3GPP TSG-RAN WG2 Meeting #119bis-e R2-22xxxxx

Online, 10-17 October 2022

Source: Session Chair (MediaTek)

Title: Report from session on positioning and sidelink relay

# Status of At-Meeting Email Discussions

This subclause is not an Agenda Item. It contains a running summary of the email discussions assigned to take place during the meeting weeks. This section will be moved to an appendix in the final version of the report.

* [AT119-e][400][POS][Relay] Organisational Nathan – Positioning/Relay (MediaTek)

 Scope: Organisational discussions and announcements, as needed throughout the meeting weeks

 Intended outcome: Well-informed participants

 Deadline: Wednesday 2022-10-19 1000 UTC

* [AT119bis-e][408][POS] State change during positioning (Intel)

 Scope: Discuss the LS in R2-2209331 and related contributions (R2-2209611 / R2-2209610 / R2-2210119 / R2-2209437), conclude on whether the state transition needs to be supported, and draft a reply.

 Intended outcome: Report and approvable LS

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][409][POS] LS on TEG framework (CATT)

 Scope: Discuss the LS in R2-2209342 and related contributions in R2-2209432 and R2-2209433, and draft a reply.

 Intended outcome: Report and approvable LS

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][410][POS] Rel-17 positioning RRC CR (Ericsson)

 Scope: Check the rapporteur CR in R2-2210312 and update it with decisions of this meeting.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][411][Relay] Relay cause value (vivo)

 Scope: Discuss the LS in R2-2209306 and related documents (R2-2209812 / R2-2209813 / R2-2209814 + first change from R2-2209903), consider the proposed correction, and draft a reply.

 Intended outcome: Report, approvable LS, and agreeable CR if needed

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][412][Relay] Rel-17 relay RLC and PDCP CRs (Samsung)

 Scope: Check the rapporteur CRs in R2-2210011 and R2-2210012 and update them with decisions of this meeting.

 Intended outcome: Agreed in principle CRs (without CB if possible)

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][413][Relay] Rel-17 relay 38.304 CR (Ericsson)

 Scope: Check the rapporteur CR in R2-2210324 and update it with decisions of this meeting.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][414][Relay] Rel-17 relay RRC CR (Huawei)

 Scope: Check the rapporteur CR in R2-2210493, consider related proposals on RRC, and merge in decisions of this meeting. Checkpoint at Rel-17 CB second week; discussion can be extended for merging of the CR.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC (for initial checkpoint)

* [AT119bis-e][415][Relay] LS on authorization for UE-to-UE relay (LG)

 Scope: Discuss the LS in R2-2209357 and attempt to converge on a reply.

 Intended outcome: Approvable LS

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][416][POS] LPP CR (Qualcomm)

 Scope: Merge the agreed LPP changes into a rapporteur CR.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][417][POS] Calculation of TIR and provision of AL to UE (vivo)

 Scope: Discuss the proposal from R2-2210606 and conclude on a way forward.

 Intended outcome: Report to CB session

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][418][POS] Positioning MAC CR (Huawei)

 Scope: Merge agreed MAC changes for Rel-17 positioning into a rapporteur CR.

 Intended outcome: Report and agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][419][POS] PRS capability information (Ericsson)

 Scope: Check and update the CR in R2-2210310.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][420][Relay] Rel-17 SRAP CR (OPPO)

 Scope: Check the wording of P1 from R2-2210770 and the content of P2, and develop a CR to 38.351.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][421][Relay] Rel-17 relay MAC CR (Apple)

 Scope: Check the CR in R2-2209501.

 Intended outcome: Agreed CR (without CB if possible)

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][422][Relay] Remaining proposals on discovery and (re)selection (CATT)

 Scope: Discuss P3a/P3b/P5a/P5b of R2-2210777.

 Intended outcome: Report to CB session

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][423][POS] LS to SA2 on SL positioning terminology (Xiaomi)

 Scope: Discuss the LS in document R2-2209351 and develop a response.

 Intended outcome: Report and agreeable LS

 Deadline: Friday 2022-10-14 1000 UTC (for comments)

* [AT119bis-e][424][POS] SLPP/RSPP protocol design (Qualcomm)

 Scope: Continue discussion of P5/P6 of R2-2210363 and attempt to converge. Focus on what the use cases are and the functionalities that need to be supported by the protocol design.

 Intended outcome: Report to CB session

 Deadline: Friday 2022-10-14 1000 UTC

# 6 NR Rel-17

## 6.7 NR Sidelink relay

(NR\_SL\_Relay-Core; leading WG: RAN2; REL-17; WID: RP-212601)

Tdoc Limitation: 4 tdocs

### 6.7.1 Organizational

Incoming LSs, TS updates, rapporteur inputs. This AI is reserved for rapporteur and organizational inputs. For LSes that need action or have impact beyond taking into account by CR rapporteurs: One tdoc by contact company (one company) to address the LS and potential reply is considered Rapporteur Input and may be provided. Related documents and proposed responses from companies other than the contact company should be submitted to the corresponding technical agenda item.

Cause value

[R2-2209306](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CDocs%5CR2-2209306.zip) LS on setting RRC establishment cause value when relay UE has its own service (C1-225453; contact: vivo) CT1 LS in Rel-17 5G\_ProSe To:RAN2 Cc:SA2

[R2-2209812](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209812_%5BDraft%5D%20LS%20reply%20on%20setting%20RRC%20establishment%20casue%20value%20when%20relay%20UE%20has%20its%20own%20service.docx) [Draft] LS reply on setting RRC establishment casue value when relay UE has its own service vivo LS out To:CT1 Cc:SA2

[R2-2209813](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209813_Discussion%20on%20LS%20from%20R2-2209206%28C1-225453%29.docx) Discussion on LS from R2-2209206(C1-225453) vivo discussion

[R2-2209814](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38331_CR3509_%28Rel-17%29_R2-2209814_Correction%20to%20the%20L2%20U2N%20Relay%20UE%C3%AD) Correction to the L2 U2N Relay UE’s cause value setting behaviour vivo CR Rel-17 38.331 17.2.0 3509 - F NR\_SL\_relay-Core

* [AT119bis-e][411][Relay] Relay cause value (vivo)

 Scope: Discuss the LS in R2-2209306 and related documents (R2-2209812 / R2-2209813 / R2-2209814 + first change from R2-2209903), consider the proposed correction, and draft a reply.

 Intended outcome: Report, approvable LS, and agreeable CR if needed

 Deadline: Friday 2022-10-14 1000 UTC

Rapporteur CRs

[R2-2210011](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210011%2038.322%20draftCR%20Correction%20on%20RLC%20for%20SL%20Relay.docx) RLC correction for SL relay Samsung draftCR Rel-17 38.322 17.1.0 F NR\_SL\_relay-Core

[R2-2210012](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210012%2038.323%20draftCR%20Correction%20on%20PDCP%20for%20SL%20Relay.docx) PDCP correction for SL relay Samsung draftCR Rel-17 38.323 17.2.0 F NR\_SL\_relay-Core

* [AT119bis-e][412][Relay] Rel-17 relay RLC and PDCP CRs (Samsung)

 Scope: Check the rapporteur CRs in R2-2210011 and R2-2210012 and update them with decisions of this meeting.

 Intended outcome: Agreed in principle CRs (without CB if possible)

 Deadline: Friday 2022-10-14 1000 UTC

[R2-2210324](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38.304_CR0288%28Rel-17%29_R2-2210324-%20Misc%20correction%20on%2038.304%20for%20SL%20relay.docx) Misc correction in 38.304 for SL relay Ericsson (Rapporteur) CR Rel-17 38.304 17.2.0 0288 - F NR\_SL\_relay-Core

* [AT119bis-e][413][Relay] Rel-17 relay 38.304 CR (Ericsson)

 Scope: Check the rapporteur CR in R2-2210324 and update it with decisions of this meeting.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

[R2-2210493](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38331_CR3549_%28Rel-17%29_R2-2210493%20Misc%20RRC%20CR%20for%20SL%20relay.docx) Misc RRC CR for SL relay Huawei, HiSilicon CR Rel-17 38.331 17.2.0 3549 - F NR\_SL\_relay-Core

* [AT119bis-e][414][Relay] Rel-17 relay RRC CR (Huawei)

 Scope: Check the rapporteur CR in R2-2210493, consider related proposals on RRC, and merge in decisions of this meeting. Checkpoint at Rel-17 CB second week; discussion can be extended for merging of the CR.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC (for initial checkpoint)

### 6.7.2 Essential corrections

No documents should be submitted to 6.7.2. Please submit to 6.7.2.x.

#### 6.7.2.1 Stage 2 corrections

Including impact to 38.300.

[R2-2209815](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C37340_CR0348_%28Rel-17%29_R2-2209815_Correction%20on%20Sidelink%20based%20U2N%20Relay.docx) Correction on Sidelink based U2N Relay vivo CR Rel-17 37.340 17.2.0 0348 - F NR\_SL\_relay-Core

[R2-2210110](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38300_CR0569_%28Rel-17%29_R2-2210110%20Correction%20on%20L2%20U2N%20relay%20Protocol%20Architecture.docx) Corrections on SL relay ZTE, Sanechips CR Rel-17 38.300 17.2.0 0569 - F NR\_SL\_relay-Core

#### 6.7.2.2 Control plane corrections

Including connection management, SI delivery, paging, access control for remote UE, and service continuity.

Summary document

[R2-2210890](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210890.docx) [Pre119bis-e][401] Summary of AI 6.7.2.2 on relay control plane (Huawei) Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core

Easy proposals:

Small corrections:

[Easy] Proposal 0: For the changes/proposals suggested to agree in Table 1, merge the changes in RRC Rapp CR and further check the wording in CR update. [No inter-operability issue]

Discussion:

Nokia had a comment on P2 of R2-2209377 offline; it is not clear to them that this change is really needed.

OPPO indicate that we agreed last meeting to introduce this condition into the discovery message transmission, but we missed including it in the SUI conditions. Huawei have the same understanding as OPPO.

Agreement:

For the changes/proposals suggested to agree in Table 1 of R2-2210890, merge the changes in RRC Rapp CR and further check the wording in CR update.

RLC handling:

[Easy]Proposal 1: RAN2 confirms that the Tx-UE ensures alignment between sl-RLC-ChannelID-PC5-r17 (Generated by Tx-UE to configure Rx-UE via PC5-RRC) and sl-EgressRLC-ChannelPC5-r17 (Received by Tx-UE via Uu-RRC), and network ensures alignment on sl-EgressRLC-ChannelPC5-r17 configured to remote UE and relay UE for the same E2E bearer. [NW and UEs need to align the understanding]

[Easy]Proposal 2.1: RAN2 confirms the specified SL\_RLC0- configuration is used to establish Tx and Rx RLC channels for SRB0 messages without peer UE’s indication. [UEs need to align the understanding]

Agreements:

[Easy]Proposal 1: RAN2 confirms that the Tx-UE ensures alignment between sl-RLC-ChannelID-PC5-r17 (Generated by Tx-UE to configure Rx-UE via PC5-RRC) and sl-EgressRLC-ChannelPC5-r17 (Received by Tx-UE via Uu-RRC), and network ensures alignment on sl-EgressRLC-ChannelPC5-r17 configured to remote UE and relay UE for the same E2E bearer. [NW and UEs need to align the understanding]

[Easy]Proposal 2.1: RAN2 confirms the specified SL\_RLC0- configuration is used to establish Tx and Rx RLC channels for SRB0 messages without peer UE’s indication. [UEs need to align the understanding]

MAC handling:

[Easy]Proposal 4: RAN2 confirms the MAC is reset by L2 U2N Remote UE upon reception of D2I path switch command. [No inter-operability issue]

Agreement:

[Easy]Proposal 4: RAN2 confirms the MAC is reset by L2 U2N Remote UE upon reception of D2I path switch command. [No inter-operability issue]

Exceptional resource pool during D2I path switch:

[Easy]Proposal 6: RAN2 to revise the previous agreement as “RAN2 confirms during path switch (T420 is running), UE can use exceptional pool for sidelink communication”, and confirm that this agreement can already be realized via existing NR SL communication procedure with no extra Spec impact. [No inter-operability issue]

Discussion:

Apple want to understand what the change from default behaviour is; they understand that for mode 1, the UE will receive an RRCReconfiguration with a dedicated configuration, and if the exceptional pool is not there, the UE just uses the dedicated pool for mode 2.

Huawei indicate that the UE will not be configured with mode 1 when switching to a relay, and the reason for the rewording is that in the current spec, when the UE is configured with mode 2 and there is no sensing result, the UE can fall back to use the exceptional pool; i.e., the UE is allowed to use the exceptional pool and we do not need any change for the relay case.

Ericsson wonder if during the transition period, the UE initially uses mode 1 or mode 2. They understand that the UE cannot switch between mode 1 and mode 2. Huawei indicate that the target will necessarily configure mode 2.

Agreement:

[Easy]Proposal 6: RAN2 to revise the previous agreement as “RAN2 confirms during path switch (T420 is running), UE can use exceptional pool for sidelink communication”, and confirm that this agreement can already be realized via existing NR SL communication procedure with no extra Spec impact. [No inter-operability issue]

38.304 corrections:

[Easy]Proposal 7: The intention of change in 9500 and the change #1 and #3 in 0625 can be agreed, and how to capture them is up to TS 38.304 rapporteur in CR update. [No inter-operability issue]

Discussion:

Huawei clarify the tdoc numbers are wrong in the proposal.

Agreement:

The intention of change in R2-2209500 and the change #1 and #3 in R2-2210625 can be agreed, and how to capture them is up to TS 38.304 rapporteur in CR update (email discussion [413]).

