**3GPP TSG RAN meeting #94e RP-212xxx**

**Electronic Meeting, November 06-17, 2021**

## Status Report to TSG

**Agenda item:** 9.3.2.11

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **WI / SI Name** |  | | | | |
| included in this status report | Study Item:  No | Core part:  Yes | Performance part:  Yes | | Testing part:  No |
| **Acronym** | NR\_SL\_Relay | | | | |
| **Unique ID** | 911105 | | | | |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-212601 | | | | |
| **Target Completion Date**  **(indicate if changed)** | Study Item:  mm/yyyy | Core part:  03/2022 | Performance part: 09/2022 | Testing part: mm/yyyy | |
| **Overall Completion level** | Study Item:  xx % | Core part:  70% | Performance Part:  0% | Testing part: xx% | |

Note: Overall completion level percentage numbers should use one of the colors below:

* xx%: Normal progress, no RAN plenary action needed
* xx%: Progress behind schedule, may need RAN plenary intervention. If so, SR should clearly define requested action
* xx%: Progress critically behind, RAN plenary shall intervene. SR should define requested action

**Source:**

|  |  |  |
| --- | --- | --- |
| **Leading WG** | | RAN WG2 |
| **Rapporteur** | **Name** | Qianxi Lu, Xueyan Huang |
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## 1 Work plan related evaluation

|  |  |
| --- | --- |
| **Do you want to modify the time budget for this WI/SI compared to what was endorsed at the last RAN meeting?** | No |

*If you answered No: Then please remove the Excel file from the zip file of this status report.*

*If you answered Yes: Then please fill out the attached Excel template to request a modification of the time budgets for your WI /SI. The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI. The basis are the endorsed time budgets of the last RAN meeting. Please highlight all changes of the values.  
 One time unit (TU) corresponds to ~ 2 hours in the meeting.  
 If this status report covers a WI with Core and Performance part, then please have one line for each in the attached Excel table.  
 Note: If no Excel table is attached, then this means no time budget change.*

**Additional explanations/motivations for the time budget changes in the attached Excel table:**

## 2. Detailed progress in RAN WGs since last TSG meeting (for all involved WGs)

NOTE: Agreements and Open issues impacted cross-TSG aspects shall be explicitly highlighted

## 2.1 RAN1

#### 2.1.1 Agreements

#### 2.1.2 Remaining Open issues

## 2.2 RAN2

#### 2.2.1 Agreements

**Agreement from RAN2#116**

Control Plane Procedure

Agreements:

Proposal 1 (modified): Relay UE in RRC\_CONNECTED, if configured with paging CSS, can determine whether to monitor POs for a remote UE based on PC5-RRC signalling received from the remote UE. FFS on the signalling contents and for the case of idle/inactive relay UE. [18/23]

Proposal 2: Remote UE paging occasions are derived by the relay UE from the formula in 38.304 (for PF/PO calculation). [23/23]

Proposal 3: Relay UE determines all parameters except for the UE specific DRX cycle and the UE ID, from the relay’s own acquisition of SIB1. FFS details of what the remote UE provides to the relay UE for the remote UE’s UE specific DRX cycle. [20/23]

Proposal 4 (modified): UE ID and information on UE specific DRX cycle (as provided by the remote UE in accordance with P3) is provided by the remote UE to the relay UE using PC5-RRC signalling. [23/23]

Proposal 5: The dedicated RRC message for delivering remote UE paging to the RRC\_CONNECTED relay UE may contain one or more remote UE IDs (5G-S-TMSI or I-RNTI). [23/23]

TAU/RNAU:

Proposal 12: RAN2 confirms that the IC or OOC remote UE performs TAU/RNAU based on the relay UE serving cell when PC5-RRC connected to the relay UE [23/23].

Proposal 14: TAU/RNAU performed by the relay UE on behalf of the remote UE is not supported in this release [19/23]

Proposal 13 (modified): WA: A remote UE in RRC\_IDLE/RRC\_INACTIVE initiates RNAU/TAU procedure if the serving cell of the relay UE changes (due to HO or reselection of the relay UE) and the new serving cell is outside of the remote UE’s configured RNA/TA, as legacy procedure. [23/23]

Agreements:

UAC and Timers

Proposal 1: Relay UE does not perform UAC check for the remote UE’s data [23/23]

Proposal 2: Remote UE uses different timers (FFS: value and/or name) for access (T300-like), resume (T319-like) and re-establishment (T301-like) compared to those for legacy Uu procedures [22/23]

Proposal 3: Basing RRC timers (T300-like, etc) on the RRC state of the relay UE is not supported in this release. [23/23]

Agreements:

Proposal 4: For the remote UE in RRC\_IDLE/RRC\_INACTIVE, short message is not forwarded by the relay UE to the remote UE. [19/23]

Proposal 6: Assuming short message forwarding is not performed, relay UE can forward PWS SIBs to the remote UE [22/23]

Proposal 9: As a baseline, in-coverage Remote UE is allowed to acquire some necessary SIB over Uu irrespective of its PC5 connection to Relay UE. [23/23]

Proposal 10: Agree that Remote UE needs to know the PCI of Relay UE’s serving cell. FFS how Remote UE obtains the PCI of relay UE’s serving cell. [23/23]

Proposal 12 (modified): WA: Any SIB which the remote UE has a requirement to use (e.g. for relay purpose) can be requested by the remote UE (from the relay UE or the network). [20/23] FFS how to capture this in spec, but this agreement does not automatically imply signalling to request all SIBs.

Proposal 14: A new PC5-RRC message is used by the remote UE to request SI from the relay UE [23/23]

Proposal 15: A new PC5-RRC message is used by the relay UE to send SI to the remote UE [22/23]

Proposal 16: WA: Voluntary SIB forwarding by the relay UE, aside from SIB update and SIB request, is left to relay UE implementation

Proposal 18: Use of groupcast/broadcast for forwarding SIB from the relay UE to the remote UE after PC5-RRC connection establishment is down-prioritized.

Agreements:

Proposal 11: Agree that Relay UE can notify Remote UE ID (i.e. 5G-S-TMSI/I-RNTI) information to the gNB via dedicated RRC message for paging delivery purpose. [23/23]

Proposal 23: A PC5-RRC message can be used for sending indication to the remote UE upon Uu RLF at the relay UE [20/23].

Proposal 20: RAN2 assume Inter-gNB RRC Re-establishment for the remote UE (directly to a different gNB, or to a relay UE served by a different gNB) can be supported with no specification impact [20/23]

Proposal 21: RAN2 assume Inter-gNB resume for the remote UE (directly to a different gNB, or to a relay UE served by a different gNB) can be supported with no specification impact [20/23]

RAN2 will not do further enhancements for P20/P21.

Agreement:

Proposal 17: WA: cellAccessRelatedInfo from SIB1 [16/23] is forwarded before PC5-RRC connection. FFS the exact signalling.

Service Continuity

Agreements:

Proposal 1: Legacy Uu RRC measurement configuration and reporting signaling with extensions for relay case is used to configure Remote UE to perform Uu and SL measurements for direct-to-indirect and indirect-to-direct path switch.

Proposal 2 (modified): Legacy Uu measurement object (i.e. MeasObjectNR) is used to configure measurement on neighbor Uu frequencies for indirect-to-direct path switch, and legacy sidelink measurement object (i.e. SL-MeasObject) is used to configure measurement on candidate Relays for direct-to-indirect path switch. Uu measurement operation according to legacy principles still applies for Uu frequencies.

