:

2> upon relay reselection;

2> upon cell selection;

2> upon PC5 RLF or PC5-RRC connection release with its parent relay UE;

2> upon reception of an *RRCReconfiguration* including the *reconfigurationWithSync*;

2> upon reception of an *NotificationMessageSidelink* from the parent;

1> if the UE is acting as L2 U2U Relay UE:

2> upon detection of PC5 RLF for the hop between the L2 U2U Relay UE and L2 U2U Remote UE as specified in 5.8.9.3;

2> upon PC5-RRC connection release for the per-hop link between the L2 U2U Relay UE and L2 U2U Remote UE as specified in 5.8.9.5;

Note 1: The Notification Message may not be sent by an Intermediate U2N relay UE in RRC\_IDLE or RRC\_INACTIVE to its child UEs if the relay reselection or cell selection does not cause the change of the serving cell.

##### 5.8.9.10.3 Actions related to transmission of *NotificationMessageSidelink* message

The Relay UE shall set the indication type as follows:

1> if the UE is acting as U2N Relay UE or Last U2N Relay UE:

2> if the UE initiates transmission of the *NotificationMessageSidelink* message due to Uu RLF:

3> set the *indicationType* as *relayUE-Uu-RLF*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message due to reconfiguration with sync:

3> set the *indicationType* as *relayUE-HO*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message due to cell reselection:

3> set the *indicationType* as *relayUE-CellReselection*;

2> if the UE initiates transmission of the *NotificationMessageSidelink* message due to Uu RRC connection establishment/Resume failure:

3> set the *indicationType* as *relayUE-Uu-RRC-Failure*;

1> if the UE is acting as Intermediate U2N Relay UE:

2> if the UE initiates transmission of the *NotificationMessageSidelink* message due to relay reselection:

3> set the *indicationType* as *relayUE-RelayReselection*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message due to cell selection:

3> set the *indicationType* as *relayUE-CellSelection*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message due to PC5 RLF or PC5-RRC connection release with its parent Relay UE:

3> set the *indicationType* as *relayUE-PC5-RLF*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message due to reconfiguration with sync:

3> set the *indicationType* as *relayUE-HO*;

2> else if the UE initiates transmission of the *NotificationMessageSidelink* message upon reception of the *NotificationMessageSidelink* message from the parent relay UE:

3> set the *indicationType* as received from the parent relay UE;

2> submit the *NotificationMessageSidelink* message to lower layers for transmission.

**[Comments]**:

[Rapporteur]: PC5 link release will be handled by the upper layers hence we don’t need to capture it explicitly in the specs and for the restricting sending of the ntification message for CONNECTED case is needed otherwise it will result in double notification for the IDLE or INACTVE intermediate relay UE. hence Rapporteur recommends " PropReject " status for this RIL.

# O508

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O508 | NR\_SL\_relay\_multihop-Core | 1 | Discovery transmission condition | R2-25xxxxx | OPPO (Bingxue Leng) |  | V004 | ToDo |

 **[Description]**: In legacy, for discovery transmission, the threshold condition (for both Uu and PC5) are checked for each discovery transmission. For MH-U2N Relay, the following condition is defined and should be captured in the specification properly:

For the last relay UE, 1) Uu lower bound is defined (same value as single-hop U2N Relay UE); 2) PC5 threshold is defined for Model-B respond message transmission if there is no PC5 connection with the child node;

For the intermediate relay UE, 1) Uu upper bound is defined (same value as single-hop U2N Remote UE); 2) PC5 threshold is defined for Model-B solicitation message transmission.

**[Proposed Change]**:

A UE capable of NR sidelink discovery that is configured by upper layer to transmit NR sidelink discovery message shall:

1> if the frequency used for NR sidelink discovery is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message; or if the frequency used for NR sidelink discovery is includedin *sl-FreqInfoList* within *SIB12*:

2> if the UE is in RRC\_CONNECTED and uses the frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message:

3> if the UE is acting as NR sidelink U2N Relay UE and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the NR sidelink U2N Relay UE conditions as specified in 5.8.14.2 are met based on *sl-RelayUE-Config*; or

3> if the UE is selecting NR sidelink U2N Relay UE / has a selected NR sidelink U2N Relay UE/ configured with measurement object associated to L2 U2N Relay UEs in both single hop or multi hop case and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-Config*; or

3> if the UE is acting as Last U2N Relay UE and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the Last U2N Relay UE conditions as specified in 5.8.14.2 are met based on *sl-RelayUE-Config* when the UE has the PC5 connection with the Child UE; Or if the UE acting as Last U2N Relay UE is sending Discovery Response message with Model B as specified in TS 23.304 [65], and if *sl-DiscConfig* is included in *RRCReconfiguration,* and if the Last U2N Relay UE UE threshold condition as specified in 5.8.14.2 and 5.8.XX.2 are met based on *sl-RelayUE-ConfigCommon* and *sl-RelayUE-ConfigCommonMH* when the UE has no PC5 connection with the Child UE; or

3> if the UE is acting as Intermediate U2N Relay UE and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-ConfigCommon* when the UE has the PC5 connection with the Parent UE; Or if the UE acting as Intermediate U2N Relay UE is sending Discovery Solicitation message with Model B as specified in TS 23.304 [65] and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the U2N Remote UE threshold conditions as specified in 5.8.15 are met based on *sl-RemoteUE-ConfigCommon* and the NR sidelink multi-hop relay threshold conditions as specified in 5.8.x.2 are met based on *sl-RelayUE-ConfigMH*; or…

2> else if the cell chosen for NR sidelink discovery transmission provides *SIB12*:

3> if the UE is acting as NR sidelink U2N Relay UE and *sl-DiscConfigCommon* is included in *SIB12*, 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 *SIB12*; or

3> if the UE is selecting NR sidelink U2N Relay UE / has a selected NR sidelink U2N Relay UE in both single hop or multi hop case and *sl-DiscConfigCommon* is included in *SIB12*, and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-ConfigCommon* in *SIB12*; or

3> if the UE is acting as Last U2N Relay UE and *sl-DiscConfigCommon* is included in *SIB12*, and if the Last U2N Relay UE conditions as specified in 5.8.14.2 are met based on *sl-RelayUE-Config* when the UE has the PC5 connection with the Child UE; Or if the UE acting as Last U2N Relay UE is sending Discovery Response message with Model B as specified in TS 23.304 [65], and if *sl-DiscConfig* is included in *RRCReconfiguration,* and if the Last U2N Relay UE UE threshold condition as specified in 5.8.14.2 and 5.8.XX.2 are met based on *sl-RelayUE-ConfigCommon* and *sl-RelayUE-ConfigCommonMH* when the UE has no PC5 connection with the Child UE; or

3> if the UE acting as Intermediate U2N Relay UE has an established PC5 link with the selected parent U2N Relay UE, and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-ConfigCommon* in *SIB12*; or

3> if the UE acting as Intermediate U2N Relay UE is sending Discovery Solicitation message with Model B as specified in TS 23.304 [65] and *sl-DiscConfigCommon* is included in *SIB12*, and if the U2N Remote UE threshold conditions as specified in 5.8.15 are met based on *sl-RemoteUE-ConfigCommon* and if the NR sidelink multi-hop relay threshold conditions as specified in 5.8.x.2 are met based on *sl-RelayUE-ConfigCommonMH*; or

…

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; or

2> if the UE is selecting NR sidelink U2N Relay UE / has a selected NR sidelink U2N Relay UE in both single hop or multi hop case and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-PreconfigDiscConfig* in *SidelinkPreconfigNR*; or

2> if the UE acting as Intermediate U2N Relay UE has an established PC5 link with the selected parent U2N Relay UE, and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-PreconfigDiscConfig* in *SidelinkPreconfigNR*; or

2> if the UE acting as Intermediate U2N Relay UE is sending Discovery Solicitation message with Model B as specified in TS 23.304 [65] and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-PreconfigDiscConfig* in *SidelinkPreconfigNR* and if the NR sidelink multi-hop relay threshold conditions as specified in 5.8.x.2 are met based on *sl-PreconfigDiscConfig* in *SidelinkPreconfigNR*; or

**[Comments]**:

[Rapporteur]: In Rapporteur view it is unclear why the Last Relay UE needs to chek if the UE has the PC5 connection with the Child UE. Similarly for the intermediate relay UE does not need to check U2N Remote UE threshold conditions for transmitting the discovery message when the UE has no PC5 connection with the Parent UE. We can discuss this further and contributions from companies are invited on this aspect.

