3GPP TSG-RAN WG2 Meeting #127 R2-24xxxxx

Maastricht, Netherlands, 19-23 August 2024

Source: Session Chair (MediaTek)

Title: Report from session on positioning and sidelink relay

# 4 EUTRA Rel-17 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 related to positioning are in scope but not listed explicitly (long list).

Tdoc Limitation: 1 tdoc

R2-2406288 Correction on SBAS and GNSS ID for posSIB-r15 Huawei, HiSIlicon CR Rel-15 36.331 15.22.0 5036 - F LCS\_LTE\_acc\_enh-Core

* Not pursued

[R2-2406289](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406289%20Correction%20to%20SBAS%20and%20GNSS%20ID%20for%20posSIB-r16_v00.docx) Correction on SBAS and GNSS ID for posSIB-r16 Huawei, HiSIlicon CR Rel-16 36.331 16.16.0 5037 - A LCS\_LTE\_acc\_enh-Core

* Not pursued

[R2-2406290](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406290%20Correction%20to%20SBAS%20and%20GNSS%20ID%20for%20posSIB-r17_v00.docx) Correction on SBAS and GNSS ID for posSIB-r17 Huawei, HiSIlicon CR Rel-17 36.331 17.9.0 5038 - A LCS\_LTE\_acc\_enh-Core

* Not pursued

[R2-2406291](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406291%20Correction%20to%20SBAS%20and%20GNSS%20ID%20for%20posSIB-r18_v00.docx) Correction on SBAS and GNSS ID for posSIB-r18 Huawei, HiSIlicon CR Rel-18 36.331 18.2.0 5039 - A LCS\_LTE\_acc\_enh-Core

* Not pursued

Discussion:

Lenovo think the changes as such are OK, but there may be some other fields that are Need OP without procedural descriptions and maybe should be Need OR. Ericsson think the reference to 36.355/37.355 is enough to clarify the behaviour on absence, and they think we should not take the CR going back to Rel-15 for fear of opening a Pandora’s box.

Intel agree with Ericsson and think this CR relates to how the CN sets the parameters; they see nothing broken if we leave it open and assume the CN will do the right thing.

Huawei think it is not just network behaviour and the UE should be able to know when it does not receive a correct configuration.

MediaTek think it is useful to the UE to know what configurations are not expected.

Intel think we should have a high bar for Rel-15 changes, although they agree that the change is correct. ZTE agree with Intel that we should not start from Rel-15; they recall that we started from Rel-17 in NR and we could do the same here.

Qualcomm think either we go from Rel-15 or Rel-18. Huawei think it is a little strange if we have different need codes in different releases.

Lenovo think we either go from Rel-15 or do nothing and rely on network implementation.

ZTE would prefer to do nothing since it is a network implementation issue.

Nokia think we could handle it in the field description. Huawei think the current field should have a description of UE behaviour on absence to fulfil the Need OP.

Agreement:

RAN2 understand that the UE may assume the network will set the sbas-ID if and only if the gnss-ID is set to sbas.

# 5 NR Rel-15 and Rel-16

Essential corrections only.

Tdoc Limitation: 2 tdocs in total for all sub agenda items NOTE: some agenda items have additional Tdoc limits.

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

## 5.3 NR Positioning Support

(NR\_newRAT-Core; leading WG: RAN1; REL-15; started: Mar. 17; closed: Jun. 19: WID: [RP-191971](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_85/Docs/RP-191971.zip))

(NR\_pos-Core; leading WG: RAN1; REL-16; started: Mar 19; target; Jun 20; WID: [RP-200218](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_87e/Docs/RP-200218.zip)).

(NR TEI16 Positioning)

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.

Tdoc Limitation: 1 tdoc

[R2-2406295](file:///C%3A%5C%5CUsers%5C%5Cmtk16923%5C%5CDocuments%5C%5C3GPP%20Meetings%5C%5C202408%20-%20RAN2_127%2C%20Maastricht%5C%5CExtracts%5C%5CR2-2406295%20Correction%20on%20SP%20positioning%20SRS%20MAC%20CE-r16.docx%22%20%5Co%20%22C%3AUsersmtk16923Documents3GPP%20Meetings202408%20-%20RAN2_127%2C%20MaastrichtExtractsR2-2406295%20Correction%20on%20SP%20positioning%20SRS%20MAC%20CE-r16.docx) Correction on SP positioning SRS MAC CE Huawei, HiSIlicon CR Rel-16 38.321 16.16.0 1876 - F NR\_pos-Core

* Not pursued

[R2-2406296](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406296%20Correction%20on%20SP%20positioning%20SRS%20MAC%20CE-r17.docx) Correction on SP positioning SRS MAC CE Huawei, HiSIlicon CR Rel-17 38.321 17.9.0 1877 - A NR\_pos-Core

* Not pursued

[R2-2406297](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406297%20Correction%20on%20SP%20positioning%20SRS%20MAC%20CE-r18.docx) Correction on SP positioning SRS MAC CE Huawei, HiSIlicon CR Rel-18 38.321 18.2.0 1878 - A NR\_pos-Core

* Not pursued (but editorial changes can be captured as described below)

Discussion:

vivo are OK with the editorial change, but they think the A/D change is not needed and the spec is already clear. Huawei think the change is needed to align with other parts of the spec that capture this condition explicitly.

Samsung agree with vivo and think the second change is not needed. CATT have the same view and think the description of the C field already makes this clear. Ericsson agree with CATT and think the spelling mistakes should be handled in a MAC rapporteur CR if at all.

Intel think editorial changes should be done by the spec rapporteur.

CATT think we could merge the editorial changes to the Rel-18 CR.

Agreement:

Editorial changes from R2-2406297 can be merged into the Rel-18 MAC rapporteur CR.

# 6 NR Rel-17

Essential corrections only. Editorial/clarifications should be sent to be reviewed and approved by spec rapporteurs prior to submission. Editorials should only be submitted by spec rapporteurs.

## 6.2 NR Sidelink relay

(NR\_SL\_Relay-Core; leading WG: RAN2; REL-17; WID: [RP-212601](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_93e/Docs/RP-212601.zip))

Tdoc Limitation: 1 tdoc

R2-2406948 Correction on T300 and T302 handling due to relay selection or cell selection Huawei, HiSilicon CR Rel-17 38.331 17.9.0 4905 - F NR\_SL\_relay-Core

* “if relay (re)selection or cell selection” to be replaced with “if relay (re)selection, or cell selection by a L2 U2N Remote UE,”
* “cell selection” in table to be replaced with “cell selection by a L2 U2N Remote UE”
* Agreed with this change as R2-2407724

[R2-2406949](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406949%20Correction%20on%20T300%20and%20T302%20handling%20due%20to%20relay%20selection%20or%20cell%20selection%20%28Rel-18%29.docx) Correction on T300 and T302 handling due to relay selection or cell selection Huawei, HiSilicon CR Rel-18 38.331 18.2.0 4906 - A NR\_SL\_relay-Core

* “if relay (re)selection or cell selection” to be replaced with “if relay (re)selection, or cell selection by a L2 U2N Remote UE,”
* “cell selection” in table to be replaced with “cell selection by a L2 U2N Remote UE”
* Agreed with this change as R2-2407725

Discussion:

Apple wonder if this would change legacy UE behaviour. Chair thinks the affected scenario cannot occur without a relay. Ericsson think that once the remote UE connects to the cell, it could select a relay, but a legacy UE cannot. Huawei are OK to clarify but think it can only affect a L2 U2N remote UE.

Xiaomi agree with the intention but think it is difficult to differentiate the normal UE and remote UE; they would be OK with a coversheet clarification.

Nokia think we need clarification in the spec and the coversheet is not enough.

Chair suggests “if relay (re)selection, or cell selection by a L2 U2N remote UE, occurs”.

Qualcomm think it might be covered already by legacy procedures.

[R2-2407270](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407270%20-%20RRC%20Correction%20on%20NR%20SL%20U2N%20Relay%20UE%20selection%20and%20reselection%20procedure%20R17.docx) RRC correction on NR SL U2N Relay UE selection and reselection procedure Philips International B.V., NEC CR Rel-17 38.331 17.9.0 4938 - F NR\_SL\_relay-Core

* Change to add the sl-RemoteUE-ConfigCommon instead of the IE name
* Agreed with this change as R2-2407726

[R2-2407272](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407272%20-%20RRC%20Correction%20on%20NR%20SL%20U2N%20Relay%20UE%20selection%20and%20reselection%20procedure%20R18.docx) RRC correction on NR SL U2N Relay UE selection and reselection procedure Philips International B.V., NEC CR Rel-18 38.331 18.2.0 4939 - A NR\_SL\_relay-Core

* Change to add the sl-RemoteUE-ConfigCommon instead of the IE name
* Agreed with this change as R2-2407727

Discussion:

Huawei agree with the intention but think we could remove the parent field names instead of adding an IE name, and just say “below threshHighRemote”.

Apple think we could add an “or” case for the inactive field name. Huawei agree this would be more clear.

[R2-2407495](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407495%20Corrections%20for%20SL%20relay%20measurements-r17-v1.docx) Corrections for SL relay measurements ZTE Corporation, Sanechips, Apple, OPPO, Nokia CR Rel-17 38.331 17.9.0 4956 - F NR\_SL\_relay-Core

* Revised in R2-2407728 (change addition in NOTE to normative text)

[R2-2407496](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407496%20Corrections%20for%20SL%20relay%20measurements-mirror.docx) Corrections for SL relay measurements ZTE Corporation, Sanechips, Apple, OPPO, Nokia CR Rel-18 38.331 18.2.0 4957 - A NR\_SL\_relay-Core

* Revised in R2-2407729

Discussion:

Huawei understand the intention is to include the serving relay case for the L3 filtering, and they see the change to the NOTE as being more like normative behaviour. Apple think we could try to render it as normative text.

* [AT127][407][Relay] Corrections for Rel-17 SL relay measurements (ZTE)

 Scope: Update R2-2407495 and R2-2407496 to change the addition in the NOTE into normative text.

 Intended outcome: Agreeable CRs in R2-2407728 and R2-2407729

 Deadline: Wednesday 2024-08-21 1900 CET

## 6.4 NR positioning enhancements

(NR\_pos\_enh-Core; leading WG: RAN1; REL-17; WID: [RP-210903](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_91e/Docs/RP-210903.zip))

Tdoc Limitation: 1 tdoc

[R2-2406298](file:///C%3A%5C%5CUsers%5C%5Cmtk16923%5C%5CDocuments%5C%5C3GPP%20Meetings%5C%5C202408%20-%20RAN2_127%2C%20Maastricht%5C%5CExtracts%5C%5CR2-2406298%20Correction%20on%20PPW%20for%20MAC%20spec-r17.docx%22%20%5Co%20%22C%3AUsersmtk16923Documents3GPP%20Meetings202408%20-%20RAN2_127%2C%20MaastrichtExtractsR2-2406298%20Correction%20on%20PPW%20for%20MAC%20spec-r17.docx) Correction on PPW for MAC spec Huawei, HiSIlicon CR Rel-17 38.321 17.9.0 1879 - F NR\_pos\_enh-Core

* Not pursued

[R2-2406299](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406299%20Correction%20on%20PPW%20for%20MAC%20spec-r18.docx) Correction on PPW for MAC spec Huawei, HiSIlicon CR Rel-18 38.321 18.2.0 1880 - A NR\_pos\_enh-Core

* Not pursued

Discussion:

Ericsson think the priority language is needed in the MAC spec, and we should not change it without consulting RAN1.

vivo think the current spec is correct and clear. Nokia think the priority logic needs to be captured somewhere and we should not delete the check unless it is incorrect. Intel agree that there is no need to remove the condition.

