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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2406288 Correction to SBAS and GNSS ID for posSIB-r15_v00.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2406288 Correction to SBAS and GNSS ID for posSIB-r15_v00.docx) 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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406289%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406290%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406291%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:\\Users\\mtk16923\\Documents\\3GPP%20Meetings\\202408%20-%20RAN2_127,%20Maastricht\\Extracts\\R2-2406295%20Correction%20on%20SP%20positioning%20SRS%20MAC%20CE-r16.docx" \o "C:Usersmtk16923Documents3GPP Meetings202408 - RAN2_127, MaastrichtExtractsR2-2406295 Correction on SP positioning SRS MAC CE-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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406296%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406297%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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2406948 Correction on T300 and T302 handling due to relay selection or cell selection (Rel-17).docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2406948 Correction on T300 and T302 handling due to relay selection or cell selection (Rel-17).docx) 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

[R2-2406949](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406949%20Correction%20on%20T300%20and%20T302%20handling%20due%20to%20relay%20selection%20or%20cell%20selection%20(Rel-18).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

[R2-2407270](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407270%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

[R2-2407272](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407272%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

[R2-2407495](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407495%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

[R2-2407496](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407496%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

## 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:\\Users\\mtk16923\\Documents\\3GPP%20Meetings\\202408%20-%20RAN2_127,%20Maastricht\\Extracts\\R2-2406298%20Correction%20on%20PPW%20for%20MAC%20spec-r17.docx" \o "C:Usersmtk16923Documents3GPP Meetings202408 - RAN2_127, MaastrichtExtractsR2-2406298 Correction on PPW for MAC spec-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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406299%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406788%20Correction%20on%20SP%20SRS%20activation%20deactivation%20MAC%20CE(R17).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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406789%20Correction%20on%20SP%20SRS%20activation%20deactivation%20MAC%20CE(R18).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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406790%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407223.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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407226.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:\\Users\\mtk16923\\Documents\\3GPP%20Meetings\\202408%20-%20RAN2_127,%20Maastricht\\Extracts\\R2-2406208_R1-2405511.docx" \o "C:Usersmtk16923Documents3GPP Meetings202408 - RAN2_127, MaastrichtExtractsR2-2406208_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406238_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406213_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406207_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406791%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406228_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407228.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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406315%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

[R2-2406950](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\37355_CR0512_(Rel-18)_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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\38305_CR0165r1_(Rel-18)_R2-2406508.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\38305_CR0165r1_(Rel-18)_R2-2406508.docx) 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

[R2-2407227](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407227.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

[R2-2407234](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407234%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

### 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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406374_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406375%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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2406294 Discussion on the remaining isues for SLPP for R18 POS.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2406294 Discussion on the remaining isues for SLPP for R18 POS.docx) 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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406516%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406809%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407146_(CR%2038355-i20).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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407369%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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2407149_(CR 37355-i20).docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2407149_(CR 37355-i20).docx) 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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407230.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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407253%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407221.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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2406405 Miscellaneous Corrections for sidelink positioning.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2406405 Miscellaneous Corrections for sidelink positioning.docx) 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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406793%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

[R2-2407273](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407273%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

Extension of CBR ranges (NBC and BC alternatives)

[R2-2406510](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\38331_CR4879_(Rel-18)_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

[R2-2407559](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407559%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

### 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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2406293 Discussion on the remaining isues for MAC for R18 POS.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2406293 Discussion on the remaining isues for MAC for R18 POS.docx) Discussion on the remaining issues for MAC for R18 POS Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

[R2-2406376](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406376%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

[R2-2406404](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406404%20Correction%20on%20Tx%20carrier%20(re-)selection%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

[R2-2406792](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406792%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

[R2-2406855](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406855.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

[R2-2407232](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407232.docx) Aggregated Resource Definition and corrections Ericsson discussion Rel-18 38.321 NR\_pos\_enh2-Core

[R2-2407296](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407296%20Corrections%20on%20SL-PRS_v1.docx) Corrections on SL-PRS ASUSTeK discussion NR\_pos\_enh2

### 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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2406810 Add capability for FG R1 41-1-17 in NR Uu.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2406810 Add capability for FG R1 41-1-17 in NR Uu.docx) 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

[R2-2407560](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407560%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

### 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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407059-draft_(Rel-18)_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

Other contributions

[R2-2406698](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2406698 Corrections for U2U relay-300.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2406698 Corrections for U2U relay-300.docx) 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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407267%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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2406368 - Correction for U2N remote UE's serving cell during path switch.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2406368 - Correction for U2N remote UE's serving cell during path switch.docx) 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

[R2-2406369](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406369%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

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.