Agreement:

Proposal 5: The following new events are to be defined:

‐ Event-X for indirect-to-direct path switch: serving relay becomes worse than threshold-X1 and neighbor Uu cell becomes better than threshold-X2.

‐ Event-Y for direct-to-indirect path switch: serving Uu cell becomes worse than threshold-Y1 and candidate relay becomes better than threshold-Y2.

This does not exclude the use of the legacy S2 event.

Agreements:

Proposal 18: RAN2 does not consider the sharing of unicast link between relay service and non-relay service in L2 relay, and the related descriptions are to be removed from stage 2 running CR.

Proposal 12 (modified): During indirect-to-direct path switch, Remote UE or Relay UE’s AS layer releases PC5-RRC connection and indicates upper layer to release PC5 unicast link after receiving RRC reconfiguration from gNB.

Proposal 13: The existing T304 is used for indirect-to-direct path switch.

Agreements:

Proposal 24 (modified): The legacy PDCP re-establishment or data recovery in UL should be performed by the Remote UE during path switch if gNB configures it.

Proposal 25: No spec impact is required for DL lossless transmission during path switch.

Agreements:

Proposal 14-1: [22/22] A new T304-like timer is introduced for direct-to-indirect path switch. The Remote UE starts the timer upon reception of the RRC reconfiguration message indicating direct-to-indirect path switch, and the Remote UE initiates RRC re-establishment upon timer expiry.

Original Proposal 15: [22/22] RRC reconfiguration message towards the Remote UE should include the Relay UE ID to indicate the target Relay UE for direct-to-indirect path switch which is the same Relay UE ID agreed to be included in SL measurement report.

Proposal 16: [21/22] RRC reconfiguration message towards the target Relay UE should include the Remote UE’s local ID/AL ID and L2 ID when preparing the direct-to-indirect path switch.

Agreement:

Updated Proposal 23: RAN2 to down select among the following options to handle the case of Relay UE in IDLE/INACTIVE during direct-to-indirect path switch:

‐ [8/22]Option1: The target Relay UE of direct-to-indirect path switch must be in RRC\_CONNECTED.

‐ [14/22]Option2: Relay UE in IDLE/INACTIVE can be indicated as target Relay, and to support such case by the Remote UE oriented solution, i.e. after receiving the path switch command, Remote UE establishes PC5 link with the Relay UE and sends HO complete message via the Relay UE which will trigger the Relay UE to enter CONNECTED sate.

Working assumption:

The existing reconfigurationWithSync is used to indicate direct-to-indirect path switch to Remote UE.

Adaptation layer design

Agreements:

Proposal 4: Relay UE has a single PC5 adaptation layer entity shared for multiple remote UEs.

Proposal 6: For Uu hop, rely on LCID to differentiate relay and non-relay traffic, i.e., no impact to adaptation layer design.

Proposal 7 (modified): For PC5 hop, rely on L2-ID to differentiate relay and non-relay traffic, i.e., no impact to adaptation layer design.

Proposal 9: header should be bytes alignments with additional R bits.

Agreements:

Proposal 15 (modified): Relay UE is configured by gNB with the local/temp remote UE ID to be used in adaptation layer by RRCReconfiguration message, after reporting the remote UE’s L2ID via SUI message to gNB and before forwarding the first SRB0 UL message of the remote UE. FFS if impact to the SUI contents is needed to enable this.

Proposal 16: It is left to gNB implementation to avoid collision on the usage of local/temp remote UE ID.

Agreements:

Proposal 17: gNB can update the local remote UE ID based on its implementation, and sends the updated ID via RRCReconfiguration message.

Proposal 18 (modified): Serving gNB can perform local remote UE ID update (based on its implementation) independent of the PC5 unicast link L2 ID update procedure. FFS if any spec impact.

Agreement:

As in Uu, a Uu DRB and a Uu SRB are mapped to different RLC channels (i.e., PC5 RLC channel and Uu RLC channel). FFS if there is any spec impact.

Agreement:

D/C bit is defined in the adaptation layer header at least for future compatibility. FFS if we need a control PDU in this release.

Agreements:

Proposal 1: For DL bearer mapping, relay UE is configured by gNB, for each remote UE, with a mapping from Uu E2E bearer ID in Uu adaptation layer header to egress PC5 RLC channel ID/LCID.

Proposal 2: For UL bearer mapping, relay UE is configured by gNB, for each remote UE, with a mapping from Uu E2E bearer ID used in PC5 adaptation layer header to egress Uu RLC channel ID/LCID.

Proposal 3: For UL bearer mapping, remote UE is configured by gNB with a mapping from Uu E2E bearer ID to egress PC5 RLC channel ID/LCID.

FFS detailed signalling design.

QoS

Agreements:

Proposal 4: [18/18] During the Layer-2 link establishment procedure the Relay UE and Remote UE do not interact with the PC5 QoS Flows Info.

Proposal 5: [16/18] Whether the Layer-2 link modification procedure is used can be decided by SA2 itself.

Agreements:

Proposal 1(20/21): [Easy] It is up to gNB implementation to perform PDB split between Uu and PC5 (non-standardized PDB values are not precluded). No specification impact is foreseen in RAN2.

Proposal 2(20/21) (modified): [Easy] gNB directly configures relay UE for PC5 QoS configuration via Uu RRC signalling. And gNB also directly configures remote UE for PC5 QoS configuration via Uu RRC signalling. FFS signaling details.

Proposal 3(20/21): [Easy] When gNB configure remote UE and relay UE with PC5 RLC bearer, LCH priority shall reflect the PC5 priority for PC5 hop of relay traffic.

Proposal 4(21/21): [Easy] QoS configuration for remote UE for its operation on PC5 hop (UL) is configured per PC5 RLC bearer.

Proposal 5(21/21): [Easy] QoS configuration for relay UE for its operation on PC5 hop (DL) is configured per PC5 RLC bearer.

Proposal 7(21/21): [Easy] PC5 RLC channels with different end-to-end QoS can be mapped to the same Uu RLC channel, which is up to gNB implementation.

Proposal 8(21/21): [Easy] The existing SL measurement report and CBR measurement reports can be used by gNB to understand PC5 link conditions and determine QoS configuration.

Agreement:

Proposal 6(16/21): [Need Discuss]Remote UE traffic and Relay UE own traffic shall be separated in different Uu RLC bearers in Uu hop.

Agreements:

Proposal 1: In this release, for L2 U2N relay, remote UE can’t be configured to use CG type 1 of RA Mode 1 if relay connection has been setup

Proposal 2 (modified): Remote UE does not need to report PC5 QoS parameters in SUI for relay service.

Proposal 3 (modified): Relay UE does not need to report PC5 QoS parameters in SUI for relay service.

Legacy functionality is reused for reflective QoS; no spec impact is anticipated.

RAN2 do not further discuss enhancements regarding prioritisation between Uu and SL.

L2/L3 common topics

Agreements:

Proposal 3: RAN2 replies SA2 that after PC5 connection establishment, TAI can be forwarded by Relay UE to the Remote UE via PC5-RRC message.

Proposal 6: [16/18] Whether authorization information for L3 remote UE is needed for NG-RAN can be decided by RAN3.