Others:

[Easy]Proposal 11: RAN2 confirms SRB4 and application layer measurement are not supported for L2 U2N Remote UE, which means sl-L2RemoteUE-Config cannot be configured to a UE if appLayerMeasConfig and SRB4 are configured/not released. [NW and remote UE need to align the understanding]

Agreement:

[Easy]Proposal 11: RAN2 confirms SRB4 and application layer measurement are not supported for L2 U2N Remote UE, which means sl-L2RemoteUE-Config cannot be configured to a UE if appLayerMeasConfig and SRB4 are configured/not released. [NW and remote UE need to align the understanding]

Proposals for essential corrections:

RLC handling:

[To be discussed] Proposal 2.2: RAN2 to discuss if the default SL\_RLC1 configuration is used to establish Rx RLC channels for SRB1 messages without Tx UE’s indication, or to adopt PC5-RRC from Tx to Rx for the default SL\_RLC1 configuration. [UEs need to align the understanding]

Discussion:

Apple think when we defined SL-RLC1 as a default configuration, we meant that no explicit signalling was needed; so they think we should take the first option.

OPPO think some detailed discussion would be useful before concluding; they see some issue if we do not have the PC5-RRC signalling, e.g., if we change from default to dedicated but later fall back to default, but also some issues with the PC5-RRC signalling regarding aligning IDs. So they would like to go offline with this proposal.

To be handled in email discussion [414]

[To be discussed] Proposal 3.1: RAN2 confirms that overriding the SL-RLC1 by dedicated configuration means “changing SRAP mapping of SRB1 from ‘without PC5 RLC channel configured for SRB1’ to ‘with PC5 RLC channel configured to SRB1’”. [NW and UEs need to align the understanding]

Discussion:

MediaTek see some connection to P2.2 and think they should be discussed together. Huawei think the connection is only for how the Tx UE handles the overriding; if a different option is selected by P2.2, the Tx UE behaviour may change, but we can agree for the Rx UE.

Apple have the same understanding as Huawei, and they think the proposal is the only possibility for the Rx side.

Agreement:

Proposal 3.1: RAN2 confirms that overriding the SL-RLC1 by dedicated configuration means “changing SRAP mapping of SRB1 from ‘without PC5 RLC channel configured for SRB1’ to ‘with PC5 RLC channel configured to SRB1’”. [NW and UEs need to align the understanding]

[To be discussed] Proposal 3.2: RAN2 confirms the remote UE establishes SL\_RLC1 using default configuration for SRB1 upon full configuration, and network can explicitly provide PC5 Relay RLC channel configurations to override SL\_RLC1. [NW and UEs need to align the understanding]

Discussion:

OPPO agree with the intention, but they want to clarify if “establishes SL-RLC1” means applying the default configuration. They think there might be a case where we do not establish a new SL-RLC1 although the remote UE receives a full configuration.

MediaTek want to understand how big the spec impact will be. They are concerned that there may be additional signalling over Uu and/or PC5 and a risk of an NBC change.

Huawei indicate that they do not see any need for an ASN.1 change, because the channel IDs and RLC configurations are already there on Uu and PC5; we just need to clarify how the network and Tx UE provide them.

Agreement:

[To be discussed] Proposal 3.2: RAN2 confirms the remote UE establishes SL\_RLC1 using default configuration for SRB1 upon full configuration, and network can explicitly provide PC5 Relay RLC channel configurations to override SL\_RLC1. [NW and UEs need to align the understanding]

Wording and impact to be checked in email discussion [414].

[To be discussed] Proposal 13: RAN2 confirms that each PC5 Relay RLC channel configuration provided by network to Relay UE is uniquely associated with one Remote UE. [NW and UEs need to align the understanding]

Discussion:

vivo do not understand why we need such a restriction, since the SRAP header includes a local ID; they think it is technically feasible to have a PC5 relay RLC channel used by multiple remote UEs.

Huawei intend the proposal to exclude the case that the relay UE uses one configuration to create two RLC channels that communicate with different remote UEs; this aligns with Rel-16, and they understand that if we allow such usage, we will create problems if we want to release or modify one of the configurations but not the other.

OPPO understand the point is to check if a single RLC channel configuration can be used to establish the entities for different remote UEs; if there is then a modification or release, would it then apply to the multiple established RLC channels? They find this a bit weird and think further offline discussion might be useful.

Apple support the proposal and think it is challenging to have the procedures handle both channels if we do not have it.

Ericsson understand the proposal has no spec impact, and they are a bit uncertain of the intention. MediaTek think we do not need to mandate network behaviour.

Samsung had not considered that this could be done with multiple remote UEs, but they are also a bit concerned about specifying network implementations. They understand that there is a remote UE ID in the configuration and are not clear how it could be used for multiple remote UEs, so they do not see Huawei’s concern as being a real problem.

Huawei indicate that the RLC channel list was originally inherited from Rel-16, and one configuration for multiple RLC channels was not considered. They agree that the current specification does not allow such UE behaviour, but there was some concern indicated that the spec is not clear and it could be good to clarify. They do not understand that it is a limit to currently allowed network behaviour, only a clarification.

Apple see that the problem is that the remote UE ID is not in the PC5 relay RLC channel configuration, only in the bearer mapping.

To be further discussed in email discussion [414].

Left proposals:

Entering RRC\_IDLE/RRC\_INACTIVE:

[To be discussed] Proposal 5: RAN2 confirms upon entering RRC\_IDLE/INACTIVE, the Remote UE releases the PC5 unicast link. After that, it is up to UE implementation whether to perform cell selection, relay selection or both. [No inter-operability issue]

Discussion:

Qualcomm agree with the UE implementation aspect, but think it is not clear what the spec impact would be. In the current spec they understand that we already have triggering events for the relay UE to trigger the release, so they think this may not be necessary.

vivo tend to disagree with the proposal and have a similar view to Qualcomm; they see it as a remote UE implementation decision whether to keep or release the link. They indicate that in 23.304, the current requirement is that when in CM-IDLE, the UE may either release the link or not.

Xiaomi think the current spec is clear enough about the UE behaviour. MediaTek and Nokia have the same view.

ZTE agree with Qualcomm and think there is not a requirement to release the link.

OPPO had the understanding that the current spec required the UE to release the link but possibly re-establish afterwards. If we have no spec change, does it mean companies agree the link has to be released, or it is up to UE implementation?

Huawei think we could add a description to leave it to UE implementation whether to perform cell selection, relay selection, or both.

OPPO are in agreement that it is up to UE implementation for cell reselection, relay reselection, or both, but they are wondering about the link release. Huawei clarify that if the relay will anyway perform the release procedure, then we do not need to trigger the remote UE to do it.

Agreement:

Upon entering RRC\_IDLE/RRC\_INACTIVE, whether to release the PC5 unicast link is left to remote UE implementation (in the absence of any other triggering event that requires it to release the link), and it is up to UE implementation whether to perform cell selection, relay selection or both.

Wording to be discussed in email discussion [414].

Others：

[To be discussed] Proposal 8: RAN2 confirms for sidelink discovery reception the remote UE also needs to check remote UE AS-layer condition. [No inter-operability issue]

[To be discussed] Proposal 10: RAN2 to discuss whether to clarify in AS specifications that emergency services/limited service level is not supported by remote UE in Rel-17. [No inter-operability issue]

[To be discussed] Proposal 12: RAN2 to discuss the change in R2-2210170, i.e. “if T301 and T304 is are not running, initiate the RRC connection re-establishment procedure as specified in 5.3.7”. [No inter-operability issue]

P8/P10/P12 to be discussed in email discussion [414].

Optimizations/low priority issues (can discuss if time left)

Proposal 9: To discuss if the Remote UE can use pre-config for sidelink communication before acquisition of dedicated configuration of resource pool from network. [No inter-operability issue]

Proposal 14: To discuss if relay UE cannot send NotificationMessageSidelink message for intra-cell HO. [No inter-operability issue]

Proposal 15: To discuss if to reduce the delay of receiving remote UE’s paging message by connected Relay UE without CSS configured in active BWP, and the potential two options: [NW and UEs need to align the understanding]

a. Option 1: leave up to relay UE implementation to determine whether relay UE in RRC CONNECTED needs to be active at remote UE’s POs

b. Option 2: remote UE’s POs are defined as DRX active time for relay UE in RRC CONNECTED

Proposal 16: To discuss whether to trigger RAN1 to discuss a new solution in Rel-17 for relay scenario in order to allow OoC Remote UE select synchronization source other than cell if the network configures cell as reference source in SIB12.

The following documents will not be individually treated

[R2-2209377](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38331_draftCR_%28Rel-17%29_R2-2209377%20-%20Correction%20for%20U2N%20Relay.docx) Correction for U2N Relay OPPO draftCR Rel-17 38.331 17.2.0 F NR\_SL\_relay-Core

[R2-2209378](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209378%20-%20Discussion%20on%20left%20issues%20for%20CP_V2.docx) Discussion on left issues for CP OPPO discussion Rel-17 NR\_SL\_relay-Core

[R2-2209500](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38304_draftCR_%28Rel-17%29_R2-2209500_Miscellaneous%20corrections%20for%20NR%20sidelink%20Relay_cl.docx) Miscellaneous corrections for NR sidelink Relay in TS 38.304 OPPO draftCR Rel-17 38.304 17.2.0 NR\_SL\_relay-Core

[R2-2209545](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209545.doc) Correction on relay UE RRC connection establishment failure SHARP Corporation discussion NR\_SL\_relay-Core

[R2-2209775](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209775%20Discussion%20on%20control%20plan%20procedures%20for%20SL%20relay.doc) Discussion on remaining issues on CP procedure for SL Relay Apple discussion Rel-17 NR\_SL\_relay-Core

[R2-2209776](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209776%2038331_CR_R17_correction%20of%20UE%20handling%20of%20PC5%20RLC%20Channel%20configurations.docx) Correction on PC5 Relay RLC Channel configuration for L2 Relay UE and L2 Remote UE Apple CR Rel-17 38.331 17.2.0 3506 - F NR\_SL\_relay-Core

[R2-2209816](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209816_Discussion%20on%20NR%20SL%20communication%20transmission%20using%20exception%20pool%20during%20D2I%20path%20switch.docx) Discussion on NR SL communication transmission using exception pool during D2I path switch vivo discussion

[R2-2209817](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38331_CR3510_%28Rel-17%29_R2-2209817_Corrections%20to%20MAC%20and%20RLC%20handling%20for%20L2%20U2N%20Relay.docx) Corrections to MAC and RLC handling for L2 U2N Relay vivo CR Rel-17 38.331 17.2.0 3510 - F NR\_SL\_relay-Core

[R2-2209818](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38331_CR3511_%28Rel-17%29_R2-2209818_Correction%20to%20SL-RLC1.docx) Correction to SL-RLC1 vivo CR Rel-17 38.331 17.2.0 3511 - F NR\_SL\_relay-Core

[R2-2209847](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209847%20Clarification%20on%20SL%20DRX%20operation%20for%20U2N%20Remote%20UE.docx) Clarification on SL DRX operation for U2N Remote UE ASUSTeK CR Rel-17 38.331 17.2.0 3512 - F NR\_SL\_relay-Core

[R2-2209848](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209848%20Correction%20on%20RRC%20connection%20re-establishment%20procedure.docx) Correction on RRC connection re-establishment procedure ASUSTeK CR Rel-17 38.331 17.2.0 3513 - F NR\_SL\_relay-Core

[R2-2209860](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209860%20-%20Alignment%20between%20remote%20UE%20paging%20DRX%20and%20relay%20UE%20Uu%20DRX.docx) Alignment between remote UE paging DRX and relay UE Uu DRX Ericsson discussion Rel-17 NR\_SL\_relay-Core

[R2-2209861](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209861%20-%20Corrections%20to%2038321%20CR1417%20on%20alignment%20between%20remote%20UE%20paging%20DRX%20and%20relay%20UE%20Uu%20DRX.docx) Corrections to 38321 on alignment between remote UE paging DRX and relay UE Uu DRX Ericsson CR Rel-17 38.321 17.2.0 1417 - F NR\_SL\_relay-Core

[R2-2209879](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209879%20Correction%20on%20handover%20indication%20forwarding.docx) Correction on handover notification forwarding Xiaomi draftCR Rel-17 38.331 17.2.0 F NR\_SL\_relay-Core

[R2-2209880](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209880%20Miscelleneous%20correction%20on%2038.331.docx) Miscelleneous correction on 38.331 Xiaomi draftCR Rel-17 38.331 17.2.0 F NR\_SL\_relay-Core

[R2-2209885](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209885%20Correction%20on%20remote%20UE%20resource%20allocation.docx) Correction on remote UE's resource allocation Xiaomi draftCR Rel-17 38.331 17.2.0 F NR\_SL\_relay-Core

[R2-2209892](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38331_CR3515_%28Rel-17%29_R2-2209892%20-%20Calarification%20on%20emergency%20service%20support%20in%20Rel-17%20U2N%20relay.docx) Calarification on emergency service support in Rel-17 U2N relay CATT CR Rel-17 38.331 17.2.0 3515 - F NR\_SL\_relay-Core

[R2-2209902](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209902%20Discussion%20on%20SL%20synchronization%20for%20SL%20relay.doc) Discussion on SL synchronization for SL relay ZTE, Sanechips discussion Rel-17 NR\_SL\_relay-Core

[R2-2209903](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38331_draftCR_%28Rel-17%29_R2-2209903%20Correction%20on%20control%20plane%20for%20L2%20U2N%20relay-V2.docx) Correction on control plane for L2 U2N relay ZTE, Sanechips draftCR Rel-17 38.331 17.2.0 F NR\_SL\_relay-Core

[R2-2210170](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210170%20-%20CR3527%20Correction%20for%20receiving%20notification%20message%20during%20path%20switching%20v2.0.docx) Correction for receiving notification message during path switching Lenovo Information Technology CR Rel-17 38.331 17.2.0 3527 - F NR\_SL\_relay-Core

[R2-2210325](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38.331_CR3535%28Rel-17%29_R2-2210325-%20Clarification%20on%20UAC%20procedure%20for%20U2N%20Relay%20UE.docx) Clarification on UAC procedure for U2N Relay UE Ericsson CR Rel-17 38.331 17.2.0 3535 - F NR\_SL\_relay-Core

[R2-2210326](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38.331_CR3536%28Rel-17%29_R2-2210326-%20Clarification%20on%20setting%20the%20transaction%20identifier%20for%20sidelink.docx) Clarification on setting the transaction identifier for sidelink Ericsson CR Rel-17 38.331 17.2.0 3536 - F NR\_SL\_relay-Core

[R2-2210378](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210378%20Correction%20on%20SRAP%20handling%20for%20NR%20sidelink%20relay.docx) Correction on SRAP handling for NR sidelink relay Xiaomi CR Rel-17 38.331 17.2.0 3542 - F NR\_SL\_relay-Core

[R2-2210432](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210432%20Correction%20on%20derivation%20of%20serving%20Relay%20UE%20measurement%20results.doc) Correction on derivation of serving Relay UE measurement results Sharp discussion

[R2-2210433](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210433%20Correction%20on%20full%20configuration%20for%20remote%20UE.doc) Correction on full configuration for remote UE Sharp discussion

[R2-2210434](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210434%20Correction%20on%20RRC%20connection%20suspension%20of%20remote%20UE.doc) Correction on RRC connection suspension of remote UE Sharp discussion

[R2-2210494](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210494.docx) Remaining CP correction for sidelink relay Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core

[R2-2210495](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210495.docx) Discussion on support of QoE in L2 U2N relay Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core

[R2-2210496](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38331_CR3550_%28Rel-17%29_R2-2210496%20Clarification%20on%20no%20support%20of%20QoE%20for%20L2%20U2N%20Remote%20UE.docx) RRC CR for clarification on no support of QoE for L2 U2N Remote UE Huawei, HiSilicon CR Rel-17 38.331 17.2.0 3550 - F NR\_SL\_relay-Core

[R2-2210625](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210625-DraftCR_38304-SLRelayCorrections.docx) U2N relay related clarifications Nokia, Nokia Shanghai Bell draftCR Rel-17 38.304 17.2.0 F NR\_SL\_relay-Core

#### 6.7.2.3 User plane corrections

Including SRAP aspects and QoS.

