3GPP TSG-RAN WG2 Meeting #131 R2-25xxxxx

Bengaluru, India, 25-29 August 2025

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

# 5 NR Rel-15 and Rel-16

Essential corrections only.

Tdoc Limitation: 4 Tdocs in total for agenda item 5 (incl. its sub agenda items) and agenda item 6 (incl. its sub agenda items)

In case a correction need to be reflected in both NR TS and LTE TS, the corrections should be submitted under one single AI (so the NR and LTE correction can be 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.

[R2-2505324](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505324%20Correction%20on%20delivery%20of%20posSIB%20segments%20by%20dedicated%20siganling%20in%20RRC_CONNECTED_r16.docx) Correction to delivery of posSIB segments by dedicated signalling in RRC\_CONNECTED Huawei, HiSilicon, Ericsson, Qualcomm CR Rel-16 38.331 16.20.0 5407 - F NR\_pos-Core

* Revised in R2-2506301

Discussion:

Lenovo think this behaviour would be mandatory for the UE. Huawei confirm that it is intended as a correction.

Nokia think the problem description is not crystal-clear, and they are not sure it is critical; it may be just a matter of efficiency. They also have some concern that the changed text is in sections that are general to SIBs and posSIBs and include the broadcast aspects, and they wonder if it would be an alternative to have multiple SI messages in the dedicated message. Huawei note that there is no ASN.1 change, and they think it is a genuine correction because there are cases where the posSIB needs to be delivered quickly.

vivo ask if there really is a restriction in the spec today. Chair understands that the SI message has the restriction and the OCTET STRING contains the message format.

Ericsson think the CR just clarifies what the network would be allowed to do and distinguishes dedicated from broadcast.

Nokia are bothered by the change of the mapping so that it would be different for broadcast and unicast. They also are concerned by the change to the section about SIBs and posSIBs. Ericsson think the latter change is not essential to have. Qualcomm disagree with Ericsson in this respect and think we need to fix the requirement for only one segment of a posSIB in the SI message, but they agree that it would be nicer if we had a clear separation between the broadcast and unicast cases.

Nokia would prefer not to change anything and think the efficiency issue raised in the coversheet is not critical.

Huawei understand that section 5.2.1 is not specific to broadcast but covers any form of the SI message.

Nokia can accept the change in principle but need to take a further look at the wording.

ZTE think we could address vivo’s question in the offline as well, and they think the change could also be applied to non-positioning SIBs. Chair thinks we should not change the other SIBs in this session; CATT agree and think the use case for non-positioning SIBs would need to be discussed.

Huawei understand the difference here is that the posSIBs are generated by the LMF, not the gNB, so for non-positioning SIBs the gNB can do something in implementation.

* [AT131][401][POS] CRs on posSIB segments in dedicated signalling (Huawei)

Scope: Check and update the CRs in R2-2505324 / R2-2505325 / R2-2505640, including confirming if there is a restriction in the spec today. Intention is to allow multiple segments of a posSIB when sent by dedicated signalling, without changing the broadcast behaviour or the non-positioning SIBs.

Intended outcome: Agreeable CRs in R2-2506301 / R2-2506302 / R2-2506303 if needed, and report in R2-2506317

Deadline: Wednesday 2025-08-27 1900 IST

[R2-2505325](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505325%20Correction%20on%20delivery%20of%20posSIB%20segments%20by%20dedicated%20siganling%20in%20RRC_CONNECTED_r17.docx) Correction to delivery of posSIB segments by dedicated signalling in RRC\_CONNECTED Huawei, HiSilicon, Ericsson, Qualcomm CR Rel-17 38.331 17.13.0 5408 - A NR\_pos-Core

* Revised in R2-2506302

[R2-2505326](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505326%20Correction%20on%20delivery%20of%20posSIB%20segments%20by%20dedicated%20siganling%20in%20RRC_CONNECTED_r18.docx) Correction on delivery of posSIB segments by dedicated siganling in RRC\_CONNECTED Huawei, HiSilicon, Ericsson, Qualcomm CR Rel-18 38.331 18.6.0 5409 - A NR\_pos-Core

* Revised in R2-2505640

[R2-2505640](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505640%20Correction%20on%20delivery%20of%20posSIB%20segments%20by%20dedicated%20siganling%20in%20RRC_CONNECTED_r18.docx) Correction to delivery of posSIB segments by dedicated signalling in RRC\_CONNECTED Huawei, HiSilicon, Ericsson, Qualcomm CR Rel-18 38.331 18.6.0 5409 1 A NR\_pos-Core R2-2505326

* Revised in R2-2506303

[R2-2506317](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506317%20Summary%20for%20%5bAT131%5d%5b401%5d%5bPOS%5d%20CRs%20on%20posSIB%20segments%20in%20dedicated%20signaling%20(Huawei)_v10_Rapp.docx) Summary for [AT131][401][POS] CRs on PosSIB segments in dedicated signalling (Huawei) Huawei discussion Rel-16 NR\_pos-Core

* Noted

Proposal1: Provide following overall clarification in the section of 5.2.1 to highlight the difference in handling of posSIB segments between broadcast and dedicated delivery of posSIB. Remove the previous change in 5.2.1.