Agreements:

[Easy] Proposal 1 (18/20): If only shared TX pools are configured in SIB/RRC/Pre-config, all the configured TX pools can be used for discovery and SL communication, without extra indication required.

[Easy] Proposal 2 (modified): Deprioritize the discussion on UE which is only interested in relay discovery rather than SL communication.

Agreements

[Easy] Proposal 3 (19/20): For relay discovery, dedicated pools can be configured simultaneously with TX shared pool in SIB/RRC/Pre-configuration.

As baseline, TX shared pool can only be used for SL communication in case dedicated and shared pools are configured simultaneously. FFS if network can also configure a setting where both shared and dedicated pools can be used for SL discovery.

Agreements:

Proposal 3: The discovery dedicated exceptional resource pool is not introduced.

Proposal 4: The exceptional pool usage condition for discovery can follow the legacy Rel-16 mechanism, i.e., UE can use the exceptional resource pool to transmit discovery message when T301, T304, T310 or T311 is running for mode 1, or when there is no available sensing result for mode 2.

Proposal 7: RLC UM mode is used for SL-SRB4.

Proposal 10: The transmitting PDCP/RLC entity establishment for SL-SRB4 is requested by upper layer, e.g., if the transmission of PC5 discovery message for a specific destination is requested by upper layers, establish the corresponding PDCP/RLC entity for PC5 discovery message.

Proposal 11: PDCP entity re-establishment for SL-SRB4 is not supported.

Proposal 12: The PDCP entity release for a SLRB of sidelink discovery can be requested by the upper layers.

Agreement:

Proposal 5: Reuse SIB12 to carry the relay/discovery related configuration.

Agreements:

Proposal 1: RAN2 confirm that the following relay-discovery related agreements are also applicable to non-relay discovery.

One new SL-SRB4 is used for all discovery messages. Its parameters will be fixed and defined as SCCH configuration in 38.331. (FFS on the LCH priority in Proposal 8b)

No ciphering and integrity protection in PDCP layer is needed for the discovery messages.

Shared resource pool shall be the baseline for discovery message transmission/reception.

Relay UE and remote UE (IC) in RRC CONNECTED can use the discovery configuration provided via dedicated signalling if available.

Relay UE and remote UE (IC) in RRC IDLE or RRC INACTIVE shall use the discovery configuration provided via SIB if available.

L2 relay UE will always use the discovery configuration provided by gNB (either via SIB or dedicated signalling).

RAN2 confirm the SI conclusion that for L2 remote UE which is out-of-coverage, and is neither in RRC\_CONNECTED nor RRC\_IDLE/INACTIVE, it can rely on pre-configuration.

RAN2 confirm the SI conclusion that for L3 remote UE which is out-of-coverage, and is neither in RRC\_CONNECTED nor RRC\_IDLE/INACTIVE, it should follow pre-configuration.

RAN2 agree that for L2 remote UE which is out-of-coverage, but connected to network via a relay UE (i.e., either in RRC CONNECTED or RRC IDLE/INACTIVE), it should follow network configuration, i.e., SIB or dedicated signalling, if available.

RAN2 agree that for relay/remote UE in RRC IDLE/INACTIVE state, in-coverage on the serving frequency, and the serving frequency is not shared with concerned frequency, if the configuration of concerned SL frequency is absent within the SIB of the serving frequency or if there is no discovery related SIB on the serving frequency

If there is Uu deployedcoverage at the concerned SL frequency, UE shall 1) rely on the discovery related SIB, if any broadcasted in the concerned SL frequency; Or 2) if there is no discovery related SIB on the concerned SL frequency, UE does not perform SL discovery transmission/reception on the concerned frequency.

If there is no Uu deployedcoverage at the concerned frequency, UE shall rely on pre-configuration.

RAN2 agree that for relay/remote UE in RRC IDLE/INACTIVE state, in-coverage on the serving frequency，if the serving frequency is shared with concerned SL frequency

If there is no discovery related SIB broadcasted on the serving carrier, UE does not perform SL discovery transmission/reception on the concerned frequency.

RAN2 agrees to reuse Rel-16 power control mechanism for transmission of discovery messages.

The same PDCP data PDU format as SL-SRB0 is used for sidelink discovery message (SL-SRB4), and the SDU type field is not used for SL-SRB4.

RAN2 rely on SA2 on the L2 ID design for discovery message. No LS is needed.

De-prioritize additional condition for discovery transmission/reception in Rel-17.

RAN2 agrees that for relay/remote UE in RRC IDLE/INACTIVE state, and in-coverage on the serving frequency, if there is discovery related SIB broadcasted on the serving frequency, and if the configuration of concerned SL frequency is included within the SIB of the serving frequency but the Tx resource pool configuration is absent, UE shall enter RRC CONNECTED state to acquire dedicated configuration on Tx resource pool.

RAN2 agree that RRC\_CONNECTED relay/remote UE which are in-coverage on the serving frequency, if there is discovery related SIB broadcasted on the serving frequency, and if the configuration of concerned SL frequency is included within the SIB of the serving frequency, it can only use the SL discovery Tx resource configuration provided by dedicated signalling if provided, or not transmit discovery if not provided.

RAN2 agree that RRC\_CONNECTED L3 relay/remote UE or layer 2 remote UE which are in-coverage on the serving frequency, and the serving frequency is not shared with concerned frequency, if the configuration of concerned SL frequency is absent within the SIB of the serving frequency or if there is no discovery related SIB on the serving frequency,

If there is Uu coverage at the concerned SL frequency, UE shall 1) rely on the discovery related SIB, if any broadcasted in the concerned SL frequency; Or 2) if there is no discovery related SIB on the concerned SL frequency, UE does not perform SL discovery transmission/reception on the concerned frequency.

RAN2 agree that for L2 remote UE which is out-of-coverage, but connected to network via a relay UE and in RRC IDLE/INACTIVE state, if the network configuration is not available, i.e., SIB, remote UE shall rely on pre-configuration to perform discovery.

RAN2 agrees to down-prioritize discovery specific resource allocation optimization in this release.

RAN2 agrees to down-prioritize the support of discovery gaps in this release.

RAN2 agree that for L2 remote UE which is out-of-coverage, but connected to network via a relay UE and in RRC CONNECTED state, if the network configuration is not available, i.e., SIB or dedicated signalling, remote UE shall rely on pre-configuration to perform discovery.

RAN2 agrees dedicated discovery resource pool is supported besides shared resource pool configuration, whether it is configured is based on network implementation. And PHY layer parameters and design shall reuse the Rel-16 legacy resource pool design (including resource allocation design).

RAN2 agrees to fix the priority value as 1 of sidelink discovery message in the specification.

No ciphering and integrity protection in PDCP layer is needed for the discovery messages.

Shared resource pool shall be the baseline for discovery message transmission/reception.

For mode 1, if agreed that both shared and dedicated resource pools can be configured, it is up to gNB which one the UE should use to transmit discovery message. For mode 2, if agreed that both shared and dedicated resource pools can be configured, downselect from the following options: a) Left to UE implementation; b) Dedicated pool should be prioritized; c) Shared pool should be prioritised

Proposal 2: RAN2 confirm that the following relay-discovery related agreements are not applicable to non-relay discovery.

