3GPP TSG-RAN WG2 Meeting #122 R2-23xxxxx

Incheon, Korea, 22-26 May 2023

Source: Session Chair (MediaTek)

Title: Report from session on positioning and sidelink relay

# At-Meeting Email Discussions

This subsection is not an Agenda Item. It enumerates the email discussions allocated during the meeting. This subsection will be moved to an Annex in the final version of the session report.

* [AT122][400][POS][Relay] Organisational Nathan - Positioning/Relay (MediaTek)

 Scope: Organisational discussions and announcements, as needed during the meeting week.

 Intended outcome: Well-informed participants

 Deadline: Friday 2023-05-26 1700 KST

* [AT122][401][POS] Sidelink positioning summary proposals (Xiaomi)

 Scope: Discuss and gauge support on the proposals in R2-2306757, converge on easily agreeable parts, and identify discussion points for the online session on Wednesday 2023-05-24.

 Intended outcome: Summary to online session in R2-2306671

 Deadline: Tuesday 2023-05-23 2000 KST

* [AT122][402][Relay] Multi-path relay summary proposals (OPPO)

 Scope: Discuss and gauge support on the proposals in R2-2306556, converge on easily agreeable parts, and identify discussion points for the online session on Tuesday 2023-05-23.

 Intended outcome: Summary to online session in R2-2306672

 Deadline: Tuesday 2023-05-23 1100 KST

* [AT122][403][POS] 1-symbol PRS CR check (ZTE)

 Scope: Check the CRs in R2-2306079 / R2-2306080 / R2-2306081 / R2-2306082 / R2-2306083

 Intended outcome: CRs agreeable in principle

 Deadline: Wednesday 2023-05-24 2000 KST

* [AT122][404][POS] GNSS LOS/NLOS CR check (Vodafone)

 Scope: Check the CRs in R2-2306535 / R2-2306536 / R2-2306537, taking into account the exposition in R2-2306534.

 Intended outcome: CRs agreeable in principle

 Deadline: Wednesday 2023-05-24 2000 KST

* [AT122][405][POS] Yaw and APC in Rel-18 (Swift)

 Scope: Check the proposals in R2-2305265 and adapt the TPs into CRs if agreeable.

 Intended outcome: Report to CB session in R2-2306673 and potentially CRs agreeable in principle

 Deadline: Wednesday 2023-05-24 2000 KST

* [AT122][406][POS] Positioning for remote UEs CR check (CATT)

 Scope: Check the CRs in R2-2305852 / R2-2305854 / R2-2305857 / R2-2305859 in light of the exposition in R2-2305850 / R2-2305865, and evaluate the proposals in R2-2306019.

 Intended outcome: Report to CB session in R2-2306674 and CRs agreeable in principle

 Deadline: Wednesday 2023-05-24 2000 KST

* [AT122][407][POS] Rel-15/16 positioning CR check (Intel)

 Scope: Check the CRs in R2-2306459 / R2-2306460 / R2-2306451 (in light of the exposition in R2-2306409), R2-2306027 / R2-2306028, and R2-2306084 / R2-2306085.

 Intended outcome: Agreeable CRs

 Deadline: Thursday 2023-05-25 1100 KST

* [AT122][408][POS] Reply LS to CT4 on integrity parameters (Huawei)

 Scope: Draft a reply to R2-2304608 in line with the agreements reached online.

 Intended outcome: Approvable LS in R2-2306681

 Deadline: Wednesday 2023-05-24 2000 KST

* [AT122][409][POS] Update of LPP rapporteur CR (Qualcomm)

 Scope: Update R2-2305895 in line with the discussion of this meeting.

 Intended outcome: Agreeable CR in R2-2306676

 Deadline: Wednesday 2023-05-24 2000 KST

* [AT122][410][Relay] SRAP corrections (ZTE)

 Scope: Check the intention of the first change and the details of wording for the CR in R2-2305211.

 Intended outcome: Agreeable CR in R2-2306679

 Deadline: Wednesday 2023-05-24 2000 KST

* [AT122][411][Relay] NOTE on remote UE reception of SIB1 (Huawei)

 Scope: Attempt to draft a NOTE capturing the intention of the 1st change in R2-2306194, without changing the normative UE behaviour. If it is concluded that normative impact is needed, the issue can be postponed.

 Intended outcome: Report in R2-2306683 and agreeable CR in R2-2306684(to Friday CB session)

 Deadline: Thursday 2023-05-25 2000 KST

* [AT122][412][Relay] CR on discovery setting in SIB12 (Nokia)

 Scope: Revise the CR in R2-2305573, adding a condition for discovery monitoring. Can discuss if something is needed in section 5.8 in addition to the existing change in 5.2.

 Intended outcome: Agreeable CR in R2-2306685

 Deadline: Thursday 2023-05-25 2000 KST

* [AT122][413][Relay] Relay miscellaneous CR to 38.331 (Huawei)

 Scope: Revise R2-2306194 in light of the conclusions of P5 of R2-2306751.

 Intended outcome: Agreeable CR in R2-2306687

 Deadline: Thursday 2023-05-25 2000 KST

* [AT122][414][Relay] Handling of PC5 connection release during RRC re-establishment (Lenovo)

 Scope: Discuss the proposal from R2-2305849 on handling of PC5 connection release while RRC re-establishment is ongoing and agree on a way forward.

 Intended outcome: Report in R2-2306688 and agreeable CR in R2-2306689

 Deadline: Thursday 2023-05-25 2000 KST

* [AT122][415][POS] LS to RAN1/RAN3/RAN4 on LPHAP agreements (Huawei)

 Scope: Draft an LS to RAN1/RAN3/RAN4:

* Ask RAN1/RAN4 for confirmation on whether the eRedCap agreed eDRX cycle lengths are sufficient for positioning;
* Indicate to RAN3 our conclusions on area-specific SRS configuration by LMF;
* Request from RAN1 the parameters for the area-specific SRS configuration.

 Intended outcome: Approvable LS

 Deadline: Thursday 2023-05-25 2000 KST

# 4 EUTRA Rel-17 and earlier

Only essential corrections. No documents should be submitted to 4. Please submit to 4.x

## 4.4 Positioning corrections Rel-16 and earlier

(LTE\_NavIC-Core, LTE TEI16 Positioning), REL-15 and Earlier WIs related to positioning are in scope but not listed explicitly (long list).

This Agenda Item will be handled by email.

### 4.4.0 In-Principle-Agreed CRs

### 4.4.1 Corrections

# 5 NR Rel-15 and Rel-16

Essential corrections only.

Tdoc Limitation: 8 tdocs in total for all sub agenda items.

In case a correction need to be reflected in both NR TS and LTE TS, the corrections should be submitted under one single AI (so the NR and LTE correction can be treatee together), the sub-AIs below this

## 5.3 NR Positioning Support

(NR\_newRAT-Core; leading WG: RAN1; REL-15; started: Mar. 17; closed: Jun. 19: WID: RP-191971)

(NR\_pos-Core; leading WG: RAN1; REL-16; started: Mar 19; target; Jun 20; WID: RP-200218).

(NR TEI16 Positioning)

This agenda item will be handled by email.

### 5.3.0 In-Principle-Agreed CRs

R2-2304789 Correction on SI update for posSIB-r16 Huawei, HiSilicon CR Rel-16 38.331 16.12.0 3974 1 F NR\_pos-Core R2-2302985

[R2-2304790](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304790%20Correction%20on%20SI%20update%20for%20posSIB-r17.docx) Correction on SI update for posSIB-r17 Huawei, HiSilicon CR Rel-17 38.331 17.4.0 3975 1 F NR\_pos-Core, NR\_redcap-Core R2-2302986

[R2-2305253](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305253_36305_%280113%29_R15_APC.docx) APC clarification for SSR positioning Swift Navigation, Ericsson CR Rel-15 36.305 15.5.0 0113 1 F LCS\_LTE\_acc\_enh-Core R2-2304308

[R2-2305254](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305254_36305_%280114%29_R16_APC.docx) APC clarification for SSR positioning Swift Navigation, Ericsson CR Rel-16 36.305 16.4.0 0114 1 A LCS\_LTE\_acc\_enh-Core R2-2304309

[R2-2305255](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305255_36305_%280115%29_R17_APC.docx) APC clarification for SSR positioning Swift Navigation, Ericsson CR Rel-17 36.305 17.2.0 0115 1 A LCS\_LTE\_acc\_enh-Core R2-2304310

[R2-2305256](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305256_38305_%280129%29_R15_APC.docx) APC clarification for SSR positioning Swift Navigation, Ericsson CR Rel-15 38.305 15.9.0 0129 1 F NR\_newRAT-Core R2-2304311

[R2-2305257](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305257_38305_%280130%29_R16_APC.docx) APC clarification for SSR positioning Swift Navigation, Ericsson CR Rel-16 38.305 16.8.0 0130 1 A NR\_newRAT-Core R2-2304312

[R2-2305258](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305258_38305_%280131%29_R17_APC.docx) APC clarification for SSR positioning Swift Navigation, Ericsson CR Rel-17 38.305 17.4.0 0131 1 A NR\_newRAT-Core R2-2304313

[R2-2305259](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305259_36305_%280116%29_R16_Yaw.docx) Zero Yaw clarification for SSR positioning Swift Navigation, Ericsson CR Rel-16 36.305 16.4.0 0116 1 F NR\_pos-Core R2-2304314

[R2-2305260](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305260_36305_%280117%29_R17_Yaw.docx) Zero Yaw clarification for SSR positioning Swift Navigation, Ericsson CR Rel-17 36.305 17.2.0 0117 1 A NR\_pos-Core R2-2304315

[R2-2305261](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305261_38305_%280132%29_R16_Yaw.docx) Zero Yaw clarification for SSR positioning Swift Navigation, Ericsson CR Rel-16 38.305 16.8.0 0132 1 F NR\_pos-Core R2-2304316

[R2-2305262](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305262_38305_%280133%29_R17_Yaw.docx) Zero Yaw clarification for SSR positioning Swift Navigation, Ericsson CR Rel-17 38.305 17.4.0 0133 1 A NR\_pos-Core R2-2304317

### 5.3.1 General and Stage 2 corrections

Including incoming LSs if any, Including impact to 36.305 and 38.305. Stage 2 corrections shall be discussed with the specification rapporteur (Sven Fischer sfischer@qti.qualcomm.com) before submission. Stage 2 CRs not discussed with the specification rapporteur will not be treated.

### 5.3.2 RRC corrections

Including impact to 36.331, 38.331, and 38.306.

[R2-2306409](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306409%20Discussion%20on%20the%20misalignment%20issue%20in%20location%20measurement%20indication%20procedure.docx) Discussion on the misalignment issue in location measurement indication procedure ZTE Corporation discussion Rel-15 NR\_newRAT-Core

[R2-2306459](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306459%20Clarification%20on%20the%20misalignment%20issue%20in%20location%20measurement%20indication%20procedure.docx) Clarification on the misalignment issue in location measurement indication procedure ZTE Corporation CR Rel-15 38.331 15.21.0 4149 - F NR\_newRAT-Core

[R2-2306460](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306460%20Clarification%20on%20the%20misalignment%20issue%20in%20location%20measurement%20indication%20procedure.docx) Clarification on the misalignment issue in location measurement indication procedure ZTE Corporation CR Rel-16 38.331 16.12.0 4150 - A NR\_newRAT-Core

[R2-2306461](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306461%20Clarification%20on%20the%20misalignment%20issue%20in%20location%20measurement%20indication%20procedure.docx) Clarification on the misalignment issue in location measurement indication procedure ZTE Corporation CR Rel-17 38.331 17.4.0 4151 - A NR\_newRAT-Core

### 5.3.3 LPP corrections

[R2-2306027](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306027.docx) GNSS Troposperic Delay Correction field description Ericsson CR Rel-16 37.355 16.10.0 0451 - F NR\_pos-Core

[R2-2306028](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306028%20SSRgridA.docx) GNSS Troposperic Delay Correction field description Ericsson CR Rel-17 37.355 17.4.0 0452 - A NR\_pos-Core

### 5.3.4 MAC corrections

[R2-2306084](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306084%20Correction%20on%20DL%20MAC%20CE%20for%20SP%20Positioning%20SRS.docx) Correction on DL MAC CE for SP Positioning SRS ZTE Corporation CR Rel-16 38.321 16.11.0 1590 1 F NR\_pos-Core R2-2303501

[R2-2306085](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306085%20Correction%20on%20DL%20MAC%20CE%20for%20SP%20Positioning%20SRS.docx) Correction on DL MAC CE for SP Positioning SRS ZTE Corporation CR Rel-17 38.321 17.4.0 1591 1 A NR\_pos-Core R2-2303502

* [AT122][407][POS] Rel-15/16 positioning CR check (Intel)

 Scope: Check the CRs in R2-2306459 / R2-2306460 / R2-2306451 (in light of the exposition in R2-2306409), R2-2306027 / R2-2306028, and R2-2306084 / R2-2306085.

 Intended outcome: Agreeable CRs

 Deadline: Thursday 2023-05-25 1100 KST

# 6 NR Rel-17

## 6.3 NR Sidelink relay

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

Tdoc Limitation: 2 tdocs

### 6.3.0 In principle agreed CRs

[R2-2306196](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5C38323_CR0123r1_%28Rel-17%29_R2-2306196%20Clarification%20on%20the%20services%20expected%20from%20SRAP%20layer.docx) Clarification on the services expected from SRAP layer Huawei, HiSilicon CR Rel-17 38.323 17.4.0 0123 1 F NR\_SL\_relay-Core R2-2303490

* Agreed

[R2-2306197](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5C38322_CR0052r1_%28Rel-17%29_R2-2306197%20Clarification%20on%20the%20maximum%20Data%20field%20size%20for%20L2%20U2N%20relay.docx) Clarification on the maximum Data field size for L2 U2N relay Huawei, HiSilicon CR Rel-17 38.322 17.2.0 0052 1 F NR\_SL\_relay-Core R2-2303491

* Agreed

[R2-2306198](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5C38304_CR0333r3_%28Rel-17%29_R2-2306198%20Clarification%20on%20sidelink%20communication%20resource%20configuration%20used%20by%20OoC%20L2%20Remote%20UE.docx) Clarification on sidelink communication resource configuration used by OoC L2 Remote UE Huawei, HiSilicon CR Rel-17 38.304 17.4.0 0333 3 F NR\_SL\_relay-Core R2-2304508

* Agreed

Discussion:

Nokia are concerned about collision with the CR from discussion [AT122][504]. Huawei think this can be addressed as long as relay experts participate in the discussion.

[R2-2306199](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5C38331_CR4064r1_%28Rel-17%29_R2-2306199%20Miscellaneous%20corrections%20for%20SL%20relay.docx) Miscellaneous corrections for SL relay Huawei, HiSilicon, CATT, ZTE Corporation, Sanechips, vivo, Apple, Nokia, Nokia Shanghai Bell, Philips International B.V. CR Rel-17 38.331 17.4.0 4064 1 F NR\_SL\_relay-Core R2-2304466

* Agreed

### 6.3.1 Control plane and Stage-2 corrections

A single CR with miscellaneous corrections is encouraged. Small editorial corrections should be sent directly to the CR rapporteur. Larger open issues can be discussed with contributions (limited time).

Agenda item summary

[R2-2306751](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306751%20%5BPre122%5D%5B406%5D%5BRelay%5D%20Summary%20of%20AI%206.3.1%20on%20Rel-17%20relay%20control%20plane%20%28Huawei%29.docx) [Pre122][406][Relay] Summary of AI 6.3.1 on Rel-17 relay control plane (Huawei) Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

38.300 corrections

Proposal 1: The following changes are agreeable and can be merged into one mega CR for small stage 2 changes, and R2-2305058 can be taken as baseline for the mega CR.

‐ In subclause 16.12.6.2, for direct to indirect path switch, clarify that RRCReconfiguration message sent to UE happens during step 5, not between step 4 and step 5.(R2-2305274)

‐ In subclause 16.12.6.1, remove “can release PC5-RRC connection and” from the sentence that “Either L2 U2N Relay UE or L2 U2N Remote UE's AS layer can release PC5-RRC connection and indicates upper layers to release PC5 unicast link after receiving the RRCReconfiguration message from the gNB.”(R2-2305275)

‐ Added SL-RSRP as an abbreviation to compliment the definition of SD-RSRP and described the intention of the discovery RSRP and communication RSRP. (R2-2305587)

‐ Replaced the “enable DL bearer mapping between ingress RLC channel and egress RLC channel” with “identify the corresponding end-to-end Uu Radio Bearer(s) of L2 U2N remote UE” (R2-2305058)

‐ Add “L3” in 16.12.3 to restrict preconfiguration to only be used by L3 U2N relay UE for relay discovery transmission. (R2-2305058)

‐ Fixed a list of editorial issues mentioned in the reasons of change. (R2-2305058)

Discussion:

Nokia wonder if the second bullet is correct; they understand that the UEs can release the connection. Huawei clarify that it is to align with the usage in the RRC specification, where we say that AS will notify upper layers to trigger the release. Nokia think nothing is wrong with the existing sentence.