Summary document

[R2-2210770](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210770%20-%20Summary%20of%20AI%206.7.2.3.docx) Summary of AI 6.7.2.3 OPPO discussion Rel-17 NR\_SL\_relay-Core

Proposal 1 R2 agree with the intention of change-4/5/7/8 of R2-2209904, change-1/2/3/5/7 of R2-2210043 and change in R2-2210673. Detailed wording can be further checked.

Discussion:

Huawei think the second part of change 4 in the ZTE CR is not correct, because the clause is for DL transmission and there should be no data received from the relay UE.

OPPO tend to agree that the wording of change 4 is not ideal, but think it can be checked offline.

Samsung agree with OPPO; they think the ZTE CR is in the right direction but think this will not lead to a major issue.

Agreement:

R2 agree with the intention of change-4/5/7/8 of R2-2209904, change-1/2/3/5/7 of R2-2210043 and change in R2-2210673. Detailed wording can be further checked in email discussion [420].

Proposal 2 R2 discuss on change-4/6 of R2-2210043, R2-2209893 and change-1/2/3/6 of R2-2209904.

To be discussed in email discussion [420].

* [AT119bis-e][420][Relay] Rel-17 SRAP CR (OPPO)

 Scope: Check the wording of P1 from R2-2210770 and the content of P2, and develop a CR to 38.351.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

The following documents will not be individually treated

[R2-2209893](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38351_CR0010_%28Rel-17%29_R2-2209893%20-%20Correction%20on%20SRAP%20for%20L2%20U2N%20Relay.docx) Correction on SRAP for L2 U2N Relay CATT CR Rel-17 38.351 17.2.0 0010 - F NR\_SL\_relay\_enh-Core

[R2-2209904](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38351_draftCR_%28Rel-17%29_R2-2209904%20Correction%20on%20SRAP%20for%20L2%20U2N%20relay.docx) Correction on SRAP for L2 U2N relay ZTE, Sanechips draftCR Rel-17 38.351 17.2.0 F NR\_SL\_relay-Core

[R2-2210043](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210043_CR_to_38351.docx) Miscellaneous corrections to 38.351 Samsung R&D Institute UK CR Rel-17 38.351 17.2.0 0011 - F NR\_SL\_relay-Core

[R2-2210673](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210673%20DraftCR_38351%20Miscellaneous%20SRAP%20changes.docx) DraftCR 38.351 Miscellaneous SRAP changes Nokia, Nokia Shanghai Bell draftCR Rel-17 38.351 17.2.0 NR\_SL\_relay-Core

#### 6.7.2.4 Discovery and re- selection

Including 5G ProSe Direct Discovery for the non-relaying case. Re-using LTE discovery and re/selection as baseline.

Summary document

[R2-2210777](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210777%20Summary%20of%20AI%206.7.2.4%20on%20discovery%20and%20reselection.docx) Summary of AI 6.7.2.4 on discovery and reselection CATT discussion Rel-17 NR\_SL\_relay-Core

[Easy decision]

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

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

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

Discussion:

OPPO do not have a strong view on P2 but are unsure of the motivation; they understand that it is already mentioned that both AS layer and upper layer criteria are considered. They also understand that P4 is covered by the control plane discussion.

Apple observe that there is no MAC rapporteur CR yet.

CATT think P2 is needed; they understand the higher layer criteria may be met while the AS layer criteria are not. It is for the branch where no candidate relay UE is selected.

P2 to be handled in email discussion [414].

Lenovo are not sure that P4 is already covered; it is related to P5 from the CP discussion, but they understand that only cell selection is allowed according to the current text.

* [AT119bis-e][421][Relay] Rel-17 relay MAC CR (Apple)

 Scope: Check the CR in R2-2209501.

 Intended outcome: Agreed CR (without CB if possible)

 Deadline: Friday 2022-10-14 1000 UTC

[To be discussed]

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

Proposal 3b: If proposal 3a is agreed, RAN2 to discuss whether the assistance information can include Discovery message periodicity, Timing offset and the message size information. If yes, adopt TP in R2-2210111 as baseline.

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

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

Discussion:

vivo and MediaTek think P3a/P3b are too late for Rel-17. vivo also think the issue was previously discussed. Ericsson agree.

Huawei think the last time we had this discussion, the concern was whether discovery messages are periodic, and they now understand that they are. They consider that P3a/P3b are really needed.

* [AT119bis-e][422][Relay] Remaining proposals on discovery and (re)selection (CATT)

 Scope: Discuss P3a/P3b/P5a/P5b of R2-2210777.

 Intended outcome: Report to CB session

 Deadline: Friday 2022-10-14 1000 UTC

The following documents will not be individually treated

[R2-2209501](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38321_draftCR_%28Rel-17%29_R2-2209501_Miscellaneous%20corrections%20for%20NR%20sidelink%20Relay_cl.docx) Miscellaneous corrections for NR sidelink Relay in TS 38.321 OPPO draftCR Rel-17 38.321 17.2.0 NR\_SL\_relay-Core

[R2-2209894](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C38%20331_R2-2209894%20CR%233516%28Rel-17%29%20-%20Correction%20on%20relay%20%28re-%29selection%20for%20remote%20UE.docx) Correction on relay (re-)selection for remote UE CATT CR Rel-17 38.331 17.2.0 3516 - F NR\_SL\_relay\_enh-Core

[R2-2210111](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210111%20Support%20of%20SL%20CG%20for%20discovery%20message.docx) Support of SL CG for discovery message Huawei, HiSilicon, Nokia, Kyocera discussion Rel-17 NR\_SL\_relay-Core

[R2-2210169](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210169%20-%20CR3526%20Correction%20for%20relay%20selection%20for%20entering%20IDLE%20or%20INACTIVE%20v2.0.docx) Correction for relay selection for entering IDLE or INACTIVE Lenovo Information Technology CR Rel-17 38.331 17.2.0 3526 - F NR\_SL\_relay-Core

[R2-2210633](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210633_Disussion%20on%20resource%20allocation%20for%20sidelink%20discovery.docx) Discussion on Resource Allocation for Sidelink Discovery CATT discussion Rel-17 NR\_SL\_relay-Core

Withdrawn/Not available

R2-2209971 Correction on Sidelink discovery transmission CATT CR Rel-17 38.331 17.2.0 3520 - F NR\_SL\_relay-Core Withdrawn

## 6.11 NR positioning enhancements

(NR\_pos\_enh-Core; leading WG: RAN1; REL-17; WID: RP-210903)

Tdoc Limitation: 5 tdocs

### 6.11.1 Organizational

Rapporteur input. Incoming LS etc. This AI is reserved for rapporteur and organizational inputs. For LSes that need action or have impact beyond taking into account by CR rapporteurs: One tdoc by contact company (one company) to address the LS and potential reply is considered Rapporteur Input and may be provided. Related documents and proposed responses from companies other than the contact company should be submitted to the corresponding technical agenda item.

LS with “take into account” action

[R2-2209332](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209332_R4-2210603.docx) LS on Tx TEG framework (R4-2210603; contact: CATT) RAN4 LS in Rel-17 NR\_pos\_enh-Core To:RAN1, RAN2, RAN3

LS on SRS-PosRRC-InactiveConfig and related documents

[R2-2209331](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209331_R3-225268.docx) LS on SRS-PosRRC-InactiveConfig configuration signalling (R3-225268; contact: Intel) RAN3 LS in Rel-17 NR\_pos\_enh-Core To:RAN2

[R2-2209611](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209611%20_Draft%20Reply%20LS%20on%20SRS-PosRRC-InactiveConfig%20configuration%20signalling.docx) Draft Reply LS on SRS-PosRRC-InactiveConfig configuration signalling Intel Corporation LS out Rel-17 NR\_pos\_enh-Core To:RAN3

[R2-2209610](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209610%20_RRC%20state%20transition-pos.docx) UE RRC state transition during the positioning session for RAN3 LS (R2-2209331) Intel Corporation discussion Rel-17 NR\_pos\_enh-Core

[R2-2210119](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210119%20Discussion%20on%20the%20LS%20on%20SRS-PosRRC-InactiveConfig%20configuration%20signalling.doc) Discussion on the LS on SRS-PosRRC-InactiveConfig configuration signalling Xiaomi discussion

[R2-2209437](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209437%20Discussion%20on%20LS%20on%20SRS-PosRRC-InactiveConfig%20configuration%20signalling.docx) Discussion on LS on SRS-PosRRC-InactiveConfig configuration signalling CATT discussion Rel-17 NR\_pos\_enh-Core

* [AT119bis-e][408][POS] State change during positioning (Intel)

 Scope: Discuss the LS in R2-2209331 and related contributions (R2-2209611 / R2-2209610 / R2-2210119 / R2-2209437), conclude on whether the state transition needs to be supported, and draft a reply.

 Intended outcome: Report and approvable LS

 Deadline: Friday 2022-10-14 1000 UTC

LS on TEG framework and related documents

[R2-2209342](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209342_R4-2214493.docx) Reply LS on the UE/TRP TEG framework (R4-2214493; contact: CATT) RAN4 LS in Rel-17 NR\_pos\_enh-Core To:RAN1, RAN2, RAN3

[R2-2209432](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209432%20Discussion%20on%20the%20Reply%20LS%20on%20the%20UETRP%20TEG%20framework%20from%20RAN4%20%28R4-2214493%29.docx) Discussion on the “Reply LS on the UE/TRP TEG framework” from RAN4 (R4-2214493) CATT discussion Rel-17 NR\_pos\_enh-Core

[R2-2209433](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209433%20%5BDraft%5D%20Reply%20LS%20on%20applicability%20of%20timing%20error%20margin%20of%20Rx%20TEG.doc) [DRAFT] Reply LS on applicability of timing error margin of Rx TEG CATT LS out Rel-17 NR\_pos\_enh-Core To:RAN4 Cc:RAN1, RAN3

* [AT119bis-e][409][POS] LS on TEG framework (CATT)

 Scope: Discuss the LS in R2-2209342 and related contributions in R2-2209432 and R2-2209433, and draft a reply.

 Intended outcome: Report and approvable LS

 Deadline: Friday 2022-10-14 1000 UTC

Rapporteur CR

[R2-2210312](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210312%20RRCPositioning.docx) Miscellaneous correction for Positioning Ericsson CR Rel-17 38.331 17.2.0 3534 - F NR\_pos\_enh-Core

* [AT119bis-e][410][POS] Rel-17 positioning RRC CR (Ericsson)

 Scope: Check the rapporteur CR in R2-2210312 and update it with decisions of this meeting.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

### 6.11.2 Essential corrections

No documents should be submitted to 6.11.2. Please submit to 6.11.2.x.

#### 6.11.2.1 Stage 2 corrections

Including impact to 36.305 and 38.305. Stage 2 corrections without functional impact will be treated at lower priority or not at all.

[R2-2210313](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210313%20UE%20TxTEG.docx) Missing Functional Impacts for UE TxTEG association Ericsson CR Rel-17 38.305 17.2.0 0108 - F NR\_pos\_enh-Core

[R2-2210314](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210314%20RRC%20Inactive.docx) Missing Functional Impacts for RRC Inactive Positioning Ericsson CR Rel-17 38.305 17.2.0 0109 - F NR\_pos\_enh-Core

[R2-2210315](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210315%20SRS%20Port.docx) Addition of Signaling of SRS Port Index when SRS resource for MIMO is used Ericsson CR Rel-17 38.305 17.2.0 0110 - F NR\_pos\_enh-Core

[R2-2210605](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210605%20Miscellaneous%20corrections%20to%20TS%2038.305.docx) Miscellaneous corrections to TS 38.305 vivo draftCR Rel-17 38.305 17.2.0 D NR\_pos\_enh-Core

#### 6.11.2.2 RRC corrections

Corrections to 38.331, except for UE capability issues which are handled under the UE capability agenda item.

[R2-2209429](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209429%20Correction%20to%20RRC%20spec%20for%20RRC_INACTIVE%20positioning.docx) Correction to RRC spec for RRC\_INACTIVE positioning Huawei, HiSilicon CR Rel-17 38.331 17.2.0 3485 - F NR\_pos\_enh-Core

* Endorsed (to be merged into the RRC rapporteur CR in email discussion [410])

Discussion:

Ericsson do not see this as an alignment to SDT but an enhancement to the field description; they think it could be captured as a procedural description in MAC. Huawei have no strong view but think the RRC change is enough.