# O509

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O509 | NR\_SL\_relay\_multihop-Core | 1 | No Discovery Solicitation Response message type |  | OPPO (Bingxue Leng) |  | V004 | ToDo |

 **[Description]**: No Discovery Solicitation Response message type, so “Response” should be removed

**[Proposed Change]**:

1> if the threshold conditions for sending the Discovery Solicitation message with Model B Discovery specified in this clause were previously not met:

**[Comments]**:

[Rapporteur]: Is the suggested change isto remove the word “Solicitation” and call it Discovery Response message as indicated belwo. If so the RIL status can be changed to “PropAgree”

1> if the threshold conditions for sending the Discovery Response message with Model B Discovery specified in this clause were previously not met:

# Z458

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z458 | NR\_SL\_relay\_multihop-Core | 1 | Upper bound for intermediate relay UE |  | ZTE (Weiqiang Du) |  | V009 | PropReject |

**[Description]**: RAN2 agreed that “*The network can configure an upper bound of Uu RSRP for the UE to operate as an intermediate relay UE. If the upper bound is not configured, there is no threshold, but this does not override the previous agreement.*”. I believe this should be a new separate Uu threshold for intermediate relay UE, but corresponding new threshold is missing.

**[Proposed Change]**: Introduce a new separate Uu threshold for intermediate relay UE.

**[Comments]**:

[Rapporteur]: No seprate Uu threshold is needed for for intermediate relay UE as it can use the threshold condition for the remote UE to connect with the parent UE and to access the netwok. This agreement was made when both Approach 1 and Approach 2 were being discussed but is no longer needed with for Approach 1. Hence Rapporteur recommends " PropReject " status for this RIL

# Z459

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| Z459 | NR\_SL\_relay\_multihop-Core | 1 | Prioritization between last relay UE and intermediate relay UE | R2-25xxxxx | ZTE (Weiqiang Du) |  | V009 | PropReject |

**[Description]**: In case the Uu threshold for intermediate relay UE and last relay UE is not configured or only Uu threshold for last relay UE is configured, we think UE should prioritize to operate as a last relay UE

**[Proposed Change]**: RAN2 is suggested to agrees that Capture in normative text to say that if both conditions for last relay UE operation and intermediate relay UE operation are met, UE shall prioritize to act as a last relay UE.

**[Comments]**: For approach 1 these conditions will not be met at the same time hence Rapporteur recommends " PropReject " status for this RIL

# O510

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| O510 | NR\_SL\_relay\_multihop-Core | 1 | Clarification on how to understand the Paging message included in dedicatedPagingDelivery | R2-25xxxxx | OPPO (Bingxue Leng) |  | V004 | PropAgree |

 **[Description]**: It is described in the field description of dedicatedPagingDelivery: This field is used to transfer Paging message for the associated L2 U2N Remote UE or for the associated child UE to the L2 U2N Relay UE or to L2 Last U2N Relay UE in RRC\_CONNECTED. While it is not clear about how to understand the Paging message included in dedicatedPagingDelivery:

1/If only the directly connected remote UE’s Paging message can be include, then new IE for delivering of the indirectly connected remote UE’s paging is needed;

2/If both directly and indirectly connected remote UE’s Paging message can be included, the “or for the associated child UE” can be removed and rely on associated L2 U2N Remote UE to cover both directly and indirectly connected remote UEs

**[Proposed Change]**: The second option is preferred:

***dedicatedPagingDelivery***

This field is used to transfer *Paging* message for the associated L2 U2N Remote UE to the L2 U2N Relay UE in case of single hop or to L2 Last U2N Relay UE in RRC\_CONNECTED.

**[Comments]**:

[Rapporteur]: Agree to gowith option 2 as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# X500

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X500 | SLRelay | 1 | U2N Relay UE needs clarification |  | Xiaomi (Shuai) |  | V005 | ToDo |

 **[Description]**: Should add “in case of single hop” to avoid confusion. Due to “U2N Relay UE” is only referred to single-hop case, and Last U2N Relay UE is only referred to multi-hop case.

**[Proposed Change]**: See below change.

4> if the UE is capable of U2N Relay UE or of Last U2N Relay UE, and if *SIB12* includes *sl-RelayUE-ConfigCommon*, and if the U2N Relay UE in case of single hop or if the Last U2N Relay UE threshold conditions as specified in 5.8.14.2 are met; or

**[Comments]**:

[Rapporteur]: Rapporteur agrees that such clarification will be helpful and recommends "ToDo" status for this RIL as it can be discussed together with other changed porposed in O503

# X501

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X501 | SLRelay | 1 | SI request determination |  | Xiaomi (Xing Yang) |  | V005 | ToDo |

 **[Description]**:

 The intermediate relay UE shall also request the SIBs requested by child UE.

**[Proposed Change]**:

##### 5.8.9.8.2 Actions related to transmission of *RemoteUEInformationSidelink* message

When entering RRC\_IDLE or RRC\_INACTIVE, or upon change in any of the information in the *RemoteUEInformationSidelink* while in RRC\_IDLE or RRC\_INACTIVE, the L2 U2N Remote UE or L2 Intermediate U2N Relay UE shall:

1> if the UE has SIB request information to provide (e.g. the UE has not stored a valid version of a SIB, in accordance with clause 5.2.2.2.1, of one or several required SIB(s) in accordance with clause 5.2.2.1 or SIB(s) requested by child UE and the requested SIB has not been indicated in *RemoteUEInformationSidelink* message to the parent L2 U2N Relay UE before):

**[Comments]**:

[Rapporteur]: The proposed addition is not essential as the intermediate relay UE will generally have child UEs connected to it hence rapporteur recommends " PropReject " status for this RIL.

# X502

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X502 | SLRelay | 1 | Definition of Paging information is not clear |  | Xiaomi (Shuai) |  | V005 | PropReject |

 **[Description]**: In clause 5.8.9.8.2, legacy paging information usually indicates paging message, while paging information here means paging monitoring parameter or paging information request, thus need to clarify.

**[Proposed Change]**: See below change.

2> if any *sl-PagingInfo-RemoteUE-List* or *sl-PagingInfo-RemoteUE* is received from the Child UE:

3> include the received paging information in the *sl-PagingInfo-RemoteUE-List*;

**[Comments]**:

[Rapporteur]: The proposed clarification is not essential as it is generallly understood that paging information is included in sl-PagingInfo-RemoteUE-List or sl-PagingInfo-RemoteUE hence rapporteur recommends " PropReject " status for this RIL.

# X503

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X503 | SLRelay | 1 | Figure needs to be revised |  | Xiaomi (Shuai) |  | V005 | PropReject |

 **[Description]**: Figure 5.8.9.8.1-1 should be revised to align with the below text “This procedure is used by a U2N Relay UE to send notification to the connected U2N Remote UE or to the connected child UE”.