- For a UE in RRC\_CONNECTED, the network may provide multiple segments of a posSIB of the same posSIB type through dedicated signalling using the RRCReconfiguration message.

Proposal2: Adopt the following change for the field description for dedicatedPosSysInfoDelivery

dedicatedPosSysInfoDelivery

This field is used to transfer SIBPos to the UE in RRC\_CONNECTED. This field may contain multiple posSIB segments of the same posSIB type. When the number of segments of posSIB of the same posSIB type exceeds the maximum number of posSIBs that this field could carry (i.e., 32), the posSIB segments of the same posSIB type could be delivered in multiple RRCReconfiguration messages.

[R2-2506301](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506301%20Correction%20on%20delivery%20of%20posSIB%20segments%20by%20dedicated%20siganling%20in%20RRC_CONNECTED_r16_v03_Rapp.docx) Correction to delivery of posSIB segments by dedicated signalling in RRC\_CONNECTED Huawei, HiSilicon, Ericsson, Qualcomm CR Rel-16 38.331 16.20.0 5407 1 F NR\_pos-Core

* Not pursued

Discussion:

ZTE think this is gNB implementation behaviour and the spec already allows it. They would be OK to capture guidance in the minutes.

Huawei think this is a question of how you interpret the signalling and what is in the container, but it is not completely clear from the spec. Chair thinks it is unambiguous that the container does not contain a SystemInformation message. CATT agree with the chair.

CATT think the first change in the CR is not essential because it is related to dedicated signalling rather than the SI message as such. Huawei clarify that the intention is to isolate the change to posSIBs, and they think that the relevant section is about system information, not just the SI message.

Nokia think it might be OK to capture guidance in the minutes, but if something is captured in the spec it should be clear and thorough.

Huawei think implementation teams will read the spec, and it may not be clear there. ZTE think it is business as usual that we capture implementation guidance in the notes when something is not broken.

ZTE understand that the previous discussion resulted in a lot of companies feeling the change was an optimization. Huawei clarify that the earlier version of the CR had normative impact and this version is for clarification.

Nokia think we could add a NOTE.

Ericsson think it is clear that the ASN.1 already allows this behaviour, but it was not clear that the UE would be able to handle it.

Huawei and Ericsson would be OK with a NOTE. ZTE think we do not need anything and it should be clear that anything not forbidden for the gNB is allowed.

Nokia think it is not uncommon to have network implementation guidance in the spec.

CATT think the bar for Rel-16 should be higher than this.

Huawei note that the RRC is more than just ASN.1, and how the network behaves may not be clear today, so they see the change as critical. Ericsson agree with Huawei and note that there was discussion of whether a UE capability would be needed.

ZTE think we should not open the door for clarifications like this going back to Rel-16.

Agreement:

RAN2 confirm that for a UE in RRC\_CONNECTED, the network may provide multiple segments of a posSIB of the same posSIB type through dedicated signalling using the RRCReconfiguration message.

[R2-2506302](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506302%20Correction%20on%20delivery%20of%20posSIB%20segments%20by%20dedicated%20siganling%20in%20RRC_CONNECTED_r17_v03_Rapp.docx) Correction to delivery of posSIB segments by dedicated signalling in RRC\_CONNECTED Huawei, HiSilicon, Ericsson, Qualcomm CR Rel-17 38.331 17.13.0 5408 1 A NR\_pos-Core

* Not pursued

[R2-2506303](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506303%20Correction%20on%20delivery%20of%20posSIB%20segments%20by%20dedicated%20siganling%20in%20RRC_CONNECTED_r18_v03_Rapp.docx) Correction to delivery of posSIB segments by dedicated signalling in RRC\_CONNECTED Huawei, HiSilicon, Ericsson, Qualcomm CR Rel-18 38.331 18.6.0 5409 2 A NR\_pos-Core R2-2505640

* [Post131][418][POS] Rel-18 CR on multiple posSIB segments in dedicated signalling (Huawei)

Scope: Update the CR in R2-2503603 to a category F CR reflecting the guidance in the chair notes from RAN2#131.

Intended outcome: Agreed CR

Deadline: Short (for RP)

# 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.

Tdoc Limitation: 4 Tdocs in total for agenda item 5 (incl. its sub agenda items) and agenda item 6 (incl. its sub agenda items)

## 6.3 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))

# 7 Rel-18

## 7.0 Common

Rel-18 WIs not covered under an explicit AI in 7.x. Multi-WI Rel-18 items, e.g. cross-WI-issues not handled under another WI. UE capabilities.