Huawei indicate it could suggest that AS layer releases the connection, which is wrong.

* P1 is agreed (document statuses to be updated)

38.331 corrections

Proposal 2: Regarding correction on remote UE’s behavior upon SIB1 reception, RAN2 to discuss the 3 options:

– Option 1: change procedural text as in R2-2305215;

– Option 2: add a note as the 1st change in R2-2306194;

– Option 3: no change, which means the remote UE can camp on a relay UE only when it can camp on the Uu Cell with respect to Uu bandwidth, frequency, etc.

Discussion:

Xiaomi think the current spec is not correct; the remote UE should not check the Uu PHY conditions, so either option 1 or option 2 would be correct; they slightly prefer option 1.

OPPO do not think option 1 is essential. They can accept option 2, but they are not sure if it’s correct that the UE does not have to apply this configuration. They would be fine with option 3.

ZTE agree with the intention that the UE does not apply this configuration, but they think a NOTE is OK.

Nokia agree with the intention of the change, but since this is a normative UE behaviour, they think a NOTE is not sufficient; however, they think the change in option 1 is not fully correct.

LG think option 1 or option 2 is needed, but option 2 is preferred.

Qualcomm think there are other places in the spec with similar issues, and a NOTE could be sufficient.

Huawei want to clarify the scenario; the remote UE is OOC but could not camp on the cell if in coverage, so the use case for the proposal is to allow the UE to act as a remote UE when OOC. They are fine with option 3, which would mean no OOC-only operation of a remote UE when it could not otherwise camp on the cell. They think the UE should check to know if it can be served directly by the cell; if the UE cannot be served by the cell, it could prefer another relay UE on a different cell.

Xiaomi think if the UE moves back to an in-coverage cell, the current conditions will apply and nothing is broken. They also think the gNB can be aware of the UE’s capability and do the correct handling. Huawei think the condition is not useful if it is up to UE implementation whether to apply it.

Apple think the wording of the proposed NOTE is not perfect. Nokia think the NOTE uses normative words that are forbidden in NOTEs, and we should change the procedural text.

OPPO are not convinced that there is a real problem; the UE just performs an additional check. They understand that we guide the UE to perform direct path search and relay selection in parallel, dependent on implementation, so the UE should be able to camp on each type of path; they thus want to avoid a normative change, but they could discuss the wording of a NOTE.

Xiaomi think there is no requirement that the UE has to support Uu on a cell to use relaying to the cell; e.g., wearables might not support the cell configuration on the direct path. So they think it is not a corner case.

Nokia agree a NOTE would be simpler, but we should not use one to modify normative behaviour. The intention is that the normative behaviour is the same with or without the NOTE.

Qualcomm think there are a lot of Uu features not supported for U2N, and they wonder if we need to clarify everything or just capture a high-level sentence somewhere.

OPPO think there are two perceptions: Companies believe the change is needed, i.e., the UE behaviour needs to be changed, or else that the UE behaviour is already allowed and at most a clarifying NOTE would be needed.

Samsung agree with Qualcomm that there are other places in the spec needing clarification, which is not easy to do at this stage. So they would prefer a NOTE for this case.

* [AT122][411][Relay] NOTE on remote UE reception of SIB1 (Huawei)

 Scope: Attempt to draft a NOTE capturing the intention of the 1st change in R2-2306194, without changing the normative UE behaviour. If it is concluded that normative impact is needed, the issue can be postponed.

 Intended outcome: Report in R2-2306683 and agreeable CR in R2-2306684 (to Friday CB session)

 Deadline: Thursday 2023-05-25 2000 KST

Proposal 3: RAN2 to agree that UE is not allowed to perform discovery transmission when the received SIB12 indicates discovery is not supported. The CR in R2-2305573 is taken as baseline, and can be revised to include discovery monitoring case based on further discussion.

Discussion:

vivo think the CR only changes section 5.2, and there are other CRs changing 5.8 on the discovery procedure. Huawei understand that the discovery procedure will not act without a resource pool.

Huawei think there should be a similar change to discovery monitoring; otherwise it may be misleading.

OPPO agree with Huawei about monitoring; monitoring in a cell with no discovery is useless.

Nokia indicate they deliberately left section 5.8 out of the CR since they understand it is covered by 5.2, but they are OK to make a change there as well.

Samsung think the SIB procedure already covers the discovery procedure, and we may not need a change to section 5.8; they also think we need similar text for the monitoring procedure.

Xiaomi understand the intention is only for relay discovery, not non-relay discovery, so the CR may need some refinement. Huawei understand the CR intends to cover all discovery, because the indication in SIB12 applies to relay and non-relay.

Xiaomi think non-relay discovery should be performed even when SIB12 does not support it.

OPPO agree with Huawei that there is no need to differentiate between relay and non-relay; they understand that the network should coordinate at cell/coverage boundaries, so no need to differentiate IC vs. OOC either.

Qualcomm wonder for non-relay discovery, if the UE is IC but the cell does not support it, can the UE use preconfiguration? Huawei indicate that if the UE is IC it follows the SIB12 configuration, and in this case, if SIB12 does not indicate support of non-relay discovery, the UE should not perform it.

* [AT122][412][Relay] CR on discovery setting in SIB12 (Nokia)

 Scope: Revise the CR in R2-2305573, adding a condition for discovery monitoring. Can discuss if something is needed in section 5.8 in addition to the existing change in 5.2.

 Intended outcome: Agreeable CR in R2-2306685

 Deadline: Thursday 2023-05-25 2000 KST

Proposal 4: Regarding handling of relay UE’s reconfiguration failure and integrity check failure, RAN2 to discuss the 3 options:

– Option 1: capture in spec that cell selection can trigger relay UE to send notification message with indication type set to relayUE-CellReselection, as proposed in R2-2305244;

– Option 2: capture in spec that relay UE releases the PC5 unicast link upon reconfiguration failure and integrity check failure, as proposed in R2-2306194;

– Option 3: no change, which means relay UE’s reconfiguration failure and integrity check failure are considered as corner cases and are left to UE implementation.

Discussion:

LG support option 3; for option 1, they think relay selection can occur with any RRC state, and for option 2, they think this can be handled by gNB implementation based on receiving a failure message from the relay UE. They also think integrity check failure should be a rare case.

ZTE wonder if we need to specify all failure cases; they think corner cases should be left to relay UE implementation, and here the relay UE can release the PC5 link.

Apple have the same view as LG and think option 3 is the best way forward. They think option 2 is too dramatic.

Xiaomi can accept no spec change, but they would prefer not to capture it as a “corner case” as such.

Agreement:

Relay UE’s reconfiguration failure and integrity check failure are left to UE implementation.

Proposal 5: The following editorial/small changes are agreeable, and can be merged into a rapporteur CR revised from R2-2306194:

– In sub-clause 5.8.3.2, the term “in case L2 U2N relay operation” is modified as “in case of L2 U2N relay operation”.( R2-2306115)

– In clause 5.5.5.1, replace maxReportCells with maxNrofRelayMeas (R2-2306194)

– In clause 6.3.5, remove “, e.g. SRAP-Config” from the IE description of SL-L2RemoteUE-Config. (R2-2306194)

– Remove the L3 Remote UE and L3 Relay UE from the field description of sl-DestinationIdentityL2U2N. (R2-2305059)

– in 5.8.3.2, correct the “non-relay discovery RX” case for SUI initiation (R2-2305060)

– in 5.8.3.2, add a new if condition of “3> if configured by upper layers not to transmit either NR sidelink L2 U2N relay communication or NR sidelink L3 U2N relay communication, and if the last transmission of the SidelinkUEInformationNR message includes both sl-TxResourceReqL2U2N-Relay and sl-TxResourceReqL3U2N-Relay.” for initiation of SUI transmission for relay communication (R2-2305060)

– In 5.3.7.2, add “1> stop timer T301, if running” as suggested by Lenovo if R2-2305849 is not pursued.

Discussion:

OPPO think we could restart the timer in the last bullet. Huawei clarify that the added UE behaviour is for the case that the remote UE triggers RRC re-establishment while the timer is running, and the current spec could result in triggering re-establishment again. But they have a similar understanding to OPPO that it is similar to restarting the timer.

Lenovo think according to the current spec, a UE that starts re-establishment while T301 is running will first perform cell selection, so the UE needs to stop T311 after selecting a suitable cell or relay, then start T301. So they think it is not suitable just to restart T301.

Xiaomi understand the remote UE will receive a release from the relay UE, and this is a corner case. Lenovo think it is not really a corner case, and we have a similar case when a remote UE receives a notification or release message already captured in the spec.

ZTE wonder if stopping T301 will also require updating the stop condition in section 7.1.

Huawei intended the last bullet to be conditional on R2-2305849 being not pursued, and stopping T301 is an alternative change to address the same issue.

Xiaomi think if we stop T301, the re-establishment is still ongoing, and there is no way to know if it completes successfully. They also think the current spec causes the UE to start T301 when the new re-establishment starts.

Lenovo indicate when the remote UE receives a notification message while T301 is running, in the current spec it goes to idle directly. Their proposal was intended to align the current spec behaviour.

Huawei think the last bullet could be left out of the conclusion and we go on to P6 for Lenovo’s proposal.

* P5 is agreed without the last bullet
* [AT122][413][Relay] Relay miscellaneous CR to 38.331 (Huawei)

 Scope: Revise R2-2306194 in light of the conclusions of P5 of R2-2306751.

 Intended outcome: Agreeable CR in R2-2306687

 Deadline: Thursday 2023-05-25 2000 KST

Proposal 6: The following changes are not necessary, so not pursued:

– In 5.3.7.2, the condition of ‘T301 is not running’ is added to ‘upon PC5 unicast link release indicated by upper layer at L2 U2N Remote UE in RRC\_CONNECTED. In 5.3.7.7, the condition of ‘upon PC5 unicast link release indicated by upper layer at L2 U2N Remote UE’ is added. (R2-2305849)

– In sub-clause 5.8.9.3, the term “the UE is acting as L2 U2N Remote UE” is modified as “the UE was acting as L2 U2N Remote UE”.(R2-2306115)

Discussion:

Lenovo and Huawei think we could go offline for the first bullet.

* Second bullet is agreed, i.e., R2-2306115 is not pursued
* [AT122][414][Relay] Handling of PC5 connection release during RRC re-establishment (Lenovo)

 Scope: Discuss the proposal from R2-2305849 on handling of PC5 connection release while RRC re-establishment is ongoing and agree on a way forward.

 Intended outcome: Report in R2-2306688 and agreeable CR in R2-2306689

 Deadline: Thursday 2023-05-25 2000 KST

38.304 corrections

Proposal 7: The changes in R2-2305212 are agreeable, and can be merged into the CR revised from R2-2306198.

Discussion:

Apple think the change in section 8.1 was discussed in the sidelink enhancements session and additional changes have been proposed. Huawei understand that this is related to the IPA CR rather than the new changes; their understanding is that colliding changes were agreed in the sidelink session.

Apple indicate that there is a CR from ZTE that was requested to be handled in the relay session.

ZTE indicate that their CR is addressed to sidelink discovery, and they think it should be discussed here.

Nokia checked the sidelink CR and they understand it is a superset of the proposals here. They think the easiest thing would be to ask the rapporteur of that CR/email discussion to consider these topics as well.

Apple indicate the colliding document is R2-2304940, which is on email discussion.

vivo understand relay-interested delegates are already invited to follow the email discussion.

Nokia think R2-2304940 covers all the changes from R2-2305212.

The following documents will not be individually treated

[R2-2305058](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305058%2038300_Correction_for_NR_sidelink_relay_v1.docx) Miscellaneous corrections for Stage 2 NR sidelink relay Apple CR Rel-17 38.300 17.4.0 0656 1 F NR\_SL\_relay-Core R2-2303384

* Agreed as R2-2306682, with modifications in line with P1 from R2-2306751

[R2-2305059](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305059%2038331_Correction_FD_SL_Relay.docx) Correction on field description of sl-DestinationIdentityL2U2N Apple CR Rel-17 38.331 17.4.0 4086 - F NR\_SL\_relay-Core

[R2-2305060](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305060%2038331_Correction_SUI_relay.docx) Corrections on triggering conditons of SUI message for SL relay Apple CR Rel-17 38.331 17.4.0 4087 - F NR\_SL\_relay-Core

[R2-2305212](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305212%20Clarification%20on%20sidelink%20discovery.docx) Clarification on sidelink discovery ZTE, Sanechips CR Rel-17 38.304 17.4.0 0342 - F NR\_SL\_relay-Core

* Handled exceptionally in email discussion [AT122][504] (pending confirmation from email discussion rapporteur and sidelink chair)

[R2-2305215](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305215.docx) Correction on remote UE’s behavior upon SIB1 reception Xiaomi CR Rel-17 38.331 17.4.0 4092 - F NR\_SL\_relay-Core

[R2-2305243](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305243_UE%20behavior%20when%20the%20NW%20indicates%20not%20supporting%20discovery.docx) UE behavior when the NW indicates not supporting discovery vivo CR Rel-17 38.331 17.4.0 4093 - F NR\_SL\_relay-Core

[R2-2305244](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305244_Correction%20on%20%20L2%20U2N%20Relay%20UE%20behavior%20upon%20upon%20cell%20selection.docx) Correction on L2 U2N Relay UE behavior upon cell selection vivo CR Rel-17 38.331 17.4.0 4094 - F NR\_SL\_relay-Core

[R2-2305274](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5C38300_CR0674_%28Rel-17%29_R2-2305274-Correction%20on%20direct%20to%20indirect%20path%20switching.docx) Correction on direct to indirect path switching CATT CR Rel-17 38.300 17.4.0 0674 - F NR\_SL\_relay-Core

* Merged into R2-2306682

[R2-2305275](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5C38300_CR0675_%28Rel-17%29_R2-2305275-Correction%20on%20the%20PC5%20unicast%20link%20release%20in%20case%20of%20indirect%20to%20direct%20path%20switching.docx) Correction on the PC5 unicast link release in case of indirect to direct path switching CATT CR Rel-17 38.300 17.4.0 0675 - F NR\_SL\_relay-Core

* Merged into R2-2306682

[R2-2305573](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305573%2038331%20Sidelink%20discovery%20transmission%20upon%20reception%20of%20SIB12.docx) On sidelink discovery transmission upon reception of SIB12 Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.4.0 4113 - F NR\_SL\_relay-Core

* Revised in R2-2306685 (email discussion [AT122][412])

[R2-2305587](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305587%2038300%20Differentiation%20of%20SL%20and%20SD%20RSRP.docx) Differentiation of SD-RSRP and SL-RSRP Nokia, Nokia Shanghai Bell CR Rel-17 38.300 17.4.0 0679 - F NR\_SL\_relay-Core

* Merged into R2-2306682

[R2-2305846](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305846%20Reception%20of%20PC5%20release%20message%20during%20re-establishment%20v1.0.docx) Reception of PC5 release message during re-establishment Lenovo discussion Rel-17 38.331 NR\_SL\_relay-Core

[R2-2305849](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305849-%20CR4118%20Correction%20for%20release%20message%20with%20re-establishment%20v1.0.docx) Correction for release message with re-establishment Lenovo CR Rel-17 38.331 17.4.0 4118 - F NR\_SL\_relay-Core

[R2-2306115](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306115_Corrections%20on%20L2%20U2N%20Relay.docx) Corrections on L2 U2N Relay ASUSTeK CR Rel-17 38.331 17.4.0 4135 - F NR\_SL\_relay-Core

[R2-2306131](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CDocs%5CR2-2306131.zip) Correction on Sidelink Relay discovery procedure Philips International B.V. CR Rel-17 38.331 17.4.0 4137 - F NR\_SL\_relay-Core

[R2-2306194](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5C38331_CR4140_%28Rel-17%29_R2-2306194%20RRC%20corrections%20for%20SL%20Relay.docx) RRC corrections for SL Relay Huawei, HiSilicon CR Rel-17 38.331 17.4.0 4140 - F NR\_SL\_relay-Core

* Revised in R2-2306686 in line with the outcome of P5 from R2-2306751 (email discussion [AT122][413])

[R2-2306498](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306498%20-%2038.331_CR4155_Rel17_Correction%20on%20Sidelink%20Discovery%20Transmissions.docx) Correction on Sidelink Discovery Transmissions Ericsson España S.A. CR Rel-17 38.331 17.4.0 4155 - F NR\_SL\_relay-Core

### 6.3.2 User plane corrections

A single CR with miscellaneous corrections is encouraged. Small editorial corrections should be sent directly to the CR rapporteur for the corresponding spec. Larger open issues can be discussed with contributions (limited time).