Ericsson think the “if not configured” behaviour is already implied in MAC. Huawei think in any case the second change is needed.

Intel do not see the problem with copying the same sentence for SRS that is used for SDT.

[R2-2210480](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210480%20CR_cancellation%20of%20UL%20MAC%20CE%20for%20pre-MG.docx) Cancellation of UL MAC CE for MG activation/deactivation Samsung draftCR Rel-17 38.331 17.2.0 NR\_pos\_enh-Core

* To be considered in email discussion [410]

Discussion:

Samsung indicate that this was discussed last meeting and there was an understanding that this case was not captured in the current specification, but there was not time to agree on a fix then.

Huawei have the same understanding as Samsung.

vivo think the RRC does not need to be aware of the status of the MG in real time; it can consider the MG activated once it triggers the MAC to send the request. So they see the CR as not essential.

ZTE understand that this is already handled in the MAC spec, but they can accept the CR in RRC.

Qualcomm have the same view as vivo and see the text as a bit misplaced in the RRC spec.

CATT also think this is not essential because it covers a corner case.

Intel agree with Samsung and think the MAC layer does not currently know if LPP still needs the measurement gap or not. They understand that LPP indicates to the RRC layer, but we need to pass the indication on to MAC.

Nokia understand the RRC is not the right place to make this change and they would prefer to have it captured in MAC.

Apple think this is not essential.

OPPO agree with the intention and think this was effectively agreed in RAN2#117-e.

#### 6.11.2.3 LPP corrections

Corrections to 37.355.

Summary document

[R2-2210784](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210784_%28Summary%20of%20AI%206.11.2.3%20LPP%20Corrections%29_v1.docx) Summary of AI 6.11.2.3: LPP corrections Qualcomm Incorporated discussion Rel-17 NR\_pos\_enh-Core

[Proposed to agree with cleanup]

Proposal 1: The CR in 'R2-2209430, "Correction to UE capability for DL-AoD", Huawei, HiSilicon' is an essential correction. Agree a revision of the CR with the editorial issues fixed.

Proposal 3: The changes related to capability indices 23-3-3, 27-12, and 27-4-1 in 'R2-2209436, "Corrections on the LPP capabilities", CATT ' are essential corrections. Agree a revision of the CR with the change for 27-20 removed, and with the Note for 27-4-1 removed from DL-AoD.

Proposal 6: The CR in 'R2-2209683, "NR-DL-AoD-SignalMeasurementInformation corrections", Nokia, Nokia Shanghai Bell' is an essential correction. Revise the CR using the latest version of the specification.

Proposal 7: The CR in 'R2-2210199, "Correction on the maximum number of SRS and TxTEG association", ZTE, Sanechips' is an essential correction. Convert the CR into a backwards compatible change by clarifying in an ASN.1 comment that the applicable value is 64. Add the "Isolated Impact" statement to the CR cover sheet.

Discussion:

Lenovo think on P7, the change as proposed is one way to do it, but it could also be in the field description. Intel think we should take a BC change and are OK with the ASN.1 comment.

Huawei agree with Lenovo that the field description would be a better place. On P1, Huawei indicate the proposal is BC, but they think there might be a need for a separate CR for visibility due to interoperability considerations. On P6, Huawei wonder if there is Rel-16 impact; they are OK with a Rel-17 CR but think we could consider a Rel-16 version next meeting.

CATT think on P6, “associated with a single TRP” should be deleted in the description, because the IE is already per-TRP. Nokia think this may be clear from the ASN.1, but an explicit clarification is useful.

Agreements:

Proposal 1: The CR in 'R2-2209430, "Correction to UE capability for DL-AoD", Huawei, HiSilicon' is an essential correction. Agree a revision of the CR with the editorial issues fixed.

Proposal 3: The changes related to capability indices 23-3-3, 27-12, and 27-4-1 in 'R2-2209436, "Corrections on the LPP capabilities", CATT ' are essential corrections. Agree a revision of the CR with the change for 27-20 removed, and with the Note for 27-4-1 removed from DL-AoD.

Proposal 6: The CR in 'R2-2209683, "NR-DL-AoD-SignalMeasurementInformation corrections", Nokia, Nokia Shanghai Bell' is an essential correction. Revise the CR using the latest version of the specification.

Proposal 7: The CR in 'R2-2210199, "Correction on the maximum number of SRS and TxTEG association", ZTE, Sanechips' is an essential correction. Convert the CR into a backwards compatible change by clarifying in an ASN.1 comment that the applicable value is 64. Add the "Isolated Impact" statement to the CR cover sheet.

Details of all proposals to be checked in email discussion [416].

[Proposed non-essential]

Proposal 2: The CR in 'R2-2209435, "Change Request of missing UE capabilities", CATT ' is not an essential correction.

Agreement:

Proposal 2: The CR in 'R2-2209435, "Change Request of missing UE capabilities", CATT ' is not an essential correction.

[To discuss—related to email discussion [AT119bis-e][409]]

Proposal 4a: RAN2 to discuss whether the "Applicability of timing error margin of Rx TEG" as included in the RAN4 LS R2-2209168 (R4-2214493) needs to be specified in LPP.

If yes, discuss whether the specification is applicable to both, NR-DL-TDOA-SignalMeasurementInformation and NR-Multi-RTT-SignalMeasurementInformation [2] or only applicable to NR-DL-TDOA-SignalMeasurementInformation [3].

Proposal 4b: Ask RAN4 whether the "Applicability of timing error margin of Rx TEG" as included in the RAN4 LS R2-2209168 (R4-2214493) needs to be specified in LPP.

Discussion:

CATT clarify that these issues have already been captured in email discussion [409].

Huawei think we do not need to ask RAN4 whether to capture it; we either indicate that we are capturing it in our spec or ask RAN4 to capture it in theirs. They see the important question as whether the sentence is applicable to multi-RTT.

Qualcomm indicate that the TPs include a reference to 38.133, but it has been clarified that this is not specified in 38.133 and we cannot meaningfully reference it; so some clarification is needed.

CATT have a similar view to Qualcomm that there is no frequency drift margin or group delay margin in the RAN4 spec, so they see that an LS to RAN4 is needed. They think we need further clarification from RAN4 on what to capture in the multi-RTT case.

To be discussed under email discussion [409].

[To discuss—other]

Proposal 5: RAN2 to discuss whether the additional text proposed in [4]:

"In this version of the specification, the field is mandatory present…"

for the field nr-UE-RxTEG-TimingErrorMargin in IE NR-DL-TDOA-SignalMeasurementInformation, and for the fields nr-UE-TxTEG-TimingErrorMargin and nr-UE-RxTxTEG-TimingErrorMargin in IE NR-Multi-RTT-SignalMeasurementInformation is an essential correction or not.

Discussion:

CATT understand that for a UE that supports version 17.2.0, the absence means “maximum applicable value”. However, they point out there is an LS from RAN4 saying that the margin is provided as LPP signalling parameters, and they think in light of the LS absence does not now make sense.

Huawei think the added text is contradictory to the current text, because we already have “if absent” behaviour and the new text makes it mandatory present. They understand that RAN4’s intention is that the UE must report the TEG margin, but they did not say it has to be included explicitly; we can define a default value.

ZTE agree with Huawei and think we discussed whether this field was mandatory or optional last meeting, and we settled on the current behaviour to avoid an NBC change. So they see no need for the change.

vivo agree that the CR is not needed.

Nokia think the RAN4 spec has section 10.1.23.2 where they identify the maximum value, and if we need a clarification in LPP we should revisit the issue next meeting and consider whether a change is needed in light of the RAN4 spec. They do not see the CR as needed now.

Intel agree with Huawei.

Qualcomm understand it is true that the RAN4 spec captures the measurement accuracy requirement margins in a table, but not the TEG margins, which capture the group delay errors. They think we are discussing two separate issues and the reference to 38.133 may be inappropriate at the moment, but this aspect can be discussed in email discussion [409]. On the signalling of the value, they agree with other companies that absence means maximum value.

Agreement:

RAN2 confirm that for the field nr-UE-RxTEG-TimingErrorMargin in IE NR-DL-TDOA-SignalMeasurementInformation, and for the fields nr-UE-TxTEG-TimingErrorMargin and nr-UE-RxTxTEG-TimingErrorMargin in IE NR-Multi-RTT-SignalMeasurementInformation, absence of the fields indicates the maximum value and the fields do not need to be made mandatory.

Proposal 8: RAN2 to discuss whether the following Proposal in 'R2-2210606, "Discussion on the provision of AL for achievable TIR calculation", vivo.' is an essential correction or not:

"Alert Limit (AL) should be provided to the UE to optionally obtain the achievable TIR."

Discussion:

Qualcomm think this is new functionality and could be discussed in Rel-18; they do not see it as a correction and think a capability would be needed.

CATT agree with Qualcomm and think there is no clear definition today of “achievable TIR”. They would prefer that we look at this in Rel-18.

Ericsson support the proposal from vivo and think if we do not provide the AL, the UE should be able to indicate if it can achieve some other TIR. They also consider that the use cases provided last meeting are valid.

ZTE think the AL is not needed to compute achievable TIR; it is also possible that the UE reports PL>AL.

vivo intended to clarify the achievable TIR; they understand that there is a mathematical relationship between PL and IR, and the UE is not able to provide meaningful information to the LMF without the AL.

Apple think this can be discussed in Rel-18.

OPPO agree the AL should be signalled to the UE; the UE should receive the TIR and respond by calculating the PL, and the UE may need to indicate the achievable TIR with that PL.

Swift think there are valid points in the tdoc and a short email discussion might help.

* [AT119bis-e][416][POS] LPP CR (Qualcomm)

 Scope: Merge the agreed LPP changes into a rapporteur CR.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

* [AT119bis-e][417][POS] Calculation of TIR and provision of AL to UE (vivo)

 Scope: Discuss the proposal from R2-2210606 and conclude on a way forward.

 Intended outcome: Report to CB session

 Deadline: Friday 2022-10-14 1000 UTC

The following documents will not be individually treated

[R2-2209430](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209430%20Correction%20to%20UE%20capability%20for%20DL-AoD.docx) Correction to UE capability for DL-AoD Huawei, HiSilicon CR Rel-17 37.355 17.2.0 0379 - F NR\_pos\_enh-Core

[R2-2209431](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209431%20Correction%20to%20TEG%20margin%20reporting.docx) Correction to TEG margin reporting Huawei, HiSilicon CR Rel-17 37.355 17.2.0 0380 - F NR\_pos\_enh-Core

[R2-2209434](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C37355_CR0383_%28Rel-17%29_R2-2209434.docx) Corrections on the timing error margins CATT discussion Rel-17 37.355 NR\_pos\_enh-Core Late

[R2-2209435](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C37355_CR0384_%28Rel-17%29_R2-2209435.docx) Change Request of missing UE capabilities CATT discussion Rel-17 37.355 NR\_pos\_enh-Core Late

[R2-2209436](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5C37355_CR0385_%28Rel-17%29_R2-2209436.docx) Corrections on the LPP capabilities CATT discussion Rel-17 37.355 NR\_pos\_enh-Core Late

[R2-2209683](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209683%20CR%20LPP%2037355%20DL-AoD%20v2.docx) NR-DL-AoD-SignalMeasurementInformation corrections Nokia, Nokia Shanghai Bell CR Rel-17 37.355 17.2.0 0381 - F NR\_pos\_enh-Core

[R2-2210199](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210199%20Correction%20on%20the%20maximum%20number%20of%20SRS%20and%20TxTEG%20association.docx) Correction on the maximum number of SRS and TxTEG association ZTE, Sanechips CR Rel-17 37.355 17.2.0 0382 - F NR\_pos\_enh-Core

[R2-2210606](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210606%20Discussion%20on%20the%20provision%20of%20AL%20for%20achievable%20TIR%20calculation.docx) Discussion on the provision of AL for achievable TIR calculation vivo discussion Rel-17 NR\_pos\_enh-Core

#### 6.11.2.4 MAC corrections

Corrections to 38.321.

[R2-2209427](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209427%20Correction%20to%20MAC%20spec%20for%20Positioning%20enhancement.docx) Correction to MAC spec for Positioning enhancement Huawei, HiSilicon CR Rel-17 38.321 17.2.0 1408 - F NR\_pos\_enh-Core

Discussion:

Huawei indicate this CR intends to align with the CG-SDT agreements. When contention resolution is successful with 2-step RACH, the CG-SDT TAT shall be restarted, while for SRSp, it might happen that during the SRS transmission there is a 2-step RACH in parallel and the TAT should be updated.

Ericsson agree with the CR, but they wonder if the network will always configure this timer, and if so, whether we should have something in the field description to this effect in RRC. Can be discussed by email.

* [AT119bis-e][418][POS] Positioning MAC CR (Huawei)

 Scope: Merge agreed MAC changes for Rel-17 positioning into a rapporteur CR.

 Intended outcome: Report and agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

[R2-2210311](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210311%20MAC%20CR.docx) Positioning Measurement Gap Activation/Deactivation Request MAC CE based upon Scheduling Request Configuration Ericsson CR Rel-17 38.321 17.2.0 1429 - F NR\_pos\_enh-Core

* Not pursued

Discussion:

Samsung do not support the CR; they think the correction implies that the UE can transmit the MAC CE only when there is a dedicated SR configuration, which is not in line with what we agreed.

Huawei have the same view as Samsung. Also Intel and CATT.

OPPO have a similar view that the UE can RACH if there is no dedicated SR. ZTE agree with Samsung.

Ericsson think we agreed last meeting that this is needed, and they think the RACH is something different. They understand that having the preconfigured MG is not enough; the network should also have provided the dedicated SR configuration.

[R2-2210607](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210607%20Clarification%20on%20the%20PPW%20index.docx) Clarification on the PPW index vivo draftCR Rel-17 38.321 17.2.0 D NR\_pos\_enh-Core

Discussion:

Huawei think this addresses an editorial issue; they partially agree with the change but think it can be discussed in the email discussion.