ZTE think the MAC condition is correct and there is no need to mention the type.

CATT agree with ZTE that type is not needed here.

Huawei think the condition is not useful and the MAC implementation does not need to check the priority, because PHY will already do it.

[R2-2406788](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406788%20Correction%20on%20SP%20SRS%20activation%20deactivation%20MAC%20CE%28R17%29.docx) Correction on SP SRS activation/deactivation MAC CE ZTE Corporation, Ericsson CR Rel-17 38.321 17.9.0 1840 1 F NR\_pos\_enh-Core R2-2404625

* “last serving cell from where Positioning SRS configuration was received while in RRC\_CONNECTED” to be replaced with “cell from which positioning SRS configuration was received”
* Agreed with this change as R2-2407716

[R2-2406789](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406789%20Correction%20on%20SP%20SRS%20activation%20deactivation%20MAC%20CE%28R18%29.docx) Correction on SP SRS activation/deactivation MAC CE ZTE Corporation, Ericsson CR Rel-18 38.321 18.2.0 1841 1 A NR\_pos\_enh-Core R2-2404626

* Agreed with the same changes as under R2-2406788, as R2-2407717

[R2-2406790](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406790%20Discussion%20on%20DL%20MAC%20CE%20in%20Rel-17%20and%20Rel-18%20SP%20SRS%20in%20RRC_INACTIVE.docx) Discussion on DL MAC CE in Rel-17 and Rel-18 SP SRS in RRC\_INACTIVE ZTE Corporation, Ericsson discussion Rel-17 38.321 NR\_pos\_enh-Core

* Noted

Discussion:

Huawei think the CR is wrong because there is no “last serving cell” for the UE in RRC\_INACTIVE; they assume the UE anyway will ignore the field.

vivo are fine with the intention but think the network should always set the cell ID as 0 for an inactive UE, and they think it is clear that the inactive UE should always ignore the BWP ID.

Samsung generally agree with Huawei; they think the UE in RRC\_INACTIVE can ignore both the cell ID and the BWP ID, but they think there could be a clarification of the usage of the C bit in RRC\_CONNECTED.

ZTE understand that the cell ID should not be directly ignored, because there is also a serving cell ID in the spatial relation field and the UE cannot interpret it. They agree that the last serving cell ID is 0 and the gNB should always set 0 for this field, as indicated by vivo, and for the BWP ID it needs to be clarified what happens when SRS is configured outside the initial BWP.

ZTE think a change is needed to reflect the differences in how the MAC CE is used for the RRC\_INACTIVE case.

Qualcomm agree with ZTE and think the current description is confusing for an inactive UE.

Samsung wonder if the BWP ID should ever be used by the UE when in RRC\_INACTIVE. ZTE understand that the spatial relation part can contain a BWP ID.

Huawei understand the intention is fine, but for RRC\_INACTIVE they think the UE will just look at the UE context and not need the cell ID and BWP ID. ZTE understand they cannot be completely ignored because they also relate to the spatial relation. Huawei think the cell ID is not needed even for the spatial relation, because there is no cell ID in RRC\_INACTIVE and the UE will just look for the configuration in the UE context. ZTE understand that the UE will remember the cell ID, BWP ID, and reference signal configuration when in RRC\_INACTIVE as part of the AS context.

ZTE wonder if Huawei’s understanding means that the gNB should always set C to 1.

Ericsson think from a signalling pov, the same MAC CE is used for connected and inactive, and we need to illustrate the meaning of the bits in a consistent way; they understand this is what the CR does.

CATT think we could just word it as “the cell from which SP-SRS configuration was received”, without mentioning “last serving cell” or “while in RRC\_CONNECTED”.

Huawei understand the inactive UE should always ignore these fields. ZTE think then the gNB should always set C to 1 and that should be clear. Huawei agree with this interpretation.

Huawei think the SRS used for the spatial relation can be identified by resource set ID/resource ID.

Ericsson would be OK with CATT’s suggested wording.

[R2-2407223](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407223.docx) Corrections related to additional path reporting and QCL for positioning Ericsson CR Rel-17 37.355 17.8.0 0513 - F NR\_pos\_enh-Core

* Not pursued

[R2-2407226](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407226.docx) Corrections related to additional path reporting and QCL for positioning Ericsson CR Rel-18 37.355 18.2.0 0514 - A NR\_pos\_enh-Core

* Changes related to dl-PRS-QCL-Info to be captured in Rel-18 rapporteur CR
* This CR is not pursued

Discussion:

ZTE think the additional path change is not correct, because the additional path is calculated on the same resource. CATT agree with ZTE; they understand that the additional measurements can relate to a different resource, but not the additional path.

Qualcomm also agree and think the CR mixes two different issues: the additional path and the resources for the additional measurements. They think the additional path is already clearly specified, and which resources to measure is specified in the additional measurements.

vivo share Qualcomm’s view, but for the second change about the QCL they think it helps to clarify. Qualcomm agree the QCT change is correct, but they see it as editorial and think it could be captured in the Rel-18 rapporteur CR.

Agreement:

Changes related to dl-PRS-QCL-Info from R2-2407226 will be captured in Rel-18 37.355 rapporteur CR.

# 7 Rel-18

## 7.2 Expanded and improved NR positioning

(NR\_pos\_enh2; leading WG: RAN1; REL-18; WID: [RP-232670](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_101/Docs/RP-232670.zip))

Time budget: 0 TU

Tdoc Limitation: 2 tdocs

### 7.2.1 Organizational

Including incoming LSs and rapporteur inputs.

Incoming LSs with “take into account” actions and no draft reply

[R2-2406208](file:///C%3A%5C%5CUsers%5C%5Cmtk16923%5C%5CDocuments%5C%5C3GPP%20Meetings%5C%5C202408%20-%20RAN2_127%2C%20Maastricht%5C%5CExtracts%5C%5CR2-2406208_R1-2405511.docx%22%20%5Co%20%22C%3AUsersmtk16923Documents3GPP%20Meetings202408%20-%20RAN2_127%2C%20MaastrichtExtractsR2-2406208_R1-2405511.docx) Reply LS on SL positioning measurement (R1-2405511; contact: Huawei) RAN1 LS in Rel-18 NR\_pos\_enh2-Core To:RAN4, RAN2

* Noted

[R2-2406238](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406238_S2-2407318.docx) Reply LS on application layer ID (S2-2407318; contact: Xiaomi) SA2 LS in Rel-18 Ranging\_SL To:RAN2, CT1, CT4

* Noted

Incoming LS with “take into account” action but no consensus in source group

[R2-2406213](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406213_R1-2405586.docx) Reply LS on DL-AoD measurements in NR-PRU-DL-Info forwarded to target UE (R1-2405586; contact: Nokia) RAN1 LS in Rel-18 NR\_pos\_enh2-Core To:RAN2

* Noted

Discussion:

CATT think we should follow the RAN1 parameter list, which still includes the DL-AoD measurements.

Huawei think RAN1’s reply is a euphemism for “it is not useful”, and they think we should delete the field if there is no consensus to use it.

Qualcomm understand that we asked RAN1 if the PRU measurements apply to legacy measurements, and they said yes; they understand that the use case would not be specified, but there seems no problem in keeping it in the LPP spec.

Nokia generally agree with Huawei and think that the question was specific.

MediaTek do not really see a use case but think the most painless solution may be to follow the parameter list.

ZTE agree with MediaTek and CATT that we should follow the parameter list.

Nokia wonder if we should add a “not used in this release” indication.

Ericsson would prefer to delete the field since there is no identified use case.

ZTE consider that RAN1 did not say it is not used, but there is no consensus. They see that we also do not have consensus in RAN2 and think we should not delete it.

Nokia think we could take one more meeting to decide if any action is needed from RAN2. ZTE think if RAN2 delete the IE now, we will have concerns later due to the parameter list not aligning.

Other incoming LSs and related documents

[R2-2406207](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406207_C1-243690.docx) LS on the UE role list in RSPP-Metadata (C1-243690; contact: ZTE) CT1 LS in Rel-18 Ranging\_SL To:RAN2 Cc:SA2

[R2-2406791](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406791%20Draft%20reply%20LS%20on%20the%20UE%20role%20list%20in%20RSPP-Metadata.doc) Draft reply LS on the UE role list in RSPP-Metadata ZTE Corporation LS out Rel-18 NR\_pos\_enh2 To:CT1 Cc:SA2

* “The issue is editorial and RAN2 have already fixed it in the latest 38.355-i20:” to be replaced with “The issue has already been fixed in 38.355-i20:”
* Source to be changed to RAN2 and “Draft” to be removed from the title
* Approved with these changes as R2-2407718

Discussion:

ZTE indicate that this is already fixed in our spec.

Lenovo think it is not correctly described as an “editorial” issue.

[R2-2406228](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406228_R4-2410352.docx) LS on synchronization source change at the transmitting anchor UE in SL positioning (R4-2410352; contact: Ericsson) RAN4 LS in Rel-18 NR\_pos\_enh2-Core To:RAN1, RAN2

* Postponed

[R2-2407228](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407228.docx) draft LS reply on synchronization source change at the transmitting anchor UE in SL positioning Ericsson discussion Rel-18 38.355 NR\_pos\_enh2-Core

Discussion:

Qualcomm think we added a sync source in SLPP because of a RAN1 request, so we can inform the peer UE of a sync source change by sending a new message; they see that this is already supported. Intel agree that this indication is possible but think we never specified that it will be done, so the UE may or may not be aware of the sync change. Huawei think the point is that there is no spec change required from our pov; the ProvideLocationInformation can be sent unsolicited if this situation occurs.

Huawei think the sync source is missing for SL-RTT.

InterDigital understand that our specification already supports the change and what happens is up to RAN1 decision.

Ericsson indicate that if the source changes, there is no requirement today that the UE sends an update.

Intel think we could wait for RAN1 to respond. Regarding Huawei’s comment about SL-RTT, Intel understand that it was not listed in the parameter list. Huawei agree but note that it was in the RAN4 LS.

CATT agree we could wait and let companies coordinate offline to see if the parameter list needs to be updated. Ericsson think we could reply that we have the signalling but have not discussed the scenario. Intel think we cannot say that we support the scenario from a functionality perspective; we have not discussed it nor specified it.

OPPO think the update has been implicitly supported, because the sync source should reflect the current situation. They do not think we need to decide the issue in RAN2.

Qualcomm note that our signalling does not support it for SL-RTT; they would rather wait for the RAN1 response.

Rapporteur CRs

[R2-2406315](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406315%20Rapporteur%20MAC%20CR%20for%20R18%20positioning.docx) Rapporteur MAC CR for R18 positioning Huawei, HiSIlicon CR Rel-18 38.321 18.2.0 1883 - F NR\_pos\_enh2 R2-2406292

* [AT127][404][POS] Rel-18 positioning MAC CR update (Huawei)

 Scope: Merge agreements of this meeting into R2-2406315.

 Intended outcome: Agreeable CR in R2-2407722

 Deadline: Wednesday 2024-08-21 1900 CET

[R2-2406950](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5C37355_CR0512_%28Rel-18%29_R2-2406950.docx) Miscellaneous corrections to LPP specification CATT CR Rel-18 37.355 18.2.0 0512 - F NR\_pos\_enh2-Core

* [AT127][402][POS] Rel-18 LPP rapporteur CR merge (CATT)

 Scope: Merge agreements of this meeting into the CR in R2-2406950.

 Intended outcome: Agreeable CR in R2-2407720

 Deadline: Wednesday 2024-08-21 1900 CET

Withdrawn/Not available

R2-2406292 Rapporteur MAC CR for R18 positioning Huawei, HiSilicon CR Rel-18 38.331 18.2.0 4868 - F NR\_pos\_enh2 Revised

### 7.2.2 Stage 2

Impact to 38.300, 37.340, and 38.305. For each specification, a single CR with miscellaneous corrections is requested from the CR rapporteur; minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

This agenda item may be handled at lower priority.