[R2-2305211](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305211%20Corrections%20on%20SRAP%20for%20SL%20relay.docx) Corrections on SRAP for SL relay ZTE Corporation, Sanechips CR Rel-17 38.351 17.4.0 0021 - F NR\_SL\_relay-Core

Discussion:

ZTE indicate some comments on the logic were received.

Samsung think the first change should not have the “i.e.” parenthetical.

Huawei think the original wording in the first part is correct, because the case that SL-RLC1 is not configured is already covered. They are fine with the second change. Ericsson agree.

ZTE think there is a case where there is an SRB entry without the RLC channel.

Samsung think we can discuss offline.

* [AT122][410][Relay] SRAP corrections (ZTE)

 Scope: Check the intention of the first change and the details of wording for the CR in R2-2305211.

 Intended outcome: Agreeable CR in R2-2306679

 Deadline: Wednesday 2023-05-24 2000 KST

[R2-2305589](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305589%20Corrections%20on%20SRAP%20for%20SL%20relay.docx) Corrections on SRAP for SL relay NEC, Apple, Samsung, ZTE CR Rel-17 38.351 17.4.0 0020 2 F NR\_SL\_relay-Core R2-2304480

* Agreed

Discussion:

Samsung clarify that this should have been in the list of AIP CRs (R2-2304480 from last meeting).

[R2-2306195](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5C38351_CR0022_%28Rel-17%29_R2-2306195%20Clarification%20on%20the%20SRAP%20configuration%20used%20in%20SRAP.docx) Clarification on the SRAP configuration used in SRAP Huawei, HiSilicon CR Rel-17 38.351 17.4.0 0022 - F NR\_SL\_relay-Core

* Agreed as R2-2306680, without the first change

Discussion:

OPPO think the first change is not needed and the NOTE is in line with how we normally operate; the need codes should prevent misunderstanding of the configuration. For the second change, they prefer the original wording.

Samsung think the understanding of the first change is correct but does not need to be clarified.

Apple think the first change is not necessary as indicated by OPPO and Samsung. For the second change they have no strong view.

NEC have the same understanding as OPPO; for the first change, the intention of the CR is aligned with the current understanding. They are fine with the second set of change.

Huawei think we could take an agreement in the notes to clarify the understanding.

Ericsson want to clarify that this is similar to legacy behaviour, and they wonder why we capture it explicitly. Huawei think this behaviour is not captured explicitly in RRC.

Samsung agree that the spec does not call out the behaviour explicitly with a field name.

Ericsson understood from Samsung’s comment that it is not legacy behaviour.

Samsung think we have just referred to the routing configuration table in the past, and here we refer to the specific RRC field name; they understand that Huawei’s interpretation is correct, but they are not sure if it is correctly described as “legacy” behaviour.

Ericsson think the need code should already capture the behaviour.

Huawei agree with the comments that RRC configurations will follow the need code, and a reasonable UE implementation would assume the whole configuration should be used.

Apple wonder why it applies only to the relay UE. Huawei agree it should cover both.

Agreements:

The proposed NOTE in section 4.5 (first change in the CR) is not added.

RAN2 understand that the configuration of SRAP entity for the U2N relay or remote UE is derived from the whole configuration applied by the UE, but not the latest received configuration via RRC message, e.g. for matching an entry in a received RRC field. No specification impact is expected.

Changes after the first change in the CR are agreed.

## 6.5 NR positioning enhancements

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

Tdoc Limitation: 2 tdocs

### 6.5.0 In principle agreed CRs

[R2-2304792](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304792%20Correction%20to%20UEPositioningAssistanceInformation.docx) Correction to UEPositioningAssistanceInformation Huawei, HiSilicon CR Rel-17 38.305 17.4.0 0124 2 F NR\_pos\_enh-Core R2-2304540

* Agreed

[R2-2304884](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304884%20CR%20to%2038305%20Measurements%20TRP%20AD.docx) Measurements and Assistance Data Transfer Nokia, Nokia Shanghai Bell CR Rel-17 38.305 17.4.0 0126 2 F NR\_pos\_enh-Core R2-2304494

* Agreed

[R2-2304885](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304885%20CR%20to%2038305%20Integrity.docx) Protection Level and Target Integrity Risk Nokia, Nokia Shanghai Bell CR Rel-17 38.305 17.4.0 0127 2 F NR\_pos\_enh-Core R2-2304495

* Agreed

[R2-2304886](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304886%20CR%20to%2037355%20LOS-NLOS%20Indicator_v02.docx) LOS-NLOS-Indicator Types Nokia, Nokia Shanghai Bell, Qualcomm Incorporated CR Rel-17 37.355 17.4.0 0442 2 F NR\_pos\_enh-Core R2-2304496

* Agreed

[R2-2305131](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305131%20Misc%20LPP%20corrections%20R17%2037355.docx) Miscellaneous corrections on LPP Lenovo CR Rel-17 37.355 17.4.0 0432 1 F NR\_pos\_enh-Core R2-2302884

* Agreed

[R2-2305289](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305289_37355r2_CR0431_%28Rel-17%29.docx) Corrections on applicability of timing error margin of RxTEG in NR-Multi-RTT-SignalMeasurementInformation field descriptions and other Miscellaneous corrections CATT CR Rel-17 37.355 17.4.0 0431 2 F NR\_pos\_enh-Core R2-2304520

* Agreed

[R2-2305290](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305290_38331r2_CR3956_%28Rel-17%29.docx) Corrections on the figure of UE Positioning Assistance Information procedure CATT CR Rel-17 38.331 17.4.0 3956 2 F NR\_pos\_enh-Core R2-2304281

* Agreed

[R2-2305291](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305291_38305r2_CR0123_%28Rel-17%29.docx) Miscellaneous corrections on 38.305 CATT CR Rel-17 38.305 17.4.0 0123 2 F NR\_pos\_enh-Core R2-2304516

* Agreed

[R2-2305444](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305444.docx) Stage 2 procedure for deactivation of MG gap and PPW Intel Corporation CR Rel-17 38.305 17.4.0 0135 1 F NR\_pos\_enh-Core R2-2304463

* Agreed

[R2-2305445](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305445.docx) LPP capability for FGs27-13a,14a and 14-2 Intel Corporation CR Rel-17 37.355 17.4.0 0445 1 F NR\_pos\_enh-Core R2-2304462

* Agreed

[R2-2306018](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306018%20AIP.docx) Update of information transfer from gNB to LMF Ericsson CR Rel-17 38.305 17.4.0 0125 2 F NR\_pos\_enh-Core R2-2304457

* Agreed

Discussion:

No comments, all AIP CRs are agreed.

### 6.5.1 Corrections

A single CR per TS (Stage-2, RRC, LPP, MAC, UEcap 306) with miscellaneous corrections is encouraged. Small editorial corrections should be sent directly to the CR rapporteur. Larger open issues can be discussed with contributions (limited time).

Incoming LS and draft reply

[R2-2304608](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304608_C4-230655.docx) LS on GNSS integrity requirement parameters definition (C4-230655; contact: Huawei) CT4 LS in Rel-17 5G\_eLCS\_ph2 To:RAN2 Cc:SA2

[R2-2304804](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304804%20Reply%20to%20CT4%20on%20GNSS%20integrity%20requirements.docx) Reply to CT4 on GNSS integrity requirements Huawei, HiSilicon discussion Rel-17 NR\_pos\_enh-Core

Discussion:

Qualcomm agree with the document that the use cases are our only guideline for the TTA, but they think the reasoning should be the same for the AL, since it is based on an application requirement, while the PL is based on a system calculation and can exceed the AL.

Nokia think on P1 (about the AL), the AL can be greater than the PL. As a way forward, they think RAN2 can recommend value ranges, but we should not introduce new signalling support in LPP.

Ericsson are generally supportive and think the TR is a suitable reference. They understand we just need to provide a sufficient range and should not discuss the details too much.

vivo are fine with P2 but think AL<PL is important to support.

CATT think we discussed the range of AL before, and the understanding was that it was essentially unbounded, but they think Huawei’s proposed range is OK.

Huawei agree AL can be larger or smaller than PL, but they think the range should be the same to allow comparing them. They clarify that they do not intend to change the PL range in LPP.

Intel think the term “define” is confusing and sounds like spec impact to us.

Huawei think we could have future spec impact if we support mode 2 reporting, and we could take these ranges as a guideline in case that happens.

Nokia think as long as the LMF has the AL and TTA, it is still within LMF implementation to calculate if there is an integrity event.

Qualcomm think we do not need TTA for mode 2, but we should focus on replying to CT4. Intel agree with Qualcomm.

Agreements:

Indicate to CT4 the range of horizontal and vertical alert limit same as the the horizontal and vertical protection level in TS 37.355, with the range to be from 0.01 meter to 500 meters, with 0.01 meters granularity

Indicate to CT4 the range of TTA based on the use cases listed in TR 38.857 as from 0.1s to 30s, with 0.1s granularity

No stage 3 impact to RAN2 specs is expected.

* [AT122][408][POS] Reply LS to CT4 on integrity parameters (Huawei)

 Scope: Draft a reply to R2-2304608 in line with the agreements reached online.

 Intended outcome: Approvable LS in R2-2306681

 Deadline: Wednesday 2023-05-24 2000 KST

Agenda item summary

[R2-2306756](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306756%20%5BPre122%5D%5B407%5D%5BPOS%5D%20Summary%20of%20AI%206.5.1%20on%20Rel-17%20positioning%20%28CATT%29.docx) [Pre122][407][POS] Summary of AI 6.5.1 on Rel-17 positioning CATT discussion Rel-17 NR\_pos\_enh-Core

[Chair’s note: Changemarks are not included in the proposals below—see the contribution for marked-up versions.]

LPP CR:

Proposal 1: The CR in

R2-2305895 Miscelaneous LPP Corrections Qualcomm Incorporated (Rapporteur) CR Rel-17 37.355 17.4.0 0448 - F NR\_pos\_enh-Core

is essential correction. Update the Cover Sheet: The index of Editorial errors remain in Consequences if not approved should be (3).

Discussion:

Nokia think in nr-Multi-RTT-AdditionalMeasurements, “should not be present” is the wrong phrase. To be changed to “shall be absent”.

Proposal 2-1: The 1st change in CR

R2-2306025 Miscellaneous corrections and additions Ericsson, Fraunhofer IIS, Fraunhofer HHI CR Rel-17 37.355 17.4.0 0449 - F NR\_pos\_enh-Core

can be merged into rapporteur CR (LPP):

– AreaID-CellList

The IE AreaID-CellList provides the NR Cell-IDs of the TRPs belonging to a particular network area where the associated assistance data are valid. Each cell is included in only one area.

Discussion:

CATT indicate that the words “each cell is included in only one area” should be “each cell is included in only one AreaID-CellList”. Intel think in that case we should say “each Cell-ID”.

To be merged into the revision of R2-2305895.

Agreement:.

The 1st change in CR

R2-2306025 Miscellaneous corrections and additions Ericsson, Fraunhofer IIS, Fraunhofer HHI CR Rel-17 37.355 17.4.0 0449 - F NR\_pos\_enh-Core

can be merged into rapporteur CR (LPP).

Proposal 2-2: The 2nd changes in CR

R2-2306025 Miscellaneous corrections and additions Ericsson, Fraunhofer IIS, Fraunhofer HHI CR Rel-17 37.355 17.4.0 0449 - F NR\_pos\_enh-Core

are not essential.

Discussion:

Ericsson think it would be good to describe the fields, and they thought it was good to have, but they are open to hear other company views.

Intel think we already agreed one field description to merge into the rapporteur CR and this one is not a problem.

CATT think the subset shows the relation of the resource IDs, so they think it is incorrect to delete the subset description, and the proposed descriptions are also not correct as explained in the summary. So a different change would be necessary.

Qualcomm agree with CATT and think the existing description is correct.

* Change 2 is not pursued

Proposal 3: RAN2 to discuss if this CR

R2-2306026 Missing finer periodicities than 1s Ericsson CR Rel-17 37.355 17.4.0 0450 - F NR\_pos\_enh-Core

is essential correction or can be postponed waiting for the ReportingInterval updated as ms in CT4.

Discussion:

Huawei agree with the observation from the rapporteur that it should be discussed in CT4 first, because the values are only meaningful if the service layer supports them.

Qualcomm think from our pov this is not related to the CT4 spec; there was CN support for periodic reporting in UMTS, but not in LTE or NR. So they understand that this is only an LPP value. They think there are use cases for periodic reporting (e.g., integrity). However, they agree that it is not a correction as such.

Ericsson think it is still a correction to align between NRPPa and LPP, and CT4 are adding a requirement for frequent periodic reporting.

Huawei understand from SA2 side that Ericsson are correct; the service layer can request reporting with periodicities in ms, and LPP can only support to 1 s. They think the requirement should come from CT4.

CATT understand CT4 are discussing it, and they suggest we postpone the CR and wait for a conclusion there.

* Postponed

Proposal 4-1: The 1st change as below in CR

R2-2306259 NR-TRP-LocationInfo for UE-based DL-TDOA and DL-AoD positioning Nokia, Nokia Shanghai Bell CR Rel-17 37.355 17.4.0 0454 - F NR\_pos\_enh-Core,

is essential correction.

nr-TRP-LocationInfo

This field provides the location coordinates of the TRPs and location coordinates of antenna reference points for DL-PRS Resource Set(s) and DL-PRS Resources of the TRPs.

– NR-TRP-LocationInfo

The IE NR-TRP-LocationInfo is used by the location server to provide the coordinates of TRPs and coordinates of the antenna reference points for a set of TRPs. For each TRP, the ARP location can be provided for each associated PRS Resource ID per PRS Resource Set.

Discussion:

Intel wonder if it should be “TRP location or ARP location”. Nokia think the two concepts are distinguished; there is a notion of TRP location, as well as ARP location within the TRP. They indicate that the ASN.1 has the fields separately.

CATT think the correction is correct.

Qualcomm think this is correct but editorial; if we provide just one coordinate it is TRP location, and an additional coordinate refers to the ARP location. They see it as aligning the introductory text with the ASN.1 structure and think it could be merged.

Nokia are OK with merging, and they think the second change below is critical for correctness.

Proposal 4-2: The 2nd changes in CR

R2-2306259 NR-TRP-LocationInfo for UE-based DL-TDOA and DL-AoD positioning Nokia, Nokia Shanghai Bell CR Rel-17 37.355 17.4.0 0454 - F NR\_pos\_enh-Core

are editorial corrections and correct.

* R2-2306259 is merged into R2-2306676

MAC CR:

Proposal 5: The corrections in CR

R2-2304803 Correction to MAC spec for Positoning Enhancements Huawei, HiSilicon, Ericsson, ZTE CR Rel-17 38.321 17.4.0 1614 - F NR\_pos\_enh-Core

are essential corrections.

For change 2, take the suggest wording “Semi-Persistent SRS that is activated according to clause 5.18.17” into consideration according to the comments at last meeting.

For the coversheet, the impact analysis should be moved to Summary of change.

Discussion:

Samsung agree with the wording changes, and they point out that the Source to TSG field should say “R2” and the revision number is needed.

Huawei clarify that the CR is not purely a resubmission/revision.

Agreements:

The corrections in CR

R2-2304803 Correction to MAC spec for Positoning Enhancements Huawei, HiSilicon, Ericsson, ZTE CR Rel-17 38.321 17.4.0 1614 - F NR\_pos\_enh-Core

are essential corrections.

For change 2, take the suggest wording “Semi-Persistent SRS that is activated according to clause 5.18.17” into consideration according to the comments at last meeting.

For the coversheet, the impact analysis should be moved to Summary of change and the “Source to TSG” should say “R2”.

RRC CR:

Proposal 6: For the correction in CR

R2-2305363 Correction on PosSRS-RRC-Inactive-OutsideInitialUL-BWP Huawei, HiSilicon CR Rel-17 38.331 17.4.0 4102 - F NR\_pos\_enh-Core

confirm online whether the unit of the maxSRSposBandwidthForEachSCS-withinCC-FR1-r17 and maxSRSposBandwidthForEachSCS-withinCC-FR2-r17 is MHz. If yes, this CR is essential correction.