### 7.0.2 Rel-18 corrections

*Essential corrections only. For smaller corrections please contact CR editor / Rapporteur directly. Coordinate with rapporteurs and chair if input above limit is required*

*Tdoc limitation: 5*

#### 7.0.2.19 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))

[R2-2505356](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\38331_CR5413_(REL-18)_R2-2505356.docx) Correction on field description of sl-CapabilityInformationSidelink for U2U Relay OPPO CR Rel-18 38.331 18.6.0 5413 - F NR\_SL\_relay\_enh-Core

* Source to TSG to be added in coversheet
* ME to be ticked on coversheet
* Agreed with these changes as R2-2506309

Discussion:

Huawei note that the Source to TSG is missing on the coversheet.

Nokia note that the ME should be ticked on the coversheet.

[R2-2505543](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505543%20CR5422%20to%2038.331%20on%20SI%20reception%20for%20MP.docx) Correction to SI reception by remote UE for multi path LG Electronics Inc. CR Rel-18 38.331 18.6.0 5422 - F NR\_SL\_relay\_enh-Core

* Revised in R2-2506310

Discussion:

Ericsson assume we are not changing any of the behaviours for multi-path. Xiaomi agree with Ericsson. Apple also agree and think the new sentence is not needed.

* [AT131][404][Relay] SI reception for multi-path relay (LG)

Scope: Discuss the CR in R2-2505543 and determine if a change is needed.

Intended outcome: Agreeable CR if applicable in R2-2506310

Deadline: Wednesday 2025-08-27 1900 IST

[R2-2506310](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Inbox\R2-2506310.zip) Correction to SI reception by remote UE for multi path LG Electronics Inc. discussion Rel-18 NR\_SL\_relay\_enh-Core

* Postponed

Discussion:

LG clarify that a CR is available but needs a tdoc number.

Apple think the intention is to exclude the MP case, and they are not sure the changed phraseology makes a big difference. LG clarify that the difference is the part about the common search space.

Ericsson are not sure that the additional change is needed since we already have the Uu procedures.

[R2-2505760](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505760%20Corrections%20on%20N3C%20multi-path.doc) Corrections on N3C multi-path ZTE Corporation, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

* Noted

Discussion:

Xiaomi think on P1/P2, it is UE implementation and does not need to be specified.

Nokia think we previously discussed P7 and agreed option 1 (split is a prerequisite). Samsung have a different understanding and think we can have them independently; on P1/P2, they agree with Xiaomi.

OPPO agree that P1/P2 are not necessary; for P4/P5/P6 on the indication of the network capability, they think it is an optimisation.

Huawei think P3 to release the configuration during re-establishment is similar to other UAI configurations, so they have some sympathy, but they think the proposed change is NBC and nothing is broken without it.

Apple think P6 is not needed because N3C is handled by the UE implementation, but they think P4 is valid and some clarification of early detection would be useful. Xiaomi wonder if there can really be different understandings of P4. Huawei agree with Xiaomi and recall that we intended to leave the concept to UE implementation in the details.

Stage 2 CRs postponed from RAN2#130

[R2-2505183](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505183%20Correction%20to%20PDCP%20duplication%20description%20for%20L2%20MP%20using%20SL%20relay%20or%20N3C%20indirect%20path.docx) Correction to PDCP duplication description for L2 MP using SL relay or N3C indirect path Huawei, HiSilicon, Nokia (Rapporteur), CMCC CR Rel-18 38.300 18.6.0 0989 1 F NR\_SL\_relay\_enh-Core R2-2504002

* Revised in R2-2506311

Discussion:

LG think PDCP duplication for the multi-path split bearer is already described. Huawei agree that there is such a description, but in the PDCP duplication clause there is nothing on the multi-path scenario. Qualcomm think we could reference the existing clause instead of having more material here.

OPPO agree with LG and think it is already covered, and the stage 3 is also clear.

Xiaomi agree that it is already described and the CR is not necessary.

Ericsson do not have a strong concern but think the current description is in terms of DC rather than multi-path, so they see the CR as valid. Nokia agree with Ericsson and think the existing description is not clear in its applicability to multi-path.

Samsung support the CR.

Huawei indicate that a reader will know from the multi-path clause that PDCP duplication is supported, and the PDCP duplication clause does not by itself make this clear, but they could agree with Qualcomm’s suggestion to cross-reference. Ericsson think we should not just cross-reference, and we should exclude changing the stage 3.

* [AT131][405][Relay] PDCP duplication for multi-path (Huawei)

Scope: Check the CR in R2-2505183.

Intended outcome: Agreeable CR in R2-2506311

Deadline: Wednesday 2025-08-27 1900 IST

[R2-2506311](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506311.docx) Correction to PDCP duplication description for L2 MP using SL relay or N3C indirect path Huawei, HiSilicon, Nokia (Rapporteur), CMCC CR Rel-18 38.300 18.6.0 0989 2 F NR\_SL\_relay\_enh-Core R2-2505183

* Agreed

[Chair’s note: This document was made available before the email discussion deadline and is being checked online for agreeability. Companies have been notified on the email thread, and if any late comments are received after online treatment, they will be taken into account in the CB session.]