CATT wonder if the second correction really is common understanding in our specification; they did not find the term “addition time” elsewhere. They think this part is not an essential correction.

Ericsson thought that based on serving cell ID we have some indexing, and the “addition time” is confusing. They would prefer a different phrasing.

Nokia think this list management behaviour should be in RRC, not MAC.

To be considered in email discussion [418].

#### 6.11.2.5 UE capabilities

Including impact to 38.306 and any UE-capability-specific impact to 38.331.

[R2-2209428](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209428%20Correction%20on%20PRS%20processing%20window%20capability.docx) Correction on PRS processing window capability Huawei, HiSilicon CR Rel-17 38.306 17.2.0 0806 - F NR\_pos\_enh-Core

* Postponed

Discussion:

Lenovo think the CR makes a significant change, and they wonder if RAN1 will update the feature list to reflect the agreement. Huawei are not sure if RAN1 will update the list, but the intention of the CR is to align with RAN1’s description.

Intel agree with the intention of the CR but also see Lenovo’s point and would like to postpone and check internally.

Nokia understand this is also being discussed in RAN1.

[R2-2210310](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210310%20capability.docx) Correcting PRS capability information reported to gNB Ericsson CR Rel-17 38.306 17.2.0 0815 - F NR\_pos\_enh-Core

Discussion:

Qualcomm do not follow why NOTE 3 is voided in the CR. They understand that table NOTEs are normative. Intel have the same understanding. Lenovo have the same view, and they agree the current description is a bit confusing, but think it can be discussed offline.

Nokia have the same view as Qualcomm, so they do not see the deletion of NOTE 3 as essential.

* [AT119bis-e][419][POS] PRS capability information (Ericsson)

 Scope: Check and update the CR in R2-2210310.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

# 8 Rel-18

## 8.2 Expanded and improved NR positioning

(FS\_NR\_pos\_enh2; leading WG: RAN1; REL-18; WID: RP-221814)

Time budget: 2 TU

Tdoc Limitation: 4 tdocs

### 8.2.1 Organizational

Including incoming LSs and rapporteur inputs.

Workplan

[R2-2209588](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209588%20Work%20Plan%20for%20Study%20Item%20on%20Expanded%20and%20Improved%20NR%20Positioning.docx) Work Plan for Study Item on Expanded and Improved NR Positioning CATT, Intel Corporation, Ericsson Work Plan FS\_NR\_pos\_enh2

Terminology alignment LS and related documents

[R2-2209351](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CDocs%5CR2-2209351.zip) LS on Terminology Alignment for Ranging/Sidelink Positioning (S2-2207129; contact: Xiaomi) SA2 LS in Rel-18 FS\_Ranging\_SL To:RAN1, RAN2, RAN3 Late

[Terms defined in SA2 “and some of them are either aligned or mapped with RAN definitions”]

Ranging, SL Reference UE, Target UE, Assistant UE, Located UE, Sidelink Positioning, Positioning, Relative position

[Additional terms defined in SA2]

SL Positioning Server UE, SL Positioning Client UE, Network-assisted Operation, and UE-only Operation

Discussion:

Xiaomi think there is some misalignment between RAN2 and SA2 terminology, and for the terms that are not defined in RAN2, we have to decide what we adopt from SA2 and where/whether we ask them to change.

CATT think RAN2 can focus on the terms in RAN SI scope, and they would prefer to keep the terms that are already agreed in RAN1/RAN2 (e.g., target and anchor UEs). For the new terms from SA2, they do not want to introduce them (e.g., located UE can be integrated into anchor UE).

Huawei think we can continue using the RAN1/RAN2 terms, but for SA2’s terminology, we can tell them what the corresponding RAN term is rather than ask them to correct their terms (this is up to them). They see the reference UE corresponding to the anchor UE in relative positioning, and the located UE corresponding to the anchor UE in absolute positioning, and they see this as a mistake in the SA2 TR.

Intel indicate that multiple groups are working on these issues and we should avoid duplicated discussions; last meeting we agreed to follow SA2/RAN1 on the terminology and SA2 on the architecture. They think we could ask for clarification of terms that are unclear, but we can leave the selection of terminology itself to RAN1 and SA2 and not discuss in parallel.

Ericsson agree with CATT that we should try to consolidate terms. On the SL Positioning Server UE, they understand that SA2 do not have a use case or a justification for why it is needed, and they do not see the need. Chair points out that we agreed last meeting to follow SA2 on this.

Xiaomi also understand that we have agreed to follow SA2 on the server UE. They also agree with Intel that we should avoid parallel discussions, but they think RAN2 can provide our views on the terminologies that are related only to RAN2 procedures, without coming into conflict with RAN1, and indicate what functionalities we understand are needed.

Lenovo share Ericsson and CATT’s view about focussing on the RAN-defined and -agreed concepts, and they see that some of these UE types may be combined (e.g. reference UE==anchor UE). For the “network-assisted” and “UE-only” operation, they think we need clarification about whether mixed scenarios are supported: e.g., configuration at the network and computation at the UE.

Vodafone agree with Intel’s comment and think the worst outcome would be that everyone defines their own terminology for the same thing. If there are technical questions related to the terminology, they can be asked, but we should not push a general view from RAN2.

CATT think we could discuss the use case for the assistant UE, but the technical details may be out of our scope since it concerns two UEs without a direct sidelink connection.

vivo think RAN2 can focus on target/anchor/server UEs and on the functionalities related to RAN2. On Intel’s concern about misalignment, they think the description of the terminologies can be aligned between different WGs in combination.

OPPO think we should follow last meeting’s agreement to follow SA2 definitions, and based on this, they think we could investigate the UE roles case by case. They think the assistant UE may need to be discussed in RAN2 since it involves SL measurement configuration from the assistant UE towards the other involved UEs.

* [AT119bis-e][423][POS] LS to SA2 on SL positioning terminology (Xiaomi)

 Scope: Discuss the LS in document R2-2209351 and develop a response.

 Intended outcome: Report and agreeable LS

 Deadline: Friday 2022-10-14 1000 UTC (for comments)

[R2-2210040](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210040%20Discussion%20on%20Terminology%20alignment%20with%20SA2.doc) Discussion on Terminology alignment with SA2 Xiaomi discussion Rel-18

[R2-2210041](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210041%20Draft%20Reply%20LS%20on%20Terminology%20Alignment%20for%20Ranging%20%26%20Sidelink%20Positioning_V2.docx) Draft Reply LS on Terminology Alignment for Ranging & Sidelink Positioning Xiaomi LS out Rel-18 To:SA2 Cc:RAN1, RAN3

[R2-2209402](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209402%20Draft%20Reply%20LS%20on%20Terminology%20Alignment%20for%20RangingSidelink%20Positioning.doc) Draft Reply LS on Terminology Alignment for Ranging/Sidelink Positioning CATT LS out Rel-18 FS\_NR\_pos\_enh2 To:SA2 Cc:RAN1, RAN3

### 8.2.2 Sidelink positioning

Study of positioning architecture and signalling procedures (e.g. configuration, measurement reporting, etc) to enable sidelink positioning covering both UE based and network based positioning. Considering relative positioning, ranging and absolute positioning.

Email discussion report

[R2-2209607](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209607_Report_%5BPost119-e%5D%5B406%5D%5BPOS%5D%20Sidelink%20positioning%20protocol%20issues%20%28Intel%29.docx) Report of email discussion 406 on sidelink Intel Corporation discussion Rel-18 FS\_NR\_pos\_enh2 Late

Proposal 1: For sidelink positioning procedures between UE and LMF for the case of hybrid (Uu + PC5) based positioning in case of in-coverage, RAN2 is proposed to discuss and select between the following options:

1. Extension of LPP, whereby new signaling shall be defined to support hybrid Uu and PC5 based positioning, i.e. extend the existing LPP to support sidelink based positioning between UE and LMF

2. Enhancement of LPP whereby SLPP/RSPP signaling can be transported within LPP transparently, i.e. use the newly defined SLPP/RSPP to support sidelink based positioning and use the existing LPP to support Uu based positioning; and the SLPP/RSPP is carried as a container in LPP

Discussion:

Xiaomi prefer option 1 and see the extension as easy since LPP is structured per positioning method; they think option 2 will have more signalling overhead.

CATT think that for the hybrid case, the LMF is involved anyway, but option 2 can be a baseline for in-coverage cases. They see a lot of impact to LPP from extending it as in option 1, because it creates dependency between LPP and SLPP/RSPP.

Qualcomm do not see why the option of using SLPP/RSPP between the UE and the LMF is omitted; they agree with CATT that option 1 is the least preferred, and they see this as repeating a mistake from Rel-13 where we migrated material from LPPe into LPP and created a big code footprint needlessly. They find option 2 acceptable (similar to LPPe), but think it still has the disadvantage that you have to support LPP for SL-only devices (more related to P2). They do not see why we should have different solutions for different coverage scenarios, but in any case they do not think we need to agree now; we can develop SLPP/RSPP and look at what the options would imply in practice.

Huawei note that this proposal is for the hybrid case only, so they understand that LPP will need to be supported, and in this case the most efficient way would be to introduce a container and avoid duplicated signalling. However, on the PC5-only case (P2), they agree with Qualcomm that the UE should not have to support LPP.

Chair wonders if we should have divergence between the hybrid and PC5-only cases.

Lenovo agree with Qualcomm that we do not need to decide on signalling details in the study phase; we need to see what kind of parameters need to be signalled and then decide what option makes sense. For the study we can acknowledge that the options have pros and cons, and they can be considered during the WI phase.

OPPO think option 2 is weird: Conventionally, when a container is used, it is not opened by the receiving entity, as with the gNB forwarding the LPP container transparently. They also wonder why we would not support option 1 with SL positioning as a new method. The

Ericsson can agree to down-select in the normative phase. From the network side, they see the hybrid and PC5-only cases as somewhat the same; the question is whether the LMF should support SLPP/RSPP at all. So they prefer option 1 and see containerisation as a bit complicated.

OPPO, Apple, and MediaTek agree to down-select in the normative phase.

Apple wonder about other options such as supporting SLPP/RSPP to the LMF in this case. Xiaomi also have sympathy for this suggestion.

Vodafone are OK to select in the WI phase, but in general, they think that the dependencies between the protocols have to be justified, so they would prefer the container in option 2.

Proposal 2: For sidelink positioning procedures between UE and LMF for the case of PC5-only based positioning in case of in-coverage, RAN2 is proposed to discuss and select between the following options:

1. Extension of LPP, whereby new signaling shall be defined to support PC5 based positioning, i.e., extend the existing LPP to support sidelink based positioning between UE and LMF

2. Enhancement of LPP whereby SLPP/RSPP signaling can be transported within LPP transparently, i.e. use the newly defined SLPP/RSPP to support sidelink based positioning and SLPP/RSPP signaling is carried as a container in LPP

Agreement:

Protocol options between UE and LMF for hybrid PC5+Uu positioning and PC5-only positioning in-coverage are studied and RAN2 will down-select during normative work.

1. Extension of LPP, whereby new signaling shall be defined to support hybrid Uu and PC5 based positioning, i.e. extend the existing LPP to support sidelink based positioning between UE and LMF

2. Enhancement of LPP whereby SLPP/RSPP signaling can be transported within LPP transparently, i.e. use the newly defined SLPP/RSPP to support sidelink based positioning and use the existing LPP to support Uu based positioning; and the SLPP/RSPP is carried as a container in LPP

3. Use of SLPP/RSPP between the UE and the LMF

Proposal 3: In order to enable sidelink positioning, SLPP/RSPP shall support at least the following functionalities:

1. SL Positioning Capability Transfer

2. SL Positioning Assistance Data exchange

3. SL Location Information Transfer

4. Error handling

5. Abort

Discussion:

Samsung support the proposal.

Ericsson think it is fine to capture this, but they do not want to move into the “server UE” paradigm.

ZTE are fine with the proposal but would like to clarify whether items 2 and 3 require both the “request” and “provide” messages.

Agreement:

Proposal 3 (modified): In order to enable sidelink positioning, SLPP/RSPP shall support at least the following functionalities:

1. SL Positioning Capability Transfer

2. SL Positioning Assistance Data exchange

3. SL Location Information Transfer

4. Error handling

5. Abort

This agreement does not imply any specific signalling structure.

Proposal 4: At least the following procedures shall be defined for SLPP/RSPP using corresponding LPP procedures (and associated signaling) as baseline:

1. SLPP Capability Transfer procedure

2. SLPP Assistance Data Transfer procedure

3. SLPP Location Information Transfer procedure

4. Error handling

5. Abort

Discussion:

ZTE are not sure if request and response are required for all cases.

vivo think the “baseline” terminology is ambiguous, and they think the detailed signalling can be discussed in normative phase.

Qualcomm would also be OK to discuss this in WI phase, but they understand in the end we will have solicited and unsolicited procedures depending on the needed functionality.

Proposal 5: Unicast/one-to-one operation is assumed as baseline for exchange of sidelink positioning signaling.

Proposal 6: RAN2 shall focus on applicability of at least the following positioning signaling for groupcast/broadcast (in addition to unicast). FFS the specific use case and any security aspects:

• SL positioning capability transfer

• SL positioning assistance data

Discussion:

Huawei are fine with P5, and on P6 they think the wording needs some modification to say “RAN2 shall study the applicability”. They wonder if this information would be included in the DCR message. In the legacy operation, PC5 UE capability is only transferred after the link is established, so adding groupcast/broadcast would be a big change; they wonder if there is a security concern.

CATT have a big concern on P6 for security reasons. The groupcast and broadcast communication do not have security and the positioning capability may need to be protected.

Lenovo think P5 could be easily agreeable, and they agree that there could be a security concern with groupcast/broadcast. However, they see use cases where the information is needed among multiple group members, so they can support further study. Also wonder if we should coordinate with SA3.

Intel clarify the intention of P6 is just to study, and the use cases are intentionally left FFS; they see cases where unicast makes sense and cases where broadcast makes sense, but they acknowledge the security concern.

CATT think it is clear that the positioning signalling that should be protected cannot be transmitted by groupcast/broadcast.

MediaTek wonder about the reliability of broadcast, where it would not be known if the receiver received the message.