R2-2406508 Corrections on TS 38.305 for time windows configuration CATT, Nokia, NSB, Ericsson, Qualcomm Incorporated CR Rel-18 38.305 18.2.0 0165 1 F NR\_pos\_enh2-Core R2-2404435

* “, and to ensure…” to be removed from the NOTEs
* To be merged into a rapporteur CR

Discussion:

Huawei are fine with the idea of the NOTE, but they are a bit dubious about the wording “correlated measurements”; what is correlated is the error in the measurements, not the measurements themselves. They would like to remove the “to ensure” part.

[R2-2407227](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407227.docx) DRX and PRS alignment for positioning Ericsson, Intel Corporation CR Rel-18 38.305 18.2.0 0166 1 F NR\_pos\_enh2-Core R2-2405259

* Not pursued

Discussion:

Nokia think this is an enhancement rather than a correction, and it is not clear how the gNB gets the PRS periodicity from the LMF. They are not sure that the gNB can perform the described behaviour. Ericsson indicate the proposal assumes the gNB knows somehow and there are NRPPa messages that could inform it. Qualcomm indicate this only relates to the gNB’s own PRS configuration, not neighbours.

Samsung agree with Nokia and Qualcomm that there is no neighbour information available to the gNB; they understand that RAN2 agreed only on using the OD-PRS procedure for this alignment, so if we capture something, we should capture the UE-side solution, not the gNB-side solution.

Huawei have a similar understanding to Samsung; they thought there was no specification impact because we agreed to use the UE-initiated request, but maybe this case could be reflected as well.

CATT think the previous agreement (NOTE 6 under OD-PRS transmission) already captures the UE-side case.

Ericsson think we did discuss the possibility of the gNB implementation doing something.

Huawei think the gNB may change the PRS cycle but it cannot change the DRX cycle to align with it. Ericsson’s understanding is that the gNB may select a suitable (e)DRX cycle from multiple options.

[R2-2407234](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407234%20Correction%20of%20Notes%20for%20Assistance%20Data%20Transfer%20procedures.docx) Correction of Notes for Assistance Data Transfer procedures Philips International B.V. discussion Rel-18 NR\_pos\_enh2

* First change is not pursued
* Second change to be merged into rapporteur CR
* Proposals to capture other scenarios can be seen in future if well-motivated

Proposal 1: Revise Note 2 to: "NOTE 2: Dependent on the scenario, Endpoint A may be a SL Anchor UE and Endpoint B may be a Target UE”

Discussion:

Qualcomm think the existing text is correct for delivering the capabilities/configurations of the anchor UEs to the server UE. Chair has the same understanding.

CATT think the change is not correct because the anchor may not be connected to the server.

ZTE think a NOTE 4 could be added to capture the additional case described here. Qualcomm think this case is covered already by NOTE 3, and they think we could consider adding more NOTEs but we should not change the existing ones.

Proposal 2: Revise Note 3 to: “NOTE 3: Dependent on the scenario, Endpoint A may be a SL-PRS receiving (Rx) UE and Endpoint B may be a SL-PRS transmitting (Tx) UE.”

Discussion:

Qualcomm think this is correcting a typo.

ZTE think NOTE 3 is confusing because of not being written in terms of UE roles.

* [AT127][406][POS] Rel-18 positioning 38.305 rapporteur CR (Qualcomm)

 Scope: Generate a rapporteur CR capturing agreements of this meeting.

 Intended outcome: Agreeable CR

 Deadline: Wednesday 2024-08-21 1900 CET

### 7.2.3 SLPP corrections

Impact to 38.355. A single CR with miscellaneous corrections is requested from the spec rapporteur; minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

Email discussion summary

[R2-2406374](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406374_38.355%20update%20Open%20Issue%20list.docx) [Post126][410] 38.355 update Open Issue list Intel Corporation discussion Rel-18 NR\_pos\_enh2-Core

* Noted

Proposal: All open issues raised in the previous meetings have been resolved. The only potential issue is RelativeVelocityWithUncertainty which depends on SA2 discussion.

Rapporteur CR

[R2-2406375](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406375%20Miscellaneous%20corrections%20to%20SLPP%20specification.docx) Miscellaneous corrections to SLPP specification Intel Corporation CR Rel-18 38.355 18.2.0 0005 - F NR\_pos\_enh2-Core

* [AT127][401][POS] SLPP rapporteur CR update (Intel)

 Scope: Email checking of agreeable updates to the CR in R2-2406375. Take into account the question of whether NBC changes should be accepted.

 Intended outcome: Agreeable CR in R2-2407719

 Deadline: Wednesday 2024-08-21 1900 CET

Other contributions

R2-2406294 Discussion on the remaining issues for SLPP for R18 POS Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

* Noted

Proposal1: Confirm on the understanding that when the synchronization source changes, it is up to the UE’s implementation the Tx side of the SL-PRS sends another provideAssistanceInformation SLPP message to information the Rx side of the update. No spec change required.

Proposal2: Add synchronization sources as assistance data in SL-RTT-ProvideAsssitanceData for SL-RTT. Adopt the TP in Annex A.

Proposal3: Capture in the field description of SL-RTT-ProvideLocationInformation SLPP message that when the ARP for SL-PRS transmission and reception are different, the UE shall not report SL Rx-TX time difference measurement. Adopt the TP in the Annex B.

Proposal4: Support multiple per ARP measurement results for the same SL-PRS in a single report. Adopt the TP in Annex C.

Proposal5: Confirm that provideLocationInfomation can be provided in un-solicited manner and the concern raised from RAN1 is not an issue.

Discussion:

Qualcomm and Lenovo understand that the related LS was already treated and we replied to the LS and captured some of the proposals.

Intel confirm that SLPP was updated in line with the discussion last meeting.

Huawei think P3 is still open and relates to a RAN1/RAN2 misalignment. Qualcomm think the RAN1 agreement implies that the UE does not even measure the Rx-Tx time difference in this case, so there is no question of whether to report it. Intel have the same understanding.

[R2-2406516](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406516%20Clarification%20on%20RSPP%20metadata%20for%20direct%20communication%20request%20message.docx) Clarification on RSPP metadata for direct communication request message ASUSTeK CR Rel-18 38.355 18.2.0 0007 - F NR\_pos\_enh2

* Postponed

Discussion:

Lenovo indicate that stage 2 (23.586) suggests it can be in the DCR/DCA messages, but the corresponding stage 3 does not seem to match it, so they think there is a stage 2/3 misalignment in CT/SA groups. Huawei understand from CT side that CT1 think the CR is correct.

Intel agree with Lenovo and think we should not change our spec for something that is not captured in stage 3. If we do something, Intel think we should word our descriptions in a more general way.

Huawei agree that a better formulation would refer to the spec instead of the messages.

Lenovo think it may not be easy to write the field description in a message-agnostic way.

[R2-2406809](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406809%20Corrections%20on%20SLPP.docx) Miscellaneous corrections on SLPP Lenovo draftCR Rel-18 38.355 18.2.0 NR\_pos\_enh2

* To be merged into rapporteur CR (subject to offline review)

[R2-2407146](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407146_%28CR%2038355-i20%29.docx) Correction to SLPP PDU Common Contents Qualcomm Incorporated draftCR Rel-18 38.355 18.2.0 F NR\_pos\_enh2-Core

* To be merged into rapporteur CR (subject to offline review)
* Email discussion to confirm acceptability of NBC changes

Discussion:

Qualcomm clarify changes 1 and 2 are NBC.

Intel agree with the changes technically but think we need to decide if we take NBC changes.

CATT support an NBC change as it is an early stage of the release.

Ericsson would also be fine with an NBC change.

Intel wonder if the capability should be per-method. Qualcomm understand that not all shapes are applicable to all methods; for example, relative velocity will not come from all the methods. Qualcomm also note that it is per-method in LPP.

Qualcomm think the LPP/SLPP bar may not be as high as RRC. Lenovo note that we already agreed an NBC change in the main session.

[R2-2407369](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407369%20Correction%20on%20SL-RTT-provideLocationInformation%20field%20description%20in%20TS%2038.355.docx) Correction on SL-RTT-provideLocationInformation field description in TS 38.355 CATT, CICTCI draftCR Rel-18 38.355 18.2.0 F NR\_pos\_enh2-Core

* To be merged into rapporteur CR (subject to offline review, and proponent to submit updated language for the field description)

Discussion:

Intel understand that we only need the field description if it provides some additional information.

Qualcomm think in this case it is useful to have a field description, but the text proposed here is not entirely clear: “associated” to what?

Lenovo think the language is not fully clear, and it would be better to capture the RAN1 agreement language.

CATT think the meaning of the field is not clear from other places in the spec, so the field description is needed.

ZTE understand that the feature is new in RAN1, different from the legacy way of determining the time, so they think it should be captured; they think “associated” is fine, but we could add “actual transmission timestamp”.

Withdrawn/Not available

R2-2406509 Correction on SL-RTT-provideLocationInformation field description in TS 38.355 CATT,CICTCI CR Rel-18 38.355 18.2.0 0006 - F NR\_pos\_enh2-Core Withdrawn

### 7.2.4 LPP corrections

Impact to 37.355. A single CR with miscellaneous corrections is requested from the CR rapporteur; minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

R2-2407149 Editorial clean up of NR-UL-SRS-Capability Qualcomm Incorporated draftCR Rel-18 37.355 18.2.0 F NR\_pos\_enh2-Core

* To be merged into rapporteur CR
* Spelling/formatting corrections to be checked for parallel issues in RRC by RRC CR rapporteur

Discussion:

Lenovo think the changes are OK, but some field names are changed and they may appear also in RRC.

[R2-2407230](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407230.docx) Corrections related to carrier phase measurements Ericsson draftCR Rel-18 37.355 18.2.0 F NR\_pos\_enh2-Core

* Not pursued

Discussion:

CATT think there is no matching agreement in RAN1 that any carrier phase measurement should be performed in a time window. Huawei have the same view as CATT and understand from RAN1 side that the measurement does not have to happen within a window.

Nokia find the previous comments a bit confusing, and they think the mechanism for requesting the measurements is not fully clear.

ZTE agree with Nokia that the issues of the time window and the request bitmap are separate; they think we cannot delete the request bit, and if there is a change it should come from RAN1.

Nokia think the concern underlying the CR about having the request in two places may be legitimate, but they would prefer that we remove it from the time window configuration and use the request bitmap.

[R2-2407253](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407253%20CR%2037355%20ODPRS%20BWA.docx) On-demand DL-PRS bandwidth aggregation corrections Nokia CR Rel-18 37.355 18.2.0 0515 - F NR\_pos\_enh2-Core

* Changes 2 and 3 from coversheet to be merged into rapporteur CR
* Rapporteur CR will also address the undefined IE issue

Discussion:

CATT clarify that the undefined IE issue is raised in the rapporteur CR as well, but they do not see that there is any broken functionality or lack of clarity related to the other changes.

Nokia are OK to remove the first field description, but they think the clarifications to the other fields are important.

ZTE think we should not adopt the Rel-17 changes, but they think the Rel-18 change is correct because the field description does not reflect the two-level structure of the field.

### 7.2.5 RRC corrections

Impact to 38.331, except for UE capabilities. A single CR with miscellaneous corrections is requested from the CR rapporteur; minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

Rapporteur CR

[R2-2407221](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407221.docx) Miscellaneous Positioning Corrections Ericsson CR Rel-18 38.331 18.2.0 4934 - F NR\_pos\_enh2-Core

* [AT127][403][POS] Rel-18 positioning RRC CR update (Ericsson)

 Scope: Update R2-2407221 in line with decisions of the meeting.