[R2-2505885](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505885%20-%2038.300_1020_Rel18_U2URelays_Bidirectional.docx) U2U Relays, Peer Remote UE Control Plane Procedures Ericsson CR Rel-18 38.300 18.6.0 1020 - F NR\_SL\_relay\_enh-Core

* Postponed

Discussion:

Xiaomi think these steps are not that specific and either UE can be in either role.

LG think bidirectionality is already included.

Qualcomm have a similar view to LG.

#### 7.0.2.21 Expanded and improved NR positioning

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

LS on startSFN and related contributions

[R2-2505014](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505014_R1-2504854.docx) Reply LS on startSFN for positioning SRS frequency hopping (R1-2504854; contact: ZTE) RAN1 LS in Rel-18 NR\_pos\_enh2-Core To:RAN2

* Noted

Discussion:

Lenovo have a related CR (R2-2505599), but it is aligned with the ZTE CR.

[R2-2506181](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506181%20Corrections%20on%20the%20startSFN%20of%20the%20UTW.docx) Corrections on the startSFN of the UTW ZTE Corporation, Ericsson, vivo, Qualcomm, Samsung, Nokia CR Rel-18 38.331 18.6.0 5464 - F NR\_pos\_enh2-Core

* Revised in R2-2506313

Discussion:

Lenovo think on the description of the UTW, it should refer to the starting slot rather than the current slot, and the description terminology should be consistent across different field descriptions.

CATT wonder if the formula is necessary (in RRC or anywhere else in RAN2 specs) once startSFN is removed.

Qualcomm note that we agreed to capture the formula, and they are not aware of it being captured in a RAN1 spec.

Ericsson think Lenovo’s concern can be checked, but they think the wording with the current slot is correct.

Huawei understand that the first slot is slot 0 plus the offset, and it repeats periodically; they see that the current description is just an easier way to capture this.

vivo support the current CR and think the UE calculates the correct frame based on the current formula.

Lenovo think there are other detailed issues that should be checked offline.

* [AT131][402][POS] CR on startSFN (ZTE)

Scope: Check the wording and details of the CR in R2-2506181 (can take into account also the related wording in R2-2505599).

Intended outcome: Agreed CR (without CB if possible) capturing the formula in accordance with previous agreements, in R2-2506313

Deadline: Wednesday 2025-08-27 1900 IST

[R2-2506313](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506313%20Corrections%20on%20the%20startSFN%20of%20the%20UTW.docx) Corrections on the startSFN of the UTW ZTE Corporation, Ericsson, vivo, Qualcomm, Samsung, Nokia, Lenovo CR Rel-18 38.331 18.6.0 5464 1 F NR\_pos\_enh2-Core

* Agreed

SP SRS frequency hopping

[R2-2505323](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505323%20Discussion%20on%20SP-SRS%20frequency%20hopping_final.docx) Discussion on SP positioning SRS frequency hopping Huawei, HiSilicon, Ericsson discussion Rel-18 NR\_pos\_enh2-Core

* Noted

[R2-2505266](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505266.docx) Correction to SP positioning SRS transmission with frequency hopping Ofinno CR Rel-18 38.321 18.6.0 2097 - F NR\_pos\_enh2-Core

Discussion (joint):

Ofinno clarify that they do not see a need to add a restriction on additional SP-SRS in the same BWP.

vivo support Huawei’s option and think there is no need to configure two SP-SRS in the same BWP.

Samsung note that there is no RAN1 agreement to have the restriction and think we should not decide this in RAN2 on our own; they prefer option 1 to introduce a new MAC CE, but they acknowledge that it would be a bigger spec impact.

ZTE agree that the restriction is not needed, and they note that a normal UE can be configured for legacy SRS and FH SP-SRS, so they think the Ofinno CR looks better; they do not think adding a new MAC CE would be desirable.

Ericsson think we should not bring in new MAC CEs that would require a capability. They note that RAN1 left it to RAN2 to capture the restriction, if any, and they support the Huawei CR.

Qualcomm wonder if the non-RedCap FH differences mean that this situation does not apply to non-RedCap UEs, and for RedCap UEs, multiple SP-SRS configurations may not be possible. So they do not see the need to avoid the restriction.

Lenovo think we should not open all the options that RAN1 discussed, and we should pick an option and inform RAN1.

Nokia think it is challenging to discuss in RAN2 a RAN1 feature where RAN1 could not decide, but they do not think RAN2 should introduce the restriction.

Xiaomi do not see a motivation to configure both SRS for the same BWP; they prefer Huawei’s solution but think the RRC impact is not needed.

Huawei understand that RAN1 delegated the choice to us and any option should be feasible from RAN1 perspective, so the question is how to support the feature with minimum spec impact.

Ofinno wonder why Huawei see their solution as having less impact; in both cases, the backward compatibility is similar, and option 2 does not touch the RRC.

Qualcomm think there are no backward compatibility issues because the dual-SRS feature does not exist; NRPPa cannot support it.

ZTE think from the gNB configuration perspective, the gNB can configure SRS via RRC and activate via the same MAC CE, but the FH can only be configured on a separate BWP, and the MAC CE can only activate one kind of SRS.