As in LTE, the RRC\_IDLE/RRC\_INACTIVE relay UE is able to perform discovery message transmission, in case:

Uu RSRP is above a configured minimum threshold by a hysteresis and below a configured maximum threshold by a hysteresis, or

only minimum threshold is provided and Uu RSRP is above the minimum threshold by a hysteresis, or

only maximum threshold is provided and Uu RSRP is below the maximum threshold by a hysteresis

As in LTE, the RRC\_IDLE/RRC\_INACTIVE remote UE is able to perform discovery message transmission, if and only if Uu RSRP of serving cell is below a configured minimum threshold by a hysteresis.

Define threshHighRelay and threshLowRelay for relay UE and threshHighRemote for remote UE. The value range for the three thresholds can be half of RSRP-Range specified in TS 38.331.

For determining whether remote UE and/or relay UE in RRC CONNECTED can trigger discovery message transmission, i.e., the remote UE and relay UE in the RRC\_CONNECTED can use the threshold based methods as in IDLE/INACTIVE, to determine whether it is allowed to perform discovery message transmission.

Agreements:

Proposal 3: RAN2 confirm that the SL-SRB4 is also applicable to group-based discovery

Proposal 4 (modified): RAN2 confirm not support discovery range for non-relay discovery in Rel-17. LS to be sent to SA2 to inform them of agreements that may affect them (list of agreements to be finalised in LS drafting).

Agreement:

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

Agreement:

Proposal 8: RAN2 confirms the working assumption that to include NCI in the relay discovery message as the cell ID.

Agreement:

[18/19] Proposal 1 (modified): When idle/inactive relay UE performs cell (re)selection, relay UE may send an indication/message to its connected remote UE(s) which may trigger relay reselection.

Agreements:

[12/19] Proposal 5-1: PC5-RRC message is used to inform remote UE when relay UE performs HO.

[12/19] Proposal 5-2: PC5-RRC message is used to inform remote UE when relay UE performs cell (re)selection (if agreed in proposal 1).

FFS detailed signalling design.

#### 2.2.2 Remaining Open issues

*1. Specify mechanisms for U2N relay discovery and (re)selection for L3 and L2 relaying [RAN2, RAN4]*

*7. Specify mechanisms for 5G ProSe Direct Discovery [RAN2, RAN3, RAN4];*

Stage-2 completed, and only stage-3 issues left, e.g.,

* FFS if network can also configure a setting where both shared and dedicated pools can be used for SL discovery..
* LCP impact due to dedicated pool for discovery traffic.
* Whether any impact to SUI message report due to the discovery and relay.
* Details on the new PC5-RRC signaling triggered by handover, Uu-RLF and cell (re)selection of relay UE
* How to differentiate a gNB that is relay-capable/relay-incapable and discovery-capable/discovery-incapable

*2. Specify mechanisms for Relay and Remote UE authorization for L3 and L2 relaying [RAN3]*

Covered in RAN3.

*3.Specify mechanisms for E2E, i.e. PC5 and Uu, QoS management [RAN2]:*

* No major left issues.

*4.Specify mechanisms for service continuity [RAN2]*

On-going, and left issues include at least the following ones

* Support of RRC\_IDLE / RRC\_INACTIVE Relay UE during direct-to-indirect switching
* Whether legacy PDCP behavior can be reused for remote UE
* Stopping condition of T304-like new timer for direct-to-indirect switching
* Left issue on measure configuration and reporting (e.g., which ID to report for serving cell of relay UE (NCGI/NCI/PCI), allow/black-list configuration)

*5.Specify mechanisms for U2N Adaptation layer design [RAN2]*

On-going, and left issues include at least the following ones

* Data PDU format for adaptation layer over Uu hop and PC5 hop.
* Further RRC configuration details, e.g., the adaptation layer field configuration for remote UE, dependent on the field for PC5 hop
* Whether control PDU for adaptation layer is needed, and if yes, what is the format.

*6.Specify Control Plane procedures for U2N, including RRC connection management, system information delivery, paging mechanism and access control for Remote UE [RAN2, RAN3]*

On-going, and left issues includes at least the following ones

* Uu RLC configuration for SRB0/1 message
* Detailed stage-3 signaling format on paging acquisition message from remote UE to relay UE, a
* Cause value setting for relay UE access due to remote UE traffic
* Whether/how to support minimum/essential SI
* Handling of new T30x-like timers that used by SL-relay scenario

## 2.3 RAN3

#### 2.3.1 Agreements

**Authorization**

* Define a new IE to indicate whether UE is authorized to use 5G ProSe services. The type of authorization information includes at least one or more items as below:

- 5G ProSe Direct Discovery

- 5G ProSe Direct Communication

- 5G ProSe Layer-2 UE-to-Network Relay

- 5G ProSe Layer-3 UE-to-Network Relay

- 5G ProSe Layer-2 Remote UE

* Support ProSe NR UE-PC5-AMBR and PC5 QoS parameters for ProSe.
* Include 5G ProSe authorized information in the listed NGAP messages.
* INITIAL CONTEXT SETUP REQUEST
* UE CONTEXT MODIFICATION REQUEST
* HANDOVER REQUEST
* PATH SWITCH REQUEST ACKNOWLEDGE
* Include 5G ProSe authorized information in the listed XnAP messages.
* HANDOVER REQUEST
* RETRIEVE UE CONTEXT RESPONSE
* Support SL relay in split architecture in R17.
* Include 5G ProSe authorized information in the listed F1AP messages.
* UE CONTEXT SETUP REQUEST
* UE CONTEXT MODIFICATION REQUEST

**Control Plane**

* F1 enhancement is needed to support L2 U2N sidelink relay
* The discussion on how to wake-up the candidate relay UE in RRC\_IDLE/INACTIVE state for direct-to-indirect path switch should wait for RAN2 progress first.
* WA: F1AP signalling is use to configure Uu/PC5 RLC channel.
* WA: F1AP signalling should support the configuration of mapping between DL bearer of remote UE and Uu RLC channel

#### 2.3.2 Remaining Open issues

**Authorization**

* Stage3 details on whether the 5G ProSe authorized IEs are included as individual IEs under a parent IE or as a bitmap.
* FFS whether reuse existing IEs or define dedicated IEs for ProSe NR UE-PC5-AMBR and PC5 QoS parameters.
* Whether authorization information is needed for L3 Remote UE.

**Control plane**

Architecture related

* Open issue 1: the termination point of Uu adaptation layer from protocol stack point of view (CU vs. DU)
* Open issue 2: responsibilities for sidelink relay related functionalities between gNB-CU and gNB-DU
* Open issue 3: local ID allocation (CU vs. DU)

Procedure related

* Open issue 4: remote/relay UE identification during initial access procedure
* Open issue 5: baseline flow chart for RRC establishment/resume/reestablishment for sidelink relay by considering CU-DU split

F1AP signalling design related

* Open issue 6: F1AP signalling to configure remote UE with following options

Option 1: via the UE-associated F1AP messages for remote UE

Option 2: via the UE-associated F1AP message for relay UE

* Open issue 7: Uu/PC5 RLC channel configuration via F1AP
* Open issue 8: mapping configuration via F1AP

## 2.4 RAN4

#### 2.4.1 Agreements

R4-2115373, WF on R17 NR SL Relay RRM, RAN4#100-e, Approved

For work plan and scope of SL relay RRM:

* RRM work plan for Rel-17 NR SL Relay in R4-2113289 is approved.
* RAN4 specifies NR SL relay discovery and (re)selection requirements, and re-use LTE relay discovery and (re)selection as baseline
* Whether to specify cell reselection requirements for NR sidelink discovery on non-serving carrier needs more RAN2’s input.
* Other RRM impact (if identified) should not be precluded, given the early phase in the WI and topic is being discussed in other WG.
* Multi-hop/UE-to-UE sidelink relay is not in the scope of this WI.
* The definition of RSRP used for NR SL relay UE needs RAN2’s decision.
* The measurement and evaluation requirements for ProSe relay UE in LTE can be reused as baseline. FFS the definition of discovery period. FFS the number of samples which depends on accuracy requirement.

