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

Online, 17-26 August 2022

Source: Session Chair (MediaTek)

Title: Report from session on positioning and sidelink relay

# Status of At-Meeting Email Discussions

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

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

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

 Intended outcome: Well-informed participants

 Deadline: Friday 2022-08-26 1000 UTC

* [AT119-e][405][POS] Rel-15/16 positioning stage 2 (CATT)

 Scope: Evaluate the CRs in R2-2207108/R2-2207109 and check for agreeability.

 Intended outcome: Agreed CRs

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][406][POS] Rel-15/16 positioning RRC (Huawei)

 Scope: Evaluate the CRs in R2-2207408/R2-2207561/R2-2207873/R2-2207874/R2-2207875/R2-2207876 and check for agreeability.

 Intended outcome: Agreed CRs

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][407][POS] Rel-15/16 LPP (Qualcomm)

 Scope: Evaluate the CRs in R2-2207103/R2-2207104/R2-2207870/R2-2207871/R2-2207872/R2-2208069/R2-2208070/R2-2208071/R2-2208121/R2-2208123 and check for agreeability (discussion document in R2-2208119 can be taken into account).

 Intended outcome: Agreed CRs

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][408][POS] Rel-17 positioning stage 2 (Intel)

 Scope: Check and update the rapporteur CR in R2-2207384 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2207110
* R2-2208491
* R2-2208521
* R2-2208415
* R2-2208419
* R2-2208494

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][409][POS] Rel-17 positioning capabilities (Intel)

 Scope: Check and update the rapporteur CR in R2-2207385 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2208492

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][410][POS] Rel-17 positioning MAC (Huawei)

 Scope: Check and update the rapporteur CR in R2-2207880 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2207886
* R2-2208125
* R2-2208204
* R2-2208300
* R2-2208512
* R2-2208686
* R2-2207883
* R2-2207012

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][411][POS] Rel-17 positioning RRC (Ericsson)

 Scope: Check and update the rapporteur CR in R2-2208076 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2207411
* R2-2207881

 Summary discussion document in R2-2208710 can be taken into account.

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][412][Relay] Rel-17 SRAP and PDCP (OPPO)

 Scope: Check and update the rapporteur CR in R2-2207020 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2207453
* R2-2208361
* R2-2208487
* R2-2207516

 Intended outcome: Agreeable CR to 38.351 and agreed CR to 38.323 (note: R2-2207516 may be agreed by email if it is found agreeable and no other PDCP CR is needed)

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][413][Relay] Rel-17 relay MAC (Apple)

 Scope: Check and update the rapporteur CR in R2-2207449 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2208156

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][414][Relay] Rel-17 relay RRC (Huawei)

 Scope: Check and update the rapporteur CR in R2-2208484 to take account of decisions of this meeting. Evaluate the proposals discussed in R2-2208795 for merging into the CR.

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][415][Relay] Rel-17 relay stage 2 (MediaTek)

 Scope: Evaluate the proposals in the following tdocs and merge into a rapporteur CR:

* R2-2207079
* R2-2207203
* R2-2207450
* R2-2207513
* R2-2208004
* R2-2208193
* R2-2208485
* R2-2207201

 Intended outcome: Agreeable CR to 38.300 and endorsable TP to 37.985

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][416][POS] Rel-17 positioning integrity (Swift)

 Scope: Evaluate the proposals in the following tdocs:

* R2-2207736
* R2-2208395

 Intended outcome: Agreed CRs for merge into LPP rapporteur CR; report in R2-2208793

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][417][Relay] Communication and discovery terminology (OPPO)

 Scope: Clarify the definitions of “NR sidelink communication” and “NR sidelink discovery” across 38.300, 38.321, and 38.331. Discussion in R2-2207021 can be used as a starting point.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][418][Relay] Remaining proposals on discovery and (re)selection (Lenovo)

 Scope: Discuss P3a/P3b/P4/P5a/P5b of R2-2208796 and attempt to reach agreements.

 Intended outcome: Report to CB session.

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][419][POS] LS from RTCM (Ericsson)

 Scope: Discuss the LS in R2-2206903 and determine what next steps are desirable from the positioning session point of view, targeting a future discussion with organisational leadership to determine the formal process if necessary.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][420][POS] LS to RAN1/RAN4 on positioning in FR2-2 (Samsung)

 Scope: Draft an LS to RAN1 and RAN4 inquiring about the possibility of supporting SRSp/PRS with 480/960 kHz SCS in FR2-2.

 Intended outcome: Approved LS (without CB if possible)

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][421][POS] Delta configuration for SRSp in RRC\_INACTIVE (CATT)

 Scope: Discuss the situation described in R2-2207112 and determine if RAN2 should take action; if the issue is deemed valid, attempt to agree on at least the direction of a solution.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][422][POS] LS to RAN1/RAN4 on DL-PRS sample capability (ZTE)

 Scope: Draft an LS to RAN1/RAN4 indicating that we find a disconnect between the capabilities for reduced DL-PRS processing samples in different states, and requesting clarification.

 Intended outcome: Approved LS (to be sent urgently)

 Deadline: Friday 2022-08-19 1200 UTC

* [AT119-e][423][POS] SR configuration for Measurement Gap Activation/Deactivation Request MAC CE (Huawei)

 Scope: Draft an LS to RAN1 notifying them of the RAN2 decision on a dedicated SR configuration for the Measurement Gap Activation/Deactivation Request MAC CE.

 Intended outcome: Approved LS

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][424][POS] Rel-17 LPP CR (Qualcomm)

 Scope: Draft a CR to 37.355 taking account of this meeting’s decisions.

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][425][POS] UE-based integrity assessment (Ericsson)

 Scope: Evaluate the proposal in R2-2208075 from the standpoint of determining if it is an essential correction. New functionality will not be introduced and the discussion should determine if there is support for this change as a correction in Rel-17.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][426][POS] TEG timing error margin in RRC and LPP (CATT)

 Scope: Discuss the handling of the TEG timing error margins in RRC and LPP and conclude on an agreeable implementation approach. RAN4 agreements should be taken into account.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][427][Relay] Handling of scenarios 1 and 2 (LG)

 Scope: Discuss the relation of scenarios 1 and 2 (including organisation/prioritisation of work and P2 of R2-2208429).

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

# 4 EUTRA Rel-16 and earlier

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

## 4.3 Positioning corrections Rel-16 and earlier

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

Documents in this agenda item will be handled by email. No web conference is planned for this agenda item.

# 5 NR Rel-15 and Rel-16

Essential corrections only.

Tdoc Limitation: 11 tdocs in total for all sub agenda items.

## 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)

Documents in this agenda item will be handled by email. No web conference is planned for this agenda item.

### 5.3.1 General and Stage 2 corrections

Including incoming LSs, 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.

This agenda item may use a summary document (decision to be made based on submitted tdocs).

* [AT119-e][405][POS] Rel-15/16 positioning stage 2 (CATT)

 Scope: Evaluate the CRs in R2-2207108/R2-2207109 and check for agreeability.

 Intended outcome: Agreed CRs

 Deadline: Tuesday 2022-08-23 1200 UTC

[R2-2207108](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38305_CR0101_%28Rel-16%29_R2-2207108.docx) Correction on the description of deferred MT-LR CATT CR Rel-16 38.305 16.7.0 0101 - F NR\_pos-Core

[R2-2207109](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38305_CR0102_%28Rel-17%29_R2-2207109.docx) Correction on the description of deferred MT-LR CATT CR Rel-17 38.305 17.1.0 0102 - A NR\_pos-Core

### 5.3.2 RRC corrections

Including impact to 36.331, 38.331, and 38.306.

* [AT119-e][406][POS] Rel-15/16 positioning RRC (Huawei)

 Scope: Evaluate the CRs in R2-2207408/R2-2207561/R2-2207873/R2-2207874/R2-2207875/R2-2207876 and check for agreeability.

 Intended outcome: Agreed CRs

 Deadline: Tuesday 2022-08-23 1200 UTC

[R2-2207408](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207408%20Change%20request%20about%20Periodicity%20in%20SRSp%20configuration.docx) Change request about Periodicity in SRSp configuration vivo CR Rel-16 38.331 16.9.0 3259 - D NR\_pos-Core

[R2-2207561](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207561%20Change%20request%20about%20Periodicity%20in%20SRSp%20configuration%20-%20R17.docx) Change request about Periodicity in SRSp configuration vivo CR Rel-17 38.331 17.1.0 3283 - A NR\_pos\_enh-Core

[R2-2207873](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207873%20Correction%20for%20SRS-PeriodicityAndOffset-R16.docx) Correction for SRS-PeriodicityAndOffset-R16 Huawei, HiSilicon CR Rel-16 38.331 16.9.0 3320 - F NR\_pos-Core

[R2-2207874](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207874%20Correction%20for%20SRS-PeriodicityAndOffset-R17.docx) Correction for SRS-PeriodicityAndOffset-R17 Huawei, HiSilicon CR Rel-17 38.331 17.1.0 3321 - A NR\_pos-Core

[R2-2207875](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207875%20Correction%20for%20the%20capability%20of%20SRS-PeriodicityAndOffset-R16.docx) Correction for the capability of SRS-PeriodicityAndOffset-R16 Huawei, HiSilicon CR Rel-16 38.306 16.9.0 0780 - F NR\_pos-Core

[R2-2207876](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207876%20Correction%20for%20the%20capability%20of%20SRS-PeriodicityAndOffset-R17.docx) Correction for the capability of SRS-PeriodicityAndOffset-R17 Huawei, HiSilicon CR Rel-17 38.306 17.1.0 0781 - A NR\_pos-Core

### 5.3.3 LPP corrections

* [AT119-e][407][POS] Rel-15/16 LPP (Qualcomm)

 Scope: Evaluate the CRs in R2-2207103/R2-2207104/R2-2207870/R2-2207871/R2-2207872/R2-2208069/R2-2208070/R2-2208071/R2-2208121/R2-2208123 and check for agreeability (discussion document in R2-2208119 can be taken into account).

 Intended outcome: Agreed CRs

 Deadline: Tuesday 2022-08-23 1200 UTC

[R2-2207103](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C37355_CR0355_%28Rel-16%29_R2-2207103.docx) Minor corrections on TS 37.355 CATT CR Rel-16 37.355 16.8.0 0355 - F NR\_pos-Core

[R2-2207104](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C37355_CR0356_%28Rel-17%29_R2-2207104.docx) Minor corrections on TS 37.355 CATT CR Rel-17 37.355 17.1.0 0356 - A NR\_pos-Core

[R2-2207870](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207870%20Correction%20to%20need%20code%20in%20posSIB_R17.docx) Correction to need code in posSIB\_R17 Huawei, HiSilicon CR Rel-17 37.355 17.1.0 0366 - A NR\_newRAT-Core

[R2-2207871](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207871%20Correction%20to%20need%20code%20in%20posSIB_R16.docx) Correction to need code in posSIB\_R16 Huawei, HiSilicon CR Rel-16 37.355 16.8.0 0367 - A NR\_newRAT-Core

[R2-2207872](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207872%20Correction%20to%20need%20code%20in%20posSIB_R15.docx) Correction to need code in posSIB\_R15 Huawei, HiSilicon CR Rel-15 37.355 15.3.0 0368 - F NR\_newRAT-Core

[R2-2208069](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208069%20AssociatedDLPRS.docx) Correction of TRP beam information field descriptions for UEB DL-AoD Ericsson discussion Rel-16 37.355

[R2-2208070](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208070%20catF.docx) Clarification on NR-DL-PRS-ResourcesCapability Ericsson CR Rel-16 37.355 16.8.0 0372 - F NR\_pos-Core

[R2-2208071](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208071%20CapA.docx) Clarification on NR-DL-PRS-ResourcesCapability Ericsson CR Rel-17 37.355 17.1.0 0373 - A NR\_pos\_enh-Core

[R2-2208119](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208119_%28PRS%20Search%20Window%29.docx) Issues with DL-PRS Search Window Definitions Qualcomm Incorporated discussion

[R2-2208121](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208121_%28Rel-16%2037355%20PRS%20Search%20Window%29.docx) Correction to DL-PRS Search Window calculation Qualcomm Incorporated CR Rel-16 37.355 16.8.0 0375 - F NR\_pos-Core

[R2-2208123](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208123_%28Rel-17%2037355%20PRS%20Search%20Window%29.docx) Correction to DL-PRS Search Window calculation Qualcomm Incorporated CR Rel-17 37.355 17.1.0 0376 - A NR\_pos-Core

### 5.3.4 MAC corrections

# 6 NR Rel-17

## 6.7 NR Sidelink relay

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

WI has been declared 100% complete

Tdoc Limitation: 4 tdocs

### 6.7.1 Organizational

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

Terminology alignment

[R2-2207021](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207021%20-%20Terminology%20alignment%20for%20Communication%20and%20Disocvery.docx) Terminology alignment for Communication and Disocvery OPPO discussion Rel-17 NR\_SL\_relay-Core

* [AT119-e][417][Relay] Communication and discovery terminology (OPPO)

 Scope: Clarify the definitions of “NR sidelink communication” and “NR sidelink discovery” across 38.300, 38.321, and 38.331. Discussion in R2-2207021 can be used as a starting point.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

Rapporteur CRs

[R2-2207020](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38351_CR0006_%28Rel-17%29_R2-2207020%20-%20Correction%20on%20SRAP%20for%20L2%20U2N%20Relay_V0.2.docx) Correction on SRAP for L2 U2N Relay OPPO CR Rel-17 38.351 17.1.0 0006 - F NR\_SL\_relay-Core

* [AT119-e][412][Relay] Rel-17 SRAP and PDCP (OPPO)

 Scope: Check and update the rapporteur CR in R2-2207020 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2207453
* R2-2208361
* R2-2208487
* R2-2207516

 Intended outcome: Agreeable CR to 38.351 and agreed CR to 38.323 (note: R2-2207516 may be agreed by email if it is found agreeable and no other PDCP CR is needed)

 Deadline: Tuesday 2022-08-23 1200 UTC

[R2-2207449](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207449%20MAC%20rapporteur%20CR%20for%20Misc%20SL%20relay%20corrections%20.docx) Miscellaneous corrections for NR Sidelink Relay (rapporteur CR) Apple CR Rel-17 38.321 17.1.0 1318 - F NR\_SL\_relay-Core, NR\_SL\_enh-Core

* [AT119-e][413][Relay] Rel-17 relay MAC (Apple)

 Scope: Check and update the rapporteur CR in R2-2207449 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2208156

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

R2-2208194 Miscellaneous corrections on 38.304 for SL relay Ericsson (Rapporteur) CR Rel-17 38.304 17.1.0 0273 - F NR\_SL\_relay-Core Late

[R2-2208484](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208484%20RRC%20corrections%20for%20sidelink%20relay.docx) RRC corrections for sidelink relay Huawei, HiSilicon CR Rel-17 38.331 17.1.0 3427 - F NR\_SL\_relay-Core

* [AT119-e][414][Relay] Rel-17 relay RRC (Huawei)

 Scope: Check and update the rapporteur CR in R2-2208484 to take account of decisions of this meeting. Evaluate the proposals discussed in R2-2208795 for merging into the CR.

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

### 6.7.2 Essential corrections

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

#### 6.7.2.1 Stage 2 corrections

Including impact to 38.300.