**[Proposed Change]**: See below change.



Figure 5.8.9.8.1-1: Notification message in sidelink

This procedure is used by a U2N Relay UE to send notification to the connected U2N Remote UE or to the connected child UE, or used by a L2 U2U Relay UE to send notification to the L2 U2U Remote UE for an end-to-end PC5 connection when condition(s) as specified in 5.8.9.10.2 is met for the hop between the L2 U2U Relay UE and the peer L2 U2U Remote UE.

**[Comments]**:

[Rapporteur]: The proposed change to the figure is not needed as figure are maintained as in the previous release and the text below the figure is update extend the procedure to the multihop relay hence rapporteur recommends " PropReject " status for this RIL.

# X504

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X504 | SLRelay | 1 | Missed words |  | Xiaomi (Shuai) |  | V005 | PropAgree |

 **[Description]**: In clause 5.8.9.10.2, “relay UE” is missed after “parent”.

**[Proposed Change]**: See below change.

2> upon reception of an *RRCReconfiguration* including the *reconfigurationWithSync*;

2> upon reception of an *NotificationMessageSidelink* from the parent relay UE while in RRC\_CONNECTED;

**[Comments]**:

[Rapporteur]: Agree to add “relay UE” after “parent”.. Have changed the status from “ToDo” to “PropAgree”.

# J012

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| J012 | NR\_SL\_relay\_multihop-Core | 1 | Remove First U2N Relay UE in field description for *SL-RelayUE-ConfigMH* |  | Sharp (LIU Lei) |  | V006 | PropReject |

 **[Description]**: First U2N Relay UE is immeterdiate U2N Relay UE, “First U2N Relay UE” in field description for *SL-RelayUE-ConfigMH* can be removed.

**[Proposed Change]**:

– SL-RelayUE-ConfigMH

The IE *SL-RelayUE-ConfigMH* specifies the threshold configuration information for NR sidelink Last U2N Relay UE or Intermediate U2N Relay UE.

*SL-RelayUE-ConfigMH* information element

-- ASN1START

-- TAG-SL-RELAYUE-CONFIGMH-START

SL-RelayUE-ConfigMH-r19::= SEQUENCE {

 sd-RSRP-ThreshDiscConfigMH-r19 SL-RSRP-Range-r16,

 sd-hystMaxRelayMH-r19 Hysteresis

}

-- TAG-SL-RELAYUE-CONFIGMH-STOP

-- ASN1STOP

| *SL-RelayUE-ConfigMH* field descriptions |
| --- |
| ***sd-RSRP-ThreshDiscConfigMH***Indicates the threshold of SD-RSRP for an Last U2N Relay UE or Intermediate U2N Relay UE to evaluate AS layer conditions for discovery. The Last U2N relay UE applies the value of this field to evaluate AS layer conditions to decide whether to respond to the discovery solicitation message when performing the multi hop U2N Relay Discovery with Model B as specified in TS 23.304 [65]. The Intermediate U2N relay UE applies the value of this field to evaluate AS layer conditions to decide whether to forward the discovery solicitation message when performing the multi hop U2N Relay Discovery with Model B as specified in TS 23.304 [65]. |

**[Comments]**:

[Rapporteur]: It is essential to mention that this threshold is applicable to First U2N relay UE to avoid any confusion hence rapporteur recommends " PropReject " status for this RIL.

# X505

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| X505 | SLRelay | 1 | Wrong IE name |  | Xiaomi (Xing Yang) |  | V005 | PropReject |

 **[Description]**:

 The pre-fix of ‘mh-indicationType-r19’ should be removed to align with legacy IE names. Otherwise, the procedure text shall differentiate the two IEs.

**[Proposed Change]**:

## 6.6 PC5 RRC messages

=================================NEXT CHANGE=======================================

6.6.2 Message definitions

#### – *NotificationMessageSidelink*

The *NotificationMessageSidelink* message is used to send notification message from U2N Relay UE to the connected U2N Remote UE or from U2U Relay UE to the connected U2U Remote UE.

Signalling radio bearer: SL-SRB3

RLC-SAP: AM

Logical channel: SCCH

Direction: U2N Relay UE to U2N Remote UE or U2N Parent UE to U2N Child UE or U2U Relay UE to U2U Remote UE

*NotificationMessageSidelink* message

-- ASN1START

-- TAG-NOTIFICATIONMESSAGESIDELINK-START

NotificationMessageSidelink-r17 ::= SEQUENCE {

 criticalExtensions CHOICE {

 notificationMessageSidelink-r17 NotificationMessageSidelink-r17-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

}

NotificationMessageSidelink-r17-IEs ::= SEQUENCE {

 indicationType-r17 ENUMERATED {

 relayUE-Uu-RLF, relayUE-HO, relayUE-CellReselection,

 relayUE-Uu-RRC-Failure

 } OPTIONAL, -- Need N

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension NotificationMessageSidelink-v1800-IEs OPTIONAL

}

NotificationMessageSidelink-v1800-IEs ::= SEQUENCE {

 sl-IndicationType-r18 ENUMERATED {relayUE-PC5-RLF, spare1} OPTIONAL, -- Need N

 sl-DestinationIdentityRemoteUE-r18 SL-DestinationIdentity-r16 OPTIONAL, -- Need N

 nonCriticalExtension NotificationMessageSidelink-v19xy-IEs OPTIONAL

}

NotificationMessageSidelink-v19xy-IEs ::= SEQUENCE {

 indicationType-r19 ENUMERATED {

 relayUE-RelayReselection,

 relayUE-CellSelection

 } OPTIONAL, -- Need N

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- TAG-NOTIFICATIONMESSAGESIDELINK -STOP

-- ASN1STOP

**[Comments]**:

[Rapporteur]: In Rapporteur understanding we will need a different name for the new cause value as it is used together with the legacy indicationType-r17 hence rapporteur recommends " PropReject " status for this RIL.

# K001

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| K001 | NR\_SL\_relay\_multihop-Core | 1 | PC5 Relay RLC channel release by Intermediate U2N Relay UE |  | ASUSTeK (Richard Kuo) |  | V007 | PropReject |

 **[Description]**: In our understanding, an Intermediate U2N Relay UE should provide PC5 Relay RLC channel configuration(s) configured by the gNB to its parent UE for upstream transmission. Given this, when SL RLF with its child UE is detected, the Intermediate Relay UE should inform its parent UE to release a PC5 Relay RLC channel if there is no other SLRB associated with this PC5 Relay RLC channel.

**[Proposed Change]**:

##### 5.8.9.1.2   Actions related to transmission of *RRCReconfigurationSidelink* message

The UE shall set the contents of *RRCReconfigurationSidelink* message as follows:

…

1> if the UE is acting as L2 U2U Remote UE (i.e. Tx UE) and is in RRC\_IDLE or in RRC\_INACTIVE or out of coverage, and the procedure is initiated to release the first hop PC5 Relay RLC channel of an end-to-end sidelink DRB to the connected L2 U2U Relay UE (i.e. Rx UE) according to clause 5.8.9.7.1; or

1> if the UE is acting as L2 U2U Relay UE (i.e. Tx UE) and is in RRC\_IDLE or in RRC\_INACTIVE or out of coverage, and the procedure is initiated to release the second hop PC5 Relay RLC channel of an end-to-end sidelink DRB to the connected L2 U2U Remote UE (i.e. Rx UE) according to clause 5.8.9.7.1; or

1> if the UE is acting as L2 Intermediate U2N Relay UE (i.e. Tx UE) and the procedure is initiated to release the PC5 Relay RLC channel to the connected UE (i.e. Rx UE) according to clause 5.8.9.7.1:

2> set the *SL-RLC-ChannelID* corresponding to the PC5 Relay RLC channel in the *sl-RLC-ChannelToReleaseListPC5*;

…

#### 5.8.9.3   Sidelink radio link failure related actions

The UE shall:

1> upon indication from sidelink RLC entity that the maximum number of retransmissions for a specific destination has been reached; or