R4-2120337, WF on NR SL relay RRM, RAN4#101-e, Approved

For measurement accuracy：

* Define unified requirements for both SD-RSRP and SL-RSRP measurement in relay discovery and (re)selection
* PSCCH-DMRS and/or PSSCH-DMRS can be used for the unified RSRP measurements.
* Reuse L1 SL-RSRP measurement accuracy requirement and side condition for both SL-RSRP in indirect to direct switch, and SD-RSRP direct to indirect switch.

For measurement period：

* Use the period of the discover signal as the discovery period. Resource reservation period (mode 2) or SPS transmission periodicity (mode 1) can be used
* Not consider SL DRX for SL relay in R17
* Reuse measurement/evaluation period requirement from LTE ProSe.

For interruption requirements：

* RAN4 agree to define interruptions at NR sidelink discovery configuration. FFS on the details of requirements. Interruption requirements for NR sidelink discovery should be defined based onR16 V2X sidelink assumption. FFS how to specify the requirements in next meeting

Others：

* RAN4 agree not to specify cell reselection requirements for NR sidelink discovery on non-serving frequency in R17, based on the assumption of R16 V2X
* UE transmit timing requirements from Rel-16 V2X sidelink can apply.
* The selection/reselection procedure of synchronization reference source in Rel-16 shall be reused for NR SL relay/remote UE. The impact on performance part including test cases can be further discussed in 2nd phase.
* RAN4 should wait for RAN2 final agreements on the procedure for RRC connection reestablishment before discussing the exact requirements.

#### 2.4.2 Remaining Open issues

*1. Specify mechanisms for U2N relay discovery and (re)selection for L3 and L2 relaying [RAN2, RAN4]*

*7. Specify mechanisms for 5G ProSe Direct Discovery [RAN2, RAN3, RAN4];*

* FFS how to specify the interruption requirements
* CR preparation including interruption, measurement period and accuracy requirements for NR SL relay discovery and (re)selection

## 2.5 RAN5

#### 2.5.1 Agreements

#### 2.5.2 Remaining Open issues

#### 2.5.3 Remaining Open issues with cross-WG dependencies

## 2.6 RAN6

#### 2.6.1 Agreements

#### 2.6.2 Remaining Open issues

## 3. Detailed progress in SA/CT WGs since last TSG meeting (for all involved WGs)

NOTE: This section only needs to be filled in for WI/SIs where there is a corresponding relevant WI/SI in SA/CT.

## 3.1 SA2/CTs

#### 3.1.1 Agreements with cross-TSG impacts

The following RAN-related agreements have been achieved by SA2:

* The values provisioned for the Destination Layer-2 ID(s) for 5G ProSe Direct Discovery, for Destination Layer-2 ID(s) for 5G ProSe Direct Communication, and for Destination Layer-2 ID(s) for 5G ProSe UE-to-Network Relay Discovery, are different from each other.
* NCGI is included in the discovery message for 5G ProSe Layer-2 UE-to-Network Relay - Layer-2 link modification procedure is not applicable to the Layer-2 UE-to-Network Relay scenario.

#### 3.1.2 Remaining Open issues with cross-TSG impacts

NOTE: This section should also flag any critical dependencies that need TSG attention.

RAN dependency issues as mentioned in the LS (S2-2107972) to RAN2, for which RAN2 has replied in R2-2111583

* Whether and how to support RAN sharing. If RAN sharing is supported, how to deliver the non-serving PLMN IDs to remote UE

## 4. References

NOTE: This can be e.g. a list of all related Tdocs in the affected WGs since last TSG, references to LSs, produced TRs/TSs, the work/study item description or status reports of previous TSGs.