[R2-2406556](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406556_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.

[R2-2406557](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\38331_draftCR_(Rel-18)_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

[R2-2406599](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406599_Remaining%20Open%20Issues%20in%2038331.docx) Remaining Open Issues in 38.331 Ericsson discussion Rel-18

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.

[R2-2406679](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406679%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

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.

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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406680%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

[R2-2406697](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406697%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

[R2-2406946](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406946%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

[R2-2407116](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407116%20R18-RRC-correction.docx) Correction in U2U relay sidelink DRB addition/modification Nokia discussion Rel-18 NR\_SL\_relay\_enh-Core

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

[R2-2407268](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407268%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

[R2-2407411](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407411-U2U.docx) Discussion on U2U relay related issues Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2406600_Remaining Open Issues in 38323.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2406600_Remaining Open Issues in 38323.docx) Remaining Open Issues in 38.323 Ericsson discussion Rel-18

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.

[R2-2406947](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406947%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

[R2-2407293](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407293%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

### 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](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202408 - RAN2_127, Maastricht\\Extracts\\R2-2407103-Discussion on MP relay capabilities.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202408 - RAN2_127, Maastricht\Extracts\R2-2407103-Discussion on MP relay capabilities.docx) 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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407145%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

Other organizational documents

[R2-2407147](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407147%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.

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.

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.

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.

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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407378%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407390%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.

### 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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407101-Discovery%20and%20Relay%20(re)selection%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

[R2-2407294](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407294%20Relay%20discovery%20and%20(re)selection%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.

[(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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406553%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406714%20(R19%20SL%20Relay%20WI_AI8132%20RelayDiscoverySelection).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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406365%20-%20Discovery%20and%20relay%20(re)selection%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406528%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406562%20Discussion%20on%20multi-hop%20discovery%20and%20(re)selection.docx) Discussion on multi-hop discovery and (re)selection CATT discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406611](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406611_RelayDisc&Resel.docx) Initial considerations on relay discovery and (re)selection Samsung discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406632](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406632.docx) Multi-hop relay selection/re-selection Sony discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406683](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406683%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406695_Discussion%20on%20multi-hop%20Relay%20discovery%20and%20(re)selection.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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406887%20Relay%20discovery%20and%20(re)selection%20in%20Multi-hop%20relay%20v1.1.doc) Relay discovery and (re)selection in Multi-hop relay Lenovo discussion Rel-19

[R2-2406898](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406898_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407007_Discussion%20on%20multi-hop%20relay%20discovery%20and%20(re)selection.docx) Discussion on multi-hop U2N Relay discovery and (re)selection vivo discussion Rel-19

[R2-2407035](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407035%20-%20discussion%20on%20discovery%20and%20relay%20(re)selection.docx) discussion on discovery and relay (re)selection Ericsson, FirstNet, AT&T discussion Rel-19

[R2-2407057](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407057-Discussion%20on%20the%20discovery%20and%20relay%20(re)selection.docx) Discussion on Relay discovery and selection LG Electronics France discussion Rel-19

[R2-2407204](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407204.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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407205_relay_discovery_reselection.docx) Discovery and (re)selection under multihop relay Kyocera discussion

[R2-2407316](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407316%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407402-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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407008_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.

[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]

[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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406713%20(R19%20SL%20Relay%20WI_AI8.13.3%20CP%20Handling).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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406612_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406366%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406494%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406506_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406529%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406563%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406633.docx) Control plane procedure for multi-hop U2N relay Sony discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2406684](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406684%20Discussion%20on%20CP.docx) Control Plane Design for Multi-hop UE-to-NW Relay Apple discussion Rel-19 DUMMY

[R2-2406696](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406696_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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406755%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2406888%20Control%20plane%20in%20Multi-hop%20relay%20v1.0.doc) Control plane in Multi-hop relay Lenovo discussion Rel-19

[R2-2407034](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407034%20-%20discussion%20on%20control%20plane%20procedure.docx) discussion on control plane procedure Ericsson, FirstNet, AT&T discussion Rel-19

[R2-2407058](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407058-Discussion%20on%20the%20control%20plane%20procedure.docx) Discussion on Control Plane Procedure LG Electronics France discussion Rel-19

[R2-2407102](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407102-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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407111%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407206_relay_CP.docx) Control Plane under multihop L2 U2N relaying Kyocera discussion

[R2-2407295](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407295%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:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407318%20Control%20Plane%20procedure%20for%20MH%20relay.docx) Control plane procedure for multi-hop relay Nokia discussion NR\_SL\_relay\_multihop

[R2-2407403](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202408%20-%20RAN2_127,%20Maastricht\Extracts\R2-2407403-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