Apple support P6 with the security concerns included. Nokia agree with Apple.

Xiaomi think we could also include location transfer in P6, and if the main concern is about security, they think we can discuss the issues. LG and Qualcomm agree with Xiaomi.

Agreements:

Proposal 5: Unicast/one-to-one operation is assumed as baseline for exchange of sidelink positioning signaling.

Proposal 6 (modified): RAN2 shall study applicability of at least the following positioning signaling for groupcast/broadcast (in addition to unicast), including addressing any security aspects (involving SA3 where needed). FFS the specific use case:

• SL positioning capability transfer

• SL positioning assistance data

• FFS SL location information transfer

Other documents

[R2-2210363](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210363_%28Sidelink%20Positioning%29.docx) Study of Sidelink Positioning Architecture, Signaling and Procedures Qualcomm Incorporated discussion

Proposal 1 A UE supporting sidelink positioning and ranging should be capable of being enabled with the ability to calculate position and or range based on sidelink positioning and ranging measurements.

Discussion:

Chair wonders if all UEs supporting SL positioning would be required to support calculating the position. Qualcomm intend that we should not preclude any UEs from supporting it. So the intention is not to require calculation function in every UE, but to clarify that the spec does not preclude it.

Ericsson agree with the intention that the UE should be able to compute the position/ranging. Chair points out that SA2 have a server definition that includes calculating the position. Ericsson think this may not be a stable decision and they do not see a use case for it.

CATT think it depends on the capability of UEs, and we should be open to support different kinds of devices, e.g., a lower-capability UE with no computation engine.

Qualcomm think the comments from Ericsson and CATT are both reasonable; the intention is not to exclude specific functionality but to make sure that the specs do not constrain the implementation.

Intel and CMCC agree with CATT. Xiaomi think it is an SA2 decision, depending on what SA2 decides about the server UE concept.

OPPO want to delete the “should be capable” language; they agree with CATT that it should not be mandatory functionality.

Huawei wonder if this means we support both UE-based and UE-assisted SL positioning (in RAN language).

Xiaomi understand the proposal is that if the UE supports calculating the location, it can be configured to enable this functionality.

Intel think we normally discuss capability based on RAN1 input. MediaTek think the suggested agreement does not read clearly.

[RSPP/SLPP transport]

Proposal 2: RAN2 should support SLPP transport over PC5 User Plane to provide SLPP QoS and flexibility in cast type while introducing no change to the PC5 reference point.

Discussion:

Ericsson think it is too early and should perhaps be an SA2 decision.

Huawei also think it is too early to decide between CP and UP transport and would prefer to wait for SA2.

Xiaomi support the proposal, and understand that SA2 want RAN2 to make this decision.

Apple agree with Xiaomi and think the protocol stack is in our scope.

Qualcomm share Apple’s view that this is a RAN2 protocol issue.

Spreadtrum support the proposal and agree with Apple and Xiaomi. They support transport of SLPP over PC5-U as an SRB.

CATT think CP for SLPP is the baseline because it aligns with the legacy LPP operation. They see that SLPP over PC5-U to provide QoS would be out of RAN2 scope and more SA2 business. Qualcomm think there are well-defined QoS mechanisms as described in the paper that can be used.

Intel also have a concern that there will be SA2 impact from such a decision. For example, if we use PC5-S, it forces us to use unicast and requires connection setup between the UEs.

[Architecture]

Proposal 3: The UE Positioning Architecture applicable to NG-RAN should not introduce additional entities/nodes (e.g., "anchor UE", "server UE", "target UE", etc.) and should be applicable to all coverage scenarios (e.g., no separate architecture for in-coverage or out-of-coverage scenarios is needed).

Proposal 4: Extend the UE Positioning Architecture applicable to NG-RAN as shown in Figure 6.

[RSPP/SLPP design]

Proposal 5: SLPP should support session-based operation and session-less operation. SLPP session-based operation includes session establishment among a group of UEs, session modification to add or remove UEs and session termination. Session-less operation enables sidelink positioning with no discovery, no UE associations an no SLPP session.

CATT want to clarify understanding: Once UEs are involved in a session, addition and removal of a UE would not happen. They think this case is not considered in RAN1 and may be too complex for the first release.

Xiaomi wonder if duplicate detection would be applicable if there is no session.

Lenovo think it would be straightforward to support session-based for the first release, since it is already known from LPP how it would work. For sessionless, they are not clear on how it works and which entity initiates sessionless operation.

ZTE think we should prioritise session-based operation. They have a concern about broadcast of location measurements in sessionless operation.

Huawei think this is outside RAN2 scope, because the session is related to the LCS layer rather than to SLPP/RSPP. They also think the addition and removal of UEs would be a service-layer procedure.

Nokia think we should understand broadcast and preconfiguration first, to understand if there is a real need for the sessionless approach. Without a session they are concerned that we would run into reliability issues.

OPPO think that sessionless is too complex for this release.

Apple think sessionless is important: In practice it may be more useful than session-based, based on how similar technologies have been defined in 802.11, for example. They are concerned that session-based could become a paper spec. LG also think sessionless is more important and session-based is more complex because of the group maintenance procedures.

Proposal 6: Sidelink positioning protocol (SLPP) should support centralized operation, where one UE performs position/range computation based on shared measurement/location information, and distributed operation, where all participating UEs perform position/range computation.

Discussion:

Xiaomi think this could be discussed along with the LS on terminology.

CATT support P6 and think that the two operations have their own benefits. The distributed architecture could apply when not all anchor UEs are connected with each other, which could reduce deployment cost.

OPPO are confused with this proposal: Why should all participating UEs perform position computation? They understand that only one UE should do the computation, not, e.g., both endpoints of an SL-PRS transmission. Nokia agree with OPPO and would prefer that we speak of “multiple UEs” rather than “all UEs”.

LG have a concern on the use case for all UEs, and also wonder for the centralized operation if it means the UE is working in an LMF role instead of target UE. In general they find the proposal not clear.

Qualcomm think because of the nature of SL, the UEs should not be precluded from doing this computation. For example, an RSU might compute (centralized) or a mobile UE might compute (distributed). They think there are use cases for multiple calculation functions, e.g., to save a specific UE from the processing overhead.

Apple support the proposal.

Xiaomi indicate that SA2 are also considering cases with multiple server UEs, so we may be able to ask SA2 to clarify the situation.

* [AT119bis-e][424][POS] SLPP/RSPP protocol design (Qualcomm)

 Scope: Continue discussion of P5/P6 of R2-2210363 and attempt to converge. Focus on what the use cases are and the functionalities that need to be supported by the protocol design.

 Intended outcome: Report to CB session

 Deadline: Friday 2022-10-14 1000 UTC

[Supplementary services/LCS service types]

Proposal 7: Support a MO-LR or a new supplementary services operation for UE initiated SLPP transactions towards an LMF.

Proposal 8: Support a MT-LR or a new supplementary services operation for LMF-initiated SLPP transactions towards a UE.

[Potential overlap with R2-2209607]

Proposal 9: Support hybrid Uu, SL, and RAT-independent positioning by jointly using the SLPP, LPP, and NRPPa procedures.

Proposal 10: SLPP should support at least the three fundamental transaction types from LPP: capability transfer, assistance data transfer, and location information transfer.

Proposal 11: The LMF should be a protocol endpoint for SLPP.

[R2-2210167](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210167%20Considerations%20on%20Sidelink%20positioning.doc) Considerations on Sidelink positioning CMCC discussion Rel-18 FS\_NR\_pos\_enh2

[Coverage scenarios]

Proposal 1: LMF is involved for SL positioning with network coverage (i.e., in-coverage or partial coverage).

Proposal 2: In the partial coverage scenario, the out-of-coverage UE could be the target UE or the anchor UE.

[Server UE]

Proposal 3: Location server UE could be employed to allocation the resource for target UE and anchor UE and perform the location estimating.

[Cast type]

Proposal 4: Broadcast/groupcast can be employed for SL capability exchange between UEs.

[Signalling for SL-PRS configuration]

Proposal 5: For the signalling design, RAN2 is kindly asked to consider the 2 options below to perform SL-PRS configuration for sidelink positioning:

- Option 1: high-layer signalling from an LMF, a gNB, or a UE with explicit configuration;

- Option 2: high-layer signalling for pre-config with lower layer indication related to SL-PRS (de)activation or resource indication/reservation.

Discussion:

vivo think this is RAN1 scope and they are already discussing the activation signalling.

CATT and Lenovo agree it is in RAN1 scope. Huawei also agree and think RAN1 already have these options.

Proposal 6: RAN2 is kindly asked to support different granularity of the pre-configuration, e.g., SL-PRS resource pool, SL-PRS, SL PRS set.

[R2-2209400](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209400%20Discussion%20on%20SL%20positioning.docx) Discussion on SL Positioning CATT discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209425](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209425%20Discussion%20on%20sidelink%20positioning_final.docx) Discussion on sidelink positioning Huawei, HiSilicon discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209536](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209536.docx) SL-PRS configuration MediaTek Inc. discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209560](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209560%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209606](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209606.docx) Support of sidelink positioning Intel Corporation discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209671](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209671.docx) Protocol aspects of sidelink positioning Nokia Germany discussion Rel-18

[R2-2209693](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209693%20%28R18%20NR%20POS%20SI%20A822_SLPos%29.doc) Discussion on Sidelink Positioning InterDigital, Inc. discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209729](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209729%20Further%20discussion%20on%20sidelink%20positioning.docx) Further discussion on sidelink positioning OPPO discussion Rel-17 FS\_NR\_pos\_enh2

[R2-2209767](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209767-SL-positioning-v0.docx) Sidelink Positioning Architecture and Protocol Stack Apple discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209979](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209979%20Discussion%20on%20potential%20solutions%20for%20SL%20positioning.docx) Discussion on potential solutions for SL positioning Spreadtrum Communications discussion Rel-18

[R2-2210003](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210003_SLPos_Solutions.docx) On SL Positioning Protocol and Architecture Aspects Lenovo discussion Rel-18

[R2-2210042](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210042%20Discussion%20on%20SL%20positioning.doc) Discussion on SL positioning Xiaomi discussion Rel-18

[R2-2210085](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210085%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning ZTE, Sanechips discussion Rel-18 NR\_pos\_enh-Core

[R2-2210115](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210115%20Discussion%20on%20Sidelink%20Positioning.docx) Discussion on Sidelink Positioning LG Electronics Deutschland discussion

[R2-2210210](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210210.docx) Considerations on sidelink positioning Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2210316](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210316%20SL.docx) SL positioning Terminology and Protocol Aspects Ericsson discussion Rel-18

[R2-2210481](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210481%20Discussion%20on%20SL%20positioning.docx) Discussion on SL positioning Samsung discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2210546](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210546%20Discussion%20on%20OOC%20SL%20.docx) Discussion on out-of-coverage sidelink positioning Samsung R&D Institute UK discussion

### 8.2.3 RAT-dependent integrity

Study methodologies, procedures, signalling, etc for determination of positioning integrity for both UE-based and UE-assisted positioning. Focus on reuse of concepts and principles being developed for RAT-Independent GNSS positioning integrity, where possible. Identification of error sources may require input from RAN1.

Summary document

[R2-2210892](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210892%20Summary%20of%20AI%208.2.3%20on%20RAT-dependent%20integrity%20%28Samsung%29.docx) [Pre119bis-e][405] Summary of AI 8.2.3 on RAT-dependent integrity (Samsung) Samsung R&D Institute UK discussion

[DNU flag]

Proposal 1-1. RAN2 discuss and conclude that DNU flag is to be reused for assistance information in RAT-dependent positioning integrity.

Proposal 1-2. RAN2 study the usage of DNU flag for the RAT-dependent positioning integrity.

Discussion:

ZTE think the DNU flag is useful; the UE is not required to provide all the TRPs’ measurements, and a DNU flag can reduce the complexity. They understand that RAN1 have seen related simulations.

Qualcomm understand that the DNU flags are inherent in the integrity principle of operation, so they share ZTE’s view that the network needs them to inform the UE if a feared event happens, and they do not see how we can exclude.

Huawei think for the measurement aspect, the DNU flags might be needed, but for assistance data they think it is not needed; in the legacy GNSS operation, what the network does is just forward assistance data, but RAT-dependent is different. They understand that a non-usable TRP could just be excluded from the AD, and they think the DNU flag is not actually used in the integrity equations.

Apple agree with Huawei: DNU was introduced for something out of our control, which is not the case in RAT-dependent positioning.

CATT think DNU depends on whether the AD are one-shot, but if the AD are periodic or have a validity time, there may be a need for DNU. They think we may need to wait for an agreement from RAN1 on the error sources that affect the AD, but we can design the principle of how to use the DNU.

Intel agree with Huawei and Apple and have a different view from CATT: If AD are periodic, sending the DNU requires the network to send an update to the UE, and the network could equally well remove the offending TRP. They also understand that the DNU cannot be used in a posSIB in relation to a particular UE.

Lenovo support the proposals and do not see a reason to restrict the study now. They think it may be needed for measurement results. They see that the DNU flag is related to the error sources.

Ericsson think the DNU is more related to whether the data can be used for integrity; there may be AD that are usable for positioning but not integrity.

OPPO think the DNU has some overlap with flags like the LoS/NLoS indication and certain results can be excluded from integrity computation.

Huawei indicate that the RAN1 feature lead is currently proposing to leave this question to RAN2, so we may need to take decisions in this direction.

OPPO indicate that the equation has a probability condition on the DNU presence, we can conclude after studying whether to indicate the DNU presence in the equation.

Agreement:

Proposal 1-2. RAN2 study the usage of DNU flag for the RAT-dependent positioning integrity (assuming RAN1 agree to leave it to RAN2) and conclude on whether to indicate the DNU presence in the integrity principle equation.

[Integrity principle]

Proposal 2-1. RAN2 agree to reuse the integrity principle Equation 8.1.1a in 38.305 for the R18 RAT-dependent integrity case.