1. R2-2109303 Reply LS on establishment/resume cause value and UAC on L2 SL Relay (C1-214795; contact: OPPO= CT1 LS in Rel-17 5G\_ProSe, NR\_SL\_relay-Core To:RAN2 Cc:SA2, RAN3
2. R2-2111236 Reply LS on discovery and relay (re)selection (S2-2107972; contact: CATT) SA2 LS in Rel-17 5G\_ProSe, NR\_SL\_relay-Core To:RAN2
3. R2-2109399 Work planning for R17 SL relay OPPO, CMCC Work Plan Rel-17 NR\_SL\_relay-Core
4. R2-2109400 Running CR for TS 38.351 OPPO draft TS Rel-17 38.351 0.0.0 NR\_SL\_relay-Core
5. R2-2109401 Remaining open issues for R17 SL relay OPPO discussion Rel-17 NR\_SL\_relay-Core Late
6. R2-2109543 Stage 2 Running CR on Introduction of R17 SL Relay MediaTek Inc. discussion Rel-17
7. R2-2110054 MAC running CR for SL relay Apple (rapporteur) draftCR Rel-17 38.321 16.6.0 B NR\_SL\_relay-Core Late
8. R2-2110447 Running CR of 38.323 for SL Relay Samsung draftCR Rel-17 38.323 16.5.0 B NR\_SL\_relay-Core
9. R2-2110490 RRC running CR for SL relay Huawei, HiSilicon draftCR Rel-17 38.331 16.6.0 B NR\_SL\_relay-Core
10. R2-2110687 Running CR of 38.304 for SL relay Ericsson draftCR Rel-17 38.304 16.6.0 B NR\_SL\_relay-Core
11. R2-2111123 Discussion on LS on discovery and relay (re)selection OPPO discussion Rel-17 NR\_SL\_relay-Core
12. R2-2111253 Discussion on LS on discovery and relay (re)selection CATT discussion Late
13. R2-2109414 Discussion on Control Plane Aspects for L2 Relay OPPO discussion Rel-17 NR\_SL\_relay-Core
14. R2-2109419 Remaining issues on paging and SIB forwarding in L2 U2N relay Qualcomm Incorporated discussion NR\_SL\_relay-Core
15. R2-2109427 Remaining issues on RRC connection management of L2 U2N relay Qualcomm Incorporated discussion NR\_SL\_relay-Core
16. R2-2109507 Control Plane Procedures of L2 Relay CATT discussion Rel-17 NR\_SL\_relay-Core
17. R2-2109508 Discussion on Remote UE's Paging via Dedicated RRC Message CATT discussion Rel-17 NR\_SL\_relay-Core
18. R2-2109544 Discussion on SI Modification and PWS Notification MediaTek Inc. discussion Rel-17
19. R2-2109545 Remaining issue for RLF handling MediaTek Inc. discussion Rel-17
20. R2-2109556 Discussion on RRC connection management for L2 sidelink relay Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core
21. R2-2109557 SI forwarding and paging for L2 sidelink relay Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core
22. R2-2109644 Discussion on left issue for paging delivery SHARP Corporation discussion NR\_SL\_relay-Core
23. R2-2109696 SI forwarding NEC Corporation discussion Rel-17 NR\_SL\_relay-Core
24. R2-2109729 Monitoring Paging by a U2N Relay Lenovo, Motorola Mobility discussion NR\_SL\_relay-Core
25. R2-2109763 Discussion on system information delivery open issues China Telecom discussion Rel-17 NR\_SL\_relay-Core
26. R2-2109811 SIB handling in sidelink L2 U2N relay Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_relay-Core R2-2105739
27. R2-2109859 Consideration on the connection management of SL relay ZTE, Sanechips discussion Rel-17
28. R2-2109860 Consideration on the system information acquisition and paging in SL relay ZTE, Sanechips discussion Rel-17
29. R2-2109928 Summary of [POST115-e][610][Relay] Control Plane Procedures (InterDigital) InterDigital discussion Rel-17 FS\_NR\_SL\_relay
30. R2-2109929 Open Issues on Paging Procedure for L2 UE to NW Relays InterDigital discussion Rel-17 FS\_NR\_SL\_relay
31. R2-2109930 Open Issues on SI for L2 UE to NW Relays InterDigital discussion Rel-17 FS\_NR\_SL\_relay
32. R2-2109934 Connection Establishment Procedure for L2 UE to NW Relays InterDigital discussion Rel-17 FS\_NR\_SL\_relay
33. R2-2109959 Remaining issues of system information forwarding for L2 U2N Remote UE Intel Corporation discussion Rel-17 NR\_SL\_relay-Core
34. R2-2109964 Access control support for L2 U2N Relay Intel Corporation discussion Rel-17 NR\_SL\_relay-Core
35. R2-2110064 Remaining issues on SIB forwarding Apple discussion Rel-17 NR\_SL\_relay-Core
36. R2-2110065 RNA Update via L2 UE-to-NW Relay Apple discussion Rel-17 NR\_SL\_relay-Core
37. R2-2110121 Discussion on control plane procedures for L2 U2N relay Spreadtrum Communications discussion Rel-17
38. R2-2110163 Control plane procedure - SIB delivery, and timer for remote UE LG Electronics France discussion Rel-17 NR\_SL\_relay
39. R2-2110165 L2 relay control plane issues Kyocera discussion
40. R2-2110213 Open issues on L2 Control Plane Procedures vivo discussion
41. R2-2110215 Draft LS on L2 U2N relay issues vivo LS out To:SA2, CT1
42. R2-2110221 Discussion on SI and short message delivery Xiaomi discussion
43. R2-2110222 Discussion on connection control Xiaomi discussion
44. R2-2110284 Discussion on access control of L2 relay SHARP Corporation discussion
45. R2-2110303 Considerations on control plane issues Lenovo, Motorola Mobility discussion Rel-17
46. R2-2110350 Area specific SI issue in L2 relay Sony discussion Rel-17 NR\_SL\_relay-Core
47. R2-2110363 Discussion on establishment cause of relay UE Xiaomi, Apple, Lenovo, Motorola Mobility discussion
48. R2-2110448 Connection management and PC5/Uu RLC configurations Samsung discussion Rel-17 NR\_SL\_relay-Core
49. R2-2110449 Remaining issues for SI message forwarding Samsung discussion Rel-17 NR\_SL\_relay-Core
50. R2-2110450 Remaining issues for paging delivery Samsung discussion Rel-17 NR\_SL\_relay-Core
51. R2-2110470 Issue with Forwarding SIB9 to remote UE Nokia, Nokia Shanghai Bell discussion NR\_SL\_relay-Core
52. R2-2110688 Remaining issues on control plane for L2 sidelink relay Ericsson discussion Rel-17 NR\_SL\_relay-Core
53. R2-2111003 Discussion on paging procedure and information for U2N Relay ASUSTeK discussion Rel-17 NR\_SL\_relay-Core
54. R2-2111029 Relayed System Information Acquisition Futurewei discussion Rel-17 NR\_SL\_relay-Core
55. R2-2111190 SI acquisition, CN Registration and RNAU Lenovo, Motorola Mobility discussion Rel-17 NR\_SL\_relay-Core
56. R2-2109428 Remaining issues on service continuity of L2 U2N relay Qualcomm Incorporated discussion NR\_SL\_relay-Core
57. R2-2109509 Service Continuity for L2 U2N Relay CATT discussion Rel-17 NR\_SL\_relay-Core
58. R2-2109546 Remaining open issues for Service Continuity MediaTek Inc. discussion Rel-17
59. R2-2109705 remaining issues on service continuity NEC Corporation discussion Rel-17 NR\_SL\_relay-Core
60. R2-2109780 Discussion on remaining issues on service continuity ZTE Corporation, Sanechips discussion Rel-17 NR\_SL\_relay-Core
61. R2-2109933 Open Issues on Service Continuity for L2 UE to NW Relays InterDigital discussion Rel-17 FS\_NR\_SL\_relay
62. R2-2109962 Service continuity left over issues for L2 U2N relaying Intel Corporation discussion Rel-17 NR\_SL\_relay-Core
63. R2-2110059 Discussion on U2N Relay UE Identifier Apple discussion Rel-17 NR\_SL\_relay-Core
64. R2-2110060 [Draft]LS on U2N relay UE identifier Apple LS out Rel-17 NR\_SL\_relay-Core To:SA2
65. R2-2110066 Discussion on remaining issues of service continuity Apple discussion Rel-17 NR\_SL\_relay-Core
66. R2-2110164 Service continuity – depending on relay state LG Electronics France discussion Rel-17 NR\_SL\_relay
67. R2-2110214 Remaining issues on service continuity in L2 U2N relay vivo discussion
68. R2-2110220 Discussion on service continuity Xiaomi discussion
69. R2-2110302 Path switching in L2 U2N relay case Lenovo, Motorola Mobility discussion Rel-17
70. R2-2110351 Service continuity open issues in L2 NR sidelink rela Sony discussion Rel-17 NR\_SL\_relay-Core
71. R2-2110371 Discussion on supported relay UE RRC states in direct to indirect path switch Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_relay-Core
72. R2-2110488 Discussion on service continuity for L2 U2N Relay Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core
73. R2-2110499 Discussion on NR sidelink relay service continuity OPPO discussion Rel-17 NR\_SL\_relay-Core
74. R2-2110689 Discussion on selecting relay UE in RRC\_IDLE or INACTIVE during path switch Ericsson discussion Rel-17 NR\_SL\_relay-Core
75. R2-2110690 Remaining Issues on service continuity for L2 Sidelink relay Ericsson discussion Rel-17 NR\_SL\_relay-Core
76. R2-2111042 Service continuity for L2 relay CMCC discussion Rel-17 NR\_SL\_relay-Core
77. R2-2109398 Left issues for adaptation layer OPPO discussion Rel-17 NR\_SL\_relay-Core
78. R2-2109429 Further discussion on adaptation layer of L2 U2N relay Qualcomm Incorporated discussion NR\_SL\_relay-Core
79. R2-2109510 Adaption Layer Design for L2 U2N Relay CATT discussion Rel-17 NR\_SL\_relay-Core
80. R2-2109547 Configurations for Bearer Mapping MediaTek Inc. discussion Rel-17
81. R2-2109558 Adaptation layer functionalities for L2 U2N relay Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core
82. R2-2109693 Remaining issues of Adaptation layer MediaTek Inc. discussion Rel-17
83. R2-2109848 Bearer Mapping Configuration of Adaptation Layer Futurewei discussion Rel-17 NR\_SL\_relay-Core
84. R2-2109862 Discussion on adaptation layer design ZTE, Sanechips discussion Rel-17
85. R2-2109906 UP aspects on Layer 2 SL relay Ericsson discussion Rel-17 NR\_SL\_relay-Core
86. R2-2109935 Adaptation Layer Design Remaining Issues InterDigital discussion Rel-17 FS\_NR\_SL\_relay
87. R2-2109963 L2 U2N relaying Adaptation layer design open aspects Intel Corporation discussion Rel-17 NR\_SL\_relay-Core
88. R2-2110216 Adaptation Layer for Uu and PC5 vivo discussion
89. R2-2110376 Finalizing design of Adapt layer Samsung Electronics GmbH discussion
90. R2-2110385 On multiplexing of relay UE and remote UE traffic Samsung Electronics GmbH discussion
91. R2-2110987 Discussion on Adaptation Layer for L2 U2N Relay ETRI discussion Rel-17 NR\_SL\_relay-Core
92. R2-2111004 Discussion on bearer mapping on PC5 adaptation layer ASUSTeK discussion Rel-17 38.300 NR\_SL\_relay-Core
93. R2-2111041 Discussion on adaption layer for L2 U2N relay CMCC discussion Rel-17 NR\_SL\_relay-Core
94. R2-2109433 Remaining issues on E2E QoS enforcement in L2 U2N relay Qualcomm Incorporated discussion NR\_SL\_relay-Core
95. R2-2109511 QoS Management for L2 Sidelink Relay CATT discussion Rel-17 NR\_SL\_relay-Core
96. R2-2109691 Views on QoS for sidelink relay Continental Automotive GmbH other Rel-17
97. R2-2109822 Considerations on voice and video support for Relays Philips International B.V., MediaTek, Vivo, FirstNet discussion Rel-17 NR\_SL\_relay-Core