Ofinno have the same understanding as ZTE and think RAN1 did some work to handle the collision between FH SP-SRS and other SRS, so they think we would be surprising RAN1 if we took this decision.

vivo agree with Qualcomm’s interpretation and think if we limit to the bandwidth the UE can support, the network can only configure one SRS with FH to the UE and NRPPa cannot support the gNB configuring it with normal SRS.

Ericsson think it is a corner case for them to be configured together and RAN1 are not expecting that this would be done.

Qualcomm think the compatibility of the two SRS is a RAN2 issue, and they are not convinced there is a use case since the SRS are configured per positioning session and the request will never have two SRS configurations.

Lenovo think when we reply to RAN1 we should include RAN3.

Nokia understand that RAN1 have not actually sent us an LS and we are trying to adapt to their agreements without official guidance. Since the feature comes from RAN1 they would like to have an authoritative instruction from RAN1. Huawei think it is clear from the RAN1 summary that they mean to leave it to RAN2; vivo agree with Huawei and think it is totally in RAN2 scope.

Ofinno think companies agree that there is an issue, so we need to do something; they agree an LS would have been better, but we cannot leave the feature broken.

Nokia agree that RAN1 discussions left it to RAN2, but we have different understandings in the room about RAN1 status and whether two SRS configurations can coexist in this way.

vivo think we could use Qualcomm’s comment as a starting point and check whether the configuration exists.

Ofinno think option 2 does not break anything, even if the case that it leaves open is not used, while option 3 breaks something whose validity is contested. Qualcomm agree with this point but consider the spec impact to be less in option 3, and they would prefer to go with the simplest way.

Ericsson think even if the SRS can coexist, it is clear that the acceptable solution in the room is to have the restriction.

Qualcomm think this is clearly not a RAN1 issue; it is affecting the LMF.

Ofinno think we do not have a strong technical reason to go with option 3, but they can accept the majority view.

* [AT131][403][POS] SP-SRSp with frequency hopping (Huawei)

Scope: Draft agreeable CRs based on the TPs in R2-2505323.

Intended outcome: Agreeable CRs in R2-2506304 (MAC) / R2-2506305 (RRC).

Deadline: Wednesday 2025-08-27 1900 IST

[R2-2506304](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506304%20Correction%20on%20SP%20Positioning%20SRS%20frequency%20hopping%20for%20MAC%20spec_v06_rapp.docx) Correction on SP Positioning SRS frequency hopping Huawei, HiSilicon, Ericsson, Ofinno CR Rel-18 38.321 18.6.0 2120 - F NR\_pos\_enh2-Core

* Agreed

[R2-2506305](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506305%20Correction%20on%20SP%20Positioning%20SRS%20frequency%20hopping%20for%20RRC%20spec_v07_Rapp.docx) Correction on SP Positioning SRS frequency hopping Huawei, HiSilicon, Ericsson, Ofinno CR Rel-18 38.331 18.6.0 5467 - F NR\_pos\_enh2-Core

* Agreed

Other stage 3 CRs

[R2-2505155](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505155_CR5398_38.331%20Correction%20on%20sidelink%20measurements%20based%20on%20SL-PRS.docx) Correction on NR Sidelink measurements based on SL-PRS vivo, Ericsson CR Rel-18 38.331 18.6.0 5398 - F NR\_pos\_enh2-Core

* Agreed

[R2-2505599](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505599%20Misc%20corrections%20NR%20positioning%20(Rel-18%2038331).docx) Miscellaneous corrections on NR positioning enhancements Lenovo CR Rel-18 38.331 18.6.0 5425 - F NR\_pos\_enh2-Core

* Changes 3, 4, and 5 on the coversheet are backed out
* Agreed with these changes are R2-2506306

[R2-2505600](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505600%20Misc%20corrections%20Aggregated%20positioning%20SRS%20MAC%20CE%20(Rel-18%2038321).docx) Miscellaneous corrections on Aggregated SP Positioning SRS Activation/Deactivation MAC CE Lenovo CR Rel-18 38.321 18.6.0 2107 - F NR\_pos\_enh2-Core

* Agreed

Discussion:

Huawei wonder if we could merge these changes into another CR. Lenovo think this is fine if we have another MAC CR. Huawei acknowledge that these changes are separate from other things we have discussed in the MAC.

[R2-2505896](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505896%20LPP%20timing.docx) Correction for timing Reporting Granularity Factor Ericsson CR Rel-18 37.355 18.5.0 0560 - F NR\_pos\_enh2-Core

* NOTE to be deleted
* Interoperability analysis to be corrected on the coversheet
* Agreed with these changes as R2-2506307

Discussion:

Xiaomi agree with the intention but think it could be handled with a NOTE.

ZTE also agree with the intention but think there is an internal contradiction between the NOTE and the field description text, and we should only keep one. Samsung have the same view and think the NOTE could be removed; they also note that the interoperability analysis is for the wrong CR.