* [AT119-e][415][Relay] Rel-17 relay stage 2 (MediaTek)

 Scope: Evaluate the proposals in the following tdocs and merge into a rapporteur CR:

* R2-2207079
* R2-2207203
* R2-2207450
* R2-2207513
* R2-2208004
* R2-2208193
* R2-2208485
* R2-2207201

 Intended outcome: Agreeable CR to 38.300 and endorsable TP to 37.985

 Deadline: Tuesday 2022-08-23 1200 UTC

Stage 2 CRs (to be considered in email discussion [415])

[R2-2207079](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38300_0496_R2-2207079-Correction%20on%20miscellaneous%20issues%20for%20NR%20sidelink%20relay_clean.docx) Correction on miscellaneous issues for NR sidelink relay in 38300 OPPO CR Rel-17 38.300 17.1.0 0496 - F NR\_SL\_relay-Core

[R2-2207203](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207203%20Corrections%20for%20path%20switch%20in%2038.300.docx) Corrections for path switch in 38.300 ZTE CR Rel-17 38.300 17.1.0 0502 - F NR\_SL\_relay-Core

[R2-2207450](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207450%20Stage%202%20CR%20for%20SL%20relay_v1.docx) Correction on user plane and control plan procedures for U2N relay in Stage 2 Apple CR Rel-17 38.300 17.1.0 0510 - F NR\_SL\_relay-Core

[R2-2207513](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38300_CR0513_%28Rel-17%29_R2-2207513.docx) Corrections on Sidelink Relay CATT CR Rel-17 38.300 17.1.0 0513 - F NR\_SL\_relay-Core

[R2-2208004](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208004%20Draft%20CR38300-corrections.docx) Miscellaneous corrections on SL Relay specification Nokia, Nokia Shanghai Bell draftCR Rel-17 38.300 17.1.0 F NR\_SL\_relay-Core

[R2-2208193](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38.300_CR0534%28Rel-17%29_R2-2208193-%20Miscellaneous%20corrections%20on%2038.300%20for%20SL%20relay.docx) Miscellaneous corrections on 38.300 for SL relay Ericsson CR Rel-17 38.300 17.1.0 0534 - F NR\_SL\_relay-Core

[R2-2208485](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208485%20Stage%202%20clarifications%20on%20sidelink%20relay.docx) Stage2 clarifications on sidelink relay Huawei, HiSilicon draftCR Rel-17 38.300 17.1.0 NR\_SL\_relay-Core

TP to 37.985 (to be considered in email discussion [415])

[R2-2207201](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207201%20draft%20TP%20to%20introduce%20Rel-17%20sidelink%20relay%20and%20discovery%20for%20TR%2037.985.docx) TP to introduce Rel-17 sidelink relay and discovery in TR 37.985 ZTE draftCR Rel-17 37.985 17.1.1 NR\_SL\_relay-Core

#### 6.7.2.2 Control plane corrections

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

AI summary

[R2-2208795](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208795%20Summary%20of%20relay%20control%20plane%20corrections%20%28Huawei%29.doc) [Pre119-e][403] Summary of relay control plane corrections (Huawei) Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core

Easy:

[Potential asn.1 impact] Proposal 5: Introduce a new field in SUI for Rx UE to report SL-DRX-based discovery message reception, wherein the monitored DST L2 ID should be included.

Proposal 2: RAN2 confirms the Remote UE can use pre-config for sidelink discovery and unicast communication before acquisition of SIB12 from the Relay UE.

Proposal 29: RAN2 confirms during path switch (T420 is running), UE can use exceptional pool for sidelink communication (same as Rel-16 V2X).

Proposal 13: Clarify in spec, upon reception of NotificationMessageSidelink, for CONNECTED Remote UE, if T301 is running, apply 6.3.7.7 to stop T301, otherwise initiate RRC reestablishment.

Proposal 11: The spec allows gNB not to configure the threshHighRemote to concerned CONNECTED Remote UE, so that the Remote UE performs discovery procedure without restriction of threshold condition when configured with measurement of L2 U2N Relay UEs, i.e. leave to NW implementation.

Discussion:

Ericsson have a comment on P5: They understand that this is mainly for SL and Uu DRX alignment, and they understand that the UE will apply the default DRX configuration, which the gNB already knows, so they think the reporting is not needed. OPPO indicate that the gNB needs the L2ID for the offset calculation. Ericsson think the gNB already has the L2ID, but OPPO understand that the currently reported L2ID is for Tx side and this is for Rx side.

Nokia think on P11, it is not clear what the proposal means; is there spec impact? Ericsson have the same question. Huawei clarify that there is no impact to the signalling, but there is something in the procedure text; the intention of the proposal is to link the measurement configuration with the AS conditions for discovery.

LG think there is a numbering mistake in P13, and they find the “otherwise” confusing because it means the remote UE doesn’t do anything after the T301 expiration. Huawei clarify that 6.3.7.7 should be 5.3.7.7, and they intend “otherwise” to mean “if T301 is not running”. LG understand after stopping T301, the UE can initiate re-establishment, and think we should have “and” instead of “otherwise”. Huawei intended re-establishment if T301 is not running.

Xiaomi think P2 should be scoped only to the OOC remote UE. Chair thinks we did not require reception of SIB12 on Uu for the IC remote UE. Xiaomi thinks further discussion would be needed.

Apple think the current P2 is OK, and they have a question on P29; for legacy handover we have the handover command including the exceptional pool for the target cell, but here there is no cell change; will the gNB still include the exceptional pool? Huawei understand Rel-16 does not differentiate intra- and inter-cell HO in this respect; they did not intend any special optimisation for this case. Apple want to clarify it is up to network implementation to include the exceptional pool. Apple are OK with the proposal.

OPPO, Qualcomm, and CATT agree with the current P2.

vivo wonder if P29 should apply only to mode 1. OPPO agree. Apple also agree,

Agreements:

Proposal 2: RAN2 confirms the Remote UE can use pre-config for sidelink discovery and unicast communication before acquisition of SIB12 from the Relay UE.

Proposal 29 (modified): RAN2 confirms during path switch (T420 is running), UE can use exceptional pool for sidelink communication in mode 1 (same as Rel-16 V2X).

The following proposals can be further discussed in the RRC offline [414]:

[Potential asn.1 impact] Proposal 5: Introduce a new field in SUI for Rx UE to report SL-DRX-based discovery message reception, wherein the monitored DST L2 ID should be included.

Proposal 11: The spec allows gNB not to configure the threshHighRemote to concerned CONNECTED Remote UE, so that the Remote UE performs discovery procedure without restriction of threshold condition when configured with measurement of L2 U2N Relay UEs, i.e. leave to NW implementation.

Proposal 13 (modified): Clarify in spec, upon reception of NotificationMessageSidelink, for CONNECTED Remote UE, if T301 is running, apply 5.3.7.7 to stop T301, and initiate RRC reestablishment.

[Potential asn.1 impact] Proposal 9: RAN2 to discuss whether to pursue the NBC change in R2-2208256.

[Potential asn.1 impact] Proposal 1: For the SIBs cannot be request via DedicatedSIBRequest, discuss which option to choose:

‐ Option1: network ensures connected Relay UE have the SIBs, e.g. by always providing them to the Relay UE via RRCReconfiguration.

‐ Option2: to add new Uu signalling to allow connected Relay UE to indicate those SIB types requested by Remote UE.

[Potential asn.1 impact] Proposal 4: RAN2 to discuss whether a prohibit timer is needed when idle/inactive Remote UE requests SIB from a Relay UE, and whether the Relay UE (in connected state) can request SIB for a Remote UE when its T350 is running.

[Potential asn.1 impact] Proposal 6: ProSe-based direct communication is not in the scope of Rel-17 SL relay, whether/how to differentiate ProSe-based direct communication and V2X communication from AS perspective can be discussed in RAN2 if SA2 requests.

Proposal 12: No further distinguish if Relay UE’s PCell is changed or not after Remote UE receives NotificationMessageSidelink indicating Relay UE’s HO.

Proposal 14: For T390, revise the stop condition “upon cell change due to relay (re)selection” to “upon relay (re)selection”.

Proposal 17a: When RRC connection is suspended, L2 U2N remote UE determines whether to release or maintain PC5-RRC connection.

If P9 results in taking an NBC change, it will be a separate CR with appropriate language on the coversheet.

Discuss if time allows

[Potential asn.1 impact] Proposal 9: RAN2 to discuss whether to pursue the NBC change in R2-2208256.

[Potential asn.1 impact] Proposal 1: For the SIBs cannot be request via DedicatedSIBRequest, discuss which option to choose:

‐ Option1: network ensures connected Relay UE have the SIBs, e.g. by always providing them to the Relay UE via RRCReconfiguration.

‐ Option2: to add new Uu signalling to allow connected Relay UE to indicate those SIB types requested by Remote UE.

[Potential asn.1 impact] Proposal 4: RAN2 to discuss whether a prohibit timer is needed when idle/inactive Remote UE requests SIB from a Relay UE, and whether the Relay UE (in connected state) can request SIB for a Remote UE when its T350 is running.

[Potential asn.1 impact] Proposal 6: ProSe-based direct communication is not in the scope of Rel-17 SL relay, whether/how to differentiate ProSe-based direct communication and V2X communication from AS perspective can be discussed in RAN2 if SA2 requests.

Proposal 12: No further distinguish if Relay UE’s PCell is changed or not after Remote UE receives NotificationMessageSidelink indicating Relay UE’s HO.

Proposal 14: For T390, revise the stop condition “upon cell change due to relay (re)selection” to “upon relay (re)selection”.

Proposal 17a: When RRC connection is suspended, L2 U2N remote UE determines whether to release or maintain PC5-RRC connection.

Discussion:

Huawei would like to clarify how high the bar is for NBC changes (e.g. P9). They consider that the change is reasonable, but the specification is not completely broken without it.

MediaTek support P9 and think the current implementation is very strange. OPPO agree.

Ericsson think the ASN.1 works as it is and this is a kind of polish. Qualcomm agree.

InterDigital think this would be fine if it were not NBC, but there seems to be no functional problem and they would prefer not to make the change.

Samsung think the current location of the IE in PC5-RRC is weird.

Nokia think we will have other NBC changes anyway, and RAN plenary guidance was that the current version is not for implementation, so they can accept this change now; otherwise we have the strange arrangement forever. They agree that functionally it is not broken.

Suggest to agree the changes in-principle (can be double checked during CR update) (Not challenged much during summary review)

Proposal 3: Change #2 in R2-2207202 is to be merged into the Rapp CR.

Proposal 7: P1 in R2-2207362 is to be implemented in the Rapp CR.

Proposal 8: The changes in R2-2208255 are to be merged into the Rapp CR.

Proposal 10: The changes in R2-2207763 are to be merged into the Rapp CR (removing “configured by upper layers from change #2”).

Proposal 15: Fix the typo “trigggered” in the Rapp CR.

Proposal 17: P2 and P3 in R2-2207536 is to be merged into Rapp CR.

Proposal 18: The changes in R2-2208359 are to be merged into Rapp CR.

Proposal 19: The changes in R2-2208360 are to be merged into Rapp CR.

Proposal 20: The change in R2-2208195 is to be merged into the Rapp CR.

Proposal 21: In TS 38.306, update the description of “supportedBandCombListPerBC-SL-RelayDiscovery-r17, supportedBandCombListPerBC-SL-NonRelayDiscovery-r17” to align the intention “the UE supports simultaneous transmission of PC5 data (discovery or non-Relay discovery) and Uu uplink or simultaneous reception of PC5 data (discovery or non-Relay discovery) and Uu downlink“.

Proposal 22: The change #1,4,5 in R2-2207019 are to be merged into the Rapp CR.

Proposal 23: The changes in R2-2207179 are to be merged into the Rapp CR.

Proposal 24: The change #3,4,5,6 in R2-2207515 are to be merged into Rapp CR.

Proposal 25: The changes #2,3,4,5,6,7,9,10 in R2-2207764 are to be merged into the Rapp CR.

Proposal 26: The change in R2-2208196 is to be merged into Rapp CR.

Proposal 27: The first part of change #1 (applying sl-L2RemoteUE-Config) and change #2,3,4,5 in R2-2208358 are to be merged into Rapp CR.

Proposal 28: The changes in R2-2208478 are to be merged into Rapp CR.

Further discuss the proposed change during CR update.

Proposal 16: The TP in R2-2207514 is to be merged into Rapp CR.

Discussion:

Chair suggests we take the “in-principle” proposals into the RRC CR discussion.

OPPO think the intention of most of the CRs is agreeable and the details can be checked in the RRC CR discussion, but they have a concern about P20, where they think the issue is coupled with the capability discussion about the discovery BC list. OPPO also think for P23, there is a condition in the spec already for any change in the remote UE information, to initiate the message.

ZTE agree with most of the changes, but for P3 they think change 1 in R2-2207202 is also necessary, and they think some discussion is needed on P16. Huawei understand that change 1 of P3 is redundant, but further checking during CR update would be OK.

Xiaomi indicate that on P23, the general description is aligned with OPPO’s understanding, but the detailed procedural requirements are not. OK to check during discussion.

MediaTek understand on P26 that there is a similar proposal in stage 2, so we should align between the discussions; we may not need redundant text in both stage 2 and stage 3.

Agreement:

The proposals above under “in-principle” and “further discuss” are taken into the RRC CR discussion [414]. Can start from the proposals as a baseline, but concerns can be expressed in the discussion.

If P21 is agreed, produce a separate CR for 38.306.

Covered in summary

[R2-2207018](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207018%20-%20Discussion%20on%20left%20issues%20for%20CP.docx) Discussion on left issues for CP OPPO discussion Rel-17 NR\_SL\_relay-Core

[R2-2207019](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38331_CR3207_%28Rel-17%29_R2-2207019%20-%20Correction%20for%20U2N%20Relay.docx) Correction for U2N Relay OPPO CR Rel-17 38.331 17.1.0 3207 - F NR\_SL\_relay-Core

[R2-2207176](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207176%2038.331%20Correction%20on%20relay%20UE%20mobility%20handling.docx) Correction on relay UE mobility handling Xiaomi CR Rel-17 38.331 17.1.0 3227 - F NR\_SL\_relay-Core

[R2-2207177](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207177%2038.331%20Correction%20on%20SI%20request.docx) Correction on SI request Xiaomi CR Rel-17 38.331 17.1.0 3228 - F NR\_SL\_relay-Core

[R2-2207178](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207178%2038.331%20Correction%20on%20SIB12%20forwarding.docx) Correction on SIB12 forwarding Xiaomi CR Rel-17 38.331 17.1.0 3229 - F NR\_SL\_relay-Core

[R2-2207179](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207179%2038.331%20Miscellaneous%20correction.docx) Miscellaneous correction Xiaomi CR Rel-17 38.331 17.1.0 3230 - F NR\_SL\_relay-Core

[R2-2207200](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38331_CR3319_%28Rel-17%29_R2-2207200%20Correction%20on%20SUI%20message%20to%20differentiate%20V2X%20and%20ProSe%20service.docx) Correction on SUI message to differentiate V2X and ProSe service ZTE CR Rel-17 38.331 17.1.0 3319 - F NR\_SL\_relay-Core

[R2-2207202](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207202%20Correction%20on%20remote%20UE%C3%AD) Correction on remote UE’s System Information acquisition ZTE CR Rel-17 38.331 17.1.0 3232 - F NR\_SL\_relay-Core

[R2-2207362](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207362.doc) Left issues for SUI message SHARP Corporation discussion NR\_SL\_relay-Core

[R2-2207451](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207451%20RRC%20CR%20for%20RLC%20configuration%20for%20remote%20UE%20in%20path%20switch%20.docx) Correction on PC5 RLC channel configuration for L2 U2N relay Apple CR Rel-17 38.331 17.1.0 3264 - F NR\_SL\_relay-Core

[R2-2207452](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207452%20RRC%20CR%20for%20remote%20UE%20SidelinkUEInformation.docx) Correction on SUI procedure for L2 remote UE Apple CR Rel-17 38.331 17.1.0 3265 - F NR\_SL\_relay-Core

[R2-2207514](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207514_Disussion%20on%20SRAP%20entity%20release_vf.docx) Disussion on SRAP entity release CATT discussion Rel-17 NR\_SL\_relay\_enh-Core

[R2-2207515](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38331_CR3273_%28Rel-17%29_R2-2207515%2038331_Miscellaneous%20Corrections%20on%20Sidelink%20RRC%20procedures-vf.docx) Miscellaneous Corrections on Sidelink RRC procedures CATT CR Rel-17 38.331 17.1.0 3273 - F NR\_SL\_relay\_enh-Core

[R2-2207536](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207536%20Correction%20on%20RRC%20connection%20suspension%20of%20remote%20UE.doc) Correction on RRC connection suspension of remote UE Sharp discussion

[R2-2207651](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207651-%20CR3301%20Correction%20for%20notification%20message%20with%20re-establishment%20v1.0.docx) Correction for notification message with re-establishment Lenovo CR Rel-17 38.331 17.1.0 3301 - F NR\_SL\_relay-Core

[R2-2207763](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38.331_CR3309_%28Rel-17%29_R2-2207763_Correction%20on%20measurement%20reporting%20procedure%20for%20L2%20U2N%20Relay.docx) Correction on measurement reporting procedure for L2 U2N Relay vivo CR Rel-17 38.331 17.1.0 3309 - F NR\_SL\_relay-Core

[R2-2207764](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38.331_CR3310_%28Rel-17%29_R2-2207764_Miscellaneous%20corrections%20on%20L2%20U2N%20CP%20procedures.docx) Miscellaneous corrections on L2 U2N CP procedures vivo CR Rel-17 38.331 17.1.0 3310 - F NR\_SL\_relay-Core

[R2-2208195](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38.331_CR3376%28Rel-17%29_R2-2208195-%20Clarification%20on%20capability%20filter%20for%20sidelink%20relay.docx) Clarification on capability filter for sidelink relay Ericsson CR Rel-17 38.331 17.1.0 3376 - F NR\_SL\_relay-Core