Discussion:

Huawei indicate that there are comments to capture the same change in the LPP CR.

Agreements:

The correction in CR

R2-2305363 Correction on PosSRS-RRC-Inactive-OutsideInitialUL-BWP Huawei, HiSilicon CR Rel-17 38.331 17.4.0 4102 - F NR\_pos\_enh-Core

is an essential correction.

Parallel change to be made in the revised LPP rapporteur CR in R2-2306676.

Stage-2 CR:

Proposal 7-1: The correction in CR

R2-2306258 Alert Limit Nokia, Nokia Shanghai Bell CR Rel-17 38.305 17.4.0 0136 - F NR\_pos\_enh-Core

is essential correction but RAN2 to further review the definition of AL following the agreement achieved in RAN2#111. Update the impact analysis to satisfy the prescribed format.

Alert Limit (AL): The maximum allowable positioning error. If the positioning error is beyond this limit, the integrity results of the calculated location may not meet the LCS client service requirement.

Discussion:

CATT clarify the wording in the proposal is from the CR.

Nokia indicate they intended to capture the same concept from the TR, but they tried to avoid the term “positioning system”. They are OK to copy the definition from the previous agreement.

Ericsson prefer the original version and think it aligns with the definition.

ZTE prefer Nokia’s original wording; they find “positioning system” to be an unclear term.

Swift think some discussion would be useful regarding the definition of failure to meet the AL.

Agreement:

Definition to be captured as follows:

Alert Limit (AL): The maximum allowable positioning error for the purpose of integrity. If the positioning error is beyond this limit, the integrity results of the calculated location may not meet the integrity requirement.

Proposal 7-2: Beside the definition of AL, add the definition of TIR to this CR together.

Discussion:

CATT clarify that this was an observation from the rapporteur. Swift think we agreed the TIR definition previously; Nokia confirm it is in the AIP CRs (R2-2304885).

The following documents will not be individually treated

[R2-2304803](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304803%20Correction%20to%20PosSRS%20transmission%20in%20RRC_INACTIVE.docx) Correction to MAC spec for Positoning Enhancements Huawei, HiSilicon, Ericsson, ZTE CR Rel-17 38.321 17.4.0 1614 - F NR\_pos\_enh-Core

* Agreed as R2-2306677, with the changes indicated under the corresponding proposal above.

[R2-2305363](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305363%20Correction%20on%20PosSRS-RRC-Inactive-OutsideInitialUL-BWP.docx) Correction on PosSRS-RRC-Inactive-OutsideInitialUL-BWP Huawei, HiSilicon CR Rel-17 38.331 17.4.0 4102 - F NR\_pos\_enh-Core

* Agreed

[R2-2305895](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305895_%28Misc%20LPP%20corrections%29.docx) Miscelaneous LPP Corrections Qualcomm Incorporated (Rapporteur) CR Rel-17 37.355 17.4.0 0448 - F NR\_pos\_enh-Core

* Revised as R2-2306676, with a coversheet correction to identify the third set of consequences, and with nr-Multi-RTT-AdditionalMeasurements field description saying “shall be absent”, and with merges from other CRs as agreed during discussion.
* [AT122][409][POS] Update of LPP rapporteur CR (Qualcomm)

 Scope: Update R2-2305895 in line with the discussion of this meeting.

 Intended outcome: Agreeable CR in R2-2306676

 Deadline: Wednesday 2023-05-24 2000 KST

[R2-2306025](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306025%20LPPmisc.docx) Miscellaneous corrections and additions Ericsson, Fraunhofer IIS, Fraunhofer HHI CR Rel-17 37.355 17.4.0 0449 - F NR\_pos\_enh-Core

* Merged into R2-2306676 (without change 2)

[R2-2306026](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306026%20PeriodicCR.docx) Missing finer periodicities than 1s Ericsson CR Rel-17 37.355 17.4.0 0450 - F NR\_pos\_enh-Core

* Postponed

[R2-2306258](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306258%20CR%20to%2038305%20Alert%20Limit%20Definition%20for%20Integrity.docx) Alert Limit Nokia, Nokia Shanghai Bell CR Rel-17 38.305 17.4.0 0136 - F NR\_pos\_enh-Core

* Agreed as R2-2306678, with the definition reworded as in the agreement under P7-1 of R2-2306756.

[R2-2306259](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306259%20CR%20to%2037355%20NR-TRP-LocationInfo.docx) NR-TRP-LocationInfo for UE-based DL-TDOA and DL-AoD positioning Nokia, Nokia Shanghai Bell CR Rel-17 37.355 17.4.0 0454 - F NR\_pos\_enh-Core

* Merged into R2-2306676

Withdrawn/Not available

R2-2304802 Correction on PosSRS-RRC-Inactive-OutsideInitialUL-BWP-r17 Huawei, HiSilicon CR Rel-17 38.306 17.4.0 0910 - F NR\_pos\_enh-Core Withdrawn

R2-2306086 Correction on Location measurement indication for positioning ZTE Corporation CR Rel-17 38.331 17.4.0 4129 - F NR\_pos\_enh-Core Withdrawn

R2-2306087 Discussion on Location measurement indication for positioning ZTE Corporation discussion Rel-17 38.331 NR\_pos\_enh-Core Withdrawn

# 7 Rel-18

## 7.2 Expanded and improved NR positioning

(NR\_pos\_enh2; leading WG: RAN1; REL-18; WID: RP-223549)

Time budget: 2 TU

Tdoc Limitation: 4 tdocs

### 7.2.1 Organizational

Including incoming LSs and rapporteur inputs.

Incoming LS with RAN2 in Cc:

[R2-2304650](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304650_S2-2305726.docx) Reply LS to Reply LS to LS on SL positioning groupcast and broadcast (S2-2305726; contact: Xiaomi) SA2 LS in Rel-18 Ranging\_SL To:SA3 Cc:RAN2

* Noted

Incoming LSs with “take into account” actions

[R2-2304614](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304614_R1-2304147.docx) Reply LS to RAN2 on error source distributions (R1-2304147; contact: InterDigital) RAN1 LS in Rel-18 NR\_pos\_enh2 To:RAN2

* Noted

[R2-2304615](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304615_R1-2304152.docx) Reply LS on RAN dependency for Ranging & Sidelink Positioning (R1-2304152; contact: Xiaomi) RAN1 LS in Rel-18 NR\_pos\_enh2 To:RAN2 Cc:SA2

* Noted

[R2-2304657](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304657_S3-232232.docx) Reply LS on LPP message and supplementary service event report over a user plane connection between UE and LMF and LS on UE event reporting over a user plane connection to LCS client or AF (S3-232232; contact: Ericsson) SA3 LS in Rel-18 5G\_eLCS\_Ph3 To:SA2, RAN2, CT1, CT3, CT4

* Noted

Other incoming LSs

[R2-2304647](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304647_S2-2303837.docx) LS on support of multiple Target UEs (S2-2303837; contact: Qualcomm) SA2 LS in Rel-18 Ranging\_SL To:RAN2 Cc:RAN1

* To be handled in SL positioning session

[R2-2304651](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CDocs%5CR2-2304651.zip) Reply LS to LS to SA2 on Sidelink positioning procedure (S2-2305735; contact: Xiaomi) SA2 LS in Rel-18 Ranging\_SL To:RAN2, RAN1 Cc:SA3

* To be handled in SL positioning session

Draft replies

[R2-2305729](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305729%20Draft%20Reply%20LS%20%20to%20SA2%20on%20Sidelink%20positioning%20procedure.docx) Draft Reply LS to SA2 on Sidelink positioning procedure Xiaomi LS out Rel-18 To:RAN1

[R2-2306387](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306387_%28Support%20of%20Multiple%20Target%20UEs%20for%20Sidelink%20Positioning%29.docx) Support of Multiple Target UEs for Sidelink Positioning (draft response LS to R2-2302448 (S2-2303837)) Qualcomm Incorporated discussion

Work plan

[R2-2306253](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306253%20Work%20Plan%20for%20Rel-18%20WI%20on%20Expanded%20and%20Improved%20NR%20Positioning.docx) Work Plan on Rel-18 Positioning Work Item CATT, Intel Corporation, Ericsson Work Plan Rel-18

* Noted

TS 38.355

[R2-2305438](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305438.docx) Further considerations on SLPP specification Intel Corporation discussion Rel-18 NR\_pos\_enh2

Proposal 3: The SLPP ASN.1 design should allow "selective ASN.1 compilation", i.e. The overall SLPP functionality is divided into "groups", where each group is defined as a separate ASN.1 module. A "group" may correspond to a positioning method, but other grouping may also be possible. An implementation needs to compile only the SLPP modules which contain a supported "group" (functionality, positioning method, etc.).

Discussion:

Huawei note this is different from LPP, which has only one module for LPP (and another for posSIB). They would like to understand the use case.

Intel think the main thing is that we would use a container-based approach, such that, e.g., a UE supporting only SL-TDOA would only need to decode the container for SL-TDOA.

Ericsson think we could take this as a WA and look at the impact.

Huawei still have doubts about the use case and why it is different from LPP.

Qualcomm think we should learn from the history of LPP, and we should have done it this way in the beginning. They understand the intention is to containerise functionality as an OCTET STRING and define it in a separate module, so the UE does not need to compile in functionality that it doesn’t support. They understand the concern is the size and memory footprint of the ASN.1 encoder/decoder, which is large in LPP because the device has to support everything.

Huawei wonder why one UE would send something that another UE did not support. Qualcomm indicate it is not about supporting the procedures, but including the ASN.1 encoder/decoder for unsupported features.

CATT interpret that the container is per positioning method, but they think the method support is already included in the capability.

Nokia wonder if we know the pros and cons or might be surprised by some unanticipated consequence.

Intel think we could take a WA to allow these issues to be further examined.

Huawei think companies should provide performance analysis to show the actual gain; otherwise it is a big paradigm shift, and it could be argued that the same issues apply to other ASN.1-based protocols like RRC. Intel point out that we do have separate modules in 38.331.

Qualcomm think this is not really a change of working practice, just a change of how we design the ASN.1 They see the difference being that there is no core mandatory functionality in positioning; everything is optional. They also note that we could not change our mind and do this later if we don’t start with the container approach.

vivo think in the RRC spec, we use containers for signalling from different layers (e.g., NAS), and this is a different approach. Here they do not see that it is needed since the signalling does not come from different entities. They would prefer to leave it open for now.

Intel note that we have containerisation in RRC for other cases like capability and forwarding of configurations, not just for PDUs from other entities. vivo understand this this relates to different features.

Agreement:

WA: The SLPP ASN.1 design should allow "selective ASN.1 compilation", i.e. The overall SLPP functionality is divided into "groups", where each group is defined as a separate ASN.1 module.

[R2-2305439](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CDocs%5CR2-2305439.zip) TS 38.355 v0.0.3 Intel Corporation draft TS Rel-18 38.355 0.0.3 NR\_pos\_enh2

* Endorsed

Discussion:

Huawei think there will be something to implement from this meeting, so maybe we capture it in a revision.

Qualcomm are fine with endorsing this version, but they think the ASN.1 text in the spec should follow the 38.331 approach with landscape/spaces instead of portrait/tabs. Intel are willing to try to do this for the next version.

Running CRs (excluding TS 38.355 draft)

[R2-2304769](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304769%20LPP%20running%20CR%20for%20RAT-dependent%20integrity.docx) LPP running CR for RAT-dependent integrity CATT draftCR Rel-18 37.355 17.4.0 B NR\_pos\_enh2

* Noted

Discussion:

CATT clarify this CR is provided for information and comments can be taken offline.

[R2-2305896](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305896_%28Running%20Stage%202%20CR%29_v00.docx) Running Stage 2 CR for 'Expanded and improved NR positioning' Qualcomm Incorporated draftCR Rel-18 38.305 17.4.0 B NR\_pos\_enh2-Core

* Noted

Discussion:

CATT think we could have a post-email discussion to update the stage 2 CR. Qualcomm think it is not needed for discussing the skeleton at this stage.

### 7.2.2 Sidelink positioning

Positioning architecture and signalling procedures (e.g. configuration, measurement reporting, etc) to enable sidelink positioning. Including measurements to enable RTT-based positioning, SL-AoA, and SL-TDOA; signalling and associated UE behaviour for support of unicast, groupcast (not including many-to-one) and broadcast of SL-PRS transmissions; reporting signalling and procedures to facilitate support of SL positioning in all coverage scenarios and for PC5-only and joint PC5-Uu scenarios; and signalling to NG-RAN for SL positioning and service authorization as needed.

Agenda item summary and report of [AT122][401]

[R2-2306757](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CDocs%5CR2-2306757.zip) [Pre122][401][POS] Summary of AI 7.2.2 on sidelink positioning (Xiaomi) Xiaomi discussion Rel-18

* [AT122][401][POS] Sidelink positioning summary proposals (Xiaomi)

 Scope: Discuss and gauge support on the proposals in R2-2306757, converge on easily agreeable parts, and identify discussion points for the online session on Wednesday 2023-05-24.

 Intended outcome: Summary to online session in R2-2306671

 Deadline: Tuesday 2023-05-23 2000 KST

The following tdocs will not be individually treated

[R2-2304716](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304716.docx) Discussion of signalling procedures Nokia, Nokia Shanghai Bell discussion Rel-18

[R2-2304717](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304717.docx) Session-less SL positioning and groupcast / broadcast messaging Nokia, Nokia Shanghai Bell discussion Rel-18

[R2-2304770](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304770%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning CATT discussion Rel-18 NR\_pos\_enh2

[R2-2304801](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304801%20Discussion%20on%20sidelink%20positioning_v02.docx) Discussion on Sidelink Positioning Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

[R2-2304949](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304949_Sidelink_Fraunhofer.docx) UE Positioning using Sidelink Fraunhofer IIS, Fraunhofer HHI discussion R2-2302588

[R2-2305066](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305066-SL-PRS-config-v0.docx) SL PRS configuration Apple discussion Rel-18 NR\_pos\_enh2

[R2-2305067](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305067-pos-broadcast-v0%202.docx) SL positioning groupcast and broadcast Apple discussion Rel-18 NR\_pos\_enh2

[R2-2305068](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305068-reply-LS-on-SL-POS-security.docx) [DARFT] Reply LS on SL positioning groupcast and broadcast Apple LS out Rel-18 NR\_pos\_enh2 To:SA3 Cc:SA2

[R2-2305137](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305137%20SLPP%20and%20session%20aspects.doc) Further discussion on SLPP and session-based SL positioning Lenovo discussion Rel-18 NR\_pos\_enh2

[R2-2305331](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305331%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2305343](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305343%20Further%20discussion%20on%20sidelink%20positioning.docx) Further discussion on sidelink positioning OPPO discussion Rel-18 NR\_pos\_enh2

[R2-2305344](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305344%20Further%20discussion%20on%20%20anchor%20UE%20reselection%20for%20sidelink%20positioning.doc) Further discussion on anchor UE reselection for sidelink positioning OPPO discussion Rel-18 NR\_pos\_enh2

[R2-2305392](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305392_SLPosArch.docx) On SL Positioning Architecture Aspects Lenovo discussion Rel-18

[R2-2305440](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305440.docx) Further considerations on sidelink positioning Intel Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2305509](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305509_SL_Pos_Res.docx) Considerations on sidelink positioning resources Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2305562](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305562%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning Spreadtrum Communications discussion Rel-18

[R2-2305636](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305636%20Considerations%20on%20Sidelink%20positioning.doc) Considerations on Sidelink positioning CMCC discussion Rel-18 NR\_pos\_enh2

[R2-2305730](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305730%20Draft%20Reply%20LS%20%20to%20SA3%20on%20SL%20positioning%20groupcast%20and%20broadcast.docx) Draft Reply LS to SA3 on SL positioning groupcast and broadcast Xiaomi LS out Rel-18 To:RAN1

[R2-2305731](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305731%20Discussion%20on%20SL%20positioning.doc) Discussion on SL positioning Xiaomi discussion Rel-18

[R2-2305768](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305768%20%28R18%20NR%20POS%20A722%20SL%20POS%29.docx) Discussion on Sidelink positioning InterDigital Inc. discussion Rel-18 NR\_pos\_enh2

[R2-2305867](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305867.docx) LMF roles and protocols for sidelink positioning MediaTek Inc. discussion NR\_pos\_enh2-Core

[R2-2306020](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306020%20Sidelink.docx) Sidelink positioning Ericsson discussion Rel-18

[R2-2306078](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306078%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning ZTE Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2306145](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306145%20%287.2.2%29%20SLPP%20design%20in%20session%20perspectives.docx) SLPP design for session aspects Samsung R&D Institute UK discussion

[R2-2306334](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306334%20SLPP%20session%20management%20and%20operation.docx) SLPP session management and operation LG Electronics Inc. discussion Rel-18

[R2-2306335](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306335%20SLPP%20reliable%20transport%20functionality.docx) SLPP reliable transport functionality LG Electronics Inc. discussion Rel-18

[R2-2306336](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306336%20Sidelink%20positioning%20parameters%20for%20Anchor%20UE%20selection.docx) Sidelink positioning parameters for Anchor UE selection LG Electronics Inc. discussion Rel-18

[R2-2306373](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306373%20Discussion%20on%20sidelink%20positioning%20parameters%20in%20discovery%20signalling.doc) Discussion on Sidelink positioning parameters in discovery signalling Samsung discussion Rel-18 NR\_pos\_enh2

[R2-2306422](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306422_%28Sidelink%20Positioning%29.docx) Sidelink Positioning Protocol (SLPP) Signaling and Procedures Qualcomm Incorporated discussion

[R2-2306446](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306446-Further%20discussion%20on%20SL%20positioning%20procedures%20and%20signaling%20protocols%20for%20SL%20positioning.docx) Further discussion on SL positioning procedures and signaling protocols for SL positioning CEWiT discussion

[R2-2306457](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306457%20SL%20pos%20server.doc) On the support of SL positioning server functionality Philips International B.V. discussion NR\_pos\_enh2 R2-2304182

[R2-2306515](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306515_On%20the%20selection%20of%20Anchor%20UEs%20for%20Sidelink%20Positioning.doc) On the selection of Anchor UEs for Sidelink Positioning Philips International B.V. discussion NR\_pos\_enh2 R2-2303753

### 7.2.3 RAT-dependent integrity

Error modelling parameters, signalling, and procedures to support UE-based and LMF-based integrity of RAT-dependent positioning methods.