1> upon T400 expiry for a specific destination; or

1> upon indication from MAC entity that HARQ-based Sidelink RLF for a specific destination has been detected; or

1> upon integrity check failure indication from sidelink PDCP entity concerning SL-SRB2 or SL-SRB3 for a specific destination; or

1> upon indication of consistent sidelink LBT failures for all RB sets for a specific destination from MAC entity:

2> consider sidelink radio link failure to be detected for this destination;

2> release the DRBs (if any) of this destination, according to clause 5.8.9.1a.1;

2> release the SRBs of this destination, according to clause 5.8.9.1a.3;

2> release the PC5 Relay RLC channels of this destination if configured, in according to clause 5.8.9.7.1;

2> discard the NR sidelink communication related configuration of this destination;

2> reset the sidelink specific MAC of this destination, except for end-to-end PC5 connection in L2 U2U Relay operation;

2> consider the PC5-RRC connection is released for the destination;

2> indicate the release of the PC5-RRC connection to the upper layers for this destination (i.e. PC5 is unavailable);

2> if UE is in RRC\_CONNECTED:

3> if the UE is acting as L2 U2N Remote UE for the destination:

4> if MP is configured, and neither MCG transmission nor indirect path transmission is suspended:

5> initiate the indirect path failure information procedure as specified in 5.7.3c;

4> else (i.e., MP is not configured, or MP is configured and MCG transmission or indirect path transmission is suspended):

5> initiate the RRC connection re-establishment procedure as specified in 5.3.7;

3> else:

4> perform the sidelink UE information for NR sidelink communication procedure, as specified in 5.8.3.3;

4> if the UE is acting as L2 Intermediate U2N Relay UE for the destination and the destination is a child UE:

5> perform the PC5 Relay RLC channel release according to 5.8.9.7.1, if there is no other SLRB associated with this PC5 Relay RLC channel;

…

##### 5.8.9.7.1              PC5 Relay RLC channel release

The UE shall:

1> if the PC5 Relay RLC channel release was triggered after the reception of the *RRCReconfigurationSidelink* message; or

1> after receiving the *RRCReconfigurationCompleteSidelink* message, if the PC5 Relay RLC channel release was triggered due to the configuration received within the *sl-ConfigDedicatedNR* or due to sidelink radio link failure detected by an L2 Intermediate U2N Relay UE as specified in 5.8.9.3:

2> for each *SL-RLC-ChannelID* in *sl-RLC-ChannelToReleaseList* received in *sl-ConfigDedicatedNR* within *RRCReconfiguration,* or for each *SL-RLC-ChannelID* included in the received *sl-RLC-ChannelToReleaseListPC5* that is part of the current UE sidelink configuration:

3> release the RLC entity and the corresponding logical channel associated with the *SL-RLC-ChannelID*;

…

**[Comments]**:

[Rapporteur]: There is no need for the Intermediate U2N Relay UE to provide PC5 Relay RLC channel configuration(s) configured by the gNB to its parent UE as the parent relay UE will also be configured with the proper PC5 Relay RLC channel configuration.

When PC5 RLF happens the remote UEs will perform RRCReestablishment and the gNB will eventually release the allocated resources in all the relays on the disrupted path for these remote UEs via the RRC Reconfiguration procedure. Hence hence Rapporteur recommends " PropReject " status for this RIL as such mechanism are not needed..

# K002

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| K002 | NR\_SL\_relay\_multihop-Core | 1 | SIB/Paging information release due to SL RLF |  | ASUSTeK (Richard Kuo) |  | V007 | ToDo |

 **[Description]**: According to clause 5.8.9.8.1 in the current RRC Spec, an Intermediate U2N Relay UE in RRC\_IDLE/RRC\_INACTIVE shall provide the SIB(s) /posSIB(s) required by a L2 U2N Remote UE and Paging related information to its parent UE. Thus, when the L2 Intermediate U2N Relay UE detects sidelink radio link failure with the L2 U2N Remote UE (or the child UE), the required SIB(s) and the related Paging information associated with the L2 U2N Remote UE in the parent UE should be released. This trigger is missing in 5.8.9.3 for Intermediate U2N Relay UE to initiate the Remote UE information for NR sidelink communication procedure.

**[Proposed Change]**:

#### 5.8.9.3   Sidelink radio link failure related actions

The UE shall:

1> upon indication from sidelink RLC entity that the maximum number of retransmissions for a specific destination has been reached; or

1> upon T400 expiry for a specific destination; or

1> upon indication from MAC entity that HARQ-based Sidelink RLF for a specific destination has been detected; or

1> upon integrity check failure indication from sidelink PDCP entity concerning SL-SRB2 or SL-SRB3 for a specific destination; or

1> upon indication of consistent sidelink LBT failures for all RB sets for a specific destination from MAC entity:

2> consider sidelink radio link failure to be detected for this destination;

2> release the DRBs (if any) of this destination, according to clause 5.8.9.1a.1;

2> release the SRBs of this destination, according to clause 5.8.9.1a.3;

2> release the PC5 Relay RLC channels of this destination if configured, in according to clause 5.8.9.7.1;

2> discard the NR sidelink communication related configuration of this destination;

2> reset the sidelink specific MAC of this destination, except for end-to-end PC5 connection in L2 U2U Relay operation;

2> consider the PC5-RRC connection is released for the destination;

2> indicate the release of the PC5-RRC connection to the upper layers for this destination (i.e. PC5 is unavailable);

2> if UE is in RRC\_CONNECTED:

3> if the UE is acting as L2 U2N Remote UE for the destination:

4> if MP is configured, and neither MCG transmission nor indirect path transmission is suspended:

5> initiate the indirect path failure information procedure as specified in 5.7.3c;

4> else (i.e., MP is not configured, or MP is configured and MCG transmission or indirect path transmission is suspended):

5> initiate the RRC connection re-establishment procedure as specified in 5.3.7;

3> else:

4> perform the sidelink UE information for NR sidelink communication procedure, as specified in 5.8.3.3;

2> else (i.e. the UE is in RRC\_IDLE or RRC\_INACTIVE):

3> if the UE is acting as L2 Intermediate U2N Relay UE for the destination and the destination is a child UE:

4> perform the Remote UE information for NR sidelink communication procedure with its parent UE, as specified in 5.8.9.8;

…

**[Comments]**:

[Rapporteur]: Similar to above RIL K002 . When PC5 RLF happens the remote UEs will perform RRCReestablishment and the gNB will eventually release the allocated resources in all the relays on the disrupted path for these remote UEs via the RRC Reconfiguration procedure. Hence hence Rapporteur recommends " PropReject " status for this RIL as such mechanism are not needed..

# K003

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| K003 | NR\_SL\_relay\_multihop-Core | 1 | Release of *sl-PagingInfo-RemoteUE-List* |  | ASUSTeK (Richard Kuo) |  | V007 | PropReject |

 **[Description]**: New IE *sl-PagingInfo-RemoteUE-List* is added in *RemoteUEInformationSidelink* message. However, release of *sl-PagingInfo-RemoteUE-List* is missing in 5.8.9.8.2 when the L2 Intermediate U2N Relay UE enters RRC\_CONNECTED.