[R2-2208196](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38.331_CR3377%28Rel-17%29_R2-2208196-%20Clarification%20on%20SRB3%20configuration%20for%20sidelink%20relay.docx) Clarification on SRB3 configuration for sidelink relay Ericsson CR Rel-17 38.331 17.1.0 3377 - F NR\_SL\_relay-Core

[R2-2208197](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38.331_CR3378%28Rel-17%29_R2-2208197-%20Clarification%20on%20the%20prohibit%20timer%20for%20on-demand%20SIB%20for%20SL%20relay.docx) Clarification on the prohibit timer for on-demand SIB for SL relay Ericsson CR Rel-17 38.331 17.1.0 3378 - F NR\_SL\_relay-Core

[R2-2208215](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208215%20Clarifications%20on%20PC5%20UE%20capabilities.docx) Clarifications on UE PC5 capabilities for sidelink Relay Nokia, Nokia Shanghai Bell draftCR Rel-17 38.306 17.1.0 F NR\_SL\_relay-Core

[R2-2208255](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208255%20RRC%20CR3391%20SidelinkUEInformationNR%20for%20SL%20relay.docx) Correction on SidelinkUEInformationNR for SL relay Samsung CR Rel-17 38.331 17.1.0 3391 - F NR\_SL\_relay-Core

[R2-2208256](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208256%20RRC%20CR3392%20measurement%20report%20of%20L2%20U2N%20relay%20UE.docx) Correction on measurement report of L2 U2N relay UE Samsung CR Rel-17 38.331 17.1.0 3392 - F NR\_SL\_relay-Core

[R2-2208358](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208358%20Clarifications%20on%20RRC%20procedural%20text%20for%20L2%20U2N%20relay%20operation.docx) Clarifications on RRC procedural text for L2 U2N relay operation ASUSTeK CR Rel-17 38.331 17.1.0 3410 - F NR\_SL\_relay-Core

[R2-2208359](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208359%20Correction%20on%20PC5-RRC%20connection%20release.docx) Correction on PC5-RRC connection release ASUSTeK CR Rel-17 38.331 17.1.0 3411 - F NR\_SL\_relay-Core

[R2-2208360](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208360%20Clarification%20on%20radio%20resource%20release%20on%20L2%20U2N%20Remote%20UE.docx) Clarification on radio resource release on L2 U2N Remote UE ASUSTeK CR Rel-17 38.331 17.1.0 3412 - F NR\_SL\_relay-Core

[R2-2208478](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208478.docx) Correction on rlf-TimersAndConstants Google Inc. CR Rel-17 38.331 17.1.0 3425 - F NR\_SL\_relay-Core

[R2-2208486](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208486%20Clarification%20on%20L2%20Remote%20UE%20threshold%20conditions%20for%20service%20continuity.docx) Clarification on L2 Remote UE threshold conditions for service continuity Huawei, HiSilicon draftCR Rel-17 38.331 17.1.0 NR\_SL\_relay-Core

#### 6.7.2.3 User plane corrections

Including SRAP aspects and QoS.

SRAP (to be considered in email discussion [412])

[R2-2207453](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207453%2038.351%20CR%20for%20SRAP%20operations.docx) Correction on SRAP header handling in L2 Relay UE Apple CR Rel-17 38.351 17.1.0 0007 - F NR\_SL\_relay-Core

[R2-2208361](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208361%20SRAP%20data%20PDU%20discard%20examination.docx) SRAP data PDU discard examination ASUSTeK CR Rel-17 38.351 17.1.0 0008 - F NR\_SL\_relay-Core

[R2-2208487](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208487%20Discussion%20on%20SRAP%20entity%20handling.docx) Discussion on SRAP entity handling Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core

PDCP (to be considered in email discussion [412])

[R2-2207516](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38323_CR0097_%28Rel-17%29_R2-2207516.docx) Correction on PDCP for L2 U2N Relay CATT CR Rel-17 38.323 17.1.0 0097 - F NR\_SL\_relay-Core

MAC (to be considered in email discussion [413])

[R2-2208156](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208156%20Draft%20CR38321%20-%20Correction%20to%20logical%20channel%20selection%20for%20DRX%20in%20sidelink%20Relay.docx) Correction to logical channel selection for DRX in sidelink Relay Nokia, Nokia Shanghai Bell draftCR Rel-17 38.321 17.1.0 NR\_SL\_relay-Core

#### 6.7.2.4 Discovery and re- selection

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

AI summary

[R2-2208796](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208796%20Summary%20of%20AI%206.7.2.4%20on%20Discovery%20and%20re-selection_v02_Rap.docx) Summary of 6.7.2.4 on Discovery and re-selection Lenovo discussion Rel-17 NR\_SL\_relay-Core

[easy decision]

Proposal 1: RAN2 wait for SA2‘s reply LS before concluding on the case that AS layer is not aware of cast type for a discovery message.

Proposal 2a: The ‘relay reselection’ should be added in timer table in section 7.1.1 as a stop condition of T300 according to the current procedure text.

Proposal 2b: If Proposal 2a is agreed, ‘the (re)selected L2 U2N Relay UE becomes unsuitable’ as a stop condition for T300 should be removed. And update CR R2-2207654.

Discussion:

OPPO agree in P1 that waiting for SA2 is right, but think we could face some unsolvable problems if we do not address the possibility now. On P2b, OPPO think there is overlap with the language from relay reselection triggers; and on P3a, they think we should look into the details in RAN2 first.

MediaTek think that from RAN2 perspective, we cannot say there is a problem with the DCI scheduling; if we want to refine P3a, we can “inquire” rather than “inform”.

LG think in P3a, RAN1 may not be able to change the DCI format now, and we should see if there is a RAN2 solution. Lenovo indicate that the resource pool is in RAN2 spec, but the RAN1 spec does not take account of it in the DCI format. Apple agree with LG.

vivo think P3a is an issue RAN2 caused for RAN1, and since RAN1 have no TUs for this WI, it is not realistic to originate a solution in RAN1; they think RAN2 cannot solve the problem except by disabling the dedicated scheduled pool. They think we could take MediaTek’s suggestion and inquire for a solution from RAN1 rather than try to dictate what they do. vivo think RAN1 will change something about the field description in the DCI format, not the bits on the air.

Ericsson agree with OPPO that RAN2 caused a problem for RAN1, and they think RAN2 should investigate the problem more deeply before updating RAN1.

vivo are fine with P2a/P2b, but think that we defined conditions for T301 and T319 as well, and we have the same language for T301; they think we might want to align terminology in the descriptions. OPPO think we should have a further check on T301 since the current CR is limited to T300.

Agreements:

Proposal 1: RAN2 wait for SA2‘s reply LS before concluding on the case that AS layer is not aware of cast type for a discovery message.

Proposal 2a: The ‘relay reselection’ should be added in timer table in section 7.1.1 as a stop condition of T300 according to the current procedure text.

Proposal 2b: If Proposal 2a is agreed, ‘the (re)selected L2 U2N Relay UE becomes unsuitable’ as a stop condition for T300 should be removed. And update CR R2-2207654.

Impacts to be taken into the RRC CR and discussed in the corresponding email discussion [414].

[to be discussed]

Proposal 3a: RAN2 to inform RAN1 of the introduction of mode-1 dedicated discovery TX pool (i.e. sl-DiscTxPoolScheduling) and the problem that current DCI format 3\_0 fails to schedule the resources in dedicated discovery TX pool.

Proposal 3b: If Proposal 3a is agreed, RAN2 to discuss whether the LS includes the following two cases in which sl-DiscTxPoolScheduling is configured.

- Case 1: UE is configured to transmit only NR SL discovery;

- Case 2: UE is configured to transmit both NR SL discovery and NR SL communication.

Proposal 4: RAN2 to discuss whether SD-RSRP should be defined as ‘PSSCH-RSRP where PSSCH carries discovery message’. If yes, adopt TP in R2-2207967 as baseline.

Proposal 5a: RAN2 to discuss whether new assistance information similar to SL-TrafficPatternInfo should be introduced in UEAssistanceInformation message to assist gNB to configure SL CG type 1 for discovery.

Proposal 5b: If proposal 5a is agreed, RAN2 to discuss whether the assistance information can include Discovery message periodicity, Timing offset and the message size information. If yes, adopt TP in R2-2208228 as baseline.

* [AT119-e][418][Relay] Remaining proposals on discovery and (re)selection (Lenovo)

 Scope: Discuss P3a/P3b/P4/P5a/P5b of R2-2208796 and attempt to reach agreements.

 Intended outcome: Report to CB session.

 Deadline: Tuesday 2022-08-23 1200 UTC

Covered in summary

[R2-2207080](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207080%20Discussion%20on%20MAC%20filtering%20for%20reception%20of%20discovery%20message.docx) Discussion on MAC filtering for reception of discovery message OPPO discussion Rel-17 NR\_SL\_relay-Core

[R2-2207654](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207654%20-%20CR3302%20Correction%20for%20relay%20reselection%20while%20T300%20is%20running%20v1.0.docx) Correction for relay reselection while T300 is running Lenovo CR Rel-17 38.331 17.1.0 3302 - F NR\_SL\_relay-Core

[R2-2207765](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207765%20On%20the%20problem%20for%20mode-1%20dedicated%20discovery%20TX%20pool.docx) On the problem for mode-1 dedicated discovery TX pool vivo discussion Rel-17 NR\_SL\_relay-Core

[R2-2207766](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207766%20%5BDraft%5D%20LS%20on%20mode-1%20dedicated%20discovery%20transmission%20pool.docx) [Draft] LS on mode-1 dedicated discovery transmission pool vivo LS out Rel-17 NR\_SL\_relay-Core To:RAN1

[R2-2207967](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207967%20Clarification%20of%20SD-RSRP%20and%20SL-RSRP%20in%20TS%2038.331.docx) Clarification of SD-RSRP and SL-RSRP in TS 38.331 NEC Corporation CR Rel-17 38.331 17.1.0 3338 - F NR\_SL\_relay-Core

[R2-2208228](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208228%20Support%20of%20SL%20CG%20for%20discovery%20message.docx) Support of SL CG for discovery message Huawei, HiSilicon discussion Rel-17 NR\_SL\_relay-Core

## 6.11 NR positioning enhancements

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

Tdoc Limitation: 6 tdocs

### 6.11.1 Organizational

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

Incoming LSs with RAN2 in Cc:

[R2-2206919](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2206919_R1-2205450.docx) Reply LS on lower Rx beam sweeping factor for latency improvement (R1-2205450; contact: Huawei) RAN1 LS in Rel-17 NR\_pos\_enh To:RAN4 Cc:RAN2

Incoming LSs with action “take into account”

[R2-2206914](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2206914_R1-2205382.docx) Reply LS on the UE/TRP TEG framework (R1-2205382; contact: CATT) RAN1 LS in Rel-17 NR\_pos\_enh-Core To:RAN4, RAN2, RAN3

[R2-2206916](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CDocs%5CR2-2206916.zip) LS on updates of RRC parameters for Rel-17 positioning enhancements (R1-2205406; contact: CATT) RAN1 LS in Rel-17 NR\_pos\_enh-Core To:RAN2, RAN3 Cc:RAN4

[R2-2206927](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2206927_R1-2205619.docx) Reply LS on expected AoA and AoD parameters (R1-2205619; contact: Nokia) RAN1 LS in Rel-17 NR\_pos\_enh-Core To:RAN2 Cc:RAN3

[R2-2206945](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2206945_R4-2210601.docx) Further reply LS on condition for PRS measurement outside the MG (R4-2210601; contact: Huawei) RAN4 LS in Rel-17 NR\_pos\_enh-Core To:RAN1, RAN2

[R2-2206947](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2206947_R4-2210604.docx) LS on switching time for SRS transmission outside initial UL BWP in RRC\_INACTIVE (R4-2210604; contact: Huawei) RAN4 LS in Rel-17 NR\_pos\_enh-Core To:RAN1, RAN2

Incoming LS from RTCM

[R2-2206903](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2206903_Response%20LS%20from%20RTCM%20on%20GNSS%20integrity_2.docx) Response LS to RTCM SC134 on GNSS integrity (RTCM; contact: ESA) RTCM LS in Rel-17 NR\_pos\_enh-Core To:RAN2

* [AT119-e][419][POS] LS from RTCM (Ericsson)

 Scope: Discuss the LS in R2-2206903 and determine what next steps are desirable from the positioning session point of view, targeting a future discussion with organisational leadership to determine the formal process if necessary.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

LS in R2-2206946 and related documents (to be considered in summary of agenda item 6.11.2.6)

[R2-2206946](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2206946_R4-2210603.docx) LS on Tx TEG framework (R4-2210603; contact: CATT) RAN4 LS in Rel-17 NR\_pos\_enh-Core To:RAN1, RAN2, RAN3

[R2-2207099](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C37355_CR0352_%28Rel-17%29_R2-2207099.docx) Corrections on the RxTEG,TxTEG and RxTxTEG report in TS 37.355 CATT CR Rel-17 37.355 17.1.0 0352 - F NR\_pos\_enh-Core

[R2-2207100](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38331_CR3217_%28Rel-17%29_R2-2207100.docx) Corrections on the UE TxTEG report in TS 38.331 CATT CR Rel-17 38.331 17.1.0 3217 - F NR\_pos\_enh-Core

Rapporteur CRs

[R2-2207384](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207384%20Mscellaneous%20corrections%20for%20TS38.305.docx) Mscellaneous corrections for TS38.305 Intel Corporation CR Rel-17 38.305 17.1.0 0105 - F NR\_pos\_enh-Core

* [AT119-e][408][POS] Rel-17 positioning stage 2 (Intel)

 Scope: Check and update the rapporteur CR in R2-2207384 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2207110
* R2-2208491
* R2-2208521
* R2-2208415
* R2-2208419
* R2-2208494

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

[R2-2207385](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207385-Corrections%20on%20LPP%20capablities.docx) Corrections on LPP capabilies Intel Corporation CR Rel-17 37.355 17.1.0 0359 - F NR\_pos\_enh-Core

* [AT119-e][409][POS] Rel-17 positioning capabilities (Intel)

 Scope: Check and update the rapporteur CR in R2-2207385 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2208492

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

[R2-2207880](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207880%20Editor%27s%20Correction%20for%20MAC%20spec%20for%20Positioning.docx) Editor's Correction for MAC spec for Positioning Huawei, HiSilicon CR Rel-17 38.321 17.1.0 1344 - F NR\_pos\_enh-Core

* [AT119-e][410][POS] Rel-17 positioning MAC (Huawei)

 Scope: Check and update the rapporteur CR in R2-2207880 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2207886
* R2-2208125
* R2-2208204
* R2-2208300
* R2-2208512
* R2-2208686
* R2-2207883
* R2-2207012

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

[R2-2208076](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208076%20RRCCR.docx) Miscellaneous correction for Positioning Ericsson, Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.1.0 3353 - F NR\_pos\_enh-Core

[R2-2208710](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208710%20Summary%20for%20Positioning%20RRC.docx) RRC Corrections for Positioning Ericsson discussion Rel-17 NR\_pos\_enh-Core Late

* [AT119-e][411][POS] Rel-17 positioning RRC (Ericsson)

 Scope: Check and update the rapporteur CR in R2-2208076 to take account of decisions of this meeting. Evaluate the proposals in the following tdocs:

* R2-2207411
* R2-2207881

 Summary discussion document in R2-2208710 can be taken into account.

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

### 6.11.2 Essential corrections

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

FR2-2 support (discuss online)

[R2-2208298](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208298%20Positioning%20of%20UEs%20with%20use%20of%20higher%20SCS%20in%20FR2-2.docx) Discussion on positioning of UEs in FR2-2 Samsung discussion Rel-17 NR\_pos\_enh-Core

Proposal 1: In R17, RAN2 does not support the use of SRS/PRS with 480/960 kHz SCS in FR2-2 for positioning. If it is agreed, RAN2 can discuss the draft CR R2-2208299 to make this aspect clear in TS 38.331.

Discussion:

vivo think RAN1 never evaluated the performance of these combinations, and wonder if it should be discussed in RAN1 first.

CATT think RAN2 cannot make this decision and would prefer to have RAN1/RAN4 look at it; they would like to send an LS to those groups. They understand that RAN1/RAN4 have no plans to support this combination in Rel-17. Intel agree with CATT.

Huawei agree with vivo and CATT.

Samsung are fine with sending an LS to check.

Nokia are OK with sending the LS, but think that the RAN2 agreement quoted in Samsung’s paper suggests that if we do not support it, we might need to indicate something explicitly.

Ericsson think there would be cleaner solutions with a capability.

* [AT119-e][420][POS] LS to RAN1/RAN4 on positioning in FR2-2 (Samsung)

 Scope: Draft an LS to RAN1 and RAN4 inquiring about the possibility of supporting SRSp/PRS with 480/960 kHz SCS in FR2-2.