Qualcomm think the existing spec is clear, but if some clarification is needed they would prefer to remove the NOTE, which is not idiomatic for LPP language. They think “configure” is the wrong verb.

Xiaomi can accept deleting the NOTE.

[R2-2506027](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506027%20Correction%20regarding%20SL-PRS%20Resource%20Request.docx) Correction regarding SL-PRS Resource Request ASUSTeK CR Rel-18 38.321 18.6.0 2112 - F NR\_pos\_enh2-Core

* Resource request cancellation to appear in both the Uu and PC5 reset lists
* Agreed with this change as R2-2506308

Discussion:

vivo agree with the second change but think the first change is not needed; they believe the spec is correct and the agreement may have a typo.

Samsung understand that the SL-PRS MAC CE is similar to the SL BSR, and they think both MAC resets should trigger the behaviour. vivo do not understand why it would be in the PC5 list; ASUSTeK understand this is because the SL-PRS is per destination, and when the MAC resets for a destination the corresponding SL-PRS is no longer needed.

Huawei are fine with the second change, and on the first, if the connection is released they see no need to keep the SL-PRS, so they are fine with ASUSTeK’s proposal; for the Uu MAC reset, they think you should cancel everything, so they think it belongs in both places.

vivo are OK with Samsung’s proposal.

ZTE think for the second change, the original wording is not wrong, just unnecessary. They note that the MAC wording follows the RRC signalling structure.

Stage 2 CRs

[R2-2505124](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505124%20Corrections%20on%20LPHAP,%20carrier%20phase,%20bandwidth%20aggregation%20and%20frequency%20hopping%20for%20positioning.docx) Corrections on LPHAP, carrier phase, bandwidth aggregation and frequency hopping for positioning CATT, Ericsson, Nokia, ZTE Corporation CR Rel-18 38.305 18.6.0 0187 2 F NR\_pos\_enh2-Core R2-2504883

* Not pursued (related to email discussion [Post131][410])

Discussion:

Lenovo are fine with adding the stage 2 description, but they think the proposed description is too much copy/paste from the WI summary and we could be more stylistically consistent in the stage 2, with flows; this is why they proposed removals of the RRC\_INACTIVE / RRC\_IDLE descriptions.

Huawei have no objection to the CR but think normally RAN1 would do this. Lenovo note that RAN3 routinely populate the RAN3 part of the stage 2.

Ericsson think a spec reader will not normally read the WI description, and it is good to have some high-level description here.

Nokia think we have not historically had stage 2 input from RAN1 on positioning, and it makes sense to reverse-engineer from stage 3.

Qualcomm have some sympathy for Lenovo’s comment, and they consider that CPP is not a completely clearly defined term and is used unclearly in some places in the CR; they think the content of this CR is already covered in other sections and no information is missing.

CATT indicate that the intention is to clarify the principles and references for the positioning subfeatures, and most of the contents are derived from RAN1 specs. They would be open to discuss the content further but think we need a new clause.

Lenovo do not see much value if the text does not give some insight into how the procedures work.

Qualcomm think we should target any parts that are not covered in existing specifications, but they have not identified anything critical that is missing; they also think we could try to include updates in the existing sections and avoid having too much growth in the spec. Ericsson note that we do have dedicated sections for other positioning subfeatures, e.g., GNSS. Qualcomm think this is right, but we do not, for instance, have a section on RTK as distinct from GNSS.

CATT understand that new subfeatures should in general be described briefly in 38.300.

Ericsson point out that the new subfeatures are used for multiple methods, which makes it not so clear where to capture them.

Qualcomm think we have this information captured in the per-method “information transferred” tables.

Nokia agree that the existing sections capture carrier phase measurements, for example, but for bandwidth aggregation and frequency hopping they think there is not already coverage. They think we should not automatically capture the full WID detail in stage 2.

* [Post131][410][POS] Stage 2 descriptions for Rel-18 positioning (CATT)

Scope: Determine how to structure descriptions of the Rel-18 positioning subfeatures in 38.305 and work towards an agreeable CR, starting from the proposals in R2-2505124 / R2-2505849.

Intended outcome: Agreeable CR if possible, and report to next meeting

Deadline: Long

[R2-2505848](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505848%20Removal%20of%20stage2%20description%20(Rel-17%2038305).docx) Removal of description for positioning in RRC\_INACTIVE state Lenovo CR Rel-17 38.305 17.8.0 0193 - F NR\_pos\_enh-Core

* Not pursued

[R2-2505849](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505849%20Removal%20of%20stage2%20descriptions%20(Rel-18%2038305).docx) Removal of descriptions for positioning in RRC\_INACTIVE and RRC\_IDLE state Lenovo CR Rel-18 38.305 18.6.0 0194 - F NR\_pos\_enh2-Core

* Not pursued (related to email discussion [Post131][410])