**[Proposed Change]**:

##### 5.8.9.8.2 Actions related to transmission of *RemoteUEInformationSidelink* message

When entering RRC\_IDLE or RRC\_INACTIVE, or upon change in any of the information in the *RemoteUEInformationSidelink* while in RRC\_IDLE or RRC\_INACTIVE, the L2 U2N Remote UE or L2 Intermediate U2N Relay UE shall:

…

When entering RRC\_CONNECTED, if L2 U2N remote UE or L2 Intermediate U2N Relay UE had sent *sl-RequestedSIB-List*, *sl-RequestedPosSIB-List*, and/or *sl-PagingInfo-RemoteUE,* the L2 U2N Remote UE or L2 Intermediate U2N Relay UE shall:

1> set the *sl-RequestedSIB-List* to the value *release* if requested before;

1> set the *sl-RequestedPosSIB-List* to the value *release* if requested before;

1> set the *sl-PagingInfo-RemoteUE/sl-PagingInfo-RemoteUE-List* to the value *release* if sent before;

1> submit the *RemoteUEInformationSidelink* message to lower layers for transmission;

…

**[Comments]**:

[Rapporteur]: There might be INACTVE or IDLE remote UEs connected to this intermediate downstream hence the intermediate relay UE will set the *sl-PagingInfo-RemoteUE* only for itself in 5.8.9.8.. hence rapporteur recommends " PropReject " status for this RIL

# K004

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| K004 | NR\_SL\_relay\_multihop-Core | 1 | Behavior of Intermediate U2N Relay UE in response to reception of *RemoteUEInformationSidelink* |  | ASUSTeK (Richard Kuo) |  | V007 | PropReject |

 **[Description]**: The behavior of the Intermediate U2N Relay UE to send the *RemoteUEInformationSidelink* message to its parent UE upon reception of an *RemoteUEInformationSidelink* message from its child UE while in RRC\_IDLE or RRC\_INACTIVE is missing in 5.8.9.8.3. Alternatively, a similar subclause as 5.8.9.9.X could be added to describe the Intermediate U2N Relay UE behavior so as to align the Intermediate U2N Relay UE behaviors in different procedures.

**[Proposed Change]**:

**[Comments]**:

[Rapporteur]: Since the intermediate relay UEs behaviour will be covered by L2 U2N Relay UE’s behaviour that also includes intermediate relay UE based on the definition hence rapporteur recommends " PropReject " status for this RIL.

# K005

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| K005 | NR\_SL\_relay\_multihop-Core | 1 | Behavior of Intermediate U2N Relay UE in response to reception of *NotificationMessageSidelink* |  | ASUSTeK (Richard Kuo) |  | V007 | PropReject |

 **[Description]**: The behavior of the Intermediate U2N Relay UE to send the *NotificationMessageSidelink* message to its child UE upon reception of a *NotificationMessageSidelink* message from its parent UE while in RRC\_CONNECTED is missing in 5.8.9.10.4. Alternatively, a similar subclause as 5.8.9.9.X could be added to describe the Intermediate U2N Relay UE behavior so as to align the Intermediate U2N Relay UE behaviors in different procedures.

**[Proposed Change]**:

**[Comments]**:

[Rapporteur]: In 5.8.9.10.4 this is not needed as the intermediate relay UE needs to set the set the *indicationType* as received from the parent relay UE as described in 5.8.9.10.3 and the child UE on reciving the notification message shall initiate the RRC connection re-establishment procedure as described in 5.8.9.10.4. hence rapporteur recommends " PropReject " status for this RIL

# E029

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E029 | NR\_SL\_relay\_multihop-Core | 1 | Unclear text on Reception of the *UuMessageTransferSidelink* by the L2 Intermediate U2N Relay UE |  | Ericsson - Min |  | V009 | ToDo |

 **[Description]**:

##### 5.8.9.9.X Reception of the *UuMessageTransferSidelink* by the L2 Intermediate U2N Relay UE

Upon receiving the *UuMessageTransferSidelink* message from the connected L2 U2N Parent Relay UE, the L2 Intermediate U2N Relay UE shall:

1> if *sl-PagingDelivery* contains the *ue-Identity* of the child UEs:

2> consider the paging message of the child UE is acquired;

1> if *sl-SystemInformationDelivery* requested by the child UEs and/or *sl-SIB1-Delivery* is included:

2> consider the SIB requested by the child UE is acquired;

Bullet 2) highlighted is not correct, since SIB1 may or may not be requested by child Ues,

**[Proposed Change]**:

in this case. We shall reformulate “2> consider the SIB requested by the child UE is acquired;”

2> consider the SIBs valid for child UEs is acquired;

**[Comments]**:

[Rapporteur]: Agree to clarify the it with slightly different wording as suggested above . Have changed the status from “ToDo” to “PropAgree”.

2> consider the SIBs (other than SIB1) requested by the child UE is acquired

# E044

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E044 | NR\_SL\_relay\_multihop-Core | 1 | The capturing of the note is not aligned with RAN2 agreements |  | Ericsson - Min |  | V012 | ToDo |

 **[Description]**:

NOTE X: The L2 U2N Remote UE may prioritize the selection or reselection of suitable NR sidelink U2N Relay UE based on any information available in the discovery message including the RRC State information. The RRC State information in the discovery message RRC container reflects the state of the UE that sends the discovery message.

The capturing of the above note is not aligned with RAN2 agreements

1. It needs to capture that RRC state may be considered by remote UE in multihop relay scenario.
2. RAN2 didn’t agree that remote UE can consider any other information in discovery, other than RRC state.

**[Proposed Change]**:

Suggest rewording the note as

NOTE X: In case of multi-hop L2 U2N Relay communication, the L2 U2N Remote UE may prioritize the selection or reselection of suitable NR sidelink U2N Relay UE based on the RRC state information ~~any information availabl~~e in the discovery message ~~including the RRC State information~~ . The RRC State information in the discovery message RRC container reflects the state of the UE that sends the discovery message.

**[Comments]**:

[Rapporteur]: The note was modified based on the following agreement in RAN2 131 meeting.

Capture in a revision of the existing note in RRC running CR (relay reselection section 5.8.15.3) that the UE may prioritise relays based on any information available in the discovery message for the applicable model.

However it can be discussed if the note can be modified as suggested above. Rapporteur recommends "ToDo" status for this RIL.

# E045

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E045 | NR\_SL\_relay\_multihop-Core | 1 | Missing description/definition for the IE/field.relayUE-RRCState-r19 |  | Ericsson - Min |  | V012 | PropAgree |

 **[Description]**:

 cellAccessRelatedInfo-r17 CellAccessRelatedInfo,

 sl-ServingCellInfo-r17 SL-ServingCellInfo-r17,

 ...,

 [[

 sl-RelayIndication-r18 SL-RelayIndicationMP-r18 OPTIONAL

 ]],

 [[

 relayUE-RRCState-r19 ENUMERATED {rrc-Connected, spare1} OPTIONAL

 ]]

}

Missing description/definition for the above IE/field.

**[Proposed Change]**:

Suggest to include description for the IE as

#### – *SL-*RelayUE-RRCState

The IE *SL-*RelayUE-RRCState is used to indicate the RRC state of L2 U2N Relay UE In case of multi-hop L2 U2N Relay communication.

*SL-RelayUE-RRCState* information element

-- ASN1START

-- TAG-SL-RelayUE-RRCState-START

SL-RelayUE-RRCState-r19 ::= ENUMERATED {rrc-Connected, spare1}

-- TAG-SL-RelayUE-RRCState-STOP

-- ASN1STOP

Also update the SL-AccessInfo-L2U2N-r17 as

SL-AccessInfo-L2U2N-r17 ::= SEQUENCE {

 cellAccessRelatedInfo-r17 CellAccessRelatedInfo,

 sl-ServingCellInfo-r17 SL-ServingCellInfo-r17,

 ...,

 [[

 sl-RelayIndication-r18 SL-RelayIndicationMP-r18 OPTIONAL

 ]],

 [[

 relayUE-RRCState-r19 SL-RelayUE-RRCState-r19 OPTIONAL

 ]]

}

**[Comments]**

**[Comments]**:

[Rapporteur]: Agree to add the definition for relayUE-RRCState-r19 as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# E046

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| E046 | NR\_SL\_relay\_multihop-Core | 1 | *relayUE-RRCState* is referred nowhere |  | Ericsson - Min |  | V012 | PropAgree |

 **[Description]**:

relayUE-RRCState-r19 is not referred in the below note

NOTE X: The L2 U2N Remote UE may prioritize the selection or reselection of suitable NR sidelink U2N Relay UE based on any information available in the discovery message including the RRC State information . The RRC State information in the discovery message RRC container reflects the state of the UE that sends the discovery message.