 Intended outcome: Agreeable CR in R2-2407721

 Deadline: Wednesday 2024-08-21 1900 CET

Other contributions

R2-2406405 Miscellaneous Corrections for sidelink positioning vivo draftCR Rel-18 38.331 18.2.0 F FS\_NR\_pos\_enh2

* Changes 1, 3, 4, and 5 to be merged into rapporteur CR
* Changes 2 and 6 are postponed

Discussion:

Huawei think the intention was to introduce nothing special for dedicated pool for positioning, so they are not sure the last change is strictly needed. vivo clarify that they understand this is not captured in any RAN1 spec, so the network restriction is needed here.

Huawei think we already discussed the condition for RRCResumeRequest, and it was not adopted before the ASN.1 freeze because there was a view that the connection needs to be established before positioning; they understand that vivo are trying to address the case of a normal resource pool, and they are not sure this needs to be addressed since the normal resource pool can be provided by system information.

vivo indicate that the CR is directed to resuming the RRC connection, separate from establishing the PC5-RRC connection. The intention is that the UE would resume the RRC connection if it does not receive the resource pool for SL-PRS.

Huawei think establishing the PC5-RRC connection will also result in an RRCResumeRequest, and they are not sure what will happen if the UE requests repeatedly.

Ericsson think a normal UE implementation would behave as in the CR, but we may not need to make it explicit.

Huawei are not sure that the CR addresses the concern; they think we may need some input from sidelink experts on when the pools will be available, because the pool may always be there in the SIB. vivo indicate they followed the legacy logic for the case where the frequency is valid but the normal resource pool is not provided.

Huawei’s concern is that the RRCResumeRequest does not indicate that the lack of SL-PRS resource pool is the cause, and the network may not react, causing a repeated request. vivo think this issue is general for sidelink operations, and the UE can indicate its preference for SL-PRS transmission to the network after resuming.

Ericsson think change 6 needs to be checked with RAN1.

[R2-2406793](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406793%20Correction%20on%20SRS%20transmission%20in%20RRC_INACTIVE.docx) Correction on SRS transmission in RRC\_INACTIVE ZTE Corporation draftCR Rel-18 38.331 18.2.0 F NR\_pos\_enh2

* Constant to be replaced with maxNrOfCellsInVA-Ext-r18 (also equal to 16)
* No capability is introduced
* To be merged into rapporteur CR
* Change will be indicated as mandatory for UEs and networks implementing the concerned functionality

Discussion:

Huawei think this should be done with an NCE.

CATT agree with the intention but think the sequence should not reuse the previous constant.

Huawei think the extension mechanism may be OK but the field description should be clear that it is an NCE. ZTE indicate this is already in the CR.

Ericsson think the new constant can be clarified in the field description.

Samsung wonder if we would need a capability. ZTE think this may be necessary.

Lenovo think we normally add capabilities if we introduce something at a later stage, but it is not that critical to have one for a change within Rel-18 now.

Ericsson wonder if it would be easier for RAN3 to align with RAN2, or even to have the gNB downselect from the list provided by the LMF.

CATT think 32 cells makes sense in light of the RNA size and we should follow the RAN3 agreement. To Lenovo’s question, they understand that for interoperability we should have a capability to indicate the extension.

Ericsson have some sympathy for Lenovo’s view and think we could indicate the CR as mandatory. They would be OK with the functional requirement but do not want to have NBC ASN.1.

Huawei are OK with not introducing a capability. They think we should be somewhat consistent about capability introductions for functional changes.

CATT agree that we need guidance on the capability.

[R2-2407273](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407273%20-%20RRC%20Correction%20on%20NR%20Sidelink%20Positioning.docx) RRC correction on NR sidelink positioning Philips International B.V. CR Rel-18 38.331 18.2.0 4940 - F NR\_pos\_enh2-Core

* Change 11 is postponed
* Other changes to be merged into the rapporteur CR

Discussion:

On change 11, vivo think the intention is right but the affected field is only used for sidelink communication. Huawei agree.

ZTE indicate that SIB23 currently only contains one frequency and SIB12 can contain multiple frequencies; they think the UE should be able to request frequencies from both. vivo agree but think this field is related only to the frequency, not the resource pool.

Ericsson clarify that the issue is whether to remove “/positioning” in the description of sl-TxInterestedFreqList.

Huawei wonder how we support requests for multiple frequencies in CA.

ZTE think removing “/positioning” would mean the UE could not indicate interest in the shared pool. vivo wonder how the network differentiates between communication and positioning in case the same field is used to request both.

Philips think based on the RAN1 spec the network should be able to tell. vivo are not sure how this would work.

Ericsson think we may need to extend with an indication of whether the request for shared pool is for communication or positioning. Huawei think this would be overdoing it, because the intention of the shared pool is to piggyback SL-PRS transmission on the data. ZTE think there are additional configuration parameters that the network needs to send to the UE for SL-PRS.

vivo think we could use sl-PosTxInterestedFreqList with an additional mapping to SIB12.

Extension of CBR ranges (NBC and BC alternatives)

[R2-2406510](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5C38331_CR4879_%28Rel-18%29_R2-2406510.docx) Corrections on SL positioning in TS 38.331 CATT CR Rel-18 38.331 18.2.0 4879 - F NR\_pos\_enh2-Core

* Changes 3 and 4 are merged into the rapporteur CR

[R2-2407559](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407559%20Corrections%20for%20the%20extension%20of%20these%20IEs%20which%20do%20not%20support%20the%20maximum%20number%20of%20CBR%20ranges%20and%20levels%20for%20sidelink%20positioning%20in%20TS%2038.331.docx) Corrections for the extension of these IEs which do not support the maximum number of CBR ranges and levels for sidelink positioning in TS 38.331 CATT, Ericsson draftCR Rel-18 38.331 18.2.0 F FS\_NR\_pos\_enh2

* Dummification to replace the field names completely as usual
* No capability is introduced
* To be merged into the rapporteur CR
* Change will be indicated as mandatory for UEs and networks implementing the concerned functionality

Discussion:

Huawei think we should avoid syntax NBC changes.

Ericsson wonder if we need the capability or assume support of the extension is mandatory. Chair understands from the previous discussion that we can accept a functional NBC but keep the syntax the same.

Intel think the field names should be changed to “dummy” / “dummyX”.

### 7.2.6 MAC corrections

Impact to 38.321. A single CR with miscellaneous corrections is requested from the CR rapporteur; minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

R2-2406293 Discussion on the remaining issues for MAC for R18 POS Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

* TP to be merged into rapporteur CR
* Noted

Proposal1: Clarify that Spatial Relation for Resource IDi indicates the spatial relation of the ith SRS resources within the first CC that is aggregated with the other SRS resource in the other CCs. Adopt the TP in Annex A.

Discussion:

Qualcomm are not sure how the mapping is intended to work (figure at the end of section 2.1 in the document). Huawei indicate RAN1 specs should be enough to clarify it.

ZTE are OK with Huawei’s wording, but they think there are some mistaken field names in the TP.

Huawei note that the reference to 38.214 should also be added.

Samsung are also OK with the proposal but would like to specify “first activated CC”. Huawei are OK with this change.

[R2-2406376](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406376%20eLCID%20for%20SL-PRS%20Resource%20Request%20MAC%20CE.docx) eLCID for SL-PRS Resource Request MAC CE Intel Corporation draftCR Rel-18 38.321 18.2.0 NR\_pos\_enh2-Core

* To be merged into rapporteur CR

Discussion:

Huawei agree the change is correct.

[R2-2406404](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406404%20Correction%20on%20Tx%20carrier%20%28re-%29selection%20for%20SL-PRS%20transmission.docx) Correction on UE behavior of SL-PRS transmission vivo draftCR Rel-18 38.321 18.2.0 F FS\_NR\_pos\_enh2

* Add a NOTE saying that for the carriers configured in SIB12 and for which SL-PRS transmission is allowed, the UE selects one carrier for SL-PRS from among the selected candidate data carriers, and which one it selects is up to UE implementation.
* NOTE to be captured in rapporteur CR

Discussion:

ZTE do not agree with the CR; they think the changes mentioned have not been discussed in RAN2 and it would be more natural to let the UE select the shared pool frequency, and it would be enough to add a NOTE saying the UE selects a frequency among the selected data frequencies for shared pool.

Huawei agree with ZTE that the use of CBR to select the carrier has not been agreed; there was such an agreement for sidelink communication but not for positioning. They also understand that part of the intention of using the shared pool was to minimize impact.

InterDigital agree with Huawei and think it is strange to use CBR in relation to PRS. They think it can be handled by network implementation.

vivo wonder how the UE will know how to select the carrier.

ZTE think the UE can use the CBR to select multiple carriers for data, and then transmit shared pool SL-PRS within those frequencies; they see it as up to UE implementation which frequencies to select.

vivo think a NOTE should be added to clarify that the UE selects only one carrier to transmit SL-PRS. Huawei wonder if we should let the SL-PRS affect the selection of carriers in CA. vivo understand that such an effect is not the intention; the point is that the UE will select the data carriers and then select the SL-PRS carrier from among them.

ZTE are OK with adding a NOTE that reflects the RAN1 agreement; they understand it should be only for shared pool.

[R2-2406792](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406792%20Correction%20on%20SL%20pos%20in%20dedicated%20pool%20and%20SRS%20aggregation%20MAC%20CE%20in%20MAC%20spec.docx) Correction on SL pos in dedicated pool and SRS aggregation MAC CE in MAC spec ZTE Corporation draftCR Rel-18 38.321 18.2.0 F NR\_pos\_enh2

* Changes 1 and 2 are merged into the rapporteur CR
* Change 4 and related issues to be discussed by email

Discussion:

Huawei think changes 1 and 2 are fine and 3 is already in the rapporteur paper. For the fourth change, it needs to be considered jointly with the discussion from earlier about whether these fields can be used in RRC\_INACTIVE.

Huawei think we could handle this issue offline.

* [AT127][405][POS] C field in relation to cell ID and BWP ID in RRC\_INACTIVE (ZTE)

 Scope: Discuss change 4 from R2-2406792 and the related issues on handling of the cell ID and BWP ID fields in RRC\_INACTIVE, including Rel-17 and Rel-18 impact.

 Intended outcome: Report to CB session in R2-2407723

 Deadline: Wednesday 2024-08-21 1900 CET

[R2-2406855](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406855.docx) SL-PRS Resource Request MAC CE in the logical channel prioritization list Samsung CR Rel-18 38.321 18.2.0 1891 - F NR\_pos\_enh2

* To be merged into rapporteur CR

Discussion:

Huawei agree the change is correct.

[R2-2407232](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407232.docx) Aggregated Resource Definition and corrections Ericsson discussion Rel-18 38.321 NR\_pos\_enh2-Core

* Noted

Proposal 2 RAN2 to agree to change from at least one to at least two in Spatial Relation for Resource IDi description.

Discussion:

Huawei wonder if it is possible to indicate just one spatial relation. Ericsson understand that at least two carriers are needed. Huawei think the interpretation in the document is wrong; only one spatial relation is a possible case.

Qualcomm understand that activating only one carrier of an aggregated set is valid.

[R2-2407296](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407296%20Corrections%20on%20SL-PRS_v1.docx) Corrections on SL-PRS ASUSTeK discussion NR\_pos\_enh2

* Second change to be merged into rapporteur CR
* Intention of the third and fourth changes is agreeable, with details to be checked in the rapporteur CR discussion

Discussion:

Huawei think the second change is fine; they think the third change may be in the wrong section but need to check offline, and they think the intention is OK.

Huawei indicate for the fourth change, the priority should be indicated for each SL-PRS. ASUSTeK agree but point out the change is for the priority of the SR. Huawei would like to check offline.