 Intended outcome: Approved LS (without CB if possible)

 Deadline: Tuesday 2022-08-23 1200 UTC

[R2-2208299](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208299%20draftCR_positioning%20with%20higher%20SCS%20in%20FR2-2.docx) Clarification on the use of SRS with 480 kHz, 960 kHz SCS in FR2-2 for positioning Samsung draftCR Rel-17 38.331 17.1.0 NR\_pos\_enh-Core, NR\_ext\_to\_71GHz

#### 6.11.2.1 Latency enhancements

Enhancements of signalling, and procedures for improving positioning latency of the Rel-16 NR positioning methods, for DL and DL+UL positioning methods.

AI summary

[R2-2208792](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208792_%28Summary%20AI%206.11.2.1%29_v02.docx) Summary of AI 6.11.2.1: Essential Corrections for Latency enhancements Qualcomm Incorporated discussion Rel-17 NR\_pos\_enh-Core

[Chair’s note: Revision marks in the original proposals have been edited for clarity.]

Proposal 1: RAN2 to discuss and decide whether the LPP CR in R2-2207101, "Corrections on the latency enhancements in TS 37.355", is an essential correction or not.

Discussion:

Ericsson support the intention to change from “area” to “cell”.

ZTE tend to agree with the moderator’s summary that the capability describes the maximum number of areas (not cells), and the area size in cells does not have a capability. So they think the first change is not essential.

vivo think on the first change, the current description is OK. For the second change, they think having one UTC time in the common IE is enough.

CATT think the description of the capability is not clear as to the meaning of “area”.

Xiaomi think for the first change, if the UE capability indicates the number of areas that can be supported, it is not clear what the limit is on the number of TRPs in a single message; can it exceed 256?

Huawei have the same view as Qualcomm’s comment in the document, that the first change is not so essential; the second change they think is not specific to Rel-17, and the current time structure has been there since Rel-13.

Intel agree with Qualcomm’s view. Regarding Xiaomi’s comment, they understand that the TRP limitation is 256 per instance, and if the UE can support two instances it would need to support up to 512 TRPs.

Apple also agree with Qualcomm’s view about the first change; they have some sympathy for the second one but think it is not really a correction. Samsung and Nokia also agree with Qualcomm.

Proposal 2: The LPP CR in R2-2207579, "Correction on the request message of reduced PRS samples in 37.355", is an essential correction. RAN2 to discuss and decide:

(a) whether to correct the ASN.1 requestedDL-PRS-ProcessingSamples-r17 backwards compatible:

 requestedDL-PRS-ProcessingSamples-r17 ENUMERATED { requested, ... }

 or non-backwards compatible (as proposed in R2-2207579):

 requestedDL-PRS-ProcessingSamples-r17 ENUMERATED { requested}

(b) discuss whether RAN1 and RAN4 should be consulted on the capability confusion (i.e., "per band" (RAN1), "per UE" (RAN4)).

Discussion:

Intel agree with the issue and the proposed solution, but they think we should avoid NBC changes; they also agree to consult RAN1/RAN4.

ZTE think the NBC issues should be discussed case by case, and this is a functional problem if the CR is not adopted, so they prefer the NBC change; they think it is necessary to consult RAN1/RAN4.

Nokia agree it is essential and are fine with sending the LS; they think we can take NBC changes if the BC option is cumbersome, but in this case the BC option seems acceptable.

Apple also think the BC option is preferable.

Agreement:

Correct the ASN.1 requestedDL-PRS-ProcessingSamples-r17 in a backward compatible manner:

 requestedDL-PRS-ProcessingSamples-r17 ENUMERATED { requested, ... }

LS to RAN1/RAN4 to ask about the capability confusion on this point between per-band and per-UE.

* [AT119-e][422][POS] LS to RAN1/RAN4 on DL-PRS sample capability (ZTE)

 Scope: Draft an LS to RAN1/RAN4 indicating that we find a disconnect between the capabilities for reduced DL-PRS processing samples in different states, and requesting clarification.

 Intended outcome: Approved LS (to be sent urgently)

 Deadline: Friday 2022-08-19 1200 UTC

Proposal 3: The LPP CR R2-2207885, "Correction to the number of samples for PRS measurement in RRC\_INACTIVE", is an essential correction. RAN2 to discuss and decide:

(a) whether to dummify the existing field of supportedDL-PRS-ProcessingSamples-RRC-Inactive-r17, and add a new field for the reducedDL-PRS-ProcessingSamples-RRC-Inactive-r17 as proposed in R2-2207885.

(b) extend the ENUMERATED and dummify the existing values 'm1' and 'm2':

ENUMERATED { dummy1, dummy2, ..., supported-v17xy }

(c) make a non-backwards compatible ASN change as proposed in R2-2207580 [7]:

ENUMERATED { supported }

Discussion:

Huawei proposed option a, but think option b would also be OK; they cannot accept option c.

Samsung also support the proposal and prefer option a; they see not much difference between a and b in overhead, and find a more readable.

CATT and ZTE prefer the NBC change in c.

Apple think either a or b is fine.

Intel and OPPO prefer option b.

Qualcomm think we could avoid any ASN.1 change and just clarify the field description. They agree that the NBC solution in c is not desired.

Agreement:

The capability for supportedDL-PRS-ProcessingSamples-RRC-Inactive-r17 is modified to indicate only support in a backward compatible fashion. Details can be discussed in the LPP capability email discussion [409].

Proposal 4: The field name lowerRxBeamSweepingThan8-FR2-r17 in IE PRS-ProcessingCapabilityPerBand-r16 should be changed to supportedLowerRxBeamSweepingThan8-FR2-r17.

Agreement:

The field name lowerRxBeamSweepingThan8-FR2-r17 in IE PRS-ProcessingCapabilityPerBand-r16 should be changed to supportedLowerRxBeamSweepingThan8-FR2-r17.

Proposal 5: RAN2 to discuss and decide whether the Proposals in R2-2207693, "Positioning during handover and re-establishment", are essential corrections or not.

Discussion:

Qualcomm think the signalling does not prohibit anything during handover and re-establishment; the only question is whether there are performance requirements, and they understand that there are for HO and other cases are implementation. They see no spec impact to specify this.

ZTE, Intel, Samsung agree with Qualcomm.

Ericsson also think it is not essential and agree with Qualcomm that the RAN4 specs already capture the requirements.

Nokia also think it is not essential, but think that RAN2 have not formally introduced mobility support for positioning sessions.

Huawei and CATT also agree with Qualcomm. Apple think it is in RAN4 scope.

Lenovo can follow the majority view, but they indicate that there is no mention of the re-establishment case in the RAN4 spec.

Proposal 6: Regarding the SR configuration for Measurement Gap Activation/Deactivation Request MAC CE, RAN2 to discuss and decide whether

(a) link the SR configuration for the Measurement Gap Activation/Deactivation Request MAC CE to a common SR configuration.

(b) introduce a dedicated SR configuration for the Measurement Gap Activation/Deactivation Request MAC CE.

Discussion:

Huawei think something is needed, because there is no linked SR configuration today. When the SCell BFR MAC CE was introduced, they recall that the SR configuration was discussed in RAN1, and they think we could leave it to RAN1 to discuss whether a dedicated configuration is needed here. Intel and Lenovo agree with Huawei.

Samsung wonder what “common SR configuration” means here, and how the MAC CE can be associated with it. Huawei indicate that it means that the configuration is configured in the SchedulingRequestConfiguration and can be used for any SR, whereas a dedicated configuration can only be used for this MAC CE. From an ASN.1 pov, Huawei think the difference is just the field description.

Ericsson see an advantage to having a dedicated configuration in case the gNB does not expect the UE to send this SR.

OPPO prefer option b and think this may be an urgent MAC CE to be sent.

Qualcomm agree with OPPO; the MAC CE is urgent, and they think this is also the cleanest approach from a spec perspective. They are not sure that a field description change would be enough for option a. Ericsson agree with Qualcomm.

Huawei can accept option b, and they agree with Qualcomm that an ASN.1 change is needed; but they think the difference between common and dedicated is just the field description.

Huawei think we should notify RAN1.

Agreement:

Introduce a dedicated SR configuration for the Measurement Gap Activation/Deactivation Request MAC CE.

LS to RAN1 notifying them of the RAN2 decision.

Change to be taken into account in the RRC CR email discussion [411].

* [AT119-e][423][POS] SR configuration for Measurement Gap Activation/Deactivation Request MAC CE (Huawei)

 Scope: Draft an LS to RAN1 notifying them of the RAN2 decision on a dedicated SR configuration for the Measurement Gap Activation/Deactivation Request MAC CE.

 Intended outcome: Approved LS

 Deadline: Tuesday 2022-08-23 1200 UTC

* [AT119-e][424][POS] Rel-17 LPP CR (Qualcomm)

 Scope: Draft a CR to 37.355 taking account of this meeting’s decisions.

 Intended outcome: Agreeable CR

 Deadline: Tuesday 2022-08-23 1200 UTC

Covered in summary

[R2-2207101](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C37355_CR0353_%28Rel-17%29_R2-2207101.docx) Corrections on the latency enhancements in TS 37.355 CATT CR Rel-17 37.355 17.1.0 0353 - F NR\_pos\_enh-Core

[R2-2207579](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207579%20Correction%20on%20the%20request%20message%20of%20reduced%20PRS%20samples%20in%2037.355.docx) Correction on the request message of reduced PRS samples in 37.355 ZTE, Sanechips CR Rel-17 37.355 17.1.0 0362 - F NR\_pos\_enh-Core

[R2-2207580](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207580%20Correction%20on%20UE%20capability%20of%20reduced%20PRS%20samples%20in%20RRC_INACTIVE%20in%2037.355.docx) Correction on UE capability of reduced PRS samples in RRC\_INACTIVE in 37.355 ZTE, Sanechips CR Rel-17 37.355 17.1.0 0363 - F NR\_pos\_enh-Core

[R2-2207885](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207885%20Correction%20to%20the%20number%20of%20samples%20for%20PRS%20measurement%20in%20RRC_INACTIVE.docx) Correction to the number of samples for PRS measurement in RRC\_INACTIVE Huawei, HiSilicon CR Rel-17 37.355 17.1.0 0371 - F NR\_pos\_enh-Core

[R2-2208077](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208077%20LPPCR.docx) Correction of the IE for lower Rx beam sweeping factor than 8 for FR2 capability and request Ericsson CR Rel-17 37.355 17.1.0 0374 - F NR\_pos\_enh-Core

[R2-2207693](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207693%20Positioning%20during%20handover%20and%20re-establishment%20v2.0.docx) Positioning during handover and re-establishment Lenovo discussion Rel-17

[R2-2208124](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208124_%28CR%2038.331%20Scheduling%20ID%20posMG%29.docx) Correction to missing Scheduling Request Configuration for Positioning Measurement Gap Activation/Deactivation Request MAC CE Qualcomm Incorporated CR Rel-17 38.331 17.1.0 3358 - F NR\_pos\_enh-Core

Stage 2 (to be considered in email discussion [408])

[R2-2207110](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38305_CR0103_%28Rel-17%29_R2-2207110.docx) Corrections on TS38.305 CATT CR Rel-17 38.305 17.1.0 0103 - F NR\_pos\_enh-Core

[R2-2208491](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208491%20Change%20request%20about%20validity%20area%20in%2038.305.docx) Change request about validity area in 38.305 vivo draftCR Rel-17 38.305 17.1.0 D NR\_pos\_enh-Core

LPP capability (to be considered in email discussion [409])

[R2-2208492](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208492%20Change%20request%20about%20UE%20capability%20for%20PRS%20measurement%20within%20a%20PPW.docx) Change request about UE capability for PRS measurement within a PPW vivo draftCR Rel-17 37.355 17.1.0 F NR\_pos\_enh-Core

MAC (to be considered in email discussion [410])

[R2-2207886](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207886%20Cancellation%20of%20SR%20for%20posMG%20%28de-%29activation%20request.docx) Cancellation of SR for posMG (de-)activation request Huawei, HiSilicon discussion Rel-17 NR\_pos\_enh-Core

[R2-2208125](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208125_%28CR%2038.321%20SR%20posMG%29.docx) Correction to Scheduling Request for Positioning Measurement Gap Activation/Deactivation Request Qualcomm Incorporated CR Rel-17 38.321 17.1.0 1371 - F NR\_pos\_enh-Core

[R2-2208204](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C38321_CRxxxx_%28Rel-17%29_R2-2208204%20Misc%20corrections%20to%20ePos.docx) Miscellaneous corrections to NR positioning enhancements Lenovo draftCR Rel-17 38.321 17.1.0 F NR\_pos\_enh-Core

[R2-2208300](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208300%20draftCR_cancellation%20of%20UL%20MAC%20CE%20for%20pre-MG.docx) Cancellation of UL MAC CE for MG activation/deactivation Samsung draftCR Rel-17 38.331 17.1.0 NR\_pos\_enh-Core

[R2-2208512](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208512.docx) Corrections for triggered Positioning MG Req MAC CE Samsung draftCR Rel-17 38.321 17.1.0 F NR\_pos\_enh-Core

[R2-2208686](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208686%20Correction%20on%20PPW%20for%20positioning%20enhancement.docx) Correction on PPW for positioning enhancement NEC draftCR Rel-17 38.321 17.1.0 F NR\_pos\_enh-Core

RRC (to be considered in email discussion [411])

[R2-2207411](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207411%20Change%20request%20about%20PPW%20configuration.docx) Change request about PPW configuration vivo, Ericsson CR Rel-17 38.331 17.1.0 3260 - F NR\_pos\_enh-Core

#### 6.11.2.2 RRC\_INACTIVE

Methods, measurements, signalling and procedures to support positioning for UEs in RRC\_ INACTIVE state, for UE-based and UE-assisted positioning solutions. UL and DL+UL NR positioning methods and gNB positioning measurements for UEs in RRC\_INACTIVE are treated at lower priority.

SRS configuration (discuss online)

[R2-2207112](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207112%20Discussion%20on%20left%20over%20issues%20of%20inactive%20positioning.docx) Discussion on left over issues of UL positioning in RRC\_Inactive CATT discussion Rel-17 NR\_pos\_enh-Core

Proposal 1: When judging TA validation, the condition of “inactivePosSRS-TimeAlignmentTimer is running” should be added and the modification in Annex A should be adopted.

Proposal 2: In case of UE reselect to the previous cell again, to solve the misalignment of srs-PosRRC-Inactive configuration between UE and the network, RAN2 to decide which solution is adopted:

Option 1: Not use delta configuration for srs-PosRRC-Inactive. TP in Annex B is adopted accordingly;

Option 2: Whether the srs-PosRRC-Inactive to be released is judged in procedure of resume instead of cell reselection. TP in Annex C is adopted accordingly.

Discussion:

Ericsson think we discussed this issue previously and the current spec is good enough.

Huawei have the same view as Ericsson; they think the delta configuration is valid. Huawei think the failure mode can be solved by having the UE release the configuration when it reselects. They also think this is a corner case.

ZTE think the problem situation is not possible, because only when the UE resumes will it release the actual configuration. They understand this is the solution in SDT as well.

vivo think this is a different situation from SDT, because the UE will release the configuration at reselection, so they think the issue is valid; however, they do not prefer the proposed solution options, because they think the delta configuration is important but option 2 could cause interference. So they think we could introduce a new cause value.

CATT think this is a bit of a corner case, but when it occurs, the configuration will be out of alignment between UE and NW if the TA timer has not expired.

* [AT119-e][421][POS] Delta configuration for SRSp in RRC\_INACTIVE (CATT)

 Scope: Discuss the situation described in R2-2207112 and determine if RAN2 should take action; if the issue is deemed valid, attempt to agree on at least the direction of a solution.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

LCS trigger (SA2 related; discuss online if time)

[R2-2208074](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208074%20RRCInactive%20.docx) on RRC Inactive Mode Positioning Ericsson discussion Rel-17

* Noted

Proposal 1 Send an LS to SA2 to support the update of the LCS Periodic-triggered Invoke Request.

Discussion:

Nokia think this can be raised in SA2. vivo, Intel, and Apple agree. Also ZTE.

OPPO think it is an optimisation, and also think it is in SA2 scope.

CATT think it is a new requirement and should be discussed in SA2.

Huawei think the event actually comes from the LCS client, and they do not see the need to reconfigure it. They also agree that it needs to be discussed in SA2.