Proposal 2-2. RAN2 discuss on the definition of each parameters used in the agreed Equation of the integrity principle 8.1.1a in 38.305, and redefine them if necessary per positioning method.

Discussion:

Nokia and Intel understand we agreed P2-1 last meeting. In this context, Nokia think the DNU needs to be revisited; for GNSS it was used for the correction data, and here we need to think about how it applies to RAT-dependent techniques; are we providing correction information for RAT-dependent cases also?

Intel think it is clear that the parameters need to be reviewed for RAT-dependent, and they understand RAN1 are also discussing how to use this equation.

CATT think we need to send an LS to RAN1 to ask them to review the equation.

[Integrity parameters]

Proposal 3. RAN2 agree to reuse the mapping of integrity parameters with further updating the contents based on RAN1 input.

[Operating modes and supported methods]

Proposal 4. RAN2 discuss and conclude to study the both UE-based and LMF-based integrity for RAT-dependent cases.

Discussion:

Intel understand that RAN1 have already agreed this. Huawei have the same view as Intel.

Huawei think RAN2 need to work on the signalling aspects, e.g., how we transport the error source information.

Agreement:

Proposal 4. RAN2 will study the both UE-based and LMF-based integrity for RAT-dependent cases.

Proposal 5. RAN2 discuss and conclude to support mode 1 and/or mode 2 for integrity result reporting.

Proposal 6. RAN2 agree that UE-based DL-TDOA and UE-based DL-AoD only applicable to UE-based integrity mode, and remaining method i.e., UE-assisted DL-TDOA, UE-assisted DL-AoD, Multi-RTT, UL-TDOA, and UL-AoA are applicable to LMF-based integrity mode.

[Signalling]

Proposal 7. RAN2 agree that R17 UE-based integrity mode signaling can be used as baseline with the following aspects:

- UE sends capability info to LMF on integrity for UE-based mode using LPP capability transfer procedure

- LMF sends the assistance data for integrity calculation to UE for integrity of UE-based mode

- LMF sends integrity requirement e.g., TIR to UE in LPP provide assistance data message for integrity of UE-based mode

- UE sends integrity result to LMF using LPP location information Transfer message

[Assistance data contents]

Proposal 8-1. RAN2 agree LMF should, in assistance data, provide the information of error source originated from RAN node to UE for UE-based integrity mode.

Proposal 8-2. RAN2 discuss and agree on further items below about the carried contents and carrying field/msg aspects:

- The information of error source originated from RAN node could be TRP-location and/or inter-TRP synchronization

- Above information is carried with TRP info field in the NR-PositionCalculationAssitance IE in the LPP ProvideAssistanceData msg

- Above information could be mean and deviation of error source (i.e., TRP-location, inter-TRP synchronization)

- Above information could be error bounds for the error source (i.e., TRP-location, inter-TRP synchronization) and is associated with each TRP.

- Dedicated and broadcast signaling are used for the signaling

- Proposal 8-3. RAN 2 consider the NRPPa enhancement on introducing signaling between LMF and gNB/TRP on TRP related information error source for UE-based integrity mode.

[Reporting of error sources]

Proposal 9-1. RAN2 discuss and agree that UE provide its originated error source to RAN node, and the serving RAN node provides those error source information to LMF for UL positioning LMF-based integrity mode.

Proposal 9-2. RAN2 agree that UE provide the UE originated error source to LMF via LPP message for DL&UL positioning LMF-based integrity mode.

Proposal 9-3. RAN2 agree that RAN node provides RAN node originated error source to LMF via NRPPa signaling in both UL and DL&UL positioning LMF-based integrity mode.

Proposal 9-4. RAN2 further discuss and agree the followings on the error source contents carried from serving RAN node to LMF via NRPPa for LMF-based integrity mode.

- Contents would be the error of RTOA measurement for UL-TDOA, and the error of AoA/ZoA for UL-AoA, error of gNB Rx-Tx time difference measurement for Multi-RTT

- RTOA meas, gNB Rx-Tx time difference meas. and AoA meas, the error bound for each error source should be associated with each Measurement Response msg or Measurement Report msg in NRPPa sepc.

- The error source contents is provided along with gNB measurement result.

Proposal 9-5. RAN2 agree that UE oriented error source to be sent from UE to LMF via LPP for DL&UL positioning LMF-based integrity mode would be the error of UE Rx-Tx time difference for Multi-RTT

Proposal 10. RAN2 define UE capability and its signalling required to send/receive error source model during WI phase.

The following documents will not be individually treated

[R2-2209403](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209403-Discussion%20on%20RAT%20dependent%20integrity.docx) Discussion on RAT dependent integrity CATT discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209426](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209426%20Discussion%20on%20RAT-dependent%20integrity_final.docx) Discussion on RAT-dependent integrity Huawei, HiSilicon discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209561](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209561%20discussion%20%20on%20RAT-dependent%20positioning%20integrity.docx) Discussion on RAT-dependent integrity vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209608](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209608%20_support%20of%20RAT%20dependent%20integrity.docx) Integrity for RAT dependent positioning methods Intel Corporation discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209694](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209694%20%28R18%20NR%20POS%20SI%20A823_Integrity%29.doc) Discussion on RAT-dependent Integrity InterDigital, Inc. discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209725](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209725%20Consideration%20on%20RAT-dependent%20integrity.docx) Consideration on RAT-dependent integrity OPPO discussion Rel-17 FS\_NR\_pos\_enh2

[R2-2209961](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209961%20Discussion%20on%20RAT-dependent%20integrity.doc) Discussion on RAT-dependent positioning integrity Lenovo discussion Rel-18

[R2-2209980](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209980%20Discussion%20on%20solutions%20for%20integrity%20of%20RAT-dependent%20positioning%20techniques-v1.0.docx) Discussion on solutions for integrity of RAT-dependent positioning techniques Spreadtrum Communications discussion Rel-18

[R2-2210084](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210084%20Discussion%20on%20RAT-dependent%20methods%20positioning%20integrity.docx) Discussion on RAT-dependent methods positioning integrity ZTE, Sanechips discussion Rel-18 NR\_pos\_enh-Core

[R2-2210116](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210116%20Discussion%20on%20RAT-dependent%20positioning%20integrity.doc) Discussion on RAT-dependent positioning integrity Xiaomi discussion

[R2-2210140](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210140.docx) Discussion on RAT-dependent integrity CMCC discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2210211](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210211.docx) Considerations on solution for integrity of RAT dependent positioning Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2210317](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210317%20Integrity.docx) RAT-dependent integrity and TP for TR Ericsson discussion Rel-18

[R2-2210364](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210364_%28integrity%29.docx) Integrity of NR Positioning Technologies Qualcomm Incorporated discussion

[R2-2210547](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210547%20Discussion%20on%20integrity%20of%20RAT%20dependent%20positioning%20techniques%20.docx) Discussion on integrity of RAT dependent positioning techniques Samsung R&D Institute UK discussion

### 8.2.4 LPHAP

Study the requirements on LPHAP as developed by SA1 and evaluate whether existing RAN functionality can support these power consumption and positioning requirements. Based on the evaluation, and, if found beneficial, study potential enhancements to help address any limitations.

Email discussion summary

[R2-2209405](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209405%20Report%20of%20%5BPost119-e%5D%5B407%5D%5BPOS%5D%20LPHAP%20upper%20layer%20enhancements%20%28CATT%29.docx) Report of [Post119-e][407][POS] LPHAP upper layer enhancements (CATT) CATT discussion Rel-18 FS\_NR\_pos\_enh2

Other documents

[R2-2209401](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209401%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP CATT discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209424](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209424%20Discussion%20on%20the%20LPHAP_final.docx) Discussion on the LPHAP Huawei, HiSilicon discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209562](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209562%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209609](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209609%20_support%20of%20LPHAP.docx) Support of LPHAP Intel Corporation discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209695](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209695%20%28R18%20NR%20POS%20SI%20A824_LPHAP%29.doc) Discussion on LPHAP InterDigital, Inc. discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209727](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209727%20Further%20consideration%20on%20LPHAP.docx) Further consideration on LPHAP OPPO discussion Rel-17 FS\_NR\_pos\_enh2

[R2-2209768](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209768-LPHAP-v0.docx) Potential LPHAP enhancements Apple discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209962](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209962%20Discussion%20on%20low%20power%20high%20accuracy%20positioning.doc) Discussion on low power high accuracy positioning Lenovo discussion Rel-18

[R2-2210083](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210083%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP ZTE, Sanechips discussion Rel-18 NR\_pos\_enh-Core

[R2-2210117](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210117%20Discussion%20on%20LPHA%20Positioning.doc) Discussion on LPHA positioning Xiaomi discussion

[R2-2210168](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210168%C2%A0Considerations%C2%A0on%C2%A0LPHAP.doc) Considerations on LPHAP CMCC discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2210212](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210212.docx) Considerations on on solution for Low Power High Accuracy Positioning Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2210318](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210318%20LPHAP.docx) LPHAP and Text Proposal for TR Ericsson discussion Rel-18

[R2-2210365](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210365_%28LPHAP%29.docx) Enhancements to Positioning in RRC\_INACTIVE State for LPHAP Qualcomm Incorporated discussion

[R2-2210482](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210482%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP Samsung discussion Rel-18 FS\_NR\_pos\_enh2

### 8.2.5 RedCap positioning

Based on RAN1 evaluation, assess the necessity of enhancements, and, if needed, identify enhancements to help address limitations associated with RedCap UEs.

[R2-2209963](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209963%20Discussion%20on%20RedCap%20Positioning.doc) Discussion on RedCap positioning Lenovo discussion Rel-18

[R2-2209563](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209563%20Discussion%20on%20RedCap%20positioning.docx) Discussion on RedCap positioning vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209404](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209404-Discussion%20on%20RedCap%20Positioning.docx) Discussion on RedCap Positioning CATT discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209643](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209643%20Discussion%20on%20REDCAP%20Positioning.docx) Discussion on RedCap Positioning Huawei, HiSilicon discussion

[R2-2209696](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209696%20%28R18%20NR%20POS%20SI%20A825_RedCap%29.docx) Discussion on Redcap Positioning InterDigital, Inc. discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2209756](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209756%20_RedCap%20positioning.docx) RedCap positioning Intel Corporation discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2210082](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210082%20Discussion%20on%20RedCap%20positioning.docx) Discussion on RedCap positioning ZTE, Sanechips discussion Rel-18 NR\_pos\_enh-Core

[R2-2210118](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210118%20Discussion%20on%20RedCap%20UE%20Positioning.doc) Discussion on RedCap UE positioning Xiaomi discussion

[R2-2210319](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210319%20RedCap.docx) Positioning for RedCap UEs Ericsson discussion Rel-18

## 8.9 Enhanced NR Sidelink Relay

(NR\_SL\_relay\_enh-Core; leading WG: RAN2; REL-18; WID: RP-221262)

Time budget: 1.5 TU

Tdoc Limitation: 4 tdocs

### 8.9.1 Organizational

Including incoming LSs and rapporteur inputs.

[R2-2209357](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209357_S2-2207518.docx) LS on ProSe Authorization information related to UE-to-UE Relay operation to NG-RAN (S2-2207518; contact: LGE) SA2 LS in Rel-18 FS\_5G\_ProSe\_Ph2, NR\_SL\_relay\_enh To:RAN2, RAN3

* [AT119bis-e][415][Relay] LS from SA2 on authorization for UE-to-UE relay (LG)

 Scope: Discuss the LS in R2-2209357 and attempt to converge on a reply.

 Intended outcome: Approvable LS

 Deadline: Friday 2022-10-14 1000 UTC

### 8.9.2 UE-to-UE relay

Single-hop Layer-2 and Layer-3 UE-to-UE relay for unicast. Focus for this meeting is on the common L2/L3 parts: relay discovery and (re)selection. Tdocs on other aspects of the objective may be submitted but will not be treated at this meeting.

Summary document

R2-2210893 Summary of AI 8.9.2 – UE to UE Relay (InterDigital) InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

The following documents will not be individually treated

[R2-2209370](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209370_Disussion%20on%20U2U%20relay%20discovery%20and%20%28re-%29selection.docx) Discussion on U2U Relay Discovery and (Re)selection CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209499](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209499%20Discussion%20on%20NR%20sidelink%20UE%20to%20UE%20relay_cl.docx) Discussion on NR sidelink UE to UE relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209518](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209518%20Relay%20discovery%20and%20%28re%29selection%20for%20UE-to-UE%20relay.docx) Relay discovery and (re)selection for UE-to-UE relay MediaTek Inc. discussion NR\_SL\_relay\_enh-Core

[R2-2209583](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209583_U2U_Relaying_Discovery_Reselection_Intel.docx) Discovery and reselection with UE-to-UE relaying Intel Corporation discussion Rel-18 NR\_SL\_relay-Core

[R2-2209619](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209619%20Discussion%20on%20U2U%20relay%20communication.docx) Discussion on U2U relay communication ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209731](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209731%2BDiscussion%20on%20UE-to-UE%20relay.doc) Discussion on UE-to-UE relay China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209769](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209769%20Discussion%20on%20relay%20discovery%20and%20relay%20selection%20for%20U2U%20relay.doc) Discussion on U2U Relay Discovery and Relay (Re)-selection Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209819](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209819_Discussion%20on%20the%20common%20L2%20L3%20parts%20for%20U2U%20relaying.docx) Discussion on the common L2/L3 parts for U2U relaying vivo discussion

[R2-2209839](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209839-Discovery%20and%20Relay%20selection%20for%20UE-to-UE%20relay.docx) Discovery and Relay (re-)selection for UE-to-UE relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2209922](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209922%20U2U%20relay%20discovery%20and%20relay%20selection.docx) Further considerations on U2U relay discovery and relay selection Beijing Xiaomi Mobile Software discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209972](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209972.doc) Discussion on relay discovery and (re)selection for U2U relay Spreadtrum Communications discussion Rel-18

[R2-2210048](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210048%20U2U%20sidelink%20relay_revision_v2.doc) U2U sidelink relay Samsung R&D Institute UK discussion R2-2207729