### 7.2.7 UE capabilities

Impact to 38.306 and capability-related impact to 38.331. A single CR with miscellaneous corrections is requested from the CR rapporteur; minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

R2-2406810 Addition of capability sl-PathlossBasedOLPC-SL-RSRP-Report-r18 (FG R1 41-1-17) in UECapabilityInformation message Lenovo draftCR Rel-18 38.331 18.2.0 NR\_pos\_enh2

* Endorsed to be captured by the capability rapporteur CR

[R2-2407560](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407560%20Corrections%20on%20the%20UE%20capability%20of%20indication%20on%20supporting%20the%20extension%20for%20sidelink%20positioning%20in%20TS%2038.331.docx) Corrections on the UE capability of indication on supporting the extension for sidelink positioning in TS 38.306 CATT, Ericsson draftCR Rel-18 38.306 18.2.0 F NR\_pos\_enh2-Core

=> Not pursued

### 7.2.8 Corrections to other specifications

Impact to any specifications not identified above.

## 7.9 Enhanced NR Sidelink Relay

(NR\_SL\_relay\_enh-Core; leading WG: RAN2; REL-18; WID: [RP-223501](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_98e/Docs/RP-223501.zip))

Time budget: 0TU

Tdoc Limitation: 2 tdocs

### 7.9.1 Organizational

Including incoming LSs and rapporteur inputs.

### 7.9.2 Stage 2 corrections

Impact to 38.300. A single CR with miscellaneous corrections is requested from the CR rapporteur. Minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

Rapporteur CR

[R2-2407059](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407059-draft_%28Rel-18%29_R2-38.300%20relay%20stage%202%20CR_rapp.docx) draft\_(Rel-18)\_38.300 relay stage 2 CR\_rapp LG Electronics France draftCR Rel-18 38.300 18.2.0 NR\_SL\_relay\_enh-Core

* [AT127][411][Relay] Rel-18 relay stage 2 rapporteur CR (LG)

 Scope: Check the rapporteur CR in R202407059

 Intended outcome: Agreeable CR

 Deadline: Wednesday 2024-08-21 1900 CET

Other contributions

R2-2406698 Corrections for U2U relay ZTE Corporation, Sanechips CR Rel-18 38.300 18.2.0 0883 - F NR\_SL\_relay\_enh-Core

[R2-2407267](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407267%20-%20Correction%20on%20NR%20SL%20Multi-path%20Relay%20Operation.docx) Correction on NR SL Multi-path relay operation Philips International B.V. CR Rel-18 38.300 18.2.0 0888 - F NR\_SL\_relay\_enh-Core

### 7.9.3 RRC corrections

Impact to 38.331, except for capability-related issues (see agenda item 7.9.7). A single CR with miscellaneous corrections is requested from the CR rapporteur. Minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues where no clear conclusion was reached in [Post125][417] can be discussed based on contributions.

R2-2406368 Correction for U2N remote UE's serving cell during path switch OPPO draftCR Rel-18 38.331 18.2.0 F NR\_SL\_relay\_enh-Core

* To be checked as part of the rapporteur CR discussion

Discussion:

Huawei agree there is an error in the current specification, but they think the network should make sure the PCI in the PCell configuration is the same one as the relay UE’s serving cell. They think the same situation occurs for multi-path. So they understand that the bullet is actually redundant and could be removed.

Ericsson think the point is that you maintain the indirect path and don’t update anything. Huawei understand it is in PCellConfigCommon. Ericsson think we could point to this IE.

ZTE think the “else” branch is needed for the case that sl-PathSwitch is configured and the indirect path is also included. Huawei indicate that in the multi-path case, the indirect path is considered as a secondary path, and the network will perform reconfiguration with sync under the PCellConfigCommon and this indicates to the UE which cell is the target. They think it can be checked in the RRC rapporteur CR update.

[R2-2406369](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406369%20-%20Discussion%20on%20SLRB%20index%20in%20SUI%20for%20L2%20U2U%20relay.docx) Discussion on SLRB index in SUI for L2 U2U relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

* Noted

Proposal 1 For per-SLRB QoS report, allow L2 U2U Relay UE to set different SLRB index, remove the restriction that “sl-RemoteUE-SLRB-Identity is set to the same value as the SLRB-PC5-ConfigIndex received in RRCReconfigurationSidelink message from the L2 U2U Remote UE for the same end-to-end SLRB”, the text proposal is as annex.

Discussion:

Apple have the opposite proposal in their paper and think the same ID should be used. They see that it is different from legacy operation where the ID comes from the network, and having different IDs would introduce additional steps for the implementation.

LG do not think the restriction is needed.

[R2-2406556](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406556_Clarification%20on%20the%20filtering%20of%20SL-RSRP%20for%20U2U%20relay.docx) Clarification on the filtering of SL-RSRP for U2U relay CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

Proposal 1：For U2U relay, suggest RAN2 to confirm that it is unclear which filtering parameter is used for SL-RSRP for the cases other than integrated discovery.

Proposal 2: If Proposal 1 is confirmed, suggest RAN2 to perform down-selection between the following two options:

 Option 1: Use sd-FilterCoefficientU2U;

 Option 2: Introduce new parameter sl-FilterCoefficientU2U.

Discussion:

Apple prefer option 2. Huawei agree, but they would like to clarify the UE behaviour; a UE that does not implement the new parameter will apply the sd-FilterCoefficientU2U, or it is up to UE implementation. Also, if the network does not provide the new parameter, we should clarify if the UE uses the sd-FilterCoefficient.

Nokia understand that the current spec forces the UE to use the sd-FilterCoefficient, and the question is whether we need a different coefficient to account for the difference between power-controlled and non-power-controlled messages. If the SL-RSRP is power-controlled they think option 2 is the best way forward.

Qualcomm think we could leave it to UE implementation if it does not receive the new parameter; they are not sure it makes sense to use discovery parameters for communication.

Toyota think if we leave it to UE implementation the behaviour is not predictable.

Agreements:

Introduce a new parameter sl-FilterCoefficientU2U, in a BC way (may require extending a parent IE).

If the UE does not receive the sl-FilterCoefficientU2U, it uses the sd-FilterCoefficientU2U (this covers UEs that do not implement the new parameter and networks that do not send it).

To be captured in rapporteur CR.

[R2-2406557](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5C38331_draftCR_%28Rel-18%29_R2-2406557_Correction%20on%20the%20indirect%20path%20failure%20reporting%20condition.docx) Correction on the indirect path failure reporting condition CATT draftCR Rel-18 38.331 18.2.0 F NR\_SL\_relay\_enh-Core

* To be merged into rapporteur CR

[R2-2406599](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406599_Remaining%20Open%20Issues%20in%2038331.docx) Remaining Open Issues in 38.331 Ericsson discussion Rel-18

* Noted (companies can check stage 2 to see if something further is needed)

Proposal 1 Add a NOTE stating that the assignment of the local IDs is up to U2U relay UE implementation. Adopt the TP as in the Annex.

Discussion:

Apple think it is not necessary to capture it as a NOTE; they think it is already clear based on the SRAP spec how the IDs are assigned. ZTE agree with Apple; it is up to relay UE implementation, but they do not see a need to capture it.

Ericsson think it could be captured in stage 2, but it should be in the specs somewhere. Apple think it is already captured in stage 2 that the relay UE assigns the IDs. Lenovo checked the stage 2 spec and they agree with Apple.

[R2-2406679](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406679%20Discussion%20on%20R18%20RRC%20issue%20for%20relay.docx) Discussion on remaining RRC issues for NR Sidelink relay enhancements Apple discussion Rel-18 NR\_SL\_relay\_enh-Core

* Noted

Proposal 1 RAN2 concludes that L2 U2U Relay UE shall set the same value of SLRB index in SUI from what it received from remote UE. No more spec change is needed for this issue.

Proposal 2 Specify the SRAP mapping configuration procedure for end-to-end SL-DRBs in clause 5.8.9.11 and 5.3.5.16 for IDLE/INACIVE/OCC case and CONNECTED case, respectively and remove corresponding text in 5.8.9.1a.2.

Discussion:

Huawei understand Apple’s view but think the UE behaviour is already complex. They can double-check the specification but think we need a clear suggested change to evaluate.

Nokia have a bit different understanding from Apple about how the cases should be aligned.

Proposal 3 RAN2 discuss whether/how to consolidate some procedure texts in 5.8.9.1a.1, 5.8.9.1a.2, 5.8.9.1a.5, 5.8.9.1b, 5.8.9.7 into 5.8.9.1.9 (Reception of RRCReconfigurationCompleteSidelink).

[R2-2406680](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406680%20Correction%20on%20RRC_38331.docx) Miscellaneous corrections on TS 38.331 Apple CR Rel-18 38.331 18.2.0 4883 - F NR\_SL\_relay\_enh-Core

* To be merged into the rapporteur CR
* Change 2 is subject to agreement during finalizing the CR

Discussion:

ZTE think the first change is not needed (the others are fine); they think it is clear that the configuration is derived from the sl-RLC-BearerConfig. Apple clarify that the issue is that the IE name appears in two places. ZTE understand the field names are not identical. Huawei agree that the same IE name occurs twice, so they agree to adding the parent field name.

OPPO understand for the second change that the previous condition can cover both DRB release triggered by dedicated configuration and RLF, but the change excludes the RLF case and they wonder how the UE can derive the configuration after RLF. Apple think the wording can be improved, but the point is to capture the missing case. OPPO understand that the dedicated configuration is used also in the RLF case and the current specification is correct. Apple think this is covered by existing text under RRCReconfiguration.

Huawei think there is a common understanding on the second change, but maybe the reason for change is not completely clear. They think it would be OK to check the wording in the rapporteur CR discussion. OPPO think another bullet would be needed for the RLF case.

[R2-2406697](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406697%20Corrections%20for%20SL%20relay-331.docx) Corrections for SL relay ZTE Corporation, Sanechips CR Rel-18 38.331 18.2.0 4886 - F NR\_SL\_relay\_enh-Core

* To be merged into the rapporteur CR (with the exception of the second change)
* Change on T400 to be considered in interoperability analysis

Discussion:

ZTE indicate the second change may not be needed.

Apple think change 4 is OK and does not directly conflict with the Apple CR previously discussed.

Chair notes that the extended t400-u2u-r18 should have its own set of double square brackets. Nokia think that if this parameter is missing, it is not clear what the expected UE behaviour is. Huawei think the current description for T400 does not differentiate, so a UE that does not have the new timer will apply the existing T400. OPPO are concerned in case there is a mismatch between UEs where T400 can be different for source and target UEs. Chair thinks this can cause early RLF on one side of the connection; Huawei agree but think this is not worse than the current situation.

Philips think there is another field in the RemoteUEInformationSidelink where -r18 should be removed. This can be handled in rapporteur CR.

[R2-2406946](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406946%20Miscellaneous%20corrections%20for%20SL%20relay%20enhancements.docx) Miscellaneous corrections for SL relay enhancements Huawei, HiSilicon CR Rel-18 38.331 18.2.0 4904 - F NR\_SL\_relay\_enh-Core

Discussion:

Huawei indicate that one change was deemed unnecessary during offline discussion and will not be taken into the update.

* [AT127][408][Relay] Rel-18 relay RRC rapporteur CR update (Huawei)

 Scope: Merge decisions of this meeting into R2-2406946.

 Intended outcome: Agreeable CR in R2-2407790

 Deadline: Wednesday 2024-08-21 1900 CET

[R2-2407116](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407116%20R18-RRC-correction.docx) Correction in U2U relay sidelink DRB addition/modification Nokia discussion Rel-18 NR\_SL\_relay\_enh-Core

* Noted

Proposal 1: The RLC channel related operations should be specified for UEs in RRC\_CONNECTED in clause 5.8.9.1a.2.2.