Draft reply to LS in SDT session (to be handled in SDT session, email discussion [311])

[R2-2208072](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208072%20OnContainer.docx) On transferring SDT configuration and SRS positioning Inactive configuration from DU to CU Ericsson discussion Rel-17

RRC (to be considered in email discussion [411])

[R2-2207881](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207881%20Correction%20for%20inactivePosSRS-TAT%20upon%20transitioning%20to%20RRC_CONNECTED.docx) Correction for inactivePosSRS-TAT upon transitioning to RRC\_CONNECTED Huawei, HiSilicon CR Rel-17 38.331 17.1.0 3322 - F NR\_pos\_enh-Core

MAC (to be considered in email discussion [410])

[R2-2207883](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207883%20Correction%20to%20TA-validation%20for%20inactive%20SRS%20transmission.docx) Correction to TA-validation for inactive SRS transmission Huawei, HiSilicon CR Rel-17 38.321 17.1.0 1345 - F NR\_pos\_enh-Core

Stage 2 (to be considered in email discussion [408])

[R2-2208521](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208521%20Corrections%20on%20activation%20and%20deactivation%20of%20SP-SRSp%20transmission%20in%20RRC%20INACTIVE.doc) Corrections on activation and deactivation of SP-SRSp transmission in RRC INACTIVE Xiaomi, Huawei, vivo CR Rel-17 38.305 17.1.0 0107 - F NR\_pos\_enh-Core

#### 6.11.2.3 On-demand PRS

Specify UE-initiated and LMF-initiated on-demand transmission and reception of DL PRS for DL and DL+UL positioning for UE-based and UE-assisted positioning solutions.

OD-PRS configuration (discuss online)

[R2-2208493](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208493%20Discussion%20on%20the%20format%20of%20on-demand%20PRS%20configuration.docx) Discussion on the format of on-demand PRS configuration vivo, ZTE, Ericsson, Huawei, Xiaomi discussion Rel-17 NR\_pos\_enh-Core

Proposal1: Align with RAN1 on the parameters of the pre-defined on-demand PRS configuration in LPP.

Proposal 2: Discuss how to address the on-demand PRS configuration issue in LPP, the potential options include:

- Option 1: Reuse the nr-On-Demand-DL-PRS-Information IE to describe the pre-defined on-demand PRS configuration, turn the nr-DL-PRS-PositioningFrequencyLayer-r17 and nr-DL-PRS-Info-r17 into dummy IEs.

- Option 2: Reuse the nr-On-Demand-DL-PRS-Information IE to describe the pre-defined on-demand PRS configuration, remove the nr-DL-PRS-PositioningFrequencyLayer-r17 and nr-DL-PRS-Info-r17. (NBC change)

- Option 3: Add clarification in the field description of On-Demand-DL-PRS-Configuration, e.g., LMF may fill arbitrary values for these parameters not agreed by RAN1 and the UE shall ignore them.

Discussion:

vivo clarify that dummifying the fields as in option 1 would be an overhead concern.

CATT think there is not an issue, because RAN1 left it to RAN2 to define this configuration, and RAN1 only defined what the UE can request.

Intel have the same view as CATT regarding the RAN1/RAN2 work split. Based on the argument in the paper, they understand that the concern is whether the LMF can set the parameters properly; however, Intel do not see the problem for the LMF to do this.

Samsung agree with the motivation of the change and prefer option 3, since the existing fields of concern are mandatory, meaning that even if we dummified them, the LMF would have to put something.

Qualcomm have a similar view to Intel and CATT; they understand that RAN1 only studied the explicit parameter option, which is handled correctly in RAN2/RAN3 specs, but the predefined configurations are only in RAN2 scope. They understand that the predefined configuration should include the whole configuration; however, they also agree that there are parameters in the configuration that do not make sense, but they see a problem only with parameters that are OPTIONAL. They do not think we should align to the RAN1 parameters, since those include e.g. QCL information; they suggest we define a new IE containing the parameters comprising the on-demand configuration, but this would be an NBC change with a lot of impact. So they could accept option 3, but they think some work still needs to be done to determine which parameters really are not applicable.

OPPO prefer option 3 and agree with the motivation. They understand that the on-demand configuration was already discussed by RAN3 and is aligned with RAN1, so the LMF should only provide the parameters as agreed by RAN1. They think dummifying the fields would be a little bit strange.

Ericsson think there are parameters like sequence ID and power that are mandatory, but that the LMF cannot meaningfully fill. They find option 3 a bit messy and still prefer option 2.

Huawei think we do not need to specify network behaviour and can just say the UE ignores these fields. Ericsson agree with Huawei.

Nokia think we should clearly document what the parameters are; is it just the ones highlighted in red in the paper? vivo clarify that the red-highlighted parameters are the ones RAN1 did not agree. Qualcomm do not entirely agree with the list of parameters; for example, they think the cyclic prefix length is a relevant part of the configuration and the UE may request a parameter that includes a particular value of the CP length, even though it does not explicitly include this parameter in its request.

Proposal 3: Add the case of new PRS transmission in the stage2 procedures of on-demand PRS response.

Discussion:

Intel think P3 is OK.

Agreements:

Add clarification in the field description of On-Demand-DL-PRS-Configuration, e.g., UE ignores the parameters that the LMF cannot meaningfully fill (e.g. TRP dependent). Details to be checked in the LPP email discussion ([424]).

Add the case of new PRS transmission in the stage2 procedures of on-demand PRS response. To be implemented in the stage 2 email discussion [408].

[R2-2207419](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207419%20Change%20request%20about%20QCL-Info%20in%20the%20on-demand%20PRS%20request.docx) Change request about QCL-Info in the on-demand PRS request vivo CR Rel-17 37.355 17.1.0 0360 - F NR\_pos\_enh-Core

* To be merged into the LPP CR (details to be checked in email discussion [424]).

Discussion:

Qualcomm think the coversheet is not clear as to what is wrong. vivo clarify that there should be at least one instance of QCL info for each resource set, and the current code supports only one.

Nokia think the top-level list field provides a list already. Chair understood that this list provided one QCL source per resource set.

Huawei agree with the CR, but think the naming of the fields can be improved.

Agreement:

CR in R2-2207419 to be captured in the LPP email discussion [424]; details can be discussed.

MAC (to be considered in email discussion [410])

[R2-2207012](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207012_DraftCR_38321_Corrections%20for%20DL-PRS%20processing%20window%20activation.docx) Corrections for DL-PRS processing window activation Samsung Electronics Co., Ltd draftCR Rel-17 38.321 17.1.0 NR\_pos\_enh-Core

#### 6.11.2.4 GNSS positioning integrity

Signalling and procedures to support GNSS positioning integrity determination.

UE-based integrity (discuss online)

[R2-2208075](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208075%20integrity.docx) Provisioning of missing integrity requirements Ericsson discussion Rel-17

Proposal 1 Support UE-based integrity assessments and define necessary assistance data in LPP

Proposal 2 Agree to the LPP text proposal in the appendix.

Discussion:

OPPO understand that UE-based integrity is needed and we should provide a baseline in Rel-17 that can be used for the Rel-18 work.

CATT consider that the integrity assessment is not the responsibility of LPP. For example in MO-LR, the location response is reported from LMF to AMF, then to UE eventually; they think the higher layers should take care of the assessment. So they do not see the change as necessary.

ZTE wonder if this would mean the UE has to report the flag on whether PL>AL; they understand that mode 2 reporting is currently not supported in Rel-17. They also see this as an enhancement rather than a correction.

Qualcomm understand that this is the mode 1 vs. mode 2 discussion, which we already had. They do not think the UE should verify that the PL meets some service requirements, in the same way that the UE does not verify the QoS. From a feature point of view, they do not think we need the additional mode, and think including the TIR in the assistance data does not make sense; and they do not see it as a correction.

Nokia also think this is not an essential correction; it looks like additional functionality. Apple agree with Nokia.

Swift agree that this is more of a new use case than a correction, but they do think it can be a useful use case. They wonder if the UE would be required to use the new parameters.

Intel have some sympathy for the proposal and think it is not clear how the UE calculates the PL without knowing the AL.

Ericsson think it is feasible to report the additional parameters in LPP, and the application layers in the UE may need to do the integrity assessment. They see this as similar to what the network receives in MT-LR cases. They do not see this as equivalent to the mode 1/mode 2 discussion and think it is filling a gap.

OPPO agree with Ericsson and see the spec impact as limited.

CATT understand that the UE can calculate PL without AL. Samsung think the AL is needed.

* [AT119-e][425][POS] UE-based integrity assessment (Ericsson)

 Scope: Evaluate the proposal in R2-2208075 from the standpoint of determining if it is an essential correction. New functionality will not be introduced and the discussion should determine if there is support for this change as a correction in Rel-17.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

LPP (to be considered by email)

[R2-2207736](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C37355_CR0365_%28Rel-17%29_R2-2207736.docx) Corrections on the integrity of A-GNSS in TS 37.355 CATT CR Rel-17 37.355 17.1.0 0365 - F NR\_pos\_enh-Core

[R2-2208395](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208395.docx) Correction on the GNSS Orbit and Clock Integrity Bounds in TS 37.355 Swift Navigation, ESA, Ericsson CR Rel-17 37.355 17.1.0 0377 - F NR\_pos\_enh-Core

* [AT119-e][416][POS] Rel-17 positioning integrity (Swift)

 Scope: Evaluate the proposals in the following tdocs:

* R2-2207736
* R2-2208395

 Intended outcome: Agreed CRs for merge into LPP rapporteur CR; report in R2-2208793

 Deadline: Tuesday 2022-08-23 1200 UTC

Report of email discussion on LPP proposals

R2-2208793 (Email summary on LPP proposals in AI 6.11.2.4) Swift Navigation discussion Rel-17 NR\_pos\_enh-Core

Stage 2 (to be considered in email discussion [408])

[R2-2208415](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208415.docx) Correction on the mean orbit error projection in TS 38.305 Swift Navigation, ESA, Ericsson CR Rel-17 38.305 17.1.0 0106 - F NR\_pos\_enh-Core

[R2-2208419](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208419.docx) Correction on the mean orbit error projection in TS 36.305 Swift Navigation, ESA, Ericsson CR Rel-17 36.305 17.1.0 0110 - F NR\_pos\_enh-Core

Withdrawn/Not available

R2-2207363 Corrections on the integrity of A-GNSS in TS 37.355 CATT CR Rel-18 37.355 17.1.0 0358 - F NR\_pos\_enh-Core Withdrawn

#### 6.11.2.5 A-GNSS enhancements

Including support of BDS B2a and B3I signals and support of NavIC.

#### 6.11.2.6 Accuracy enhancements

Input on the accuracy enhancement objectives led by RAN1.

AI summary

[R2-2208794](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208794%20Summary%20of%20AI%206.11.2.6%20%28CATT%29.docx) [Pre119-e][402] Summary of agenda item 6.11.2.6 on positioning accuracy enhancements (CATT) CATT discussion Rel-17 NR\_pos\_enh-Core

Proposal 1: RAN2 to discuss if an NBC is allowed or not, and to merge these two CRs [R2-2207100, R2-2207582] on RRC via offline.

Discussion:

vivo think RAN4 indicated that the exact values are still under discussion, so they wonder if we should agree on the CR yet.

Huawei have the same understanding as vivo that RAN4 are still discussing. They think we can leave this open and see if we get an LS during this meeting, but if RAN4 have no conclusion, we should not include the field. On the NBC change, they think the chair guidelines are clear that we should avoid NBCs if possible. Intel and Qualcomm agree with Huawei.

ZTE think the candidate values are provided by RAN4 and we can capture them; they prefer the BC change, and think some procedural impact in 5.7.13.3 should be added as well.

CATT think RAN4 defined the Rx TEG and Tx TEG values and only the RxTx TEG case is FFS, so we should be able to finalise the rest. They think we need to discuss more about the value associated with the group and ZTE’s change does not allow a separate value for each TEG group.

Intel have the same understanding as CATT that Rx and Tx are resolved but RxTx is open.

Qualcomm prefer to wait for the final LS before putting the values in LPP. They note that we have extension markers and can extend when RAN4 conclude.

Agreements:

Introduce the timing error margin values for the Tx TEG case, using a BC change. Rx and RxTx (in LPP) will be introduced if/when RAN4 provide final values.

Change for Tx to be taken into account in the RRC email discussion [411].

Correction on other issues in RRC:

Proposal 2: RAN2 to discuss if the description ‘and a maximum of up to 32 measurement instances in a single measurement report is supported.’ is essential and merge the modifications in R2-2208073 into RRC CR (proposal 1) via offline.

Discussion:

Qualcomm think this is wrong since RRC does not have the measurement instances. ZTE and Intel agree with Qualcomm. CATT clarify that the CR also includes the limit to

CATT think we could capture the other modification: There may be up to 8 reports of the TEG-SRS association information for each UE Tx TEG ID. vivo think this is already implied by the ASN.1

Qualcomm do not understand the intention; is it that within two periodic reports, there can only be up to 8 time changes in such an interval? Otherwise they do not understand what the report means.

Ericsson think RAN1 had an agreement in this area that was left for RAN2 to capture.

Agreement:

P2 from R2-2208794 to be considered in RRC email discussion [411].

Corrections on timing error margin value of reported TEG in LPP:

Proposal 3: RAN2 to agree for UE-based positioning, the selected Tx-TEG margin for TRP is added in NR-DL-PRS-TRP-TEG-Info.

Proposal 4: RAN2 to discuss if timing error margin is associated with each RxTEG/RxTxTEG ID with its own timestamp, and take the CR [R2-2207099] or [R2-2207581] as a baseline to capture timing error margin values for further polishing via offline.

Discussion:

Intel agree with P3, and for P4 they prefer R2-2207581.

ZTE also prefer R2-2207581 and do not think the timing error margin should be associated with each TEG ID; they understand the UE can only choose one value and it applies to every TEG. They also think the condition tag is necessary, because the timing error margin should only be present when the TEG is present.

Huawei have the same view as ZTE and got similar feedback from their RAN1 and RAN4 colleagues: The margin is applicable for all elements.

CATT think Huawei are correct, but the ZTE CR does not reflect the margin per TEG.

Qualcomm think the RRC change we already agreed is not in line with the ZTE CR; they think we should align LPP with the RRC agreement.

Agreement:

For UE-based positioning, the selected Tx-TEG margin for TRP is added in NR-DL-PRS-TRP-TEG-Info.

* [AT119-e][426][POS] TEG timing error margin in RRC and LPP (CATT)

 Scope: Discuss the handling of the TEG timing error margins in RRC and LPP and conclude on an agreeable implementation approach. RAN4 agreements should be taken into account.

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

Corrections on DL-AoD report in LPP:

Proposal 5: RAN2 to agree removing the condition presence tag and need code for nr-DL-PRS-RSRP-ResultDiff and nr-DL-PRS-FirstPathRSRP-ResultDiff in CR [R2-2207884].

Proposal 6: RAN2 to discuss if it is an essential correction: modify the condition of Rx beam index reporting so that RSRPP reporting is considered and the number of RSRP/RSRPP are counted across multiple resource sets in CR[R2-2207884].

Corrections on additional measurements in LPP:

Proposal 7: RAN2 to agree to take CR [R2-2207882] as a baseline and merge CR [R2-2207578] via offline.

Correction on other issues in LPP:

Proposal 8: RAN2 to agree CR [R2-2207087] and CR [R2-2207102] separately.

Proposal 9: RAN2 to agree the proposed description without ‘and a maximum of up to 32 measurement instances in a single measurement report is supported.’ in R2-2208073, and merge the modification into CR [R2-2207087].

Agreement:

P5/P6/P7/P8/P9 of R2-2208794 to be discussed in the LPP email discussion [424].