**[Proposed Change]**:

Suggest to update the note as

NOTE X: The L2 U2N Remote UE may prioritize the selection or reselection of suitable NR sidelink U2N Relay UE based on any information available in the discovery message including the RRC State information *relayUE-RRCState*. The RRC State information in the discovery message RRC container reflects the state of the UE that sends the discovery message.

**[Comments]**:

[Rapporteur]: Agree to add *relayUE-RRCState* in the note as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# B100

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| B100 | NR\_SL\_relay\_multihop-Core | 1 | One agreed case for intermediate relay in idle/inactive is missing | R2-25xxxxx | Lenovo (Lianhai Wu) |  | V011 | ToDo |

 **[Description]**: It was agreed in RAN2#131 meeting that ‘Notification by an intermediate relay UE at least in idle/inactive, when caused by an upstream reselection/RLF/link release, occurs upon the intermediate relay UE’s handling after receiving the notification or release message (e.g., relay reselection or cell selection), but not triggered by the reception of the upstream notification itself.’ That means the intermediate relay UE at least in idle/inactive can trigger notification message after receiving release message from upstream link. This agreed case is not captured in RRC CR for SL relay.

**[Proposed Change]**: at least 5.8.9.10.2, 5.8.9.10.3 and the value of indicationtype IE should be updated. Below shows the update for 5.8.9.10.2. We will submit a contribution to show more changes.

5.8.9.10.2 Initiation

……

1> if the UE is acting as Intermediate U2N Relay UE:

2> upon relay reselection;

2> upon cell selection;

2> upon PC5 RLF with its parent relay UE;

2> upon reception of an *RRCReconfiguration* including the *reconfigurationWithSync*;

2> upon reception of an NotificationMessageSidelink from the parent while in RRC\_CONNECTED;

2> upon PC5 unicast link release indicated by upper layer at Intermediate U2N Relay UE while in RRC\_IDLE or RRC\_INACTIVE;

**[Comments]**:

[Rapporteur]: This can be handled by the upper layer at the intermediate Relay UE which in turn can release PC5 inicast link release with its child UEs rather than sending a notification message and mixing higher layer and AS layers notification. However this can be further discussed in the next meeting based on the contribution from the proponent. Rapporteur recommends "ToDo" status for this RIL.

# B101

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| B101 | NR\_SL\_relay\_multihop-Core | 1 | Intermediate relay in connected state transmits notification message after receiving release message | R2-25xxxxx | Lenovo (Lianhai Wu) |  | V011 | ToDo |

 **[Description]**: It was agreed in RAN2#131 meeting that ntification by an intermediate relay UE in idle/inactive can be triggered after receiving the release message. WE also need to discuss whether notification message by an intermediate relay UE in connected state can be triggered after receiving the release message.

**[Proposed Change]**: 5.8.9.10.2, 5.8.9.10.3 and the value of indicationtype IE should be updated. Below shows the change for 5.8.9.10.2. We will submit a contribution to show more changes.

5.8.9.10.2 Initiation

……

1> if the UE is acting as Intermediate U2N Relay UE:

2> upon relay reselection;

2> upon cell selection;

2> upon PC5 RLF with its parent relay UE;

2> upon reception of an *RRCReconfiguration* including the *reconfigurationWithSync*;

2> upon reception of an NotificationMessageSidelink from the parent while in RRC\_CONNECTED;

2> upon PC5 unicast link release indicated by upper layer at Intermediate U2N Relay UE;

**[Comments]**:

[Rapporteur]: Similar to B100. This can be handled by the upper layer at the intermediate Relay UE which in turn can release PC5 inicast link release with its child UEs rather than sending a notification message and mixing higher layer and AS layers notification. However this can be further discussed in the next meeting based on the contribution from the proponent. Rapporteur recommends "ToDo" status for this RIL.

# B102

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| B102 | NR\_SL\_relay\_multihop-Core | 1 | The intermediate relay UE is triggered to transmit notification messaage due to connection failure | R2-25xxxxx | Lenovo (Lianhai Wu) |  | V011 | ToDo |

 **[Description]**: In legacy single hop relay operation, the relay UE may initiate the procedure for Notification Message upon L2 U2N Relay UE's RRC connection failure including RRC connection reject as specified in 5.3.3.5 and 5.3.13.10, and T300 expiry as specified in 5.3.3.7, and RRC resume failure as specified in 5.3.13.5. The same case will occur in the intermedidate relay UE. Therefore, we need to discuss this case.

**[Proposed Change]**:

Both 5.8.9.10.2 and 5.8.9.10.3 shoul be updated. Below shows the change for 5.8.9.10.2. We will submit a contribution for this.

5.8.9.10.2 Initiation

……

1> if the UE is acting as Intermediate U2N Relay UE:

2> upon relay reselection;

2> upon cell selection;

2> upon PC5 RLF with its parent relay UE;

2> upon reception of an *RRCReconfiguration* including the *reconfigurationWithSync*;

2> upon reception of an NotificationMessageSidelink from the parent while in RRC\_CONNECTED;

2> upon Intermediate U2N Relay UEs RRC connection failure including RRC connection reject as specified in 5.3.3.5 and 5.3.13.10, and T300 expiry as specified in 5.3.3.7, and RRC resume failure as specified in 5.3.13.5;

**[Comments]**:

[Rapporteur]: The network will usually not reject the RRC connection or Resuming of the RRC Connection for the remote UEs as the will be indirectly connected to the network hence these cases are only relavent for the U2N Relay UE in single hop case an Last Relay UE in multi hop case. However the companies are invited to discuss this issue in the contribution. .

# H450

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H450 | NR\_SL\_relay\_multihop-Core | 1 | The action of intermediate Relay UE when performing as a remote UE  |  |  Huawei (Jagdeep) |  | V12 | PropAgree |

 **[Description]**: The intermediate relay UE will act as a remote UE when receiving RRC Setup message for itself. However in the running CR in 5.3.3.4 there is a description below that describes UE to perform the L2 U2N Remote UE or L2 Intermediate U2N Relay UE configuration procedure for the UE which will be confusing in relation to configuration for L2 Intermediate U2N Relay UE. Hence the L2 Intermediate U2N Relay UE should be removed to avoid any confusion.

perform the L2 U2N Remote UE or L2 Intermediate U2N Relay UE configuration procedure in accordance with the received *sl-L2RemoteUE-Config*

**[Proposed Change]**:

5.3.3.4 Reception of the *RRCSetup* by the UE

The UE shall perform the following actions upon reception of the *RRCSetup*:

1> if the *RRCSetup* is received in response to an *RRCReestablishmentRequest*; or

<omitted>

1> perform the L2 U2N Remote UE configuration procedure in accordance with the received *sl-L2RemoteUE-Config* as specified in 5.3.5.16;

1> perform the sidelink dedicated configuration procedure in accordance with the received *sl-ConfigDedicatedNR* as specified in 5.3.5.14;

**[Comments]**:

[Rapporteur]: Agree to remove “or L2 Intermediate U2N Relay UE” description in 5.3.3.4 to avoid any confusion as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# H451

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H451 | NR\_SL\_relay\_multihop-Core | 1 | SIB/paging request information release at the relay UE when the connected child UE triggers the PC5 link release.  |  |  Huawei (Jagdeep) |  | V12 | PropAgree |

 **[Description]**:Clarify in section 5.8.9.8.3 through a note that if the child UE triggers PC5 Link Release with its parent UE, the parent UE needs to need to release the related SIB request information and paging request information of the directly/indirectly connected child UE(s).