[R2-2210136](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210136%20Discussion%20on%20U2U%20relay.docx) Discussion on U2U relay CMCC discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210221](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210221.doc) UE-to-UE relay (re)selection Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210232](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210232%20Basic%20aspects%20for%20U2U%20Relay%20work.docx) Basic aspects for U2U Relay work Lenovo discussion NR\_SL\_relay\_enh-Core R2-2207336

[R2-2210247](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210247%20-%20Relay%20selection%20and%20reselection%20for%20U2U%20relay.docx) Design aspects of relay selection and reselection for U2U relay Ericsson discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210248](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210248%20-%20Discussion%20on%20U2U%20coverage%20scenarios%20and%20RRC%20states.docx) Discussion on U2U coverage scenarios and RRC states Ericsson, vivo, InterDigital Inc discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210251](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210251_Discussion%20on%20SL%20Relay%20Discovery%20and%20%28Re-%29Selection%20enhanced.docx) Discussion on SL UE-to-UE Relay Discovery and (Re-)Selection Fraunhofer IIS, Fraunhofer HHI discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210263](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210263%20%28R18%20SL%20Relay%20WI_AI892%20RelayDiscoverySelection%29.doc) Discovery and Relay Selection for UE-to-UE Relays InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210276](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210276_U2U_discovery.doc) Initial considerations for U2U relay discovery and (re)selection Kyocera discussion

[R2-2210339](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210339%20On%20L2%20and%20L3%20U2U%20relays.docx) On L2 and L3 U2U relays Nokia, Nokia Shanghai Bell discussion NR\_SL\_relay\_enh-Core

[R2-2210475](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210475_U2U_relay_discussion.doc) UE-to-UE relay discovery and (re)selection Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210498](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210498.doc) Discussion on UE-to-UE relay Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210580](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210580-Relay%20selection%20and%20connection%20establishment%20for%20UE-to-UE%20relay.docx) Relay selection and connection establishment LG Electronics France discussion Rel-18

L2 specific documents (not treated)

[R2-2209519](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209519%20Connection%20management%20and%20procedures%20for%20L2%20UE-to-UE%20relay.docx) Connection management and procedures for L2 UE-to-UE relay MediaTek Inc. discussion NR\_SL\_relay\_enh-Core

[R2-2210277](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210277_U2U_CP.docx) Initial considerations for U2U L2 relay CP operations Kyocera discussion

### 8.9.3 Service continuity enhancements for L2 UE-to-network relay

Inter-gNB direct/indirect path switching; intra-gNB indirect/indirect path switching; and inter-gNB indirect/indirect path switching, to be supported by reuse of solutions for the other scenarios.

Summary document

R2-2210782 Summary of AI 8.9.3, Service Continuity Enhancements Ericsson España S.A. discussion Rel-18

The following documents will not be individually treated

[R2-2209371](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209371%20Consideration%20on%20Service%20Continuity%20Enhancements%20for%20L2%20U2N%20Relay.docx) Consideration on Service Continuity Enhancements for L2 U2N Relay CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209460](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209460_Considerations%20on%20Service%20Continuity%20Enhancement.docx) Considerations on Service Continuity Enhancement NEC Corporation discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209498](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209498%20Discussion%20on%20further%20enhancement%20of%20service%20continuity_cl.docx) Discussion on further enhancement of service continuity OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209520](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209520%20Inter-gNB%20path%20switch%20to%20Relay%20UE%20in%20RRC_Idle%2C%20RRC_Inactive.docx) Inter-gNB path switch to Relay UE in RRC\_Idle, RRC\_Inactive MediaTek Inc. discussion NR\_SL\_relay\_enh-Core

[R2-2209584](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209584%20-%20Service%20continuity%20enhancements%20for%20L2%20U2N%20relaying.docx) Service continuity enhancements for L2 U2N relay Intel Corporation discussion Rel-18 NR\_SL\_relay-Core

[R2-2209642](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209642_Inter%20gNB%20aspects%20of%20Service%20continuity%20for%20U2N%20relays.docx) Inter-gNB Aspects of Service Continuity for Layer-2 UE-to-Network Relays Ericsson España S.A. discussion Rel-18

[R2-2209730](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209730_Service%20continuity%20enhancements%20for%20L2%20U2N%20relay.docx) Service continuity enhancements for L2 U2N relay China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209770](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209770%20Discussion%20on%20service%20continuity%20enhancement%20of%20L2%20U2N%20relay.doc) Discussion on Service continuity enhancement of L2 U2N relay Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209820](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209820%20On%20service%20continuity%20enhancement%20for%20L2%20U2N%20relay.docx) On service continuity enhancement for L2 U2N relay vivo discussion

[R2-2209841](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209841-Service%20continuity%20for%20UE-to-Network%20relay-r1.docx) Service continuity for UE-to-Network relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2209882](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209882%20Discussion%20on%20service%20continuity%20enhancement.docx) Discussion on service continuity enhancement Xiaomi discussion

[R2-2209901](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209901%20Service%20continuity%20enhancement%20for%20SL%20relay.doc) Service continuity enhancement for L2 U2N relay ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209943](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209943%20Service%20continuity%20in%20U2N%20relay%20case%20v1.1.docx) Service continuity in L2 U2N relay case Lenovo discussion Rel-18

[R2-2209975](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209975%20Service%20continuity%20enhancements%20support%20for%20L2%20U2N%20relay.doc) Service continuity enhancements support for L2 U2N relay Spreadtrum Communications discussion Rel-18

[R2-2210014](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210014%20Service%20continuity%20enhancements%20for%20L2%20U2N%20relay.doc) Service continuity enhancements for L2 U2N relay Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210101](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210101%20U2N%20relay%20inter-gNB%20path%20switching%20service%20continuity.docx) Discussion on service continuity enhancement for Inter-gNB path switching of L2 U2N relay Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210102](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210102%20U2N%20relay%20service%20continuity%20relay%20UE%20Idle.docx) Discussion on service continuity enhancement for Inter-gNB path switching via relay UE in RRC\_IDLE/INACTIVE state Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210112](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210112%20Discussion%20on%20service%20continuity.docx) Discussion on Service Continuity Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210137](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210137%20Service%20continuity%20on%20U2N%20relay.docx) Service continuity on U2N relay CMCC discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210223](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210223.doc) Service continuity enhancements for UE sidelink relay Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210264](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210264%20%28R18%20SL%20Relay%20WI_AI893%20Service%20Continuity%29.doc) Open Issues on Service Continuity for Rel18 InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core Withdrawn

[R2-2210278](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210278_U2N_path_switch.doc) L2 U2N inter-gNB service continuity Kyocera discussion

[R2-2210442](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210442%20%28R18%20SL%20Relay%20WI_AI893%20Service%20Continuity%29.doc) Open Issues on Service Continuity for Rel18 InterDigital France R&D, SAS discussion

[R2-2210474](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210474-Service%20Continuity%20Enhancements%20for%20Layer-2%20U2N%20Relay.doc) Service Continuity Enhancements for Layer-2 U2N Relay Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210578](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210578-Service%20continuity%20enhancements%20for%20L2%20U2N%20relay.docx) Service continuity enhancements for L2 U2N relay LG Electronics France discussion Rel-18

### 8.9.4 Multi-path relaying

Study the benefit and potential solutions for multi-path support to enhance reliability and throughput. Includes the cases where a UE is connected to the same gNB using one direct path and one indirect path via 1) Layer-2 UE-to-Network relay, or 2) via another UE (where the UE-UE inter-connection is assumed to be ideal).

Email discussion report

[R2-2210027](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210027%20Final%20Report%20of%20%5B408%5D%20MP.doc) Report of [Post119-e][408][Relay] Path operations in multi-path relaying LG Electronics France report Rel-18 NR\_SL\_relay\_enh-Core

Treat section 3 only (P11-P28)

[R2-2209375](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209375%20-%20Discussion%20on%20multi-path%20Relay_V2.docx) Discussion on multi-path Relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

=> Revised in R2-2210780

[R2-2210780](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210780%20-%20Discussion%20on%20multi-path%20Relay_V3.docx) Discussion on multi-path Relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209372](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209372_Discussion%20on%20Multi-path%20for%20Scenario1.docx) Discussion on Multi-path for Scenario 1 CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209373](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209373_Discussion%20on%20the%20Details%20of%20Scenario%202.docx) Discussion on the Details of Scenario 2 CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209461](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209461_Considerations%20on%20Multipath%20of%20Sidelink%20Relay.docx) Considerations on Multipath of Sidelink Relay NEC Corporation discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209585](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209585_Discussion%20on%20Multi-path%20Relaying_Intel.docx) Discussion on Multi-path Relaying Intel Corporation discussion Rel-18 NR\_SL\_relay-Core

[R2-2209617](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209617-Further%20discussion%20on%20multi-path%20relaying.docx) Further discussion on the multi-path relaying ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209618](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209618-Design%20consideration%20on%20the%20UE%20aggregation.docx) Design consideration on the UE aggregation ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209681](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209681%20Multipath%20support%20for%20remote%20UE%20v01.docx) Multipath support for remote UE MediaTek Inc. discussion Rel-18

[R2-2209682](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209682_Multipath%20relaying%20for%20Scenario-1%20and%20Scenario-2.docx) Multipath Relaying for Scenario-1 and Scenario-2 Ericsson España S.A. discussion Rel-18

[R2-2209732](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209732%20Discussion%20on%20RLF%20handling%20for%20multi-path%20relaying.docx) Discussion on RLF handling for multi-path relaying China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209749](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209749%20Support%20of%20Multi-path%20relaying.docx) Support of Multi-path Relaying Nokia, Nokia Shanghai Bell discussion NR\_SL\_relay\_enh-Core

[R2-2209771](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209771%20Discussion%20on%20multi-path%20support.doc) Discussion on multi-path relaying support Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209821](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209821_%20Multi-path%20UE%20aggregation%20on%20PC5%20and%20Ideal-link.docx) Multi-path UE aggregation on PC5 and Ideal-link vivo discussion

[R2-2209840](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209840-Discussion%20on%20multi-path%20operation%20for%20UE-to-Network%20relay.docx) Discussion on multi-path relay for Scenario 1 and Scenario 2 Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Perf

[R2-2209881](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209881%20Discussion%20on%20multipath.docx) Discussion on multi-path Xiaomi discussion

[R2-2209944](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209944.docx) Discussion on Multi-path relaying Lenovo discussion Rel-18

[R2-2209945](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209945%20Second%20path%20establishment%20for%20Multi-Path%20v1.1.docx) Second path establishment for Multi-Path Lenovo discussion Rel-18

[R2-2209976](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209976%20Discussion%20on%20multi-path%20relaying.doc) Discussion on multi-path relaying Spreadtrum Communications discussion Rel-18

[R2-2210031](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210031%20Multi-path%20relaying%20for%20NR%20sidelink%20relay%20enhancements.doc) Multi-path relaying for NR sidelink relay enhancements LG Electronics France discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210063](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210063_SLRelay_PrimaryPath_v1.doc) Discussion on primary path for CP in sidelink relay enhancement Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210064](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210064_SLRelay_Multipath_others_v1.doc) Discussion on key issues for multipath in sidelink relay enhancement Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210138](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210138%20Primary%20path%20for%20CP%20in%20multi-path.docx) Primary path for CP in multi-path CMCC discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210139](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210139%20Consideration%20on%20UE%20aggregation.docx) Consideration on UE aggregation CMCC discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210224](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210224.doc) Multi-path relaying discussion Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210265](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210265%20%28R18%20SL%20Relay%20WI_AI894%20MultipathAspects%29.doc) Architecture Assumptions for Multi-path InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210425](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210425%20%28R18%20SL%20Relay%20WI_AI894%20MultipathBearer.doc) SRB and DRB Configurations for Multi-path InterDigital France R&D, SAS discussion

[R2-2210476](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210476_MP_bearer.doc) discussion on multi-path bearer Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210477](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210477_MP_resource_allocation.doc) resource allocation for multi-path relaying Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210497](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210497.docx) Discussion on Rel-18 multi-path via SL relay and UE aggregation Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

Withdrawn/Not available

[R2-2210266](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210266%20%28R18%20SL%20Relay%20WI_AI894%20MultipathBearer.doc) SRB and DRB Configurations for Multi-path InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core Withdrawn

### 8.9.5 DRX

Study the gains and, if needed, specify signalling between gNB and relay UE in sidelink mode 2 to assist the determination of the sidelink DRX configuration used for remote UE. This agenda item will be handled at lower priority.

[R2-2209376](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209376%20-%20Discussion%20on%20SL-DRX%20for%20Relay.docx) Discussion on SL-DRX for Relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209774](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209774%20Discussion%20on%20SL-DRX%20for%20L2%20relay.doc) Discussion on SL DRX for L2 Relay Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2209822](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209822_Discussion%20on%20SL%20DRX%20for%20L2%20U2N%20Remote%20UE.docx) Discussion on SL DRX for L2 U2N Remote UE vivo discussion

[R2-2209842](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209842-SL%20DRX%20for%20L2%20U2N%20relay.docx) SL DRX for L2 U2N relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2209883](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2209883%20Discussion%20on%20SL%20DRX%20in%20U2N%20relay.docx) Discussion on SL DRX in U2N relay Xiaomi discussion

[R2-2210222](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210222.doc) Discussions on Sidelink Relay DRX Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2210499](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210499.doc) On sidelink DRX for L2 U2N relay Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2210579](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210579-sidelink%20DRX%20for%20L2%20U2N%20relay.docx) SL DRX for L2 U2N relay LG Electronics France discussion Rel-18

## 8.18 R18 Other

Misc Impacts from Other RAN WGs and TSGs (incl MC Enhancements). LS ins for Rel-18 topics that has no RAN WI.

Time budget: 0.5 TU

Tdoc Limitation: -

[R2-2210320](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210320%20RelayPosSIBs.docx) Relaying of posSIBs Ericsson discussion Rel-18

[R2-2210367](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202210%20-%20RAN2_119bis-e%2C%20Online%5CExtracts%5CR2-2210367_%28SL%20Relay%29.docx) On Positioning Support for L2 UE-to-Network Remote UEs Qualcomm Incorporated discussion