TEG framework

[R2-2207087](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207087%2037.355%20CR%20for%20clarification%20of%20number%20of%20UE%20Rx%20TEGs.docx) 37.355 CR for clarification of number of UE Rx TEGs OPPO CR Rel-17 37.355 17.1.0 0350 - F NR\_pos\_enh-Core

[R2-2207088](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207088%2037.355%20CR%20for%20introduction%20of%20UE%20Rx%20TEG%20margin%20and%20Tx%20TEG%20margin.docx) 37.355 CR for introduction of UE Rx TEG error margin and Tx TEG error margin OPPO CR Rel-17 37.355 17.1.0 0351 - F NR\_pos\_enh-Core

[R2-2207102](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5C37355_CR0354_%28Rel-17%29_R2-2207102.docx) Corrections on the accuracy enhancements in TS 37.355 CATT CR Rel-17 37.355 17.1.0 0354 - F NR\_pos\_enh-Core

[R2-2207578](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207578%20Correction%20on%20additional%20measurements%20in%2037.355.docx) Correction on additional measurements in 37.355 ZTE, Sanechips CR Rel-17 37.355 17.1.0 0361 - F NR\_pos\_enh-Core

[R2-2207581](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207581%20Correction%20on%20UE%20Rx%20Tx%20RxTx%20TEG%20and%20TRP%20Tx%20TEG%20timing%20error%20margin%20in%2037.355.docx) Correction on UE Rx Tx RxTx TEG and TRP Tx TEG timing error margin in 37.355 ZTE, Sanechips CR Rel-17 37.355 17.1.0 0364 - B NR\_pos\_enh-Core

[R2-2207882](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207882%20Correction%20to%20measurment%20with%20mutliple%20TEGs.docx) Correction to measurment with mutliple TEGs Huawei, HiSilicon, VIVO CR Rel-17 37.355 17.1.0 0369 - F NR\_pos\_enh-Core

[R2-2207582](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207582%20Correction%20on%20UE%20Tx%20TEG%20timing%20error%20margin%20in%2038.331.docx) Correction on UE Tx TEG timing error margin in 38.331 ZTE, Sanechips CR Rel-17 38.331 17.1.0 3286 - B NR\_pos\_enh-Core

[R2-2207583](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207583%20Discussion%20on%20the%20framework%20of%20TEG%20timing%20error%20margin.docx) Discussion on the framework of TEG timing error margin ZTE, Sanechips discussion Rel-17 NR\_pos\_enh-Core

[R2-2208073](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208073%20TEG.docx) On Mitigation of UE/TRP Rx/Tx timing delays Ericsson discussion Rel-17

Measurement report

[R2-2207884](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207884%20Correction%20to%20DL-AoD%20measurement%20report.docx) Correction to DL-AoD measurement report Huawei, HiSilicon CR Rel-17 37.355 17.1.0 0370 - F NR\_pos\_enh-Core

Stage 2 (to be considered in email discussion [408])

[R2-2208494](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208494%20Change%20request%20about%20description%20of%20RSPP%20and%20RSRPP%20in%2038.305.docx) Change request about description of RSPP and RSRPP in 38.305 vivo draftCR Rel-17 38.305 17.1.0 D NR\_pos\_enh-Core

## 6.21 TEI17

### 6.21.2 Corrections

Corrections CRs (Correction to TEI or TEI + other WI code) or detailed modifications to agreed proposals

[R2-2208483](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208483%20Clarification%20on%20NR%20sidelink%20relay%20related%20configuration.docx) Clarification on NR sidelink relay related configuration Huawei, HiSilicon CR Rel-17 36.331 17.1.0 4859 - F TEI17, NR\_SL\_relay-Core

* Agreed

Discussion:

Apple think there is no technical reason why the cross-RAT control is not supported for ProSe and would like to understand the reasoning. Huawei indicate that only NR access was in scope for the SA2 WI, and the support between RAN and CN for ProSe with LTE access is not there.

Ericsson have the same understanding as Huawei, but wonder if it should be captured in RRC or stage 2. Apple think both RRC and 36.300 should reflect the restriction; Ericsson think one or the other is enough.

Huawei think at least the stage 3 CR is needed, since the restriction affects specific fields carried in the container.

Nokia would prefer a clarification in stage 2. CATT would like both. Ericsson are OK with the stage 3 change. InterDigital think stage 3 is sufficient. Nokia can accept stage 3.

=> Agreed

# 8 Rel-18

## 8.2 Expanded and improved NR positioning

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

Time budget: 1.5 TU

Tdoc Limitation: 3 tdocs

### 8.2.1 Organizational

Including incoming LSs and rapporteur inputs.

Work plan

[R2-2207737](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207737%20Work%20Plan%20for%20Study%20Item%20on%20Expanded%20and%20Improved%20NR%20Positioning.docx) Work Plan for Study Item on Expanded and Improved NR Positioning CATT, Intel Corporation, Ericsson Work Plan Rel-18 FS\_NR\_pos\_enh2

* Noted

Rapporteur summary of RAN1 agreements

[R2-2207387](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207387_RAN1%20agreements%20on%20Expanded%20and%20improved%20NR%20positioning.docx) RAN1 agreements on Expanded and improved NR positioning Intel Corporation discussion Rel-18 FS\_NR\_pos\_enh2

P5 on LPHAP:

Proposal 5: RAN2 can discuss the potential enhancements, but we still need to wait for RAN1 conclusion on the evaluation of power consumption requirement before make final decision.

Discussion:

Apple wonder if it is the best use of our time to discuss something that may not be relevant in the end, and they understand that the objective is to evaluate. So they doubt that we can do anything until RAN1 decide.

CATT wonder how RAN1 can evaluate during the study item, as opposed to evaluating candidate solutions during the WI phase.

Intel clarify that the intention was to allow RAN2 to discuss the feasibility of solutions that have been raised in RAN1 already, while acknowledging that it is RAN1 business to evaluate the power consumption requirement.

vivo understand from RAN1 that the initial simulations show UL positioning is more power-efficient than DL positioning, so the enhancements for UL positioning should be considered in RAN2. They agree with Intel that we can discuss feasibility.

Pre-discussion summary

[R2-2207105](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207105%20Summary%20of%20pre-discussion%20on%20Rel-18%20expanded%20and%20improved%20NR.docx) Summary of pre-discussion on Rel-18 expanded and improved NR positioning CATT discussion Rel-18 FS\_NR\_pos\_enh

* Noted (can consider related proposals in the corresponding agenda items)

### 8.2.2 Sidelink positioning

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

Selected proposals from R2-2207105 on SL positioning

Scenarios and requirements aspect:

Proposal 2: RAN2 to agree in-coverage, out-of-coverage and partial-coverage applicable to all the use cases.

Proposal 3: RAN2 to agree U2U relay scenarios are not included in the SI.

Proposal 4: RAN2 to further discuss whether U2N relay scenario is included in the SI.

UE roles and positioning models aspect:

Proposal 7: RAN2 to agree the following two roles defined by RAN1 are reused in RAN2:

• Target UE: UE to be positioned (in this context, using SL, i.e. PC5 interface).

• Anchor UE: UE supporting positioning of target UE, e.g., by transmitting and/or receiving reference signals for positioning, providing positioning-related information, etc., over the SL interface.

FFS: clarification of the knowledge of the location of the anchor UE

Proposal 10: RAN2 to agree SL-PRS transmission between Target UE and Anchor UE(s) include: Target-to-Anchor, Target-to-many Anchors and many Anchors-to-Target.

Proposal 11: RAN2 to further discuss the signalling transmission between Target UE and Anchor UE(s): Target-to-Anchor, Target-to-many Anchors and many Anchors-to-Target.

Protocol stack aspect:

Proposal 15: For hybrid Uu and PC5 positioning, RAN2 to discuss sidelink positioning signallings exchange between the target UE and the LMF, the candidate options are below:

- Option 1: New protocol (RSPP or SLPP) is also used for sidelink positioning signallings exchange between the target UE and the LMF (2/7);

- Option 2: Extend existing LPP to support hybrid Uu and PC5 positioning (5/7).

Other issue:

Proposal 16: RAN2 to discuss the cast types that can be supported for SL positioning, i.e. whether broadcast/ groupcast can be considered for SL positioning.

[R2-2207081](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207081%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning vivo discussion Rel-18 FS\_NR\_pos\_enh2

Proposal 1: Confirm that for sidelink positioning in-coverage, partial coverage and out-of-coverage scenarios shall be supported.

Proposal 2: Study the architecture and signaling procedures to enable the following two operation scenarios:

- Operation Scenario 1: PC5-only-based positioning.

- Operation Scenario 2: Combination of Uu- and PC5-based positioning.

Discussion:

Nokia think we can consider all scenarios in P1, but think we should perhaps prioritise OOC first.

Huawei think it is the first meeting and we should not prioritise right away. They understand that RAN1 are discussing issues related to the IC case as well.

Lenovo tend to agree that OOC is the new scenario, but agree with Huawei that it is early to prioritise.

Ericsson agree we should not prioritise right away. From network perspective, they think partial coverage is also important.

OPPO agree with Huawei about P1 and think there are aspects of IC that should be handled. They are OK with P2.

ZTE agree with P1 and P2; for P1, they wonder if the coverage scenarios apply to the target or anchor UE or both of them.

Ericsson think in P2 there could be a third scenario based on relaying.

Agreements:

Proposal 1 (modified): Confirm that for sidelink positioning in-coverage, partial coverage and out-of-coverage scenarios shall be supported. FFS if partial coverage case assumes anything about which UEs are in coverage.

Proposal 2: Study the architecture and signaling procedures to enable at least the following two operation scenarios:

- Operation Scenario 1: PC5-only-based positioning.

- Operation Scenario 2: Combination of Uu- and PC5-based positioning.

Proposal 3: Take the two types of architectures as the baseline for signaling procedure discussion of sidelink positioning.

- Type 1: LMF as location server

- Type 2: UE as location server

Discussion:

CATT think this is SA2 scope. They have some concern about the server functionality in PC5-only positioning, and think we should review such scenarios case by case, since having a server UE could mean that all UEs have to be connected to the server.

Xiaomi think the main point is who can calculate the location, and we could distinguish between LMF calculating the location, target UE calculating the location, and anchor UE calculating the location.

vivo understand that the server UE is a logical concept with similar functionality to the LMF, e.g., deciding the location method. They can follow the majority in waiting for SA2, but think we should have a concept of the location types and procedures from RAN2 perspective.

Lenovo agree we should adopt SA2 terminology, but think a server UE would have a lot of RAN implications, e.g., security and capability issues. They would prefer a framing as “LMF-dependent” and “LMF-independent”.

Agreement:

RAN2 follow SA2 on the architecture, including the possibility of a UE as a location server. FFS from RAN2 perspective if there are cases without a UE in the location server role.

Proposal 4: Align with SA2/RAN1 on the terms for sidelink positioning, and introduce the following terms of UE role as the baseline for further discussion:

- Target UE: UE to be positioned

- Location Server UE: A UE offering location server functionality in lieu of LMF, for sidelink Positioning and Ranging over PC5.

- Anchor UE: UE supporting positioning of target UE, e.g., by transmitting and/or receiving reference signals for positioning, providing positioning-related information, etc., over the SL interface. For absolute positioning, the Anchor UEs’ locations are known.

Discussion:

Huawei understand that SA2 are discussing additional UE roles, e.g., reference UE, and they wonder why we capture the server UE term now.

Ericsson think the server UE has security implications that need to be evaluated.

Apple think “providing positioning-related information” in the anchor definition is unclear. vivo clarify this language came from RAN1; they understand that it refers to measurements or location estimates.

Intel think it would be useful to have a server UE concept at least for the OOC case, but can agree to the target and anchor terms now for progress.

Agreement:

Proposal 4 (modified): Align with SA2/RAN1 on the terms for sidelink positioning, and introduce the following terms of UE role as the baseline for further discussion:

- Target UE: UE to be positioned

- Anchor UE: UE supporting positioning of target UE, e.g., by transmitting and/or receiving reference signals for positioning, providing positioning-related information, etc., over the SL interface. FFS: clarification of the knowledge of the anchor UE.

Additional roles can be considered.

Proposal 6: Introduce a new protocol for sidelink positioning procedures between UEs, i.e., Ranging/Sidelink Positioning Protocol (RSPP).

Discussion:

CATT, Samsung, Nokia, and Lenovo prefer the term SLPP.

Intel, Apple, and Ericsson wonder if we would have a separate spec from LPP. Huawei think it should be a separate ASN.1 module, and we can further discuss whether it is a separate spec.

Sony wonder if the scope of the new protocol is clear, e.g., which UE roles it will be used between. Qualcomm think this can be part of our study activity. Huawei agree with Qualcomm.

MediaTek agree with Huawei that it should be a separate ASN.1 module.

Qualcomm think we have a requirement for such a protocol and it should be a separate module.

OPPO wonder if the separate module would imply anything about using the same spec. They think extending LPP to include this functionality would be complex.

Vodafone wonder why we cannot have a separate specification.

CATT wonder when the decision on a separate specification should be made; they share Vodafone’s views that a separate specification is needed. Intel understands that it could be decided in RAN plenary when we create the WID.

Agreements:

Introduce a new protocol for sidelink positioning procedures between UEs (name FFS, e.g., RSPP, SLPP). FFS where it is specified.

The new protocol is a separate ASN.1 module from LPP (this does not necessarily imply whether it is included in 37.355).

Proposal 5: Reuse and extend the LPP for sidelink positioning procedures between UE and LMF.

Proposal 7: Study the protocol stack for the new protocol RSPP, the alternatives include:

- Alt 1: CP-based solution, with new protocol over V2X/ProSe layer, e.g., PC5-D, PC5-S;

- Alt 2: UP-based solution, with new protocol over PC5-U.

- Alt 3: CP-based solution, with new protocol over PC5-RRC.

- Alt 4: CP-based solution, with new protocol over PDCP.

Proposal 8: For Type 1 sidelink positioning, capture the above signaling procedures into the TR as the baseline.

Proposal 9: For Type 1 sidelink positioning, the potential standard impact includes enhancing the LPP messages about Capability transfer, Assistance Data transfer, and Location Information Transfer.

Proposal 10: For Type 2 sidelink positioning, capture the above signaling procedures into the TR as the baseline.

Proposal 11: For Type 2 sidelink positioning, the potential standard impact includes new RSPP messages for the procedures between UEs, including Capability transfer, Assistance Data transfer, and Location Information Transfer.

Proposal 12: When RAN2 concludes on the standard impact, LS to SA2 if needed, e.g., on protocol stack and discovery enhancement.

Proposal 13: Study essential solutions to support the latency and efficiency requirements for sidelink positioning, the potential optimization aspects include:

- reducing the interaction and latency of configuration signaling,

- reducing unnecessary PC5 and/or Uu connection establishment,

- reducing the probability of positioning failure due to inappropriate configuration.

P8/P9/P11/P12

[R2-2207865](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207865_SLPos_Solutions_Lenovo.docx) On SL Positioning Architecture and Procedures Lenovo discussion Rel-18

Proposal 8: SL positioning to re-use some of the existing SL functionality related configuration and resource allocation.

Proposal 9: RAN2 further study the triggering mechanism and alignment of SL Positioning/ranging QoS for RAN-based procedures to meet the service requirements, since this may be different from the existing SL communication mechanism.

Proposal 11: RAN2 to further study Mode 1 coordination of SL PRS resources for one or more UEs participating in a SL positioning session (e.g., one or more anchor UEs and a target-UE).

Proposal 12: RAN2 to further study Mode 2 coordination of SL PRS resources for one or more UEs participating in a SL positioning session e.g., one or more anchor UEs and a target-UE) including at least:

• The use of pre-configured resources in out-of-coverage scenarios.

• Initiator UE (e.g., target UE) indicates the SL-PRS resource to other UEs involved in SL Pos (e.g., one or more anchor UEs) over sidelink.