**[Proposed Change]**: Add a note in Clause 5.8.9.8.3.

NOTE X: If a connected child UE triggers PC5 link release with its parent UE, the parent UE need to release the related SIB request information and paging request information of the directly or indirectly connected child UE(s) via this link.

**[Comments]**:

[Rapporteur]: Agree to add a note in in 5.8.9.8.3 to clarify the PC5 Link Release triggered by the Child UE as suggested above . Have changed the status from “ToDo” to “PropAgree”.

# H452

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H452 | NR\_SL\_relay\_multihop-Core | 1 | The condition of discovery transmission |  | Huawei (Jagdeep) |  | V12 | ToDo |

 **[Description]**:

|  |
| --- |
| **U2N Relay UE:** A UE that provides functionality to support connectivity to the network for U2N Remote UE(s). Up to three L2 U2N Relay UEs (i.e. one Last U2N Relay UE and up to two Intermediate U2N Relay UEs including one First U2N Relay UE) can be configured for serving a L2 U2N Remote UE in multi-hop L2 U2N Relay communication in this release. |

We believe that the UE need to consider the hop count limit when performing the discovery message, which is four in this release (one Last U2N Relay UE and up to two Intermediate U2N Relay UEs).

For example, in model A, if the hop count of the current relay UE is already four (the maximum number specified in the current version of the specification) and performs the discovery, a remote UE may choose the path of through this relay UE. However, in this case, the hop count will already exceed the maximum value and the remote UE will not be allowed to access the network through this relay UE.

Similarly in model B, a candidate relay UE may receive the solicitation message from another relay UE (named it relay UE1) which is forwarding the Solicitation message of a remote UE. If the sum of the hop count of the candidate relay UE and the hop count between the relay UE1 and the remote UE exceeds the maximum value, the remote UE will not be able to access the network either.

For the two cases above the discovery messages will be transmitted unnecessarily even though the maximum permitted hop count has been exceeded. Hence it is necessary that the UE checks the hop limit before performing discovery message transmission.

**[Proposed Change]**:

5.8.13.3 NR sidelink discovery transmission

A UE capable of NR sidelink discovery that is configured by upper layer to transmit NR sidelink discovery message shall:

1> if the frequency used for NR sidelink discovery is included in *sl-FreqInfoToAddModList* in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message; or if the frequency used for NR sidelink discovery is includedin *sl-FreqInfoList* within *SIB12*:

1. 2> if the UE is in RRC\_CONNECTED and uses the frequency included in *sl-ConfigDedicatedNR* within *RRCReconfiguration* message:

3> if the UE is acting as NR sidelink U2N Relay UE or Last U2N Relay UE and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the NR sidelink U2N Relay UE or Last U2N Relay UE threshold conditions as specified in 5.8.14.2 are met based on *sl-RelayUE-Config*; or3> if the UE is selecting NR sidelink U2N Relay UE / has a selected NR sidelink U2N Relay UE/ configured with measurement object associated to L2 U2N Relay UEs in both single hop or multi hop case and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-Config*; or

3> if the UE acting as Last U2N Relay UE is sending Discovery Response message with Model B as specified in TS 23.304 [65] and if the NR sidelink multi-hop relay threshold conditions as specified in 5.8.x.2 are met based on *sl-RelayUE-ConfigMH* and if the sum of the hop count of the UE and the hop count information in the solicitation message from the sending UE is less than the maximum hop limit; or

3> if the UE acting as Intermediate U2N Relay UE is sending Discovery Solicitation message with Model B as specified in TS 23.304 [65] and if the NR sidelink multi-hop relay threshold conditions as specified in 5.8.x.2 are met based on *sl-RelayUE-ConfigMH* and if the sum of the hop count of the UE and the hop count information in the solicitation message from the sending UE is less than the maximum hop limit; or

3> if the UE acting as first U2N Relay UE is sending Announcement message with Model A as specified in TS 23.304 [65] and if the NR sidelink multi-hop relay threshold conditions as specified in 5.8.x.2 are met based on *sl-RelayUE-ConfigMH* and if the hop count of the UE is less than the maximum hop limit; or

3> if the UE is selecting NR sidelink U2U Relay UE / has a selected NR sidelink U2U Relay UE and *sl-DiscConfig* is included in *RRCReconfiguration*, and if the NR sidelink U2U Remote UE threshold conditions associated with the peer NR Sidelink U2U Remote UE as specified in 5.8.17.2 are met based on *sl-RemoteUE-ConfigU2U*; or

<omitted>

1. 2> else if the cell chosen for NR sidelink discovery transmission provides *SIB12*:

3> if the UE is acting as NR sidelink U2N Relay UE or Last U2N Relay UE and *sl-DiscConfigCommon* is included in *SIB12*, and if the NR sidelink U2N Relay UE or Last U2N Relay UE threshold conditions as specified in 5.8.14.2 are met based on *sl-RelayUE-ConfigCommon* in *SIB12*; or

3> if the UE is selecting NR sidelink U2N Relay UE / has a selected NR sidelink U2N Relay UE in both single hop or multi hop case and *sl-DiscConfigCommon* is included in *SIB12*, and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-ConfigCommon* in *SIB12*; or

3> if the UE acting as Intermediate U2N Relay UE has an established PC5 link with the selected parent U2N Relay UE, and if the NR sidelink U2N Remote UE threshold conditions as specified in 5.8.15.2 are met based on *sl-RemoteUE-ConfigCommon* in *SIB12*; or

3> if the UE acting as Intermediate U2N Relay UE is sending Discovery Solicitation message with Model B as specified in TS 23.304 [65] and *sl-DiscConfigCommon* is included in *SIB12*, and if the NR sidelink multi-hop relay threshold conditions as specified in 5.8.x.2 are met based on *sl-RelayUE-ConfigCommonMH* and if the sum of the hop count of the UE and the hop count information in the solicitation message from the sending UE is less than the maximum hop limit; or

3> if the UE acting as Last U2N Relay UE is sending Discovery Response message with Model B as specified in TS 23.304 [65] and *sl-DiscConfigCommon* is included in *SIB12*, and if the NR sidelink multi-hop relay threshold conditions as specified in 5.8.x.2 are met based on *sl-RelayUE-ConfigCommonMH* and if the sum of the hop count of the UE and the hop count information in the solicitation message from the sending UE is less than the maximum hop limit; or

3> if the UE acting as first U2N Relay UE is sending Announcement message with Model A as specified in TS 23.304 [65] and if the NR sidelink multi-hop relay threshold conditions as specified in 5.8.x.2 are met based on *sl-RelayUE-ConfigMH* and if the hop count of the UE is less than the maximum hop limit; or

**[Comments]**:

[Rapporteur]: Limiting of the discovery message transmission based on the maximum permited hop count in this release can be discussed further as it will improve system efficiency. Companies are are invited to discuss this issue in the contribution. The Status of this RIL is set to “ToDo”.

# H453

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H453 | NR\_SL\_relay\_multihop-Core | 1 | The timers T300/T301/T319 for multi-hop relay |  |  Huawei (Jagdeep) |  | V12 | PropAgree |

 **[Description]**: In the field description of the remote UE timers it should be clarified that for the case when the field is absent how the legacy t300 value should be used for multi hop scenario.

**[Proposed Change]**:

– UE-TimersAndConstantsRemoteUE

The IE *UE-TimersAndConstantsRemoteUE* contains timers and constants used by the L2 U2N Remote UE in RRC\_CONNECTED, RRC\_INACTIVE and RRC\_IDLE.