[R2-2304800](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304800%20Discussion%20on%20RAT-dependent%20integrity_final.docx) Discussion on RAT-dependent Integrity Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

DNU flag

Proposal 1: The DNU flags in TRP-related assistance data (e.g., TRP location and Inter-TRP synchronization) are provided per error source.

Signaling aspects

Proposal 2: For UE-based integrity, support the following enhancements:

 LPP signaling to deliver the error of related assistance data from LMF to UE, which at least includes:

 TRP location error for DL-TDOA and DL-AoD

 Inter-TRP synchronization error for DL-TDOA

Discussion:

Huawei understand that CATT’s running CR already captures P1/P2.

Proposal 3: For LMF-based integrity, confirm on the working assumption in RAN2#121bis and no spec change is required.

Signaling of request/response of RAT-dependent integrity results

Proposal 4: For the request of RAT-dependent integrity results, reuse the legacy signaling in commonIEsRequestLocationInformation. No spec change is needed.

Text Proposal

Proposal 5: For stage2 description of RAT-dependent integrity, move the section of “Integrity Principle of Operation” to a generic section that is not specific to positioning methods

Discussion:

Huawei indicate the current stage 2 CR has separate “principle of operation” sections, and they do not see the need to do this. Qualcomm agree that this makes sense, and we can void the old section and create a new one.

vivo think we already agreed this last meeting. Qualcomm clarify that that agreement was about the RAT-dependent methods only.

Agreement:

For stage2 description of RAT-dependent integrity, move the section of “Integrity Principle of Operation” to a generic section that is not specific to positioning methods.

Proposal 6: Consider the text proposal of LPP in the Annex as a baseline for the support of UE-based RAT-dependent positioning integrity.

[R2-2306022](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306022%20Integrity.docx) RAT Dependent positioning Integrity Ericsson discussion Rel-18

WAs and LMF-based integrity

Proposal 1 The working assumption from RAN2-121-bis-e is incorrect and should be revised

Proposal 2 Agree to that capable UE and gNB will provide measurement error source bound distributions to LMF for LMF-based integrity

Proposal 3 It is up to implementation how the UE/TRP establishes measurement error statistics and bounds, where a UE/TRP can be expected to measure outside the response time window in order to establish sufficient statistics.

Discussion:

Ericsson clarify that the discussion at the last meeting focussed on what the UE can do under certain conditions, and we need to look at when the reporting is possible. They understand that the UE may be able to identify bounds for its error sources.

Nokia have a similar understanding that it is better for the UE to report the statistics rather than relying on the LMF implementation. They see an analogy to measurement collection in MDT, and they think the UE is in a better position to gather the information and provide statistics to the LMF.

Qualcomm do not see why the UE should provide these statistics, and they see nothing wrong with the WA. They understand that the available information on the radio environment should allow an LMF to come up with a metric for the error.

OPPO do not see why the UE should report a metric to the LMF; the UE only sends the signal to the TRP, and the TRP will do the measurement. They think the error bounds cannot be known a priori by the UE, and we should wait for RAN1 feedback.

Intel agree with Qualcomm and OPPO and do not see why the UE should provide the statistics. They also think we should wait for RAN1.

CATT understood from the RAN1 LS on error bounds that the existing IEs can be used to derive the value range and no additional reporting is required.

ZTE think CATT’s interpretation is correct, but they do not agree that the timing quality is reported to the LMF. They think the UE/TRP reporting of the timing error bound of a measurement can be done, according to the RAN1 LS. So they agree with UE reporting.

Qualcomm think RAN1 have not said we can use the timing quality as a measure of error per se; we have to define a standard deviation and a mean, so this is a different issue.

Nokia understand that RAN1 said the existing IEs can be used as a guideline for the mean and standard deviation, but they do not see a direct connection to what is reported. They also are not sure what information from the UE the LMF needs to come up with the statistics.

Error sources and bounds

Proposal 4 DL TDOA timing quality and bounds refers to the combination of timing measurement error and any UE Rx TEG offset

Proposal 5 Multi RTT timing quality and bounds refers to the combination of timing measurement error and any UE Rx/Tx/RxTx TEG offsets

Discussion:

Ericsson understand that we need these errors calibrated and bounded.

Qualcomm think the measurement error depends on other factors as well: noise, multipath, etc., and there is not a clear motivation to separate the TEG offsets from the rest.

Ericsson indicate that the TEG offsets are stationary errors while the other aspects are dynamic.

Qualcomm think the LMF needs to take into account the whole error as reported. They see that if we define what the UE and TRP should report, this could apply.

vivo understand that these proposals are already agreed in RAN1, and they are confused about the spec impacts in RAN2, especially if we agree on the WA in the end.

Proposal 6 Represent the TRP and ARP location errors by a Gaussian over-bounding or paired over-bounding.

Proposal 7 The error bound of the relative timing difference between two DL PRS resources combines the relative time difference error and any TRP Tx TEG offsets

Proposal 8 Represent the RTD errors by a Gaussian over-bounding or paired over-bounding.

Discussion:

ZTE wonder about the spec impact difference between the RAN1 guidance for gaussian overbounding and paired overbounding; they do not think the latter is needed.

Ericsson think the need for paired overbounding is clear from the structure.

Qualcomm understand that RAN1 said we have a mean and standard deviation, which implies paired overbounding, but it will collapse if the mean is zero.

OPPO ask who should evaluate the location error; they are not sure RAN2 can decide it. Qualcomm understand we had the agreement that it is up to implementation, but anyway integrity depends on good observations of the error sources. Qualcomm assume PRUs are the natural way to take such observations.

Ericsson agree with Qualcomm that we do not need to decide how the error information is retrieved. OPPO indicate the motivation for the question is the IE value range to be captured in stage 3.

ZTE think RAN1 did not give us guidance on nonzero mean values, and they wonder if we need another LS to RAN1 asking for values of the mean for paired overbounding. Qualcomm think we should not overload RAN1, and it would be reasonable to take the same range for the mean as for the standard deviation. Ericsson agree that this can be looked at as part of the stage 3 work.

ZTE wonder if we should inform RAN1 of our decision. Qualcomm think we should start by proposing a value range and then decide if we need to check with RAN1.

Nokia understand RAN1 agreed about the distribution, we are agreeing to make the assumption that it is a gaussian distribution, and the paired overbounding defines the error distribution.

Agreements:

Represent the TRP and ARP location errors by a Gaussian paired over-bounding.

Represent the RTD errors by a Gaussian paired over-bounding.

Signalling for UE-based integrity

Proposal 9 Add TIR, AL and TTA to the integrity assistance data that the UE can request for on a need basis to support UE-based integrity calculations

Proposal 10 Agree to the text proposal in Annex A.

Discussion:

Ericsson clarify that this is needed for the UE to operate UE-based integrity in full isolation from the network. In previous discussions it was suggested that the values could come from the UE implementation, and the proposal is to support a UE that does not have such implementation capabilities requesting them as assistance data.

Qualcomm think the AL and TTA are not needed for the UE to calculate the PL; they understand that whatever application wants to make use of integrity will have access to them, and the UE just provides the PL for the achievable TIR. They understand the UE processing will not change with or without these values.

vivo generally agree with Qualcomm and think the mode for integrity reporting is a separate discussion; the proposal here is to include the KPIs in the AD request, but they do not fully understand the scenario. For MT-LR, the KPIs will be available from upper layers, and for MO-LR the UE knows them.

Xiaomi understand that this would support mode 2 reporting for UE-based integrity. They are not sure that the UE can get the KPIs from the application layer every time.

CATT are not sure what the difference is between RAT-dependent and RAT-independent in respect of the AL and TTA; why do we need them here.

Lenovo agree with vivo and think the current signalling for UE-based integrity supports the needed information in the location information transfer.

OPPO think it is not useful to include these KPIs in the assistance data. For mode 1 the UE does not need them, and they do not see the UE needing them in MT-LR where the request comes from an external client.

Ericsson emphasise that this proposal is about assistance data, not location information transfer. They see it as a way of provisioning the parameters to the UE for cases where the KPIs may not be known in advance.

Qualcomm understand that the proposal is for preconfiguring a UE with appropriate values for a particular use case, and they see this as not fitting into a positioning protocol and perhaps not even into a standard, but more as operator configuration of the UEs.

CATT wonder why there are no such KPIs signalling in the GNSS case. Ericsson think the proposal could apply also to GNSS.

Intel think we discussed this in Rel-17 and did not agree to it, and there is not so much support now.

Signalling for LMF-based integrity

Proposal 11 For LMF-based integrity for RAT-dependent positioning, the R17 UE-assisted integrity mode signaling can be used as baseline with the following aspects and agree to the text proposal as in Annex:

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

• LMF provides the Assistance Data for Positioning (same as legacy) and request for Integrity error sources

• UE performs positioning measurements and computes the error (same as legacy)

• UE generates error sources for the requested measurements using mean and standard deviation and provides to the LMF using LPP

• LMF computes the Integrity.

Discussion:

vivo think this depends on reverting the WA. Ericsson agree this is true of the second-to-last bullet and the one before it. Ericsson think we can take this as part of the discussion of the running CR.

Proposal 12 For LMF-based positioning integrity mode, LMF requests UE to send error source statistics of error source in the RequestLocationInformation for each RAT positioning method.

Proposal 13 Agree to the LPP text proposal in Annex B.1

Proposal 14 For LMF-based positioning integrity mode, UE sends the error source statistics in the SignalMeasurementInformation message for the corresponding positioning method.

Proposal 15 Agree to the LPP text proposal in Annex B.2

[R2-2305668](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305668%20Discussion%20on%20RAT-dependent%20positioning%20integrity.doc) Discussion on RAT-dependent positioning integrity Xiaomi discussion

LS to RAN3

Proposal 1: We suggest RAN2 send LS to RAN3 to capture the agreements on the RAT-dependent positioning integrity and also include the following understanding:

 The TRP related error sources which include TRP location and Inter-TRP synchronization are up to LMF implementation;

 The DNU flag for the TRP location and Inter-TRP synchronization is determined by LMF based on implementation;

 The measurement error source bound distribution including RSTD, RTOA, UE Rx-Tx time difference, gNB Rx-Tx time difference, Angle of arrival measurement and DL-PRS RSRPP of the first path or RSRP are up to LMF implementation.

Discussion:

Xiaomi understand that there may be no LPP impact, but RAN3 may need to take our agreements into account in NRPPa.

ZTE think we agreed that RAN3 should discuss these aspects, and they do not see that an LS is necessary, and points 2 and 3 are related to the WA.

Xiaomi think we have not informed RAN3 of our agreements on the TRP error sources being up to LMF implementation. ZTE understand this is in the WA for timing error, but the location error and sync should come from the TRP. However, they think this is not implementation.

Intel understand we agreed the TRP will not provide the location and sync errors to LMF; it is up to LMF implementation, and this is an agreement, not a WA. They think discussion can proceed in RAN3.

OPPO think we did not make such an agreement on TRP location and sync error, and we need to wait for RAN1 feedback. Intel checked the agreements and found that we left determining the TRP location and RTD error sources to deployment and implementation.

DNU flags

Proposal 2: For UE based positioning integrity, LMF sends DNU flag by LPP provide assistance message and the DNU flag indicates the TRPs which are not usable for positioning integrity.

Proposal 3: If RAN1 confirms the working assumption of the measurement error source bound distribution, then the DNU flag for measurements is unnecessary regardless of whether RAN1 deems it necessary or not.

Modes 1 and 2

Proposal 4: Both Mode 1 and Mode 2 of Integrity Result Reporting should be specified for RAT-dependent positioning integrity.

WAs on LMF-based integrity

Proposal 5: There is no LPP spec impact on LMF based positioning integrity if the above working assumption is confirmed.

[R2-2304771](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304771%20Discussion%20on%20RAT-Dependent%20integrity.docx) Discussion on RAT-dependent Integrity CATT discussion Rel-18 NR\_pos\_enh2

[R2-2305332](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305332%20Signaling%20design%20of%20UE-based%20RAT-dependent%20integrity.docx) Signaling design of UE-based RAT-dependent integrity vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2305341](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305341%20Consideration%20on%20RAT-dependent%20positioning%20integrity.docx) Consideration on RAT-dependent positioning integrity OPPO discussion Rel-18 NR\_pos\_enh2

[R2-2305441](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305441.docx) Further considerations on RAT dependent integrity Intel Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2305563](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305563%20Discussion%20on%20RAT-dependent%20integrity.docx) Discussion on RAT-dependent integrity Spreadtrum Communications discussion Rel-18

[R2-2305624](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305624.docx) Discussion on the RAT-dependent integrity issues CMCC discussion Rel-18 NR\_pos\_enh2

[R2-2305642](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305642%20%28R18%20NR%20POS%20A723%20RAT%20dependent%20integrity%29.docx) Discussion on RAT dependent integrity InterDigital, Inc. discussion Rel-18

[R2-2305709](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305709%20Discussion%20on%20RAT-dependent%20integrity.doc) Discussion on RAT-dependent integrity Lenovo discussion Rel-18

[R2-2305823](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305823_%28integrity%29.docx) Integrity of NR Positioning Technologies Qualcomm Incorporated discussion

[R2-2306076](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306076%20Discussion%20on%20RAT-dependent%20methods%20positioning%20integrity.docx) Discussion on RAT-dependent methods positioning integrity ZTE Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2306255](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306255%20LMF-based%20integrity.docx) LMF-based Integrity Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_pos\_enh2-Core

### 7.2.4 LPHAP

Enhancements for enabling LPHAP use case 6 (TS 22.104), including extending eDRX cycle (coordinated with RedCap WI); SRS configuration enhancements based on validity area for UEs in RRC\_INACTIVE; DL-PRS measurements in RRC\_IDLE and reporting in RRC\_CONNECTED; and alignment between eDRX and PRS configurations.

Agenda item summary

[R2-2306540](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306540_%287.2.4%20LPHAP%20Summary%29_v2.docx) Summary of AI 7.2.4: LPHAP Qualcomm Incorporated discussion

Extending eDRX cycle beyond 10.24s in RRC\_INACTIVE

Proposal 1: Send a LS to RAN1 to ask/confirm whether the eRedCap agreed eDRX cycle values are also suitable/sufficient for positioning.

Discussion:

Huawei are OK with the LS but think it should also go to RAN4.

* [AT122][415][POS] LS to RAN1/RAN3/RAN4 on LPHAP agreements (Huawei)

 Scope: Draft an LS to RAN1/RAN3/RAN4:

* Ask RAN1/RAN4 for confirmation on whether the eRedCap agreed eDRX cycle lengths are sufficient for positioning;
* Indicate to RAN3 our conclusions on area-specific SRS configuration by LMF;
* Request from RAN1 the parameters for the area-specific SRS configuration.