[R2-2207090](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207090%20Discussion%20of%20sidelink%20positioning.docx) Discussion of sidelink positioning OPPO discussion Rel-17 FS\_NR\_pos\_enh2

[R2-2207106](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207106-SL%20positioning.doc) SL Positioning Architecture and Protocol Stack CATT discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207229](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207229.docx) Discussion of sidelink positioning procedures Nokia Germany agenda

* Revised in R2-2208685

[R2-2208685](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208685.docx) Discussion of sidelink positioning procedures Nokia, Nokia Shanghai Bell discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207286](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207286.docx) Principles for sidelink positioning MediaTek Inc. discussion Rel-18

[R2-2207388](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207388.docx) Support of sidelink positioning Intel Corporation discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207435](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207435-sl-positioning-sl.docx) On Sidelink Positioning Architecture Apple discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207486](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207486%20%28R18%20NR%20POS%20SI%20A822_SLPos%29.doc) Discussion on Sidelink Positioning InterDigital, Inc. discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207586](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207586%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning ZTE, Sanechips discussion Rel-18 NR\_pos\_enh-Core

[R2-2207684](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207684%20Discussion%20on%20potential%20solutions%20for%20SL%20positioning.docx) Discussion on potential solutions for SL positioning Spreadtrum Communications discussion Rel-18

[R2-2207828](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207828_POS_SL.docx) Considerations on sidelink positioning Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207868](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207868%20Discussion%20on%20sidelink%20positioning_final.docx) Discussion on sidelink positioning Huawei, HiSilicon discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2208080](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208080%20SL.docx) SL positioning Ericsson discussion Rel-18

[R2-2208126](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208126_%28Sidelink%20Positioning%29.docx) Study of Sidelink Positioning Architecture, Signaling and Procedures Qualcomm Incorporated discussion

[R2-2208253](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208253_Protocol%20considerations%20for%20sidelink%20positioning_clean.docx) Protocol considerations for sidelink positioning Philips International B.V. discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2208301](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208301%20Discussion%20on%20functions%20of%20LMF%20in%20SL%20positioning.docx) Discussion on functions of LMF in SL positioning Samsung discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2208320](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208320%20Discussion%20on%20OOC%20SL%20.docx) Discussion on out-of-coverage sidelink positioning Samsung R&D Institute UK discussion

[R2-2208453](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208453%20Initial%20considerations%20on%20Sidelink%20positioning.doc) Initial considerations on Sidelink positioning CMCC discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2208582](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208582%20Discussion%20on%20SL%20positioning.doc) Discussion on SL positioning Xiaomi discussion Rel-18

### 8.2.3 RAT-dependent integrity

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

[R2-2207082](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207082%20Discussion%20on%20RAT-dependent%20integrity.docx) Discussion on RAT-dependent integrity vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207107](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207107-Integrity.docx) Discussion on RAT dependent integrity CATT discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207389](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207389%20_support%20of%20RAT%20dependent%20integrity.docx) Support of RAT dependent integrity Intel Corporation discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207487](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207487%20%28R18%20NR%20POS%20SI%20A823_Integrity%29.doc) Discussion on RAT-dependent Integrity InterDigital, Inc. discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207585](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207585%20Discussion%20on%20RAT-dependent%20methods%20positioning%20integrity.docx) Discussion on RAT-dependent methods positioning integrity ZTE, Sanechips discussion Rel-18 NR\_pos\_enh-Core

[R2-2207685](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207685%20Discussion%20on%20solutions%20for%20integrity%20of%20RAT-dependent%20positioning%20techniques.docx) Discussion on solutions for integrity of RAT-dependent positioning techniques Spreadtrum Communications discussion Rel-18

[R2-2207702](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207702_Discussion%20on%20RAT-dependent%20Positioning%20%20integrity.doc) Discussion on RAT-dependent positioning integrity Lenovo discussion Rel-18

[R2-2207829](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207829_POS_Integrity.docx) Considerations on solution for integrity of RAT dependent positioning Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207869](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207869%20Discussion%20on%20RAT-dependent%20integrity_final.docx) Discussion on RAT-dependent integrity Huawei, HiSilicon discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207911](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207911%20Discussion%20on%20RAT-dependent%20positioning%20integrity.doc) Discussion on RAT-dependent positioning integrity Xiaomi discussion

[R2-2208079](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208079%20Integrity.docx) RAT-dependent integrity Ericsson discussion Rel-18

[R2-2208127](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208127_%28integrity%29.docx) Integrity of NR Positioning Technologies Qualcomm Incorporated discussion

[R2-2208318](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208318%20Discussion%20on%20integrity%20of%20RAT%20dependent%20positioning%20techniques%20.docx) Discussion on integrity of RAT dependent positioning techniques Samsung R&D Institute UK discussion

[R2-2208322](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208322%20RAT-dependent%20Positioning%20Integrity.docx) Discussion of RAT-dependent positioning integrity Nokia, Nokia Shanghai Bell discussion Rel-18 FS\_NR\_pos\_enh2

### 8.2.4 LPHAP

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

[R2-2207083](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207083%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207089](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207089%20consideration%20on%20LPHAP.docx) Consideration on LPHAP OPPO discussion Rel-17 FS\_NR\_pos\_enh2

[R2-2207111](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207111%20Discussion%20on%20LPHAP.DOCX) Discussion on LPHAP CATT discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207390](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207390%20_support%20of%20LPHAP.docx) Support of LPHAP Intel Corporation discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207436](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207436-LPHAP-v0.docx) On LPHAP Apple discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207488](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207488%20%28R18%20NR%20POS%20SI%20A824_LPHAP%29.doc) Discussion on LPHAP InterDigital, Inc. discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207584](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207584%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP ZTE, Sanechips discussion Rel-18 NR\_pos\_enh-Core

[R2-2207703](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207703_Discussion%20on%20low%20power%20high%20accuracy%20positioning.doc) Discussion on low power high accuracy positioning Lenovo discussion Rel-18

[R2-2207830](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207830_POS_LPHAP.docx) Considerations on solution for Low Power High Accuracy Positioning Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2207867](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207867%20Discussion%20on%20the%20LPHAP_final.docx) Discussion on the LPHAP Huawei, HiSilicon discussion Rel-18 FS\_NR\_pos\_enh2 Revised

[R2-2207912](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207912%20Discussion%20on%20LPHA%20Positioning.doc) Discussion on LPHA positioning Xiaomi discussion

[R2-2208078](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208078%20LPHAP.docx) Discussion on Low Power High Accuracy Positioning Ericsson discussion Rel-18

[R2-2208128](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208128_%28LPHAP%29.docx) Limitations of RRC\_INACTIVE positioning for LPHAP Qualcomm Incorporated discussion

[R2-2208180](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208180%20LPHAP.docx) Use case and area of focus for LPHAP study Nokia, Nokia Shanghai Bell discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2208454](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208454%C2%A0Initial%C2%A0considerations%C2%A0on%C2%A0LPHAP.doc) Initial considerations on LPHAP CMCC discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2208626](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208626%20Discussion%20on%20the%20LPHAP_final.docx) Discussion on the LPHAP Huawei, HiSilicon, Deutsche Telekom discussion Rel-18 FS\_NR\_pos\_enh2 R2-2207867

## 8.9 Enhanced NR Sidelink Relay

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

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

### 8.9.1 Organizational

Including incoming LSs and rapporteur inputs.

Work plan

[R2-2208345](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208345%20SL%20relay%20work%20plan.doc) Work plan for NR sidelink relay enhancements LG Electronics France Work Plan Rel-18 NR\_SL\_relay\_enh-Core

* Noted

### 8.9.2 UE-to-UE relay

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

[R2-2207126](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207126-Discovery%20and%20Relay%20selection%20for%20UE-to-UE%20relay.docx) Discovery and Relay (re-)selection for UE-to-UE relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2207077](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207077%20Discussion%20on%20NR%20sidelink%20UE%20to%20UE%20relay_clean.docx) Discussion on NR sidelink UE-to-UE relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207182](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207182%20Discussion%20on%20U2U%20relay%20discovery%20and%20relay%20selection.docx) Discussion on U2U relay discovery and relay selection Xiaomi discussion

[R2-2207198](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207198%20Discussion%20on%20U2U%20relay%20discovery%20and%20%28re%29selection.docx) Discussion on U2U relay discovery and (re)selection ZTE discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207239](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207239_Discussion%20on%20SL%20Relay%20Discovery%20and%20%28Re-%29Selection.docx) Discussion on Sidelink U2U Relay Discovery and (Re-)Selection Fraunhofer IIS, Fraunhofer HHI discussion Rel-18 NR\_SL\_relay\_enh, NR\_SL\_relay\_enh-Core

[R2-2207252](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207252%20-%20Design%20aspects%20of%20relay%20selection%20and%20reselection%20for%20U2U%20relay.docx) Design aspects of relay selection and reselection for U2U relay Ericsson discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207278](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207278_U2U_Relaying_Discovery_Reselection_Intel.docx) Discovery and reselection with UE-to-UE relaying Intel Corporation discussion Rel-18 NR\_SL\_relay-Core

[R2-2207336](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207336%20Basic%20aspects%20for%20U2U%20Relay%20work.docx) Basic aspects for U2U Relay work Lenovo discussion NR\_SL\_relay\_enh-Core Late

[R2-2207457](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207457%20Discussion%20on%20relay%20discovery%20and%20relay%20selection%20for%20U2U%20relay.doc) Discussion on U2U Relay Discovery and Relay (Re)-selection Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207520](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207520_Disussion%20on%20U2U%20relay%20discovery%20and%20%28re-%29selection.docx) Discussion on U2U Relay Discovery and (Re)selection CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207644](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207644%2BDiscussion%20on%20mechanisms%20to%20support%20UE-to-UE%20relay.doc) Discussion on mechanisms to support UE-to-UE relay China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207653](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207653-Consideration%20for%20UE-to-UE%20relay%20operation.docx) Consideration for UE-to-UE relay operation LG Electronics France discussion Rel-18

[R2-2207686](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207686.doc) Discussion on relay discovery and (re)selection for U2U relay Spreadtrum Communications discussion Rel-18

[R2-2207729](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207729%20Overall%20view%20on%20U2U%20sidelink%20relay_final.doc) Overall views on U2U sidelink relay Samsung R&D Institute UK discussion

[R2-2207838](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207838.doc) UE-to-UE relay cell reselection and Relay UE DRX Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2207860](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207860_U2U_relay_scenario.doc) Scenarios that require UE-to-UE relay (re)selection Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207861](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207861_U2U_relay_discussion.doc) UE-to-UE relay discovery and (re)selection Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208005](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208005%20-%20L2%20and%20L3%20U2U%20relays.docx) Clarifications on the scope of SL based U2U Relay Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208041](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208041_U2U_discovery.doc) Initial considerations for U2U relay discovery and (re)selection Kyocera discussion

[R2-2208083](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208083_Discussion%20on%20L2%20and%20L3%20U2U%20relay.docx) Discussion on L2 and L3 U2U relay vivo discussion

[R2-2208151](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208151%20%28R18%20SL%20Relay%20WI_AI892%20RelayDiscoverySelection%29.doc) Discovery and Relay Selection for UE-to-UE Relays InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208427](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208427%20Consideration%20on%20U2U%20relay.docx) Consideration on U2U relay CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208489](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208489%20Discussion%20on%20UE-to-UE%20relay.doc) Discussion on UE-to-UE relay Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

Contributions on L2-specific topics (will not be treated at this meeting).

[R2-2207170](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207170%20Connection%20management%20and%20procedures%20for%20L2%20UE-to-UE%20relay.docx) Connection management and procedures for L2 UE-to-UE relay MediaTek Inc. discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208039](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208039_U2U_CP.docx) Initial considerations for U2U L2 relay CP operations Kyocera discussion

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

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

[R2-2207220](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207220_Service%20continuity%20for%20L2%20U2N%20relays.docx) Service Continuity Enhancements for Layer-2 UE-to-Network Relays Ericsson España S.A. discussion Rel-18

[R2-2208082](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208082_On%20service%20continuity%20enhancement%20for%20L2%20U2N%20relay.docx) On service continuity enhancement for L2 U2N relay vivo discussion

[R2-2207078](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207078%20Discussion%20on%20further%20enhancement%20of%20service%20continuity_clean.docx) Discussion on further enhancement of U2N service continuity OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207133](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207133-Service%20continuity%20for%20UE-to-Network%20relay-r1.docx) Service continuity for UE-to-Network relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2207169](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207169%20Service%20Continuity%20Enhancement%20for%20Sidelink%20Relay.docx) Service Continuity Enhancement for Sidelink Relay MediaTek Inc. discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207181](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207181%20Discussion%20on%20service%20continuity%20enhancement.docx) Discussion on service continuity enhancement Xiaomi discussion

[R2-2207199](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207199%20Discussion%20on%20the%20service%20continuity%20enhancement%20for%20SL%20relay.doc) Discussion on Service continuity enhancement for U2N relay ZTE discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207279](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207279_Service%20continuity%20enhancements%20for%20L2%20U2N%20relaying.docx) Service continuity enhancements for L2 U2N relaying Intel Corporation discussion Rel-18 NR\_SL\_relay-Core

[R2-2207420](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207420%20-%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

[R2-2207521](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207521%20Service%20Continuity%20Enhancements%20for%20L2%20U2N%20Relay.docx) Service Continuity Enhancements for L2 U2N Relay CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207642](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207642%20Discussion%20on%20service%20continuity%20enhancements%20for%20L2%20U2N%20relay.docx) Discussion on service continuity enhancements for L2 U2N relay China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207652](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207652%20Service%20continuity%20enhancements%20for%20L2%20U2N%20relay.docx) Service continuity enhancements for L2 U2N relay LG Electronics France discussion Rel-18

[R2-2207687](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207687%20Service%20continuity%20enhancements%20support%20for%20L2%20U2N%20relay.doc) Service continuity enhancements support for L2 U2N relay Spreadtrum Communications discussion Rel-18

[R2-2207700](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207700_Discussion%20on%20Service%20continuity%20in%20U2N%20relay%20case%20v1.1.docx) Discussion on Service continuity in U2N relay case Lenovo discussion Rel-18

[R2-2207839](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207839.doc) Service continuity enhancements for UE sidelink relay Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2207963](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207963%20Considerations%20on%20Service%20Continuity%20Enhancement.docx) Considerations on Service Continuity Enhancement NEC Corporation discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208006](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208006%20Draft%20L2%20U2N%20relay%20service%20continuity%20enhancement.docx) Discussion on service continuity enhancement for L2 U2N relay Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208158](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208158%20U2N%20Relay%20UE%20operation%20Threshold%20Conditions%20-%20Impact%20of%20UE%20Mobility%20Final.doc) U2N Relay UE operation Threshold Conditions: Impact of UE Mobility Philips International B.V. discussion Rel-18 NR\_SL\_relay\_enh-Core R2-2109823

[R2-2208229](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208229%20Discussion%20on%20service%20continuity.docx) Discussion on Service Continuity Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208260](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208260%20Service%20continuity%20enhancement%20for%20L2%20U2N%20relay_r2.doc) Service continuity enhancement for L2 U2N relay Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208428](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208428%20Service%20continuity%20for%20U2N%20relay.docx) Service continuity on U2N relay CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

### 8.9.4 Multi-path relaying

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

[R2-2208349](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208349%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

Proposal 1: Multi-path relaying can offer the following benefits:

A. The relay UE in proximity may provide better Uu link quality than the remote UE e.g. for delay-insensitive traffic.

B. Multi-path relaying can provide efficient path switching between direct path and indirect path without RRC reconfiguration, i.e. path reselection can be achieved with low RRC signalling overhead and low delay.

C. The remote UE already having a PC5 unicast link with the relay UE (e.g. due to V2X communication) can provide enhanced user data throughput without simultaneous support of CA/DC capability and sidelink capability in the band combination.

D. gNB can offload the direct connection of the remote UE in congestion to indirect connection via the relay UE (e.g. at different intra/inter-frequency cells) or vice versa while keeping delay-sensitive traffic on the direct connection.

Discussion:

OPPO tend to agree that these benefits are valid, but on the other hand think some of them are already there in Rel-17 (e.g. bullet A). They see bullets B and D as more valid for multi-path, and C could be updated to clarify that the links are separate and therefore the additional link establishment would be required.

Xiaomi also think there is benefit, but the detailed solution may need further discussion. They see an assumption in bullet B (“without RRC reconfiguration”) that seems solution-dependent. Also, they think the mention of delay-sensitive traffic in A and D is a network limitation.

vivo think we don’t have to spend too much discussion on this and companies acknowledge that we have benefits.

InterDigital are also generally accepting of capturing the benefits in a bit more general way. On D, they think this applies for multi-path, and in general they think all of them apply to multi-path, as opposed to Rel-17 which is more about a UE out of coverage.

Agreement:

RAN2 anticipate benefits from multi-path in the following areas:

1. Relay and direct multi-path operation (including both scenarios 1 and 2) can provide efficient path switching between direct path and indirect path
2. The remote UE in multi-path operation can provide enhanced user data throughput and reliability compared to a single link
3. gNB can offload the direct connection of the remote UE in congestion to indirect connection via the relay UE (e.g. at different intra/inter-frequency cells)

Proposal 2: Support the following cell deployment scenarios for multi-path relaying in Rel-18:

- Scenario C1: The relay UE and remote UE are served by a same cell.

- Scenario C2: The relay UE and remote UE are served by different intra-frequency cells of a same gNB

- Scenario C3: The relay UE and remote UE are served by different inter-frequency cells of a same gNB

Proposal 3: Support the following sidelink scenarios for multi-path:

- Scenario S1: SL TX/RX and Uu share the same carrier at the remote UE.

- Scenario S2: SL TX/RX and Uu use different carriers at the remote UE.

- Scenario S3: SL TX/RX and Uu share the same carrier at the relay UE.

- Scenario S4: SL TX/RX and Uu use different carriers at the relay UE.

Discussion:

OPPO think on P3, SL has no relationship with DL because the resources are always for UL.

vivo understand that these proposals are specific to scenario 1. Chair understands this is correct for P3 but P2 can be agnostic.

CMCC would like to clarify that we can consider changing the terms for scenario 2 in the future. Chair understands that we could revisit terminology.

Nokia wonder if P2 is specific to the L2 architecture. Chair understands it includes scenario 2 but not L3.

Agreements:

The terms “relay UE” and “remote UE” are used for scenarios 1 and 2. FFS if we would use additional terms specific to scenario 2.

Proposal 2: Support the following cell deployment scenarios for multi-path relaying in Rel-18:

- Scenario C1: The relay UE and remote UE are served by a same cell.