Discussion:

Apple think this change impacts legacy Rel-17 operation. Nokia see the point and think we can just note that something needs to be done, and further discuss towards next meeting what to do about it.

[R2-2407268](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407268%20-%20RRC%20Correction%20on%20NR%20SL%20U2U%20Relay%20Operation.docx) RRC correction on NR SL U2U relay operation Philips International B.V. CR Rel-18 38.331 18.2.0 4937 - F NR\_SL\_relay\_enh-Core

* To be merged into rapporteur CR

Discussion:

Huawei think on the fifth change, it relates to coexistence of U2N/U2U. Philips understand that the potential to trigger the SUI to request U2U Tx resources was missing.

[R2-2407411](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407411-U2U.docx) Discussion on U2U relay related issues Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

* Change from TP on proposal 2 to be merged into rapporteur CR
* Noted

Proposal 1. In SUI, Relay UE is allowed to use a Uu-SLRB-ConfigIndex value different from PC5-SLRB-ConfigIndex value provided by source remote UE.

Proposal 2. To clarify time unit of split PDB, RAN2 add the field description of sl-SplitPacketDelayBudget-r18 as shown in TP#1

### 7.9.4 SRAP corrections

Impact to 38.351. A single CR with miscellaneous corrections is requested from the specification rapporteur. Minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

### 7.9.5 MAC, RLC, and PDCP corrections

Impact to 38.321, 38.322, and 38.323. A single CR for each specification with miscellaneous corrections is requested from the CR rapporteur. Minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

R2-2406600 Remaining Open Issues in 38.323 Ericsson discussion Rel-18

* Noted

Proposal 1 Remove the ‘/’ punctuation mark between SRAP entity and N3C. Adopt the TP as in the Annex.

Proposal 2 Include the text ‘RLC entities deactivated for PDCP duplication’ in the duplicate PDU discard section when PDCP duplication is deactivated.

Discussion:

Nokia think the slash in the first change was intended to mean one or the other. For the second change, they think there should be no RLC entity which is kept activated for duplication, so the change may not be needed.

Huawei agree with Nokia on the first change and have no strong view on the second.

Qualcomm agree with Nokia that the second change is not needed.

InterDigital have no strong view on the first change and think it is just a style issue; on the second change, they agree with Nokia and Qualcomm that it is not needed.

Ericsson understand that a slash by default means “and/or”; on the second change, they wonder if it is possible to have CA and multi-path together, and deactivate only the RLC entities related to multi-path. Nokia think this scenario is possible, but the “if” that Ericsson have touched is related to the case that all RLC entities under the DRB are deactivated.

[R2-2406947](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406947%20Correction%20on%20data%20transmission%20and%20data%20volume%20calculation%20in%20MP.docx) Correction on data transmission and data valume calculation in MP Huawei, HiSilicon draftCR Rel-18 38.323 18.2.0 NR\_SL\_relay\_enh-Core

* To be adapted to rapporteur CR
* “either” to be added to the sentence in the first change

Discussion:

Huawei indicated that the second change is not needed. InterDigital have the same understanding and think it would impact legacy operation; they are OK with the first change and with the intention of the third change, but for the third change they want to check that legacy operation is not broken.

Nokia think the first change puts “and” and “or” in one sentence, and “either…or” would be clearer.

* [AT127][409][Relay] Rel-18 relay PDCP rapporteur CR (InterDigital)

 Scope: Develop a rapporteur CR incorporating decisions of this meeting (first and third changes from R2-2406947).

 Intended outcome: Agreeable CR

 Deadline: Wednesday 2024-08-21 1900 CET

[R2-2407293](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407293%20RLC%20correction%20for%20multi-path%20relay%20with%20N3C.DOCX) RLC correction for multi-path relay with N3C Huawei, HiSilicon CR Rel-18 38.322 18.1.0 0057 - F NR\_SL\_relay\_enh-Core

Discussion:

Xiaomi think the intention is OK but the wording is not correct, because it is not the upper layer of any RLC entity. Huawei agree the wording can be polished.

Apple have doubts about the second part and wonder if we need to clarify it. They are OK with polishing of the wording.

Nokia agree with Xiaomi and think no clarification may be needed. Huawei think the description of the N3C case is missing today.

Samsung think for the N3C case, the change is correct but the wording can be improved.

Nokia agree that there is something missing, but they think it will be difficult to find good wording.

Ericsson have the same concern as Nokia; they thought the N3C case should have no impact on the RLC spec. Huawei think it is parallel to the other notes.

Samsung understand that the intention is to clarify what the RLC spec means, so the intention seems reasonable for the N3C case.

Nokia think the definition of RLC channel is clear, but we have this note to clarify the case that something other than PDCP is on top of RLC. They think the intention is to clarify the different upper-layer cases, not to clarify the RLC channel terminology.

* [AT127][410][Relay] Rel-18 relay RLC rapporteur CR (Xiaomi)

 Scope: Develop a rapporteur CR taking into account the proposals of R2-2407293, and attempt to reach agreeable wording.

 Intended outcome: Agreeable CR

 Deadline: Wednesday 2024-08-21 1900 CET

### 7.9.6 UE capabilities

Impact to 38.306 and capability-related impact to 38.331. A single CR with miscellaneous corrections is requested from the CR rapporteur. Minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

R2-2407103 Discussion on MP relay capabilities Qualcomm Incorporated discussion

Proposal 1: Agreement 2 does not impact Agreement 1 and RAN2 confirms to introduce new UE capability to indicate whether UE supports UL transmission via both direct path and indirect path for the split DRB.

### 7.9.7 Idle mode corrections

Impact to 38.304. A single CR with miscellaneous corrections is requested from the CR rapporteur. Minor and editorial issues should be coordinated with the rapporteur and merged into the miscellaneous CR. Larger issues can be discussed based on contributions.

# 8 Rel-19

## 8.13 NR sidelink multi-hop relay

(NR\_SL\_relay\_enh2; leading WG: RAN2; REL-19; WID: [RP-241609](https://www.3gpp.org/ftp/meetings_3gpp_sync/ran/docs/RP-241609.zip))

Time budget: 1 TU

Tdoc Limitation: 2 tdocs

### 8.13.1 Organizational

LSs and rapporteur input, including workplan, etc.

Workplan

[R2-2407145](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407145%20R19%20SL%20MH%20relay%20work%20plan.doc) Work plan for NR sidelink multi-hop relay LG Electronics, InterDigital Work Plan Rel-19 NR\_SL\_relay\_multihop, NR\_SL\_relay\_multihop-Core

* Noted

CR assignments:

 38.300 LG

 38.331 Huawei (multi-hop), CATT (service continuity)

 Huawei (merge)

 38.304 MediaTek

 38.321 InterDigital

 38.322 Xiaomi

 38.323 Ericsson

 38.351 OPPO

 UE capability Samsung (38.306 and 38.331)

Discussion:

Nokia think there is a general need for guidelines/openness on assigning CR rapporteurs.

InterDigital note that it is a difficult assignment process and there is an attempt to have some continuity with previous releases.

Apple agree the process could be more open.

Nokia think we should have one rapporteur for the RRC spec, because service continuity here is not really a different functionality and the merge will be difficult. LG think we can follow the Rel-18 precedent and the merge worked well there.

Nokia think the objectives here are much less separate and a single proposal may implicate both objectives.

InterDigital agree it may not be perfect, but having one company with responsibility for the merge will be the point where we centralize the work.

Nokia think the concern is about the openness of the discussion, and they would like more open discussion in the future. Chair will raise the issue offline with the group chair.

LG think we need early CR allocation considering the schedule of the item.

Toyota agree with Nokia’s concern on openness.

Other organizational documents

[R2-2407147](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407147%20Terminologies%20and%20Scenarios%20for%20SL%20MH.doc) Terminologies and Scenarios for SL multihop relay LG Electronics Inc. discussion Rel-19 NR\_SL\_relay\_multihop, NR\_SL\_relay\_multihop-Core

[Terminology]

Proposal 1: According to the WID, the last relay UE is defined as the relay UE directly connected to gNB on multi-hop relay. Alternatively, the root relay UE can be used with WID revision.’

Discussion:

Huawei think using “U2N relay UE” might be better. NEC have the same view, considering that the terminology should align with previous releases in case there is a legacy remote UE.

Ericsson agree with Huawei and NEC and think the functionality of the “last” relay UE is the same as a U2N relay UE. They also understand that SA2 are using the term “U2N relay UE”.

Samsung think the U2N relay functionality can be reused, but we may need terminology to differentiate the “last” relay UE from the intermediate UEs.

vivo think “U2N relay UE” is simpler and there is not a risk of confusion.

LG understand SA2 initially used “U2N relay UE”, but they think SA2 have now reconsidered terminology and this term now applies also to the intermediate UEs. LG understand we need a clear term to differentiate the UE with a direct connection to the gNB for discussion, but we can discuss if we capture this term in the specs.

InterDigital think we should not spend too much time on terminology, but they see Huawei’s comment as reasonable and think we should be aligned with SA2 terminology.

NEC think this issue affects whether we need a new UE type in the discovery message (as an SA2 issue), and they would like to avoid forcing a new type with our terminology. NIST indicate that SA2 are discussing the terminology this meeting, and the CR is not yet final but the merged baseline introduces the “intermediate” terminology from P2.

LG think SA2 are considering L3 as well as L2, and the L3 modelling is different. Here they understand that every intermediate relay UE has to support U2N.

Proposal 2: The intermediate relay UE is defined as the relay UE not directly connected to gNB on multi-hop relay. That is, all relay UEs except the last relay UE on multi-hop relay are called intermediate relay UEs.

Proposal 3: According to the WID, the first relay UE (or the first intermediate relay UE) is defined as the intermediate relay UE directly connected to the remote UE on multi-hop relay.

Proposal 4: All of the last relay UE and intermediate relay UEs on a multi-hop indirect path are L2 U2N relay UEs.

Discussion:

Chair suggestion:

* Distinguish the “last” relay UE as the U2N relay UE directly connected to the gNB, for RAN2 discussion
* Distinguish the “intermediate” relay UEs as the other relay UEs, for RAN2 discussion
* Distinguish the “first” relay UE as the intermediate relay UE directly connected to the remote UE, for RAN2 discussion
* FFS if we will capture the requirements according to these terms when implementing CRs.
* RAN2 intend to align with SA2 terminology when it is stable

Apple have a serious concern with the “intermediate” terminology, because they do not think it has to duplicate all the U2N functionality; it depends on proposals yet to be seen.

Toyota think we should avoid divergence between stage 2 (inc. SA2) and stage 3 spec terminology.

Kyocera wonder how the terminology applies to a single-hop case with a relay that is multi-hop-capable.

NEC think we may not model the intermediate UEs as being relay UEs at all.

Qualcomm wonder if we need a special term for the second intermediate (relay) UE.

Samsung wonder if we need terminology for the links between relay UEs.

Agreements:

n-hop relaying involves n relay UEs by definition.

Distinguish the “last” relay UE as the U2N relay UE directly connected to the gNB, for RAN2 discussion

Distinguish the “intermediate” relay UEs as the other relay UEs, for RAN2 discussion

Distinguish the “first” relay UE as the intermediate relay UE directly connected to the remote UE, for RAN2 discussion

FFS if we will capture the requirements according to these terms when implementing CRs.

FFS link terminology.

RAN2 intend to align with SA2 terminology when it is stable

Proposal 5: If necessary, RAN2 can send a LS to other WGs to align terminologies across WGs

[Scenarios]

Proposal 6: A candidate last relay UE can be in RRC\_IDLE or RRC\_INACTIVE, but not outside network coverage.