 Intended outcome: Approvable LS

 Deadline: Thursday 2023-05-25 2000 KST

SRS configuration enhancements:

Validity Timer and/or explicit release by the network

Proposal 2: RAN2 to continue discussion/evaluation whether a "validity timer" for the SRS configuration should be introduced.

TA validation / maintenance

Proposal 3: Define an SRS for positioning validity-area specific TA timer (e.g., with larger values) for a UE in RRC\_INACTIVE state. FFS on the details.

Proposal 4a: The UE starts/restarts the area-specific TA timer when it receives the TA configuration.

- The UE stops the SRS transmission when the area-specific TA timer expires.

- The UE stops the area-specific TA timer when it reselects to a cell out of the SRS validity area.

Proposal 4b: RAN2 to discuss/evaluate further whether

- The UE does release the SRS configuration when the area-specific TA timer expires, or

- The UE does not release the SRS configuration when the area-specific TA timer expires.

Discussion:

ZTE think the timer should be stopped in additional cases, e.g., on receipt of some RRC signalling, aligned with Rel-17.

Ericsson think this is already agreed in RAN1. Qualcomm understand RAN1 agreed it is feasible, but it is up to RAN2 to decide whether to do it.

CATT indicate that RAN1 also discussed the TA timer, and there are other conditions for timer restart under discussion there.

Huawei understand that TA maintenance is not discussed in RAN1, only the feasibility, and it is up to RAN2 (in MAC spec) to decide how to maintain it. They would like to know if “TA configuration” also includes the TA command. Qualcomm understand they are the same concept, but the MAC calls it “TA command”.

Ericsson wonder if it means the UE will not follow the legacy TA timer. They are not sure if the benefits have been shown.

ZTE understand that RAN1 are likely to agree that TA adjustment can be done by the UE, but not across cells, so the TA timer can be scoped to the validity area. On the stop conditions, they checked and the RRCSetup and RRCResume stop the Rel-17 TA timer.

Qualcomm think there was no proposal for the RRC signalling, and other criteria can continue to be discussed.

Huawei think the interaction with legacy TA timer can be discussed under stage 3; they think a new time might be cleaner.

Ericsson wonder how we will define the maintenance of two timers. They also are not sure how the TA command will arrive while the UE is in RRC\_INACTIVE.

CATT note in Rel-17, there is a cell-specific TA timer, and the UE cannot send out the SRS once the timer is not valid; and we have now introduced area-specific SRS, and they want to clarify the interaction between the two timers.

OPPO think we do not need to maintain two timers simultaneously; when the UE receives an SRS configuration for an area, only the area-specific timer should be running. They prefer only one timer for UE implementation simplicity.

Intel assume if you also configure SDT, the existing timer will govern that, and you could also have the area-based timer for SRS.

InterDigital are OK with the current proposal and we can continue to discuss based on contributions. They do not see a need for two timers maintained simultaneously because they are for different RRC states.

Ericsson feel we still need to understand if there is a problem with using the legacy timer. They have not seen the benefit.

ZTE do not see a case where a Rel-18 UE would have Rel-17 cell-specific SRS and Rel-18 area-specific SRS at the same time, so they do not see interaction between two timers.

CMCC agree with other companies that there should be one timer for the area-valid SRS; they see the cell-specific timer as not enough since it only applies within the cell.

Huawei indicate the intention of the timer is to allow the UE to continue transmitting SRS within the validity area, and we have assessed the benefits of the validity area during the SI.

Ericsson think it is a stage 3 discussion whether we can reuse the existing timer.

Agreements:

Define an SRS for positioning validity-area specific TA timer (e.g., with larger values) for a UE in RRC\_INACTIVE state.

- The UE starts/restarts the area-specific TA timer when it receives the TA command.

- The UE stops the SRS transmission when the area-specific TA timer expires.

- The UE stops the area-specific TA timer when it reselects to a cell out of the SRS validity area.

- Other stop/restart conditions can be discussed.

Node determining the validity area / coordination across gNBs

Proposal 5: The "validity area" for the SRS for positioning configuration in RRC\_INACTIVE state is determined by the LMF, based on negotiation/coordination with related gNBs.

Discussion:

Huawei think this has to be done at the LMF; otherwise we would introduce Xn mechanisms for the gNB to determine it.

Ericsson think the serving gNB can coordinate over Xn and determine a validity area; in any case they see there is something for RAN3 to do, and we could leave open whether it is Xn or NRPPa.

Qualcomm doubt that there will be enough Xn connectivity, and they point out that the LMF always sees all the gNBs in its service area.

CATT think it is RAN3 scope and RAN3 are also discussing it; they think the topic could be left to RAN3, but they also agree that there will not always be enough Xn connectivity.

Samsung also think it is a RAN3 issue, but they think the LMF is the reasonable node to take the decision.

Xiaomi think since RAN2 introduced the validity area, we should decide which node determines it. They also note that currently the SRS resources are coordinated by the LMF.

Ericsson think we could say from RAN2 perspective it is feasible that LMF does it, but the final decision is in RAN3.

Qualcomm think it is really RAN2 business; we should come up with the stage 2 functionality and requirements, and RAN3 may not have the full picture. They assume companies are coordinated between groups.

Intel agree with Qualcomm.

Fraunhofer wonder if we should give indications of what parameters are needed.

Agreements:

RAN2 consider that the LMF should determine the area-specific SRS configuration. Details are up to RAN3.

LS to RAN3 to indicate this conclusion, including RAN1 to prompt them for parameters. To be included in the LS from [AT122][415].

Provisioning of pre-configured SRS

Proposal 6: RAN2 to discuss whether the SRS for positioning configuration for use in RRC\_INACTIVE state (with or without area validity) can also be provided via system information. FFS posSIB or normal SIB.

Proposal 7: The SRS for positioning configuration for use in RRC\_INACTIVE state (with or without area validity) can also be provided while the UE is in connected state.

Multiple SRS configurations

Proposal 8: The UE can be pre-configured with one or more SRS for positioning configurations for RRC\_INACTIVE state. If the SRS configuration has an "area validity", the multiple SRS configurations have a different "validity area".

"SRS configuration request" vs. "SRS activation request"

Proposal 9: RAN2 to discuss whether the SRS activation request for pre-configured SRS can be indicated via Msg3/MsgA transmission when an event is detected. FFS if the request is in the RRC message or an accompanying MAC CE.

Proposal 10: Strive for a unified design for the "SRS configuration request" and "SRS activation request" messages.

SRS Request Message

Proposal 11: For the "SRS configuration request" and/or (depending on Proposal 9/10) "SRS activation request", select one of the following options:

- new resume cause;

- new RRC message;

- new MAC CE;

- via RACH procedure.

Proposal 12: Before deciding on the options in Proposal 11, RAN2 should first agree on the information required/contained in the "SRS configuration request" and/or (depending on Proposal 9/10) "SRS activation request".

SRS activation by gNB

Proposal 13: To activate a pre-configured SRS for positioning, define a gNB triggered message.

Signalling between NG-RAN and LMF

Proposal 14a: Define a NRPPa message for the coordination of SRS configurations between gNBs and LMF.

Proposal 14b: Define a NRPPa message to provide updated SRS configuration to the LMF when receiving the request from the UE.

Proposal 14c: Define a NRPPa message to provide the updated SRS configuration to the measured TRPs.

Proposal 14d: Define a NRPPa message to enable an LMF to request SRS deactivation.

NOTE: The NRPPa message(s) above may be existing NRPPa message(s) and/or new NRPPa message(s) depending on RAN3.

DL PRS measurements for a UE in RRC\_IDLE state:

Proposal 15: Send an LS to SA2 to inform them that RAN2 has agreed to support "DL PRS measurements for a UE in RRC\_IDLE state and reporting of the measurements in RRC\_CONNECTED state" and ask SA2 whether there are any impacts to the LCS procedures in SA2 specifications, and if so, request SA2 to consider the RAN2 agreement for updating the SA2 specifications.

Alignment between eDRX and PRS:

Proposal 16: "eDRX" in the objective "Specify solutions for alignment between eDRX and PRS configurations [RAN2]" refers to the idle and inactive eDRX configuration.

Proposal 17: For the DL-PRS alignment with configured/fixed eDRX, the UE-initiated on-demand DL-PRS procedures are used.

The following tdocs will not be individually treated

[R2-2304772](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304772%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP CATT discussion Rel-18 NR\_pos\_enh2

[R2-2304799](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304799%20Discussion%20on%20LPHAP_final.docx) Discussion on LPHAP Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

[R2-2304887](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304887%20PRS%20and%20DRX%20configuration%20alignment.docx) PRS and DRX configuration alignment Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_pos\_enh2-Core R2-2304059

[R2-2304950](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304950_LPHAP_Fraunhofer.docx) Enhancements for supporting LPHAP Fraunhofer IIS, Fraunhofer HHI discussion R2-2302589

[R2-2305069](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305069-PRS-DRX-alignment-v0.docx) Alignment between DRX and PRS Apple discussion Rel-18 NR\_pos\_enh2

[R2-2305333](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305333%20Discussion%20on%20solution%20of%20LPHAP.doc) Discussion on solution of LPHAP vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2305342](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305342%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP OPPO discussion Rel-18 NR\_pos\_enh2

[R2-2305442](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305442.docx) Further considerations on LPHAP Intel Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2305510](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305510_LPHAP.docx) Considerations on Low Power High Accuracy Positioning Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2305564](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305564%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP Spreadtrum Communications discussion Rel-18

[R2-2305637](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305637%20Considerations%C2%A0on%C2%A0LPHAP.doc) Considerations on LPHAP CMCC discussion Rel-18 NR\_pos\_enh2

[R2-2305644](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305644%20%28R18%20NR%20POS%20A724%20LPHAP%29.doc) Discussion on LPHAP InterDigital, Inc. discussion Rel-18

[R2-2305669](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305669%20Discussion%20on%20LPHA%20positioning.doc) Discussion on LPHA positioning Xiaomi discussion

[R2-2305710](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305710%20Discussion%20on%20low%20power%20high%20accuracy%20positioning.doc) Discussion on low power high accuracy positioning Lenovo discussion Rel-18

[R2-2305822](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305822_%28LPHAP%29.docx) Enhancements for LPHAP Qualcomm Incorporated discussion

[R2-2306021](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306021%20LPHAP.docx) Discussion on Low Power High Accuracy Positioning Ericsson discussion Rel-18

[R2-2306075](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306075%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP ZTE Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2306447](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306447_Discussion%20on%20SRS%20configuration%20in%20RRC_INACTIVE.docx) Discussion on SRS configuration in RRC\_INACTIVE Samsung discussion Rel-18 FS\_NR\_pos\_enh2

### 7.2.5 RedCap positioning, carrier phase positioning, and bandwidth aggregation for positioning

RAN1 led objectives that may require progress in RAN1 before RAN2 can take decisions. This agenda item will be treated at lower priority.

[R2-2304773](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304773%20Discussion%20on%20carrier%20phase%20positioning%20bandwidth%20aggregation%20for%20positioning%20and%20Redcap%20positioning.docx) Discussion on carrier phase positioning, bandwidth aggregation for positioning and Redcap positioning CATT discussion Rel-18 NR\_pos\_enh2

[R2-2305315](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305315%20Discussion%20on%20RAN1%20led%20positioning%20topics.docx) Discussion on RAN1 led positioning topics Huawei, HiSilicon discussion Rel-18

[R2-2305334](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305334%20on-demand%20PRS%20for%20PRS%20bandwidth%20aggregation.docx) on-demand PRS for PRS bandwidth aggregation vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2305443](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305443.docx) Considerations on other RAN1 led items Intel Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2305625](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305625.docx) Discussion on the RedCap UE positioning CMCC discussion Rel-18 NR\_pos\_enh2

[R2-2305645](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305645%20%28R18%20NR%20POS%20A725%20Others%29.docx) Discussion on positioning for RedCap positioning, carrier phase positioning, and bandwidth aggregation for positioning InterDigital, Inc. discussion Rel-18

[R2-2305670](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305670%20Discussion%20on%20RedCap%20UE%20positioning.doc) Discussion on RedCap UE positioning Xiaomi discussion

[R2-2306023](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306023%20RedCap.docx) RedCap positioning, carrier phase positioning, and bandwidth aggregation for positioning Ericsson discussion Rel-18

[R2-2306077](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306077%20Discussion%20on%20BW%20aggregation%20and%20RedCap%20positioning.docx) Discussion on BW aggregation and RedCap positioning ZTE Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2306448](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306448_Discussion%20on%20bandwidth%20aggregation.docx) Discussion on bandwidth aggregation Samsung discussion Rel-18 FS\_NR\_pos\_enh2

## 7.9 Enhanced NR Sidelink Relay

(NR\_SL\_relay\_enh-Core; leading WG: RAN2; REL-18; WID: RP-223501)

Time budget: 1.5 TU

Tdoc Limitation: 4 tdocs

### 7.9.1 Organizational

Including incoming LSs and rapporteur inputs.

Incoming LSs with “take into account” actions

[R2-2304617](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304617_R1-2304211.docx) Reply LS on comparison of SL-RSRP and SD-RSRP measurements (R1-2304211; contact: Nokia) RAN1 LS in Rel-18 NR\_SL\_relay\_enh-Core To:RAN2 Cc:RAN4

[R2-2304637](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304637_R4-2306366.docx) LS on Comparison of SL-RSRP and SD-RSRP measurements (R4-2306366; contact: Nokia) RAN4 LS in Rel-18 NR\_SL\_relay\_enh To:RAN2 Cc:RAN1

Other incoming LSs

[R2-2304646](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304646_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

[R2-2304652](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304652_S2-2305915.doc) Reply LS on 5G ProSe Layer-2 UE-to-UE Relay QoS enforcement (S2-2305915; contact: Qualcomm) SA2 LS in Rel-18 5G\_ProSe\_Ph2 To:RAN2

Draft CR

[R2-2305207](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305207-Draft%20running%20CR%2038.300.docx) Draft running CR 38.300 (initial) LG Electronics France draftCR Rel-18 38.300 17.4.0 B NR\_SL\_relay-Core

* Revised in R2-2306554

R2-2306554 Draft running CR 38.300 (update) LG Electronics France draftCR Rel-18 38.300 17.4.0 Bz NR\_SL\_relay-Core

Withdrawn/Not available

R2-2305208 Draft running CR 38.300 (update) LG Electronics France draftCR Rel-18 38.300 17.4.0 Bz NR\_SL\_relay-Core

* Withdrawn

### 7.9.2 UE-to-UE relay

Single-hop Layer-2 and Layer-3 UE-to-UE relay for unicast. Including common L2/L3 functionality comprising relay discovery and (re)selection and L2-specific functionality including adaptation layer design, control plane procedures, and QoS handling if needed.

Agenda item summary

[R2-2306555](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306555%20Summary%20of%20AI%207.9.2%20on%20U2U%20relay.docx) Summary of AI 7.9.2 on UE-to-UE relay ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[Easy proposal]

Discovery

[Easy] Proposal 2a: For Model A discovery, the relay UE should only announce the neighbour UEs for which the PC5 link quality between the relay UE and the neighbour UE is above a certain threshold in a discovery announcement message. If agreed, LS is sent to SA2.

[Easy] Proposal 2b: For Model A discovery, upon discovery message reception, remote UE considers a relay UE as a candidate relay UE only if the PC5 RSRP towards the relay UE is above a configured threshold.

[Easy] Proposal 3c: For Model B discovery, upon discovery response messages reception, the source remote UE considers a relay UE as a candidate relay UE only if the PC5 RSRP towards the relay UE is above a configured threshold.

[Easy] Proposal 4: For integrated-discovery, when receiving DCR message from one or multiple relay UEs, the target remote UE should select a relay UE towards which the PC5 RSRP is above a configured threshold to respond.

[Easy] Proposal 5a: For U2U relay, when relay (re)selection is triggered, the discovery procedure is triggered at the same time to search for candidate relay UEs.

Relay (re)selection

[Easy] Proposal 8: Different thresholds for SL-RSRP and SD-RSRP are configured for the trigger of U2U relay (re)selection.

[Easy] Proposal 12a: Besides the PC5 link quality, RAN2 does not pursue other criteria for relay (re)selection.

[Easy] Proposal 12b: If multiple suitable U2U relay candidates which meet both the AS-layer and higher layer criteria are available, it is up to remote UE implementation to choose a U2U relay UE.