98. R2-2109853 QoS measurement and reporting for path switch procedure Nokia, Nokia Shanghai Bell discussion NR\_SL\_relay-Core
99. R2-2109863 Discussion on QoS of SL relay ZTE, Sanechips discussion Rel-17
100. R2-2109905 Aspects for QoS management with SL relay Ericsson discussion Rel-17 NR\_SL\_relay-Core
101. R2-2109931 Discussion on QoS for L2 UE to NW Relays InterDigital, Philips discussion Rel-17 FS\_NR\_SL\_relay
102. R2-2110053 Summary of [Post115-e][604][Relay] Relay QoS (Apple) Apple discussion Rel-17 NR\_SL\_relay-Core
103. R2-2110217 Left issues on E2E QoS management vivo discussion
104. R2-2110272 On recommended bit rate MediaTek Inc. discussion Rel-17 NR\_SL\_relay-Core
105. R2-2110297 QoS for L2 Sidelink Relay Fraunhofer IIS, Fraunhofer HHI discussion Rel-17
106. R2-2110451 QoS flow control for L2 U2N Relay Samsung, Philips discussion Rel-17 NR\_SL\_relay-Core R2-2107712
107. R2-2110498 Discussion on QoS for layer 2 relay OPPO discussion Rel-17 NR\_SL\_relay-Core
108. R2-2110562 Discussion on QoS management of L2 U2N relay Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core
109. R2-2110750 QoS priority mapping combinations Beijing Xiaomi Mobile Softwar discussion Rel-17
110. R2-2111040 Mechanisms for E2E QoS management CMCC discussion Rel-17 NR\_SL\_relay-Core
111. R2-2109430 Summary report of [Post115-e][611][Relay] Discovery shared and dedicated pool issue (Qualcomm) Qualcomm Incorporated discussion NR\_SL\_relay-Core
112. R2-2109431 Remaining issues on discovery Qualcomm Incorporated discussion NR\_SL\_relay-Core
113. R2-2109512 Left Issues for Sidelink Discovery CATT discussion Rel-17 NR\_SL\_relay-Core
114. R2-2109809 Discussion on SL discovery resource pool configuration Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_relay-Core
115. R2-2109857 Further discussion on Relay discovery ZTE, Sanechips discussion Rel-17
116. R2-2109903 Left issues for SL discovery Ericsson discussion Rel-17 NR\_SL\_relay-Core
117. R2-2109932 Using Shared and Dedicated Resource Pools for Discovery InterDigital discussion Rel-17 FS\_NR\_SL\_relay
118. R2-2109960 Leftover aspects of discovery for L2 U2N relaying Intel Corporation discussion Rel-17 NR\_SL\_relay-Core
119. R2-2110218 Remaining Issues of Discovery Message Transmission vivo discussion
120. R2-2110271 Remaining issues of Relay Discovery MediaTek Inc. discussion Rel-17 NR\_SL\_relay-Core
121. R2-2110304 Relay Discovery for L2 and L3 relay Lenovo, Motorola Mobility discussion Rel-17
122. R2-2110452 PDCP layer aspects for SL discovery Samsung discussion Rel-17 NR\_SL\_relay-Core
123. R2-2110489 Remaining issues on relay discovery Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core
124. R2-2110500 Discussion on common issues for relay and non-relay discovery OPPO discussion Rel-17 NR\_SL\_relay-Core
125. R2-2110501 Discussion on non-relay discovery OPPO, Apple, Samsung, Ericsson, Qualcomm discussion Rel-17 NR\_SL\_relay-Core
126. R2-2110749 Discovery Range for 5G ProSe Direct Discovery Beijing Xiaomi Mobile Software discussion Rel-17
127. R2-2110751 Discovery with simultaneous Shared and Dedicated Resource Pools Beijing Xiaomi Mobile Software discussion Rel-17
128. R2-2111255 Summary of AI 8.7.3.1 CATT discussion
129. R2-2109432 Remaining issues on relay (re)selection Qualcomm Incorporated discussion NR\_SL\_relay-Core
130. R2-2109513 New Triggers for Relay Reselection CATT discussion Rel-17 NR\_SL\_relay-Core
131. R2-2109823 U2N Relay UE operation Threshold Conditions: Impact of UE Mobility Philips International B.V. discussion Rel-17 NR\_SL\_relay-Core
132. R2-2109858 Further discussion on Relay selection ZTE, Sanechips discussion Rel-17
133. R2-2109904 Aspects for SL relay selection and reselection Ericsson discussion Rel-17 NR\_SL\_relay-Core
134. R2-2109961 Open aspects of L2 U2N Relay (re)selection Intel Corporation discussion Rel-17 NR\_SL\_relay-Core
135. R2-2110166 Relay reselection upon HO to another gNB Kyocera discussion
136. R2-2110219 Remaining issues on Relay (re)selection vivo discussion
137. R2-2110285 Discussion on sidelink relay reselection SHARP Corporation discussion R2-2107872
138. R2-2110305 Relay (re)selection for L2 and L3 relay Lenovo, Motorola Mobility discussion Rel-17
139. R2-2110370 Uu connection error handling Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_relay-Core
140. R2-2110502 Discussion on remaining issue of relay reselection OPPO discussion Rel-17 NR\_SL\_relay-Core
141. R2-2110617 Discussion on relay reselection aspects Huawei, HiSilicon discussion NR\_SL\_relay-Core
142. R2-2110767 Support of idle mode mobility for remote-UE in SL UE-to-Nwk relay Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SL\_relay-Core R2-2108462
143. R2-2111223 Summary of AI 8.7.3.2 Relay (re)selection vivo discussion Rel-17 NR\_SL\_relay-Core
144. R4-2112258 On NR SL relay RRM Requirement Scope Qualcomm, Inc.
145. R4-2113289 Work Plan for NR Sidelink Relay RRM OPPO
146. R4-2113290 RRM requirements for NR Sidelink Relay OPPO
147. R4-2113825 Discussion on RRM impacts for R17 NR sidelink relay Huawei, HiSilicon
148. R4-2113881 Initial discussions on RRM requirements for sidelink relay ZTE Corporation
149. R4-2115230 Email discussion summary: [100-e][240] NR\_SL\_relay\_RRM Moderator (OPPO)
150. R4-2115373 WF on NR Sidelink Relay RRM OPPO
151. R4-2115415 Email discussion summary: [100-e][240] NR\_SL\_relay\_RRM Moderator (OPPO)
152. R4-2117623 On NR SL relay RRM Requirement Qualcomm, Inc.
153. R4-2118374 Genneral RRM requirements for NR Sidelink Relay OPPO
154. R4-2118375 RRM requirements for SL relay (re)selection OPPO
155. R4-2118841 Discussion on RRM impacts for R17 sidelink relay Huawei, Hisilicon
156. R4-2118926 RRM requirements for NR SL Relay ZTE Corporation
157. R4-2119070 RRM requirements for Rel-17 SL relay operation Ericsson
158. R4-2120234 Email discussion summary for [101-e][239] NR\_SL\_relay Moderator (OPPO)
159. R4-2120337 WF on NR SL relay RRM OPPO
160. R4-2120381 Email discussion summary for [101-e][239] NR\_SL\_relay Moderator (OPPO)
161. [R3-214837](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214837.zip) Discussion on Relay and Remote UE authorization China Telecommunication
162. [R3-214879](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214879.zip) Discussion on RRC Connection Management for sidelink relay Samsung
163. [R3-214880](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214880.zip) CR to TS38.401 on Sidelink Relay Samsung
164. [R3-214881](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214881.zip) Discussion on PC5/Uu link and mapping configuration for sidelink relay Samsung
165. [R3-214913](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214913.zip) Relay and Remote UE Authorization Qualcomm Incorporated
166. [R3-214914](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214914.zip) Control Plane procedures and Adaptation layer design for U2N relays Qualcomm Incorporated
167. [R3-214962](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214962.zip) Support of NR ProSe authorization Huawei
168. [R3-214963](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214963.zip) Support of NR ProSe authorization Huawei
169. [R3-214964](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214964.zip) Support of NR ProSe authorization Huawei
170. [R3-214965](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214965.zip) Discussion on the support of ProSe service Huawei
171. [R3-214973](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214973.zip) SL relay authorization ZTE, Sanechips
172. [R3-214974](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214974.zip) RRC connection management of remote UE in CU/DU split scenario ZTE, Sanechips
173. [R3-214975](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214975.zip) F1 impacts for the PC5/Uu RLC channel and bearer mapping configuration ZTE, Sanechips
174. [R3-214976](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-214976.zip) Discussion on the system information delivery and paging ZTE, Sanechips
175. [R3-215283](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215283.zip) Authorization for Relay and Remote UE Ericsson
176. [R3-215284](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215284.zip) Introduction of service authorization for SL Relay over NG Ericsson
177. [R3-215285](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215285.zip) Introduction of service authorization for SL Relay over Xn Ericsson
178. [R3-215286](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215286.zip) Path Switch in NR SL Relay Ericsson
179. [R3-215352](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215352.zip) Discussion on Relay and Remote UE authorization Nokia, Nokia Shanghai Bell
180. [R3-215353](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215353.zip) (NGAP CR) support for NR Sidelink Relay Nokia, Nokia Shanghai Bell
181. [R3-215354](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215354.zip) (XnAP CR) support for NR Sidelink Relay Nokia, Nokia Shanghai Bell
182. [R3-215355](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215355.zip) (F1AP CR) support for NR Sidelink Relay Nokia, Nokia Shanghai Bell
183. [R3-215595](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215595.zip) Discussion on UE authorization for NR SL Relay CATT
184. [R3-215596](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215596.zip) Support of 5G ProSe Authorization for NGAP CATT
185. [R3-215597](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215597.zip) Support of 5G ProSe Authorization for XnAP CATT
186. [R3-215598](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215598.zip) Discussion on RAN3 impact to support L2 SL Relaying CATT
187. [R3-215700](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215700.zip) Work planning for R17 Sidelink Relay WI CMCC, OPPO
188. [R3-215701](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215701.zip) Consideration on authorization for SL relay CMCC
189. [R3-215702](https://www.3gpp.org/ftp/TSG_RAN/WG3_Iu/TSGR3_114-e/Docs/R3-215702.zip) Discussion on CP issue for SL relay CMCC
190. R3-215912 CB: # SLRelay1\_Authorization - Summary of email discussion CMCC - moderator
191. R3-215913 CB: # SLRelay2\_ControlPlane - Summary of email discussion Samsung - moderator