Withdrawn/Not available

[R2-2505589](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505589%20Corrections%20on%20the%20startSFN%20of%20the%20UTW.docx) Corrections on the startSFN of the UTW ZTE Corporation, Ericsson, vivo, Qualcomm, Samsung, Nokia CR Rel-18 38.331 18.6.0 5424 - F NR\_pos\_enh2-Core Withdrawn

* Withdrawn

# 8 Rel-19

## 8.0 General

### 8.0.0 In-principle agreed CRs

This AI is reserved for Rel-19 in-principle agreed CRs that need to be formally agreed

[R2-2505317](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505317%20Introudction%20of%20the%20control%20parameters%20for%20on-demand%20posSIB%20request_RRC%20%5bOdPosSIB-Req%5d.docx) Introduction of control parameters for on-demand posSIB request [OdPosSIB-Req] Huawei, HiSilicon, Ericsson, Samsung CR Rel-19 38.331 18.6.0 5406 - B TEI19

* Delivery interval to be removed and delivery amount to be replaced by “start” and “stop”

Discussion:

Huawei clarify that the control parameters have been added since last meeting.

Lenovo understood we agreed not to have the delivery interval. Ericsson understand there was an expectation that the gNB would use the same periodicity as for broadcast, but they now think this will not work and the interval is needed.

Qualcomm think this repeats the discussion we already had; they do not see how the UE can select the periodicity, since it comes from the LMF.

Ericsson think we could agree that the gNB provides the data with the same periodicity as it receives from the LMF, and if we capture in the spec that the gNB will provide the posSIB when the content is updated, it would be an OK alternative.

Samsung note that we have the constraint that the interval requested by the UE should be larger than the legacy posSIB interval. Qualcomm think this would mean the UE does not get every update if it requests a larger periodicity.

Ericsson are not sure what the deliveryAmount means without the deliveryInterval.

Huawei think Ericsson’s suggestion may make sense but is outside the scope of this CR; they do not want to exclude any solutions, and they are not sure all implementations will work with Ericsson’s suggestion; they think the gNB might want to deliver with a different periodicity.

Qualcomm think we do not necessarily need to capture the gNB implementation; they think the point is to avoid repeated requests for periodic assistance data.

Huawei agree that the default value would be the periodicity in broadcast, but if the UE requests a different periodicity the gNB should be able to meet the request.

Qualcomm think if we backed out the delivery interval, only the first and last instances of the assistance data would be useful. Ericsson think it would be OK to have only start and stop.

Qualcomm indicate that the AIP version had an enumeration of values; they think the interpretation of the integer value for the amount is strange.

[R2-2505318](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505318%20Introudction%20of%20the%20control%20parameters%20for%20on-demand%20posSIB%20request_UEcapa%20%5bOdPosSIB-Req%5d.docx) Introduction of control parameters for on-demand posSIB request [OdPosSIB-Req] Huawei, HiSilicon, Ericsson, Samsung CR Rel-19 38.306 18.6.0 1323 - B TEI19

[R2-2505319](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505319%20Introudction%20of%20the%20control%20parameters%20for%20on-demand%20posSIB%20request_300%20%5bOdPosSIB-Req%5d.docx) Introduction of control parameters for on-demand posSIB request [OdPosSIB-Req] Huawei, HiSilicon, Ericsson, Samsung CR Rel-19 38.300 18.6.0 1009 - B TEI19

[R2-2505320](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505320%20Introudction%20of%20the%20control%20parameters%20for%20on-demand%20posSIB%20request_305%20%5bOdPosSIB-Req%5d.docx) Introduction of control parameters for on-demand posSIB request [OdPosSIB-Req] Huawei, HiSilicon, Ericsson, Samsung CR Rel-19 38.305 18.6.0 0191 - B TEI19

* [Post131][409][POS] Control parameters for on-demand posSIB request (Huawei)

Scope: Revise the CR in R2-2505317 in accordance with the decision of RAN2#131 to reduce the reporting to “start” and “stop”, and confirm the accompanying CRs in R2-2505318 / R2-2505319 / R2-2505320

Intended outcome: Agreed CRs in R2-2506322 (38.331) and original tdoc numbers (other specs)

Deadline: Short (for RP)

## 8.13 NR sidelink multi-hop relay

(NR\_SL\_relay\_multihop; leading WG: RAN2; REL-19; WID: [RP-250188](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_107/Docs/RP-250188.zip))

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

### 8.13.1 Organizational

LSs and rapporteur input, including workplan, etc.

Including outcomes of email discussions on running CRs

Running CRs and open issue lists

[R2-2505353](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\38351_CR0041_(REL-19)_R2-2505353%20-%20Introduction%20of%20NR%20sidelink%20multi-hop%20relay%20in%20TS%2038.351.docx) Introduction of NR sidelink multi-hop relay in TS 38.351 OPPO CR Rel-19 38.351 18.4.0 0041 - B NR\_SL\_relay\_multihop-Core

* Endorsed (for further changes this meeting)

[R2-2505354](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505354%20-%20SRAP%20open%20issues%20for%20NR%20sidelink%20multi-hop%20relay_V02_Rapp.docx) SRAP open issues for NR sidelink multi-hop relay OPPO other Rel-19 NR\_SL\_relay\_multihop-Core

* Noted
* [Post131][411][Relay] Rel-19 relay 38.351 CR (OPPO)

Scope: Update the CR in R2-2505353 in accordance with decisions of RAN2#131.