- Scenario C2: The relay UE and remote UE are served by different intra-frequency cells of a same gNB

- Scenario C3: The relay UE and remote UE are served by different inter-frequency cells of a same gNB

Proposal 3: Support the following sidelink scenarios for multi-path:

- Scenario S1: SL TX/RX and Uu share the same carrier at the remote UE.

- Scenario S2: SL TX/RX and Uu use different carriers at the remote UE.

- Scenario S3: SL TX/RX and Uu share the same carrier at the relay UE.

- Scenario S4: SL TX/RX and Uu use different carriers at the relay UE.

Proposal 4: Support multi-path operation of configuring both indirect path via one L2 U2N Relay UE and direct path for the same gNB.

Proposal 5: Support direct bearer, indirect bearer, and MP split bearer which uses both direct and indirect path based on the existing split bearer framework.

Proposal 6: For a MP split bearer, one PDCP entity is configured with one direct RLC channel and one indirect RLC channel.

- For upstream, a UL TX PDCP entity is configured with a UL TX RLC entity and a SL TX RLC entity with SRAP entity in the remote UE side.

- For downstream, a DL RX PDCP entity can be configured with a DL RX RLC entity and a SL RX RLC entity with SRAP entity in the remote UE side.

Discussion:

OPPO think there are several terms in P5 that are not defined. They also note that P6 is a bit unclear about Uu vs. PC5 RLC, and today we do not differentiate between UL and DL entities.

MediaTek have a terminology concern: Currently the term is “multi-path relay” (e.g. in the agreements above on benefits), which they think is not correct since there is no relay on the direct path.

CMCC agree with MediaTek and think we could just speak of “multi-path”, as they do not see a “relay” function in scenario 2. On P6, they agree in principle, but they think for scenario 2 we should leave the use of SRAP open. vivo agree with CMCC.

Ericsson think P5 can be more clearly worded. For P6, they understand that when we talk about PDCP mapping to the RLC entity, there is some confusion as PDCP is e2e but RLC is hop-by-hop.

Huawei are OK with the current wording of the agreements in general, but for P6, they think we should not speak of separate configuration for UL and DL.

Agreements:

Support direct bearer (bearer mapped to direct path on Uu), indirect bearer (bearer mapped to indirect path via relay UE), and MP split bearer (bearer mapped to both paths, based on the existing split bearer framework).

For a MP split bearer in scenario 1, one PDCP entity at the remote UE is configured with one direct Uu RLC channel and one indirect PC5 RLC channel.

- For upstream, a PDCP entity delivers to a Uu RLC entity and a PC5 RLC entity with SRAP entity in the remote UE side.

- For downstream, a PDCP entity receives from a Uu RLC entity and a PC5 RLC entity with SRAP entity in the remote UE side.

FFS if we need to take decisions on the mapping of protocol entities in scenario 2.

Proposal 7: Multi-path relaying can be configured by:

• configuring direct/split bearers in case that indirect bearers has been already established; or

• configuring indirect/split bearers in case that direct bearers has been already established; or

• simultaneously configuring different types of bearers i.e. direct/indirect/split bearers

Proposal 8: Support PDCP duplication over direct path and indirect path

Proposal 9: Support SL mode 1 for the remote UE configured with multi-path relaying.

Proposal 10: The SRAP layer is used for indirect path via Layer-2 UE-to-Network relay (i.e. Scenario 1) as specified in Rel-17. FFS whether the SRAP layer can be also used for indirect path based on Scenario 2.

Proposal 11: Pursue commonality between scenario 1 and scenario 2 and identify potential different aspects between scenario 1 and scenario 2 and any specification impact during the study.

[R2-2207015](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207015%20-%20Discussion%20on%20multi-path%20Relay_V0.2.docx) Discussion on multi-path SL relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

Proposal 1 For Scenario-1 of multi-path relay, allow the deployment scenario where the frequency used for PC5 between remote and relay UE, for Uu between remote UE and gNB, and for Uu between relay UE and gNB, are the same or different.

Proposal 2 For scenario-1 of multi-path relay, R2 does not pursue applying multi-path relay to the procedures of SIB delivery, paging delivery, RRC setup / resume and re-establishment.

Proposal 3 For scenario-1 of multi-path Relay, R2 focus on the application of multi-path relay to RRC\_CONNECTED UEs only, i.e., after RRC setup / resume / re-establishment procedure.

Discussion:

Qualcomm understand the intention of P2/P3, but think that the remote UE still needs to receive SI and paging, perform re-establishment, etc. They think we could introduce “primary path” terminology and specify that these procedures happen only on the primary path.

Xiaomi think on P2, we should not exclude multi-path operation for SI and paging, but excluding setup/resume/re-establishment is OK.

Ericsson have a similar understanding to Xiaomi. If both paths connect to different cells, the SI and paging may be needed.

Nokia have a similar view on SI and paging, and for resume/re-establishment, they think it is early to agree without seeing the solutions. They point out that reliability is part of the objectives.

OPPO intended with P2 that we would not do additional work compared to what is supported in Rel-17.

InterDigital have a concern on P3 and think it is a bit early to conclude without discussing how the multi-path configuration is maintained.

Proposal 4 For Scenario-1 of multi-path relay, R2 studies the solution relying on PDCP layer to aggregate the two paths.

Proposal 5 For scenario-1 of multi-path relay, R2 studies the solution where the usage of single-path (via direct or via indirect path) and multi-path (via both direct and indirect) is configured in a per-bearer manner.

Proposal 6 For Scenario-1 of multi-path relay, R2 de-prioritizes the multi-path-to-multi-path change.

Proposal 7 For Scenario-1 of multi-path Relay, R2 discusses whether to cover cases of 1b (direct path is changed, indirect path is added), 2b (indirect path is changed, direct path is added), 3b (direct path is changed, indirect path is released) and 4b (indirect path is changed, direct path is released).

Proposal 8 For Scenario-1 of multi-path Relay, for case-1a (direct path is kept, indirect path is added) and 3a (direct path is kept, indirect path is released), support indirect path addition / release (i.e., establish/release PC5 SRAP/RLC/MAC/PHY) without releasing direct path.

Proposal 9 For Scenario-1 of multi-path Relay, for case-2a (indirect path is kept, direct path is added) and 4a (indirect path is kept, direct path is released), support direct path addition / release (i.e., establish/release Uu RLC/MAC/PHY) without releasing indirect path.

Proposal 10 For Scenario-1 of multi-path Relay, RAN2 discusses to support the SP-from/to-MP change without and with PCell change by reusing ReconfigurationWithSync signaling.

Proposal 11 For Scenario-1 of multi-path Relay, RAN2 not purse the concept of primary / secondary path / bearer before the motivation / definition is clarified.

Proposal 12 For Scenario-2 of multi-path relay, allow the deployment scenario where the frequency used for Uu between remote UE and gNB, and for Uu between relay UE and gNB, are same or different.

Proposal 13 For scenario-2 of multi-path relay, R2 does not pursue applying multi-path relay to the procedures of SIB delivery, paging delivery, RRC setup / resume and re-establishment.

Proposal 14 For scenario-2 of multi-path Relay, R2 focus on the application of multi-path relay to RRC\_CONNCTED UEs only, i.e., after RRC setup / resume / re-establishment procedure.

Proposal 15 For scenario-2 of multi-path Relay, reuse the same stack as for scenario-1, i.e., SRAP on top of inter-UE connection to carry data from PDCP and above layers.

Proposal 16 For Scenario-2 of multi-path relay, R2 studies the solution relying on PDCP layer to aggregate the two paths.

Proposal 17 For scenario-2 of multi-path relay, R2 studies the solution where the usage of single-path (via direct or via indirect path) and multi-path (via both direct and indirect) is configured in a per-bearer manner.

Proposal 18 For Scenario-2 of multi-path relay, R2 de-prioritizes the multi-path-to-multi-path change.

Proposal 19 For Scenario-2 of multi-path Relay, R2 discusses whether to cover cases of 1b (direct path is changed, indirect path is added), and 3b (direct path is changed, indirect path is released).

Proposal 20 For Scenario-2 of multi-path relay, R2 does not pursue the case of single path via indirect connection, i.e., the single-path, if used, has to be on direct connection.

Proposal 21 For Scenario-2 of multi-path Relay, to support the case-1a (direct path is kept, indirect path is added) and 3a (direct path is kept, indirect path is released), support indirect path addition / release (i.e., establish/release PC5 SRAP) without releasing direct path. The configuration of non-3GPP lower layer is left to UE implementation.

Proposal 22 For Scenario-2 of multi-path Relay, only support the SP-from/to-MP change without PCell change.

Proposal 23 For Scenario-2 of multi-path Relay, RAN2 not purse the concept of primary / secondary path / bearer before the motivation / definition is clarified.

P1/P2/P6

[R2-2208429](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208429%20Multi-path%20and%20UE%20aggregation.docx) Multi-path and UE aggregation CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

Proposal 1: RAN2 can confirm the justifiable benefits that multi-path with relay and UE aggregation can improve the throughput and reliability/robustness for UE at the edge of a cell, and UE with limited UL transmission power.

Discussion:

ZTE are fine with P1 but want to emphasise that if we consider the cell edge scenario, the UE may start with the indirect path, so they think this scenario should be allowed.

Ericsson think the UE transmission power point is not identified in the WID. Chair understands the proposal relates to a case where the throughput and reliability benefits are available.

InterDigital agree with the proposal and with the chair’s statement.

Apple think the edge of cell case is covered by the earlier agreement, so the difference is just the UL transmit power case.

CMCC think the UE at cell edge has challenges with uplink throughput, and they see this as an issue for real networks.

Agreement:

RAN2 can confirm the justifiable benefits that multi-path with relay and UE aggregation can improve the throughput and reliability/robustness, e.g., for UE at the edge of a cell, and UE with limited UL transmission power.

Proposal 2: For SI phase, RAN2 should reach consensus on the scope of Work Item, which includes the issues list and priority, and inform other work group if any impacts.

 Study the protocol stack to support UE with one gNB, where PDCP or PDCP-sub is operating in one of the UEs (and the gNB)；(high)

 Link establishment procedure (e.g. Setup/Modification/Release) for control of the (multi link) Radio Bearer for the aggregated UEs and Relay UE/Remote UEs; (high)

 Authorization and association mechanism

 Phase 1: Just considering the relationship between anchor UE and aggregated UE is relative static and can be pre-configured (high)

 Phase 2: Study some other cases, that is, the UE reports the association with other UEs to network, or the network (RAN or CN) may configure the association amongst UEs, where the SA2/CT1 work is possible to be involved. (low)

 Coordinated mobility for the aggregated UEs and Relay UEs; (low)

Discussion:

Chair asks specifically about the bullets on the association mechanism.

OPPO think it is difficult to conclude on this in limited time, and they think we cannot draw any immediate conclusion on the priority.

Qualcomm think for the UE aggregation scenario, we should reuse the scenario 1 mechanisms as much as possible, and identify which ones cannot be reused.

Proposal 6: RAN2 should down select one UP protocol stack for UE aggregation from DAPS-like and DC-like, without consideration on the introduction of SRAP for UE aggregation.

* [AT119-e][427][Relay] Handling of scenarios 1 and 2 (LG)

 Scope: Discuss the relation of scenarios 1 and 2 (including organisation/prioritisation of work and P2 of R2-2208429).

 Intended outcome: Report to CB session

 Deadline: Tuesday 2022-08-23 1200 UTC

[R2-2207137](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207137-Initial%20discussion%20on%20multi-path%20operation%20for%20UE-to-Network%20relay-r2.docx) Initial discussion on multi-path operation for UE-to-Network relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2207180](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207180%20Discussion%20on%20multi-path.docx) Discussion on multi-path Xiaomi discussion

[R2-2207187](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207187%20Initial%20consideration%20on%20multi-path%20relaying.docx) Initial consideration on the multi-path relaying ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207221](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207221_Multipath%20support%20with%20direct%20path%20and%20indirect%20path.docx) Multipath Support with Direct path and Indirect path Ericsson España S.A. discussion Rel-18

[R2-2207280](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207280_Discussion%20on%20Multi-path%20Relaying_Intel.docx) Discussion on Multi-path Relaying Intel Corporation discussion Rel-18 NR\_SL\_relay-Core

[R2-2207361](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207361%20Multipath%20support%20for%20remote%20UE%20v02.docx) Multipath support for remote UE MediaTek Beijing Inc. discussion Rel-18

[R2-2207458](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207458%20Discussion%20on%20multi-path%20support.doc) Discussion on multi-path support Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207522](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207522_Discussion%20on%20Multi-path.docx) Discussion on Multi-path CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207643](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207643%20Discussion%20on%20multi-path%20support%20to%20enhance%20reliability%20and%20throughput.docx) Discussion on multi-path support to enhance reliability and throughput China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207688](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207688%20Discussion%20on%20multi-path%20relaying.doc) Discussion on multi-path relaying Spreadtrum Communications discussion Rel-18

[R2-2207701](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207701.docx) Discussion on Multi-path relaying Lenovo discussion Rel-18

[R2-2207840](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207840.doc) Multi-path relaying discussion Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2207847](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207847_SLRelay_Multipath_v1.doc) Discussion on multipath for sidelink relay enhancement Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207862](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207862_multi-path_relay.doc) benefit of multi-path relay Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2207964](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207964%20Considerations%20on%20Multipath%20of%20Sidelink%20Relay.docx) Considerations on Multipath of Sidelink Relay NEC Corporation discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208081](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208081_%20Multi-path%20UE%20aggregation%20on%20PC5%20and%20Ideal-link.docx) Multi-path UE aggregation on PC5 and Ideal-link vivo discussion

[R2-2208152](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208152%20%28R18%20SL%20Relay%20WI_AI894%20MultipathArchitecture%29.doc) Scenarios, Use Cases, and Protocol Architecture for Multi-path InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208153](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208153%20%28R18%20SL%20Relay%20WI_AI894%20MultipathAspects%29.doc) Design Aspects for Multi-path InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208154](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208154%20Considerations%20on%20reliability%20and%20throughput%20for%20multi-path.docx) Considerations on reliability and throughput for multi-path Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2208488](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208488%20Discussion%20on%20Rel-18%20multi-path%20via%20SL%20relay%20and%20UE%20aggregation.docx) Discussion on Rel-18 multi-path via SL relay and UE aggregation Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

## 8.15 R18 Other

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

Time budget: 0.5 TU

Tdoc Limitation: -

[R2-2207167](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207167%20CR%20on%2038331%20for%20SFN-DFN%20offset%20and%20PosSIB%20request.docx) CR on 38331 for SFN-DFN offset and PosSIB request MediaTek Inc. CR Rel-17 38.331 17.1.0 3226 - B TEI18

[R2-2207168](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207168%20Positioning%20support%20for%20remote%20UEs.docx) Positioning support for remote UEs MediaTek Inc. discussion Rel-18 TEI18

[R2-2207287](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207287.docx) Positioning support for remote UEs MediaTek Inc., CATT discussion Rel-18 TEI18 Revised

* Revised in R2-2208314

[R2-2207288](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207288.docx) Downlink positioning support and posSIB request for L2 UE-to-network remote UE MediaTek Inc., CATT CR Rel-18 38.331 17.1.0 3245 - C TEI18 Revised

* Revised in R2-2208315

[R2-2207289](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207289.docx) Indication to LMF of operation as a L2 UE-to-network remote UE MediaTek Inc., CATT CR Rel-18 37.355 17.1.0 0357 - C TEI18 Revised

* Revised in R2-2208317

[R2-2207290](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2207290.docx) Positioning method support for L2 UE-to-network remote UE MediaTek Inc., CATT CR Rel-18 38.305 17.1.0 0104 - C TEI18 Revised

* Revised in R2-2208319

[R2-2208314](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208314.docx) Positioning support for remote UEs MediaTek Inc., CATT, Huawei, HiSilicon discussion Rel-18 TEI18 R2-2207287

[R2-2208315](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208315.docx) Downlink positioning support and posSIB request for L2 UE-to-network remote UE MediaTek Inc., CATT, Huawei, HiSilicon CR Rel-18 38.331 17.1.0 3245 1 C TEI18 R2-2207288

[R2-2208317](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208317.docx) Indication to LMF of operation as a L2 UE-to-network remote UE MediaTek Inc., CATT, Huawei, HiSilicon CR Rel-18 37.355 17.1.0 0357 1 C TEI18 R2-2207289

[R2-2208319](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202208%20-%20RAN2_119-e%2C%20Online%5CExtracts%5CR2-2208319.docx) Positioning method support for L2 UE-to-network remote UE MediaTek Inc., CATT, Huawei, HiSilicon CR Rel-18 38.305 17.1.0 0104 1 C TEI18 R2-2207290