Proposal 7: Discuss whether some or all of intermediate relay UEs on a multi-hop indirect path can be inside or outside the network coverage.

Discussion:

Lenovo think on P6, if the last relay UE is in idle/inactive, it would require that all intermediate relay UEs would be in idle/inactive.

Samsung agree with P6 in principle but wonder how the discovering UE will distinguish whether a candidate is a candidate for last relay UE or intermediate. Qualcomm think we do not need to make such a distinction from AS layer, but SA2 may distinguish. vivo understand that it should be possible to determine from the discovery message.

vivo think on P7, the intermediate relay UEs can be in or out of coverage, and SA2 have already established this.

OPPO agree with the intention of P6 but wonder if we need to specify “candidate”, since after the multi-hop connection the last relay UE will still be in whatever RRC state.

Huawei have some concern about P7 if all the intermediate relay UEs are within network coverage, because the benefits of coverage extension would not be clear. Chair thinks there could be an intermediate relay UE at the edge of coverage.

InterDigital think we should not limit the coverage scenario too much, especially as the relays may be moving around.

Apple think inter-cell cases could be complicated and it may be premature to discuss them.

Agreements:

A candidate last relay UE for discovery or (re)selection can be in any RRC state, but not outside network coverage. FFS if acting as a relay requires it to transition to RRC\_CONNECTED.

Some or all of the intermediate relay UEs on a multi-hop indirect path can be inside or outside the network coverage.

Proposal 8: Discuss whether some or all of intermediate relay UEs inside network coverage can be RRC\_IDLE, RRC\_INACTIVE or ‘indirect’ RRC\_CONNECTED for the multi-hop indirect path.

Discussion:

LG think there are related proposals in the control plane agenda item. They understand that the plenary discussion excluded multi-hop U2U operation, so if we want to support two additional hops, using a U2U model would force us to support multi-hop U2U; thus they think we cannot support a solution under this WI that is based on the U2U design.

Huawei have the same understanding as LG and think we need to focus on the U2N model.

ZTE think the proposal is not intended to discuss the model, but they have concern about the “indirect RRC\_CONNECTED” part; they consider that there is no such state, and if we scope the states in this way, RRC\_IDLE and RRC\_INACTIVE could also be “indirect”. LG agree there is no “indirect RRC\_CONNECTED” state as such, but they mean to capture RRC\_CONNECTED for a UE with an indirect connection.

vivo think the issue is whether the intermediate UEs can be seen/controlled by the network, and they agree with Huawei and LG and think that each intermediate UE should be visible to the network.

Qualcomm think we should discuss it under the control plane.

Ericsson echo the understanding of LG but think this can be further discussed under control plane.

Apple think we can borrow some functionality from U2U without specifying U2U multi-hop.

Proposal 9: Discuss whether the last relay UE and intermediate relay UEs on a multi-hop indirect path can be in different cell coverages or should be in the same cell coverage.

[R2-2407378](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407378%20-%20Working%20Assumptions%20on%20multi-hop%20Relay%20Solutions%20for%20public%20Safety_V3.docx) Discussion on Working Assumptions for Multi-hop Relay Mechanisms InterDigital France R&D, SAS, LG Electronics, FirstNet, Ericsson, AT&T, Qualcomm, Samsung discussion

* Revised in R2-2407390

[R2-2407390](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407390%20-%20Working%20Assumptions%20on%20multi-hop%20Relay%20Solutions%20for%20public%20Safety_V3.docx) Discussion on Working Assumptions for Multi-hop Relay Mechanisms InterDigital France R&D, SAS, LG Electronics, FirstNet, Ericsson, AT&T, Qualcomm, Samsung discussion

Proposal 1 RAN2 to focus on developing mechanisms aiming to minimize the impact of hop count on the developed multi-hop relay mechanisms.

Proposal 2 RAN2 to develop mechanism from the onset of Rel19 work which are applicable to at least 2 additional hop relays.

Discussion:

Nokia understand the intention of P2 is not to develop two-hop mechanisms from the beginning but to design in flexibility for a unified mechanism.

Huawei agree with the proposals and think we should aim for a hop-agnostic design.

Samsung think the intention of the second agreement is that we should avoid mechanisms that are limited to two additional hops. Qualcomm understand that the intention is to consider two additional hops from the beginning.

LG think the solution can be hop-agnostic and we could design for extra hops if it works.

AT&T think we might dimension the design to accommodate a fixed number of hops, and their goal is for it to be agnostic.

Agreements:

RAN2 intend to minimize the impact of hop count on the multi-hop relay mechanisms.

RAN2 intend to design mechanisms from the start of the WI that are flexible enough to be adapted to at least two additional hops in Rel-19.

### 8.13.2 Relay discovery and (re)selection

Enhancements to relay dscovery and (re)selection to support one additional hop relay (remote UE ⬄ first relay UE ⬄ last relay UE ⬄ gNB). Extensibility to a second additional hop in this WI is considered as a design criterion.

[R2-2407101](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407101-Discovery%20and%20Relay%20%28re%29selection%20for%20multi-hop%20U2N%20relay.docx) Discovery and Relay (re)selection for multi-hop U2N relay Qualcomm Incorporated discussion

[Discovery basic assumptions]

Proposal 4 Taking the existing discovery mechanisms as baseline for Multi-hop U2N Discovery message

- Reuse existing AS discovery protocol to transmit Multi-hop U2N Discovery message

- Reuse SL-SRB4 transmit Multi-hop U2N Discovery message.

- Reuse existing resource pools defined for discovery message transmission and reception

- Both of resource allocation mode 1 or mode 2 can be supported as today.

- Configuration can be provided by SIB/dedicated message or pre-configured as today

Discussion:

Samsung wonder if this is only between the remote UE and the relay UE or also between two relay UEs. Ericsson understand that mode 1 implies we are considering also relay UEs, because the remote UE OOC cannot support mode 1.

Huawei are OK with the proposals and think we could add that both models A and B can be supported.

Kyocera wonder if the different UEs in the chain would use different resource pools. Apple think there is no requirement to align the configuration. LG think this was resolved by the previous release when we discussed resource pool coordination: It is up to gNB to coordinate.

Agreements:

From RAN2 perspective, models A and B can both be supported.

Reuse existing AS discovery protocol to transmit discovery message for multi-hop U2N relaying.

Reuse SL-SRB4 to transmit discovery message for multi-hop U2N relaying.

Reuse existing resource pools defined for discovery message transmission and reception

Both of resource allocation mode 1 or mode 2 can be supported as in Rel-17/18 at least by relay UEs; FFS mode 1 for remote UE.

Configuration can be provided by SIB/dedicated message or pre-configured as in Rel-17/18.

[R2-2407294](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407294%20Relay%20discovery%20and%20%28re%29selection%20for%20Multi%20hop%20Relay.docx) Relay discovery and (re)selection for multi-hop Relay Huawei, HiSilicon discussion Rel-19 NR\_SL\_relay\_multihop-Core

[Discovery conditions/thresholds]

Proposal 3: The condition for the Remote UE to perform the discovery for multi-hop Relay can be one of the following, i.e., if the RSRP measurement of the serving cell is below a Uu threshold, or the Remote UE could not find a serving cell, the Remote UE can perform discovery procedure.

Proposal 4: Consider the following conditions for the Intermediate Relay UE to perform the discovery.

1. The PC5 link quality of the Intermediate Relay UE with U2N Relay or another Intermediate Relay UE (for > 2 hops) is above a threshold

2. The hop number between the Intermediate Relay UE and the gNB is below a threshold

3. The number of the UE served by the U2N Relay UE of the Intermediate Relay UE is below a threshold.

Discussion:

Samsung understand that P3 is to reuse existing mechanisms and we do not need to list all cases.

vivo think P3 is OK, and we can further discuss if it is the same or a different threshold. They also think there should be a Uu threshold for the intermediate relay UEs, which could also be based on the legacy operation.

LG think P3 can be discussed along with P6, and they wonder about the definition of “number of UEs served” in item 3 of P4.

NEC think the intermediate relay UE should be a last relay UE if the cell RSRP is above a threshold.

Ericsson disagree with all the proposed bullets for the intermediate relay UE.

InterDigital think we could agree to hop count from RAN2 perspective and see what SA2 do.

OPPO agree with the first bullet and think the intermediate relay UE should not be in cell centre. In inter-cell cases, they understand that it could cause interference to its own serving cell. For the hop number, they think it can be considered from SA2 perspective.

AT&T would like to defer the decisions on intermediate relays; they think there will be unusual situations that may affect the criteria.

vivo wonder if we can reuse legacy criteria for the last relay UE. NEC think we do not need the high threshold, because a relay at cell centre may be needed when the surrounding intermediate relay UEs are in bad coverage.

CATT wonder about the relation to discovery models.

OPPO support the legacy conditions for the last relay UE, and they think there is no need to differentiate multi-hop from single-hop discovery in this setting.

Samsung understand the first two proposed agreements just align with legacy design.

ZTE think on the second proposed agreement, the two thresholds may not both be configured.

Agreements:

If the RSRP measurement of the serving cell is below a Uu threshold, or the Remote UE could not find a serving cell, the Remote UE can perform discovery transmission, as in Rel-17/18.

If the Uu RSRP measurement of the serving cell is above a low threshold and below a high threshold, the last relay UE can perform discovery transmission, as in Rel-17/18 (subject to how the gNB configures one or both thresholds).

FFS discovery conditions for the intermediate relay UEs.

[(Re)selection triggers]

Proposal 6: The Relay selection for multi-hop relay can follow the Release 17 design that U2N Remote UE triggers U2N Relay selection in following cases:

• The RSRP measurement of the cell on which U2N Remote UE camps is below a configured threshold

• Indicated by upper layer of the U2N Remote UE.

• PC5 link quality between the current serving Intermediate Relay UE and remote UE is below a configured threshold.

• Upon receiving the notification message from the serving Intermediate Relay UE.

• The U2N Remote UE receive the PC5 link release indication from the serving Intermediate Relay UE.

• The U2N Remote UE detects the PC5 RLF

• Indicated by upper layer of the U2N Remote UE.

Proposal 8: The serving Intermediate Relay UE sends the notification message to the U2N Remote UE when the cell selection, relay reselection, handover, PC5 RLF, Uu RRC connection establishment/resume failure happens, or upon receiving the notification message from the U2N Relay that indicating the Cell reselection, handover, Uu RLF, or Uu RRC connection establishment/resume failure of the U2N Relay UE

[R2-2406553](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406553%20Discussion%20on%20multi-hop%20U2N%20relay%20discovery%20and%20relay%20selection.docx) Discussion on multi-hop U2N relay discovery and relay selection NEC discussion NR\_SL\_relay\_multihop

[Suitability criteria]

Proposal 10 A U2N intermediate UE is considered suitable by a U2N remote UE in terms of radio criteria if the PC5 link quality measured by U2N remote UE towards the U2N intermediate UE exceeds configured threshold.

[R2-2406714](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406714%20%28R19%20SL%20Relay%20WI_AI8132%20RelayDiscoverySelection%29.doc) Discovery and relay (re)selection for multi-hop relay InterDigital France R&D, SAS discussion

[(Re)selection criteria]

Proposal 7: RAN2 defines rules to select among multiple relays which consider both the number of hops to the gNB and the sidelink RSRP to the parent node.

Proposal 8: (Re)selection should prioritize a relay with the next hop already established via an existing PC5-RRC connection.