SRAP design

[Easy] Proposal 15: If 24-bit L2 ID is agreed, Option 3 (both source remote UE 24-bit layer-2 ID and target remote UE 24-bit layer-2 ID included in each hop) should be supported.

[Easy] Proposal 16b: If short ID is agreed, relay UE is responsible for ID assignment.

[Easy] Proposal 17a: Confirm the WA with following change: E2E bearer ID (i.e., slrb-PC5-ConfigIndex in the list of SLRB configurations for SL-DRBs, and specified values 0/1/2/3 for SL-SRB0/1/2/3) is used as input for the L2 U2U relay ciphering and deciphering at PDCP.

SL-SRB/DRB and PC5 RLC channel configuration

[Easy] Proposal 18: For the E2E SL-SRB configuration of U2U relay, specified PDCP configuration is used. FFS for the SRAP and PC5 RLC channel configuration for SL-SRB.

[Easy] Proposal 19a: AS layer is responsible for QoS split in L2 U2U relay.

[Easy] Proposal 19b: Relay UE is responsible for AS layer QoS split in L2 U2U relay.

[Easy] Proposal 20a: For OOC U2U relay/remote UE, pre-configuration is used for the SL-DRB and PC5 RLC channel configuration.

[Easy] Proposal 20b: For RRC\_IDLE/INACTIVE U2U relay/remote UE, SIB is used for the SL-DRB and PC5 RLC channel configuration.

[To Discuss]

Authorization

[ToDis] Proposal 1: Authorization information is needed for L2 U2U relay operation. RAN2 to discuss whether it is needed for L3 U2U relay operation. Send reply LS to inform SA2.

Discovery

[ToDis] Proposal 3a: For Model B discovery, the source remote UE transmits discovery solicitation message when the PC5 link quality (SL-RSRP or SD-RSRP) between the source remote UE and the target remote UE (if available) is below a configured threshold.

[ToDis] Proposal 3b: For Model B discovery, the relay UE transmits discovery solicitation message to target remote UE only if the PC5 link quality between the relay UE and the source remote UE is above a configured threshold.

[ToDis] Proposal 6: For RRC\_CONNECTED U2U relay/remote UE, U2U relay, dedicated signalling is used for the discovery configuration.

Relay (re)selection

[ToDis] Proposal 9: Remote UE can trigger U2U relay selection when PC5 RLF of the direct link between the remote UE and the peer remote UE is detected.

[ToDis] Proposal 10: Remote UE can trigger relay reselection if the link quality of the second hop between the relay UE and peer remote UE is blow a threshold even the link quality of the first hop is good. FFS for the content of the link quality indication of the second hop.

[ToDis] Proposal 11: RAN2 to discuss whether AS criterion is needed for switching back from indirect to direct link.

[ToDis] Proposal 13: RAN2 to discuss whether/how to handle the case that remote UE and its peer remote UE may select two different relay UEs simultaneously for communicating with each other. Send LS to SA2 if necessary .

SRAP design

[ToDis] Proposal 14: RAN2 to discuss which ID (24-bit L2 ID or short ID) can be used in SRAP header.

[ToDis] Proposal 16a: If short ID is agreed, RAN2 to discuss which option should be supported.

Option 2: Target remote UE ID (local ID) in first hop and source remote UE ID (local ID) in second hop.

Option 4: Both source remote UE ID (local ID) and target remote UE ID (local ID) included in each hop, the local ID is same on each hop and relay UE does not replace the local ID on each hop.

Option 5: A local pair ID for a pair between source remote UE and target remote UE included in each hop, the local ID is unique within one PC5 hop and relay UE needs to replace the local ID on each hop.

Option 6: A local pair ID for a pair between source remote UE and target remote UE included in each hop, the local ID is same on each hop and relay UE does not replace the local ID on each hop.

[ToDis] Proposal 17b: RAN2 to discuss how to identify the E2E bearer ID(e.g. 0/1/2/3) included in SRAP header is for SL-SRB or SL-DRB.

SL-SRB/DRB and PC5 RLC channel configuration

[ToDis] Proposal 20c: For RRC\_CONNECTED U2U relay/remote UE, dedicated signalling is used for the SL-DRB and PC5 RLC channel configuration.

[Low priority]

[LowPriority] Proposal 7: RAN2 deprioritize the discussion of U2N relay and U2U relay co-existence.

[LowPriority] Proposal 5b: RAN2 to discuss whether remote UE can perform Model B discovery while relay (re)selection is not triggered.

The following tdocs will not be individually treated

[R2-2304680](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304680%20SRAP%20design%20and%20Connection%20establishment.docx) SRAP design and Connection establishment NEC discussion NR\_SL\_relay\_enh-Core

[R2-2304754](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304754%20-%20Discussion%20on%20U2U%20Relay.docx) Discussion on U2U relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2304957](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304957%20Discussion%20on%20the%20adaptation%20layer_v2.doc) Discussion on the adaptation layer Fujitsu discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305043](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305043%20Further%20discussion%20on%20U2U%20Relay.doc) Further discussion on U2U Relay ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305062](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305062%20Discussion%20on%20U2U%20relay%20issues.doc) Discussion on UE-to-UE Relay Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305180](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305180%20%28R18%20SL%20Relay%20WI_AI792%20RelayDiscoverySelection%29.doc) Discovery and Relay Selection for UE-to-UE Relays InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305181](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305181%20%28R18%20SL%20Relay%20WI_AI792%20U2U%20Relays%29.doc) QoS and Adaptation Layer for UE-to-UE Relays InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305210](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305210-Control%20plane%20procedure%20and%20adaptaion%20layer%20for%20U2U%20relay.docx) Control plane procedure and adaptaion layer for U2U relay LG Electronics France discussion Rel-18

[R2-2305233](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305233%2BDiscussion%20on%20NR%20sidelink%20U2U%20relay.doc) Discussion on U2U sidelink relay China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305245](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305245_Discussion%20on%20the%20common%20L2%20L3%20parts%20for%20U2U%20relaying.docx) Discussion on the common L2 L3 parts for U2U relaying vivo discussion

[R2-2305246](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305246_%20Discussion%20on%20the%20L2%20specific%20parts%20for%20U2U%20relaying.docx) Discussion on the L2 specific parts for U2U relaying vivo discussion

[R2-2305279](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305279%20Disussion%20on%20U2U%20Relay.docx) Discussion on U2U Relay CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305519](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305519.doc) UE-to-UE relay (re)selection Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2305520](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305520%20Relay_DRX.docx) Discussion on DRX for Sidelink UE to UE Relay Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2305547](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305547_Discussion_on_Relay_reselection_Discovery.docx) Discussion on Relay (re)selection and Discovery Ericsson España S.A. discussion Rel-18

[R2-2305548](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305548_Control_Plane_Procedures_for_L2_U2U_relays.docx) Control Plane Procedures for Layer 2 UE-to-UE Relays Ericsson España S.A. discussion Rel-18

[R2-2305551](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305551.doc) Discussion on UE-to-UE relay Spreadtrum Communications discussion Rel-18

[R2-2305590](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305590%20Further%20issues%20on%20U2U%20relay.docx) Considerations on U2U relay (re)selection and Local ID assignment Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh-Core R2-2302791

[R2-2305618](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305618%20Discussion%20on%20U2U%20relay.docx) Discussion on U2U relay CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305697](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305697%20Discussion%20on%20L2%20U2U%20relay%20v1.0.docx) Discussion on L2 U2U relay Lenovo discussion Rel-18

[R2-2305743](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305743%20QoS%20split%20and%20Bearer%20configuration.doc) QoS split and Bearer configuration Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305762](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305762-Layer-2%20specific%20part%20on%20U2U%20Relay.docx) Layer-2 specific part on U2U Relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2305763](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305763-gNB%20involvement%20on%20U2U%20relay.docx) gNB involvement on U2U relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2305802](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305802%20SRAP%20design%20for%20U2U%20sidelink%20relay.doc) SRAP design for U2U Sidelink Relay Samsung R&D Institute UK discussion

[R2-2305874](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305874_U2U_relay.docx) Considerations for U2U L2 relay operations Kyocera discussion

[R2-2306125](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306125%20Discussion%20on%20aspects%20of%20AS%20layer%20configuration%20for%20L2%20U2U%20Relay.docx) Discussion on aspects of AS layer configuration for L2 U2U Relay ASUSTeK discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306126](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306126%20Discussion%20on%20E2E%20PC5-RRC%20configurations.docx) Discussion on E2E PC5-RRC configurations ASUSTeK discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306191](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306191%20Discussion%20on%20UE-to-UE%20relay.doc) Discussion on UE-to-UE relay Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306378](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306378%20Discussion%20on%20L2%20U2U%20Relay%20v01.docx) Discussion on L2 U2U Relay MediaTek Inc. discussion Rel-18

[R2-2306380](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306380-U2U.doc) Remaining issues for U2U relay Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306427](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306427%20-%20U2U%20relay.docx) U2U Relay UE discovery / (re)selection, SRAP, QoS Handling Beijing Xiaomi Mobile Software discussion Rel-18 NR\_SL\_relay\_enh-Core

### 7.9.3 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.

Agenda item summary

[R2-2306559](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306559%20Summary%20of%20AI%207.9.3%20on%20service%20continuity.docx) Summary of AI 7.9.3 on service continuity (vivo) vivo discussion

[Easy]

Proposal 6 [Easy] RAN2 to revise the original proposal 4 agreed for i2i scenario as “Proposal 4 (modified) For i2i scenario, for serving/candidate U2N relay UEs, when SL-RSRP is unavailable, SD-RSRP is used as the measurement quantity. And for candidate U2N relay UEs, only SD-RSRP is used as the measurement quantity. Wording can be revisited if it is determined that L2IDs for U2U and U2N are always different (so that candidate U2N relay UEs would never have SL-RSRP available).”.

Proposal 7 [Easy] RAN2 to agree that measurement event Z2 (i.e., Candidate L2 U2N Relay UE becomes an offset better than serving L2 U2N Relay UE) is not introduced.

[For discussion]

Proposal 1 [For discussion] For uplink lossless data delivery for path switch, RAN2 to conclude whether to agree on solution U5 only, solution U3 only or both solutions, by taking into account of the identified technical concerns of U3 and U5 as shown in Table 1.

Proposal 2 [For discussion] If solution U5 is agreed as in P1, inform RAN3 of RAN2 conclusion and up to RAN3 on potential spec impact (if any) between source gNB and target gNB.

Proposal 3 [For discussion] If solution U3 is agreed as in P1, FFS whether/how to capture the new Remote UE behaviour due to solution U3 in RAN2 Spec (e.g., with NOTE or normative text in TS 38.323).

Proposal 4 [For discussion] For downlink lossless data delivery for path switch, RAN2 to down-select between solution D4 and solution D5, and inform RAN3 of RAN2 decision.

Proposal 5 [For discussion] RAN2 to discuss whether the uplink & downlink lossless delivery solution(s) to be agreed for inter-gNB path switch cases are applied to intra-gNB i2i path switch (when applicable).

Proposal 7a [For discussion] RAN2 to agree that any operation based on direct comparison between the SD-RSRP and SL-RSRP measured at the Remote UE side is not supported in Rel-18.

[Lower priority]

Proposal 8 [Lower priority] RAN2 to deprioritize discussion on the addressing the following mobility issues to support remote UE’s path switch in Rel-18.

 simultaneous relay UE’s inter-gNB HO and connected remote UE’s path switching

 selection of relay UE in RRC\_IDLE or RRC\_INACTIVE state

 relay UE’s cell reselection or HO during indirect path switching of the remote UE

 prolonged inter-gNB signaling over Xn interface for inter-gNB path switching

 CHO-like path switching solution for remote UE

 DAPS like path switch solution for remote UE

 group handover for relay UE and remote UE(s)

The following tdocs will not be individually treated

[R2-2304681](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304681%20Draft%20LS%20to%20RAN3%20on%20Lossless%20Path%20Switching.docx) DRAFT LS for Draft LS to RAN3 on Lossless Path Switching for Sidelink Relay NEC LS out Rel-18 NR\_SL\_relay\_enh-Core To:RAN3

[R2-2304755](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304755%20-%20Discussion%20on%20lossless%20data%20forwarding%20for%20inter-gNB%20service%20continuity.docx) Discussion on lossless data forwarding for inter-gNB service continuity OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305025](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305025%20Discussion%20on%20lossless%20path%20switching%20for%20Sidelink%20Relay.docx) Discussion on lossless path switching for Sidelink Relay CANON Research Centre France discussion Rel-18

[R2-2305044](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305044%20Further%20discussion%20on%20service%20continuity%20for%20SL%20relay.doc) Further discussion on service continuity for SL relay ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305063](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305063%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

[R2-2305182](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305182%20%28R18%20SL%20Relay%20WI_AI793%20ServiceContinuity%29.doc) Remaining Issues on Service Continuity InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305209](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305209-SL%20U2N%20relay%20for%20the%20service%20continuity%20enhancement.docx) SL U2N relay for the service continuity enhancement LG Electronics France discussion Rel-18

[R2-2305217](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305217.docx) Discussion on service continuity enhancement Xiaomi discussion

[R2-2305234](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305234_Discussion%20on%20lossless%20delivery%20solution%20for%20inter-gNB%20path%20switching.docx) Discussion on lossless delivery solution for inter-gNB path switching China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305247](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305247_Remaining%20issues%20on%20service%20continuity%20enhancement%20for%20L2%20U2N%20relay.docx) Remaining issues on service continuity enhancement for L2 U2N relay vivo discussion

[R2-2305280](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305280%20Further%20Consideration%20on%20Service%20Continuity%20Enhancements%20for%20L2%20U2N%20Relay.docx) Further Consideration on Service Continuity Enhancements for L2 U2N Relay CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305419](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305419%20DiscusionRSRP-LSs.docx) Discussion on reply LSs on RSRP issues (R1-2304211 / R2-2304617 and R4-2306366 / R2-2304637) Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh

[R2-2305420](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305420%20SL%20Relay%20Service%20Continuity.docx) Discussion on L2 U2N relay service continuity issues for inter-gNB path switch Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh

[R2-2305521](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305521.doc) Service continuity enhancements for UE sidelink relay Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2305549](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305549_Discussion_on_Inter_gNB_Service_Continuity.docx) Discussion on Inter-gNB Service Continuity Ericsson España S.A. discussion Rel-18

[R2-2305552](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305552.doc) Service continuity enhancements support for L2 U2N relay Spreadtrum Communications discussion Rel-18

[R2-2305585](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305585_Service%20Continuity%20Enhancements%20and%20Lossless%20Data%20Delivery.docx) Service Continuity Enhancements and Lossless Data Delivery NEC Corporation discussion NR\_SL\_relay\_enh-Core

[R2-2305619](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305619%20Discussion%20on%20service%20continuity.docx) Discussion on service continuity CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305761](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305761%20Lossless%20Inter-gNB%20path%20switching%20v1.0.docx) Lossless Inter-gNB path switching Lenovo discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305764](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305764%20Evaluation%20and%20proposals%20on%20U3%20and%20U5%20_r2.docx) Evaluation and proposals on U3 and U5 Qualcomm Incorporated, OPPO, Xiaomi discussion NR\_SL\_relay\_enh-Core

[R2-2305979](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305979%20Discussion%20on%20service%20continuity.docx) Discussion on Service Continuity Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306260](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306260%20Remaining%20issues%20for%20service%20continuity.docx) Remaining issues for service continuity MediaTek Inc. discussion Rel-18

[R2-2306374](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306374%20Discussion%20on%20Event%20Z2.doc) Discussion on Event Z2 Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306381](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306381-U2N-lossless.doc) remaining issues for i2x path switching with lossless delivery Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306383](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306383-U2N_Discussion%20on%20remaining%20issues%20for%20path%20switching.doc) Discussion on remaining issues for path switching Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

### 7.9.4 Multi-path relaying

Mechanisms to support multi-path scenarios 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). This agenda item will include a rapporteur contribution summarising open issues from RAN2#121 (invited contribution not counted against the tdoc limit).

Agenda item summary and report of [AT122][402]

[R2-2306556](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306556%20-%20Summary%20of%20%5BPre122%5D%5B403%5D%5BRelay%5D%20Summary%20of%20AI%207.9.4%20on%20multi-path%20relay%20%28OPPO%29.docx) [Pre122][403][Relay] Summary of AI 7.9.4 on multi-path relay (OPPO) OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

* [AT122][402][Relay] Multi-path relay summary proposals (OPPO)

 Scope: Discuss and gauge support on the proposals in R2-2306556, converge on easily agreeable parts, and identify discussion points for the online session on Tuesday 2023-05-23.