***UE-TimersAndConstantsRemoteUE* information element**

-- ASN1START

-- TAG-UE-TIMERSANDCONSTANTSREMOTEUE-START

UE-TimersAndConstantsRemoteUE-r17 ::= SEQUENCE {

 t300-RemoteUE-r17 ENUMERATED {ms100, ms200, ms300, ms400, ms600, ms1000, ms1500, ms2000} OPTIONAL, -- Need S

 t301-RemoteUE-r17 ENUMERATED {ms100, ms200, ms300, ms400, ms600, ms1000, ms1500, ms2000} OPTIONAL, -- Need S

 t319-RemoteUE-r17 ENUMERATED {ms100, ms200, ms300, ms400, ms600, ms1000, ms1500, ms2000} OPTIONAL, -- Need S

 ...

}

-- TAG-UE-TIMERSANDCONSTANTSREMOTEUE-STOP

-- ASN1STOP

|  |
| --- |
| ***UE-TimersAndConstantsRemoteUE* field descriptions** |
| ***t300-RemoteUE***Indicates the timer value of T300 used by L2 U2N Remote UE. If the field is absent, the timer value indicated in t300 applies to L2 U2N Remote UE for the single hop case. The effective T300 value for the L2 U2N Remote UE, accounting for both the Uu and PC5 hop components, is obtained by multiplying the base T300 timer value by the Hop Count. For a single-hop scenario involving one Relay UE, the Hop Count is 1. For multi-hop scenarios involving two or three Relay UEs, the Hop Count is 2 or 3, respectively. If the field is absent, the timer value indicated in t300 multiplied by the Hop Count applies to L2 U2N Remote UE for the multihop hop case. |
| ***t301-RemoteUE***Indicates the timer value of T301 used by L2 U2N Remote UE. If the field is absent, the timer value indicated in t301 applies to L2 U2N Remote UE for the single hop case. The effective T301 value for the L2 U2N Remote UE, accounting for both the Uu and PC5 hop components, is obtained by multiplying the base T301 timer value by the Hop Count. For a single-hop scenario involving one Relay UE, the Hop Count is 1. For multi-hop scenarios involving two or three Relay UEs, the Hop Count is 2 or 3, respectively. If the field is absent, the timer value indicated in t301 multiplied by the Hop Count applies to L2 U2N Remote UE for the multihop hop case. |
| ***t319-RemoteUE***Indicates the timer value of T319 used by L2 U2N Remote UE. If the field is absent, the timer value indicated in t319 applies to L2 U2N Remote UE for the single hop case. The effective T319 value for the L2 U2N Remote UE, accounting for both the Uu and PC5 hop components,, is obtained by multiplying the base T319 timer value by the Hop Count. For a single-hop scenario involving one Relay UE, the Hop Count is 1. For multi-hop scenarios involving two or three Relay UEs, the Hop Count is 2 or 3, respectively. If the field is absent, the timer value indicated in t319 multiplied by the Hop Count applies to L2 U2N Remote UE for the multihop hop case. |

**[Comments]**:

[Rapporteur]: Agree to clarify the field description of the remote UE timers as suggested above. Have changed the status from “ToDo” to “PropAgree”.

# H454

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H454 | NR\_SL\_relay\_multihop-Core | 1 | Whether the intermediate relay UE in RRC\_IDLE/INACTIVE can omit sending the notification message should be limited to the case where the hop count does not exceed the maximum permited value. |  |  Huawei(Jagdeep) |  | V12 | ToDo |

 **[Description]**: RAN2 agreed the intermediate relay UE in RRC\_IDLE/INACTIVE may omit sending the notification message if the relay reselection or cell selection (from multihop to direct path for the intermediate relay) does not cause the change of the serving cell, and does not preclude the implementation considering other parameters such as hop count if they are made visible to AS layer by implementation. Consequently we had captured a note in section 5.8.9.10.2

Note 1: The Notification Message may not be sent by an Intermediate U2N relay UE in RRC\_IDLE or RRC\_INACTIVE to its child UEs if the relay reselection or cell selection does not cause the change of the serving cell.

However this omition should ensure that the hop count has not increased . In some cases the hop count on performing relay reselection might increase and may exceeds the maximum allowed limit for directly or indirectly connected child UEs. Hence it is suggested to modify the the note.

**[Proposed Change]**:

##### 5.8.9.10.2 Initiation

The Relay UE may initiate the procedure when one of the following conditions is met:

1> if the UE is acting as U2N Relay UE or Last U2N Relay UE:

2> upon Uu RLF as specified in 5.3.10;

2> upon reception of an *RRCReconfiguration* including the *reconfigurationWithSync*;

2> upon cell reselection;

2> upon L2 U2N Relay UE's or Last U2N Relay UE’s RRC connection failure including RRC connection reject as specified in 5.3.3.5 and 5.3.13.10, and T300 expiry as specified in 5.3.3.7, and RRC resume failure as specified in 5.3.13.5;

1> if the UE is acting as Intermediate U2N Relay UE:

2> upon relay reselection;

2> upon cell selection;

2> upon PC5 RLF with its parent relay UE;

2> upon reception of an *RRCReconfiguration* including the *reconfigurationWithSync*;

2> upon reception of an *NotificationMessageSidelink* from the parent while in RRC\_CONNECTED;

1> if the UE is acting as L2 U2U Relay UE:

2> upon detection of PC5 RLF for the hop between the L2 U2U Relay UE and L2 U2U Remote UE as specified in 5.8.9.3;

2> upon PC5-RRC connection release for the per-hop link between the L2 U2U Relay UE and L2 U2U Remote UE as specified in 5.8.9.5;

Note 1: The Notification Message may not be sent by an Intermediate U2N relay UE in RRC\_IDLE or RRC\_INACTIVE to its child UEs if the relay reselection or cell selection does not cause the change of the serving cell and does not result in increase of the hop count for the connected child UEs.

**[Comments]**:

[Rapporteur]: The need for additional clarification about the hop count as suggested in the note above can be discussed further considering different scenarios. Companies are are invited to discuss this issue in the contribution. The Status of this RIL is set to “ToDo”.

# H455

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RIL Id | WI | Class | Title | Tdoc | Delegate | Misc | File version | Status |
| H455 | NR\_SL\_relay\_multihop-Core | 1 | Indication in the measurement report whether the candidate Relay UE is on a single-hop or multi-hop target path, or to provide the hop count information to avoid inter gNB path switch failures. |  |  Huawei(Jagdeep) |  | V12 | ToDo |

 **[Description]**: In RAN 2 # 131 meeting there were discussions whether RAN2 should consider adding an indication in the measurement report to specify whether the candidate Relay UE is on a single-hop or multi-hop target path, or to provide the hop count information to avoid inter gNB path switch failures. During the meeting it was agreed that -

No enhancement is added now to allow indicating the hop count of a candidate target relay UE to the gNB. It can be discussed in maintenance if something is broken with the case where the target relay UE is in idle/inactive.

If no indication of the hop count of a candidate target relay UE is provided to the source gNB there will be frequent failures and unnecerry signalling between the gNBs during the path switch procedures.

**[Proposed Change]**:

Add an indication in the measurement report to indicate to the source gNB whether the candidate Relay UE is on a single-hop or multi-hop target path and help the source gNB to take a informed decision whether or not to initiate the inter gNB path switch procedure and avoid any unnecessary failures.

**[Comments]**:

[Rapporteur]: The need to add an indication in the measurement report to indicate to the source gNB whether the candidate Relay UE is on a single-hop or multi-hop target path can be discussed further considering different scenarios. Companies are are invited to discuss this issue in the contribution. The Status of this RIL is set to “ToDo”.

Instructions:

1. Copy the template RIL comments fields above (including the Heading Xnnn)
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3. Fill in the fields, see R19 ASN.1 Guideline.
4. Companies may comment whether they agree or disagree.
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6. Do not delete text added by other companies.