[R2-2406365](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406365%20-%20Discovery%20and%20relay%20%28re%29selection%20for%20multi-hop%20U2N%20relay.docx) Discovery and relay (re)selection for multi-hop U2N relay OPPO discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406528](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406528%20Discussions%20on%20relay%20discovery%20for%20multi-hop%20U2N%20Relay.docx) Discussions on relay discovery for multi-hop U2N Relay ASUSTeK discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2406562](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406562%20Discussion%20on%20multi-hop%20discovery%20and%20%28re%29selection.docx) Discussion on multi-hop discovery and (re)selection CATT discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406611](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406611_RelayDisc%26Resel.docx) Initial considerations on relay discovery and (re)selection Samsung discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406632](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406632.docx) Multi-hop relay selection/re-selection Sony discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406683](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406683%20Discussion%20on%20relay%20discovery.docx) Relay discovery and selection for Multi-hop UE-to-NW Relay Apple discussion Rel-19 DUMMY

[R2-2406695](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406695_Discussion%20on%20multi-hop%20Relay%20discovery%20and%20%28re%29selection.doc) Discussion on discovery and (re)selection for support of multi-hop SL Relay ZTE Corporation, Sanechips discussion NR\_SL\_relay\_multihop-Core

[R2-2406887](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406887%20Relay%20discovery%20and%20%28re%29selection%20in%20Multi-hop%20relay%20v1.1.doc) Relay discovery and (re)selection in Multi-hop relay Lenovo discussion Rel-19

[R2-2406898](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406898_Discussion%20on%20multi-hop%20relay%20discovery%20and%20reselection.docx) Discussion on multi-hop relay discovery and reselection China Telecom discussion Rel-19

[R2-2407007](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407007_Discussion%20on%20multi-hop%20relay%20discovery%20and%20%28re%29selection.docx) Discussion on multi-hop U2N Relay discovery and (re)selection vivo discussion Rel-19

[R2-2407035](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407035%20-%20discussion%20on%20discovery%20and%20relay%20%28re%29selection.docx) discussion on discovery and relay (re)selection Ericsson, FirstNet, AT&T discussion Rel-19

[R2-2407057](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407057-Discussion%20on%20the%20discovery%20and%20relay%20%28re%29selection.docx) Discussion on Relay discovery and selection LG Electronics France discussion Rel-19

[R2-2407204](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407204.docx) Discussion on relay discovery and (re)selection for NR sidelink multi-hop relay TOYOTA InfoTechnology Center discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2407205](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407205_relay_discovery_reselection.docx) Discovery and (re)selection under multihop relay Kyocera discussion

[R2-2407316](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407316%20Relay%20discovery%20and%20selection%20for%20MH%20relay.docx) Relay discovery and reselection for multi-hop relay Nokia discussion NR\_SL\_relay\_multihop

[R2-2407402](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407402-MH-reselection.docx) discussion on Relay discovery and (re)selection for multi-hop relay Sharp discussion Rel-19 NR\_SL\_relay\_multihop-Core

Withdrawn/Not available

R2-2406735 Discussion on multi-hop relay discovery and (re)selection vivo discussion

* Withdrawn

R2-2407224 Discussion on Working Assumptions for Multi-hop Relay Mechanisms FirstNet, Ericsson, AT&T, LG Electronics, InterDigital, Qualcomm discussion Rel-19

=> Withdrawn

### 8.13.3 Control Plane Procedures

Contributions should focus on control plane procedures and can include QoS handling to support additional hops. NOTE: No service continuity aspects should be discussed in contributions for this meeting.

[R2-2407008](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407008_Discussion%20on%20multi-hop%20U2N%20Relay%20Control%20Plane%20Procedures.docx) Discussion on multi-hop U2N Relay Control Plane Procedures vivo discussion Rel-19

[PC5-RRC connections]

Proposal 2 RAN2 to agree the basic assumption for Multi-hop U2N relay path setup (see Figure 1):

- From U2N Relay UE perspective:

 A per-hop PC5 connection with U2N intermediate Relay UE, and

 A per-hop Uu connection with serving gNB.

- From Intermediate U2N Relay UE perspective:

 A per-hop PC5 connection with U2N Relay UE, and

 A per-hop PC5 connection with U2N Remote UE, and

 An end-to-end Uu connection with serving gNB.

- From U2N Remote UE perspective:

 A per-hop PC5 RRC connection with U2N Intermediate Relay UE, and

 An end-to-end Uu RRC connection with serving gNB.

Discussion:

vivo clarify that they assume for ongoing services, the whole chain of UEs must be in RRC\_CONNECTED.

Apple think this is specific to the single-extra-hop case and the terminology needs to be adjusted. They also to not see why the intermediate relay UE needs a connection with the gNB.

Ericsson think we cannot assume RRC\_CONNECTED now.

Qualcomm think there is ambiguity about which gNB serves the intermediate relay UE, and the Uu connections are obvious if we assume the UEs are in RRC\_CONNECTED.

Kyocera wonder if we have to be concerned about when the PC5 connections are established.

Huawei think we can consider the baseline as being all UEs in RRC\_CONNECTED.

Qualcomm wonder about the case that an intermediate relay UE connects to multiple other relay UEs served by different cells; who governs the state of the intermediate relay?

Samsung understand that the serving gNBs should be the same for all UEs.

Agreements:

The following connections are assumed as a baseline to be needed:

- From last Relay UE perspective:

 A direct (non-relayed) PC5 connection with the first or an intermediate Relay UE, and

 A direct (non-relayed) Uu connection with serving gNB, if in RRC\_CONNECTED.

- From intermediate relay UE perspective (including first relay UE):

 A direct (non-relayed) PC5 connection with each of two adjacent (remote or relay) UEs, and

 An end-to-end Uu connection with serving gNB, if in RRC\_CONNECTED.

FFS what RRC states are supported for the intermediate relay UE.

- From U2N Remote UE perspective:

 A direct (non-relayed) PC5 connection with Intermediate Relay UE, and

 An end-to-end Uu RRC connection with serving gNB, if in RRC\_CONNECTED.

[Stacks]

Proposal 4 RAN2 to agree the Multi-hop CP protocol stack as shown in Figure 2. [E2E Uu-PDCP and above, hop-by-hop RLC and below]

Proposal 5 RAN2 to agree the Multi-hop UP protocol stack as shown in Figure 3. [E2E Uu-PDCP and above, hop-by-hop RLC and below]

Discussion:

LG note the intermediate relay UE may have only one PC5-SRAP entity.

Agreements:

The multi-hop CP protocol stack is end-to-end for Uu-PDCP and above and hop-by-hop for SRAP and below (as in Rel-17/18).

The multi-hop UP protocol stack is end-to-end for Uu-PDCP and above and hop-by-hop for SRAP and below (as in Rel-17/18).

[RRC connection establishment]

Proposal 6 RAN2 to agree the general procedure of RRC connection establishment for U2N Remote UE via one additional hops relay (illustrated in Figure 4) as the discussion start point. The procedure includes:

- U2N Remote UE, Intermediate U2N Relay UE and U2N Relay UE performing discovery and PC5 Connection Establishment;

- U2N Remote UE sends the first RRCSetupRequest to gNB, which triggers Intermediate U2N Relay UE and/or U2N Relay UE to enter RRC\_CONNECTED if they are in RRC\_IDLE/INACTIVE;

- U2N Remote UE and gNB complete connection establishment, security establishment, RRC reconfiguration and so on.

[R2-2406713](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406713%20%28R19%20SL%20Relay%20WI_AI8.13.3%20CP%20Handling%29.doc) Scenarios, QoS Handling, and Control Plane Procedures for Multi-hop InterDigital France R&D, SAS discussion

[Paging and SI]

Proposal 13: Paging and system information monitoring and forwarding at the U2N relay UE re-use the rules from Rel17 using PC5-RRC signalling on the corresponding dedicated PC5-RRC connection with each intermediate relay UE/remote UE.

[R2-2406612](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406612_CP_v2.docx) Initial considerations on CP and UP aspects for R19 multi-hop relay Samsung discussion Rel-19 NR\_SL\_relay\_multihop-Core

[RLF handling]

Proposal 3-2: RAN2 is kindly asked to agree that the Uu RLF of last relay UE can trigger the notification message transmission or PC5 link release toward the connected first relay UE.

Proposal 3-3: RAN2 is kindly asked to agree that the PC5 RLF between first relay UE and last relay UE can trigger the RRC connection re-establishment of the first relay UE.

[R2-2406366](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406366%20-%20Control%20plane%20procedures%20of%20multi-hop%20U2N%20relay.docx) Control plane procedures of multi-hop U2N relay OPPO discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406494](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406494%20Discussion_on_control_plane_procedures_for_multihop_relay.docx) Discussion on control plane procedures for multi-hop relays MediaTek Inc. discussion Rel-19

[R2-2406506](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406506_Considerations%20on%20Control%20Plane%20of%20Multi-hop%20Relay.docx) Considerations on Control Plane of Multi-hop Relay NEC discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406529](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406529%20Discussions%20on%20the%20L2%20Intermediate%20U2N%20Relay%20in%20multi-hop%20L2%20U2N%20Relay.docx) Discussions on the L2 Intermediate U2N Relay in multi-hop L2 U2N Relay ASUSTeK discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2406563](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406563%20E2E%20Connection%20Setup%20and%20QoS%20Split%20for%20Multi-hop%20Relay.docx) E2E Connection Setup and QoS Split for Multi-hop Relay CATT discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406633](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406633.docx) Control plane procedure for multi-hop U2N relay Sony discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406684](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406684%20Discussion%20on%20CP.docx) Control Plane Design for Multi-hop UE-to-NW Relay Apple discussion Rel-19 DUMMY

[R2-2406696](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406696_Discussion%20on%20control%20plane%20procedures%20for%20support%20of%20multi-hop%20Relay.doc) Discussion on architecture and control plane procedures for support of multi-hop SL relay ZTE Corporation, Sanechips discussion NR\_SL\_relay\_multihop-Core

[R2-2406755](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406755%20Discussion%20on%20QoS%20handling%20for%20NR%20sidelink%20multi-hop%20relay.docx) Discussion on QoS handling for NR sidelink multi-hop relay Spreadtrum Communications discussion Rel-19

[R2-2406888](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2406888%20Control%20plane%20in%20Multi-hop%20relay%20v1.0.doc) Control plane in Multi-hop relay Lenovo discussion Rel-19

[R2-2407034](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407034%20-%20discussion%20on%20control%20plane%20procedure.docx) discussion on control plane procedure Ericsson, FirstNet, AT&T discussion Rel-19

[R2-2407058](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407058-Discussion%20on%20the%20control%20plane%20procedure.docx) Discussion on Control Plane Procedure LG Electronics France discussion Rel-19

[R2-2407102](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407102-Control%20procedure%20for%20multi-hop%20L2%20based%20U2N%20relay.docx) Control procedure for multi-hop L2 based U2N relay Qualcomm Incorporated discussion

[R2-2407111](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407111%20Discussion%20on%20control%20plane%20procedures%20for%20NR%20sidelink%20multi-hop%20relay.docx) Discussion on control plane procedures for NR sidelink multi-hop relay China Telecom discussion Rel-19

[R2-2407206](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407206_relay_CP.docx) Control Plane under multihop L2 U2N relaying Kyocera discussion

[R2-2407295](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407295%20Control%20Plane%20Procedures%20for%20Multi-hop%20Relay.docx) Control plane procedures for multi-hop relay Huawei, HiSilicon discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2407318](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407318%20Control%20Plane%20procedure%20for%20MH%20relay.docx) Control plane procedure for multi-hop relay Nokia discussion NR\_SL\_relay\_multihop

[R2-2407403](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202408%20-%20RAN2_127%2C%20Maastricht%5CExtracts%5CR2-2407403-MH-Cplane.docx) discussion on C-plane procedure for multi-hop relay Sharp discussion Rel-19 NR\_SL\_relay\_multihop-Core

Withdrawn/Not available

R2-2406736 Discussion on Multi-hop Control Plane Procedures vivo discussion

* Withdrawn