 Intended outcome: Summary to online session in R2-2306672

 Deadline: Tuesday 2023-05-23 1100 KST

R2-2306672 [AT122][402][Relay] Multi-path relay summary proposals (OPPO) OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

The following tdocs will not be individually treated

[R2-2304664](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304664%20-%20Discussion%20on%20multi-path%20Relay_V01.docx) Discussion on multi-path SL relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2304958](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304958%20Discussions%20on%20Multi-path_v2.docx) Discussions on multi-path Fujitsu discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305008](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305008_SLRelay_S1%262_v2.doc) Discussion sidelink relay enhancement for scenario 1&2 Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305045](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305045%20Discussion%20on%20the%20RAN2%20impacts%20of%20multi-path%20relaying%20with%20CUDU%20split%20architecture.docx) Discussion on the RAN2 impacts of multi-path relaying with CU/DU split architecture ZTE, OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305046](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305046%20Further%20discussion%20on%20the%20support%20of%20multi-path%20relaying.docx) Further discussion on the support of multi-path relaying ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305064](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305064%20Discussion%20on%20control%20plan%20design%20for%20Multi-path.doc) Discussion on Multi-path Relay Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305183](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305183%20%28R18%20SL%20Relay%20WI_AI794%20MultipathAspects%29.doc) Design Aspects for Multi-path InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305218](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305218.docx) Discussion on multi-path Xiaomi discussion

[R2-2305232](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305232%20Discussion%20on%20the%20mode%201%20RA%20issue%20under%20multi-path%20scenario.docx) Discussion on the mode 1 RA issue under multi-path scenario NEC, Nokia,OPPO,ZTE,Huawei, HiSilicon, Sharp, Samsung, Philips, MediaTek discussion NR\_SL\_relay\_enh-Core

[R2-2305235](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305235%20Discussion%20on%20remaining%20issues%20of%20multi-path%20relaying.docx) Discussion on remaining issues of multi-path relaying China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305248](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305248_Remaining%20Issues%20for%20Multi-path%20Scenario%201%202.docx) Remaining Issues for Multi-path Scenario-1 and Scenario-2 vivo discussion

[R2-2305281](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305281_Discussion%20on%20Multi-path%20Scenario1.docx) Discussion on Multi-path Scenario 1 CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305282](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305282_Leftover%20issues%20on%20Multi-path%20scenario2.docx) Leftover issues on Multi-path scenario2 CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305522](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305522.doc) Multi-path relaying discussion Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2305550](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305550_Discussion_on_multipath%20relays.docx) Discussion on Multipath Relays Ericsson España S.A. discussion Rel-18

[R2-2305553](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305553.doc) Discussion on multi-path relaying Spreadtrum Communications discussion Rel-18

[R2-2305586](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305586_Discussion%20on%20Multi-path%20Relaying.docx) Discussion on Multi-path Relaying NEC Corporation discussion NR\_SL\_relay\_enh-Core

[R2-2305620](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305620%20Discussion%20on%20multi-path%20scenario%201.docx) Discussion on multi-path scenario 1 CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305621](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305621%20Considerations%20on%20multi-path%20scenario%202.docx) Considerations on multi-path scenario 2 CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305698](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305698%20Procedure%20for%20second%20path%20addition%20v1.0.docx) Procedure for second path addition Lenovo discussion Rel-18

[R2-2305765](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305765-Address%20contravercial%20issues%20for%20MP%20relay.docx) Address controversial issues on multi-path relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2305873](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305873_multipath_relay.docx) Considerations for multipath relay operations for Scenario 1 Kyocera discussion

[R2-2305945](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305945%20Discussion%20on%20Multi-path%20relaying.docx) Discussion on Multi-path relaying Lenovo discussion NR\_SL\_relay\_enh-Core

[R2-2306127](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306127%20Resource%20allocation%20and%20BSR%20reporting%20for%20multi-path.docx) Resource allocation and BSR reporting for multi-path ASUSTeK discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306192](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306192%20Remaining%20issues%20on%20multi-path%20operation.docx) Remaining issues on multi-path operation Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306310](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306310_Discussion%20on%20multi-path%20scenario%201_III.docx) Discussion on multi-path scenario 1 III discussion NR\_SL\_relay\_enh-Core

[R2-2306313](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306313%20Multipath%20SL%20relay.docx) Multipath SL relay Nokia, Nokia Shanghai Bell discussion

[R2-2306355](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306355%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

[R2-2306382](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306382-MP.doc) Remaining issues for multi-path relay Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2306445](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306445%20Discussion%20on%20Multipath%20v01.docx) Discussion on Multipath MediaTek Inc. discussion Rel-18

[R2-2306497](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306497_SL-MP-Relaying_ThroughputEnhancements.docx) About Throughput Enhancements in Sidelink Multi-Path Relaying Fraunhofer IIS, Fraunhofer HHI discussion Rel-18 NR\_SL\_relay\_enh

### 7.9.5 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.

[R2-2304756](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304756%20-%20Discussion%20on%20DRX%20for%20L2%20U2N%20relay.docx) Discussion on DRX for L2 U2N relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305065](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305065%20Discussion%20on%20SL-DRX.doc) Discussion on SL DRX for L2 UE-to-NW relay Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2305219](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305219.docx) Discussion on SL DRX in U2N relay Xiaomi discussion

[R2-2305592](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305592%20Considerations%20on%20paging%20for%20sidelink%20relay.docx) Considerations on paging for sidelink relay Nokia, Nokia Shanghai Bell discussion NR\_SL\_relay\_enh-Core

[R2-2306193](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306193%20Left%20issues%20on%20sidelink%20DRX%20for%20L2%20U2N%20relay.doc) Left issues on sidelink DRX for L2 U2N relay Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

## 7.24 NR TEI18

Specific items may be allocated to a breakout session for treatment.

Time budget: 1 TU

### 7.24.1 TEI proposals by Other Groups

Items initiated by other groups that is/has been communicated by LS, where the other group indicate this is TEI18. (Specific other-group-WIs should use the R18 Other Agenda Item below).

Incoming LSs (note: R2-2304609 was intended to be noted at RAN2#121bis-e)

[R2-2304609](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304609_R1-2302201.docx) LS on 1-symbol PRS (R1-2302201; contact: ZTE) RAN1 LS in Rel-18 TEI18 To:RAN2, RAN3 Cc:RAN4

[R2-2304623](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304623_R3-231935.doc) Reply LS on 1-symbol PRS (R3-231935; contact: ZTE) RAN3 LS in Rel-18 TEI18 To:RAN1 Cc:RAN2

1-symbol PRS

[R2-2306079](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306079%20Introduction%20of%201-symbol%20PRS%20in%2038.331%5B1symbol_PRS%5D.docx) Introduction of 1-symbol PRS in 38.331[1symbol\_PRS] ZTE Corporation CR Rel-18 38.331 17.4.0 4014 1 B TEI18 R2-2303498

[R2-2306080](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306080%20Introduction%20of%201-symbol%20PRS%20in%2037.355%5B1symbol_PRS%5D.docx) Introduction of 1-symbol PRS in 37.355[1symbol\_PRS] ZTE Corporation CR Rel-18 37.355 17.4.0 0437 1 B TEI18 R2-2303499

[R2-2306081](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306081%20Introduction%20of%20UE%20capability%20of%201-symbol%20PRS%20in%2037.355%5B1symbol_PRS%5D.docx) Introduction of UE capability of 1-symbol PRS in 37.355[1symbol\_PRS] ZTE Corporation CR Rel-18 37.355 17.4.0 0453 - B TEI18

[R2-2306082](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306082%20Introduction%20of%20UE%20capability%20of%201-symbol%20PRS%20in%2038.331%5B1symbol_PRS%5D.docx) Introduction of UE capability of 1-symbol PRS in 38.331[1symbol\_PRS] ZTE Corporation CR Rel-18 38.331 17.4.0 4128 - B TEI18

[R2-2306083](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306083%20Introduction%20of%20UE%20capability%20of%201-symbol%20PRS%20in%2038.306%5B1symbol_PRS%5D.docx) Introduction of UE capability of 1-symbol PRS in 38.306[1symbol\_PRS] ZTE Corporation CR Rel-18 38.306 17.4.0 0923 - B TEI18

* [AT122][403][POS] 1-symbol PRS CR check (ZTE)

 Scope: Check the CRs in R2-2306079 / R2-2306080 / R2-2306081 / R2-2306082 / R2-2306083

 Intended outcome: CRs agreeable in principle

 Deadline: Wednesday 2023-05-24 2000 KST

### 7.24.2 TEI proposals by RAN2

Items initiated in RAN2.

Tdoc limitation: 1 tdoc, limitation only applicable for non-previously-agreed-to-be-considered TEI proposals.

Emergency cause value for relay

[R2-2304759](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304759%20-%20Discussion%20on%20emergency%20cause%20value%20for%20SL%20Relay.docx) Discussion on emergency cause value for SL Relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core, TEI18

GNSS LOS/NLOS

[R2-2304838](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304838.docx) GNSS LOS/NLOS assistance information, stage 3 details and corrections Vodafone, Spirent, Ericsson, Telecom Italia discussion Rel-18

* Revised in R2-2306534

[R2-2306534](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306534.docx) GNSS LOS/NLOS assistance information, stage 3 details and corrections Vodafone, Spirent, Ericsson, Telecom Italia discussion Rel-18

[R2-2305474](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305474.docx) GNSS LOS/NLOS assistance information [GNSS LOS/NLOS] Vodafone, Spirent, Ericsson, Telecom Italia CR Rel-18 37.355 17.4.0 0446 - B TEI18

* Revised in R2-2306537

[R2-2306537](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306537.docx) GNSS LOS/NLOS assistance information [GNSS LOS/NLOS] Vodafone, Spirent, Ericsson, Telecom Italia, Samsung CR Rel-18 37.355 17.4.0 0446 1 B TEI18

[R2-2305481](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305481.docx) GNSS LOS/NLOS posSIB broadcast assistance information [GNSS LOS/NLOS] Vodafone, Spirent, Ericsson, Telecom Italia CR Rel-18 38.331 17.4.0 4109 - B TEI18

* Revised in R2-2306536

[R2-2306536](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306536.docx) GNSS LOS/NLOS posSIB broadcast assistance information [GNSS LOS/NLOS] Vodafone, Spirent, Ericsson, Telecom Italia, Samsung CR Rel-18 38.331 17.4.0 4109 1 B TEI18

[R2-2305490](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305490.docx) GNSS LOS/NLOS posSIB broadcast assistance information [GNSS LOS/NLOS] Vodafone, Spirent, Ericsson, Telecom Italia CR Rel-18 36.331 17.4.0 4931 - B TEI18

* Revised in R2-2306535

[R2-2306535](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306535.docx) GNSS LOS/NLOS posSIB broadcast assistance information [GNSS LOS/NLOS] Vodafone, Spirent, Ericsson, Telecom Italia, Samsung CR Rel-18 36.331 17.4.0 4931 1 B TEI18

* [AT122][404][POS] GNSS LOS/NLOS CR check (Vodafone)

 Scope: Check the CRs in R2-2306535 / R2-2306536 / R2-2306537, taking into account the exposition in R2-2306534.

 Intended outcome: CRs agreeable in principle

 Deadline: Wednesday 2023-05-24 2000 KST

MUSIM cause value for relay

[R2-2304974](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2304974_Discussion%20on%20MUSIM%20paging%20cause%20forwarding.docx) Discussion on MUSIM paging cause forwarding vivo discussion

[R2-2305014](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305014_Paging%20Cause%20forwarding.doc) Paging Cause forwarding Samsung Electronics Co., Ltd discussion Rel-18 TEI18

posSIB reception time

[R2-2305216](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305216.doc) Discussion on how to support posSIB(s) forwarding Xiaomi discussion

Yaw and APC

[R2-2305265](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305265%20-%20Yaw%20and%20APC%20enhancements.docx) Discussion on Yaw and APC enhancements Swift Navigation discussion

* [AT122][405][POS] Yaw and APC in Rel-18 (Swift)

 Scope: Check the proposals in R2-2305265 and adapt the TPs into CRs if agreeable.

 Intended outcome: Report to CB session in R2-2306673 and potentially CRs agreeable in principle

 Deadline: Wednesday 2023-05-24 2000 KST

Positioning for remote UEs

[R2-2305850](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305850.docx) Positioning and posSIB forwarding for remote UEs MediaTek Inc., CATT, Huawei, HiSilicon, Qualcomm Incorporated, Xiaomi, Intel Corporation, vivo discussion Rel-18 TEI18

[R2-2305852](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305852.DOCX) Positioning restrictions for UE-to-network remote UEs [PosL2RemoteUE] MediaTek Inc., CATT, Huawei, HiSilicon, Qualcomm Incorporated, Xiaomi, Intel Corporation, vivo, Ericsson CR Rel-18 38.305 17.4.0 0134 1 C TEI18 R2-2304318

[R2-2305854](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305854.DOCX) Support positioning of L2 UE-to-network remote UEs [PosL2RemoteUE] MediaTek Inc., CATT, Huawei, HiSilicon, Qualcomm Incorporated, Xiaomi, Intel Corporation, vivo, Ericsson CR Rel-18 37.355 17.4.0 0444 1 C TEI18 R2-2304319

[R2-2305857](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305857.DOCX) Downlink positioning support and posSIB request for L2 UE-to-network remote UE [PosL2RemoteUE] MediaTek Inc., CATT, Huawei, HiSilicon, Qualcomm Incorporated, Xiaomi, Intel Corporation, vivo, Ericsson CR Rel-18 38.331 17.4.0 4066 1 C TEI18 R2-2304320

[R2-2305859](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305859.DOCX) Capabilities of L2 UE-to-network relay UEs for positioning [PosL2RemoteUE] MediaTek Inc., CATT, Huawei, HiSilicon, Qualcomm Incorporated, Xiaomi, Intel Corporation, vivo, Ericsson CR Rel-18 38.306 17.4.0 0907 1 C TEI18 R2-2304454

[R2-2305865](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305865.docx) Downlink positioning performance results for remote UEs out of coverage MediaTek Inc. discussion Rel-18 TEI18

[R2-2306019](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306019%20Relay.docx) Relay based Positioning posSIB forwarding Ericsson discussion Rel-18

* [AT122][406][POS] Positioning for remote UEs CR check (CATT)

 Scope: Check the CRs in R2-2305852 / R2-2305854 / R2-2305857 / R2-2305859 in light of the exposition in R2-2305850 / R2-2305865, and evaluate the proposals in R2-2306019.

 Intended outcome: Report to CB session in R2-2306674 and CRs agreeable in principle

 Deadline: Wednesday 2023-05-24 2000 KST

Local cartesian coordinates

[R2-2305889](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305889_%28local%20coordinates%29.docx) Support of Local Cartesian Coordinates in LPP Qualcomm Incorporated discussion

[R2-2305891](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2305891_%28LPP%20CR%20on%20local%20coordinates%29_v01.docx) Support of Local Cartesian Coordinates in LPP [PosLocalCoords] Qualcomm Incorporated CR Rel-18 37.355 17.4.0 0447 - C TEI18

Multiple QoS for positioning

[R2-2306221](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306221%20%287.24.2%29%20multiple%20QoS%20handling%20in%20POS.docx) Introduction of ‘multiple QoS’ class in positioning Samsung R&D Institute UK, Ericsson, Huawei, HiSilicon discussion

Relay bit rate recommendation

[R2-2306516](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202305%20-%20RAN2_122%2C%20Incheon%5CExtracts%5CR2-2306516_Considerations%20on%20voice%20and%20video%20support%20for%20Relays.docx) Considerations on voice and video support for Relays Philips International B.V., MediaTek, Vivo, FirstNet, KPN, TNO, Kyocera discussion Rel-18 NR\_SL\_relay-Core R2-2200413

Withdrawn/Not available

R2-2306146 Introduction of ‘multiple QoS’ class in positioning Samsung R&D Institute UK discussion Withdrawn

## 7.25 R18 Other

Specific items may be allocated to a breakout session for treatment.

Impacts from Other RAN WGs and TSGs that has no separate TU budget in RAN2. LS ins for Rel-18 specific WIs/SIs that has no RAN WI.

Time budget: 2 TU

Tdoc Limitation: -

### 7.25.3 Other

RAN3, SA2, SA3, CT1 led items and others, e.g. eNPN

R2-2305345 Draft CR of new location information type for PRU vivo draftCR Rel-18 37.355 17.4.0 5G\_eLCS\_Ph3

R2-2306024 On the Positioning Reference Units aspects Ericsson discussion Rel-18