08.08.2021 minor adaptations for RAN #93e

17.05.2021 minor adaptations for RAN #92e

28.01.2021 minor adaptations for RAN #91e

09.11.2020 minor adaptations for RAN #90e

31.08.2020 minor adaptations for RAN #89e

20.04.2020 minor adaptations for RAN #88e

18.02.2020 minor adaptations for RAN #87e

14.11.2019 minor adaptations for RAN #86

18.08.2019 minor adaptations for RAN #85

12.05.2019 minor adaptations for RAN #84

27.02.2019 minor adaptations for RAN #83

21.11.2018 completion levels with colours added (for RAN #82)

v04.81 31.07.2018 simplification of template and addition of cross-TSG aspects (for RAN #81)

v04.80 21.05.2018 minor adaptations for RAN #80

v04.79 26.02.2018 minor adaptations for RAN #79

v04.78 18.11.2017 minor adaptations for RAN #78

v04.77 06.08.2017 minor adaptations for RAN #77

v04.76 15.05.2017 minor adaptations for RAN #76

v04.75 31.01.2017 minor adaptations for RAN #75

v04.74 28.10.2016 minor adaptations for RAN #74

v04.73 01.09.2016 adaptations for RAN #73 (time units in extra Excel table, RAN6 reporting included)

v04.72 26.05.2016 adaptations for RAN #72 (introduction of NR & GERAN TUs)

v04.71 10.02.2016 minor adaptations for RAN #71

v04.70 30.10.2015 minor adaptations for RAN #70

v04.69 12.08.2015 minor adaptations for RAN #69

v04.68 21.05.2015 minor adaptations for RAN #68

v04.67 01.02.2015 minor adaptations for RAN #67

v04.66 16.11.2014 minor adaptations for RAN #66

v04.65 16.08.2014 minor adaptations for RAN #65

v04.64 22.05.2014 minor adaptations for RAN #64

v04.63 24.01.2014 restructuring for RAN #63 to cover Core & Perf. in one doc file

v03.62 11.11.2013 section 1.2.3 adapted for RAN #62

v03 11.08.2013 section 1.2.3 added on time budget

v02 07.05.2010 history added, some spelling corrections

v01 13.11.2009 First version of the template