Intended outcome: Agreed CR in R2-2506323

Deadline: Short (for RP)

[R2-2505427](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\38.321_CR2101_Rel-19_R2-2505427_FeatureIntroduction.docx) Introduction of NR Sidelink Multi-hop Relay InterDigital France R&D, SAS CR Rel-19 38.321 18.6.0 2101 - B NR\_SL\_relay\_multihop-Core

* Endorsed (for further changes this meeting)
* [Post131][412][Relay] Rel-19 relay 38.321 CR (InterDigital)

Scope: Update the CR in R2-2505427 in accordance with decisions of RAN2#131.

Intended outcome: Agreed CR in R2-2506324

Deadline: Short (for RP)

[R2-2505621](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505621%20Introduction%20of%20NR%20sidelink%20multi-hop%20U2N%20relay%20in%20TS%2038.300.docx) Introduction of NR sidelink multi-hop U2N relay in TS 38.300 LG Electronics Inc. draftCR Rel-19 38.300 18.6.0 NR\_SL\_relay\_multihop

* Endorsed (for further changes this meeting)
* [Post131][413][Relay] Rel-19 relay 38.300 CR (LG)

Scope: Update the CR in R2-2505621 in accordance with decisions of RAN2#131.

Intended outcome: Agreed CR in R2-2506325

Deadline: Short (for RP)

[R2-2505714](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505714%20RRC%20CR%20for%20R19%20Multihop_SL_Relay.docx) Introduction of NR sidelink multi-hop relay in TS 38.331 Huawei, HiSilicon CR Rel-19 38.331 18.6.0 5429 - B NR\_SL\_relay\_multihop-Core

* Endorsed (for further changes this meeting)
* [Post131][414][Relay] Rel-19 relay 38.331 CR (Huawei)

Scope: Update the CR in R2-2505714 in accordance with decisions of RAN2#131.

Intended outcome: Agreed CR in R2-2506326

Deadline: Short (for RP)

[R2-2505432](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505432%20Open%20issues%20for%20Multi%20hop%20Sidelink%20Relay%20in%20TS%2038.331.docx) Open issues for Multi hop Sidelink Relay in TS 38.331 Huawei, HiSilicon discussion Rel-19 38.331 NR\_SL\_relay\_multihop-Core

Proposal 1: Introduce sl-L2U2N-MH-Relay for indicating the support of NR sidelink Layer-2 U2N multi hop relay operation in SIB 12. Status: Closed.

Proposal 2: Introduce capabilities for R19 e.g. relayUE-MH-Operation-L2-r19 and remoteUE-MH-Operation-L2-r19 in SidelinkParameters IE. Status: Closed.

Discussion:

Huawei confirm that these issues were closed last meeting.

Proposal 3: Update TS 38.331, Section 3.1, to include the following clarification in the definitions of Intermediate U2N Relay UE and First Relay UE:

“An Intermediate U2N Relay UE first establishes a connection to the network as a U2N Remote UE, before beginning to relay traffic for connected U2N Remote UEs.”

Discussion:

OPPO agree with this understanding but think the clarification could be captured only in stage 2. Huawei think stage 3 would then not have the behaviour described clearly.

LG think this is related to the control procedures and may need text beyond just the definitions.

Apple agree with OPPO that this is more suitable for stage 2, and they are not sure how it would be reflected in stage 3 since there is no “beginning relay traffic” procedure, only the first RRC message. Ericsson agree and also think we should say “in this release”.

Huawei think it would be OK to capture in stage 2.

Apple want to clarify that this is for user traffic, not discovery, so it does not close the open issue on the PC5 link before discovery.

Agreement:

Update definitions in TS 38.300 to include the following clarification in the definitions of Intermediate U2N Relay UE and First Relay UE:

“In this release, an [Intermediate/First] U2N Relay UE first establishes a connection to the network as a U2N Remote UE, before beginning to relay traffic for connected U2N Remote UEs.”

Proposal 4: Confirm that the Remote UE can request the SFN-DFN offset from the connected parent Relay UE and that the SFN-DFN offset provided at the L2 U2N Relay UE or the L2 Last U2N Relay UE can be forwarded by intermediate U2N Relay UEs within the multihop relay chain, as proposed in the current running CR.

Discussion:

CATT think this was discussed in Rel-18 as a TEI, and they would like to treat this in the same way.

Qualcomm agree with CATT and think the relay session is not the right place to discuss this; they are not sure it will work well in the multihop setting.

Samsung share the same concern and have a concern about if the delay to forward the offset spans an SFN boundary.

Proposal 5 – RAN 2 should discuss if there are any parameter not visible to AS layer that could change and would affect reselection and force the remote UE to be notified.

Proposal 6 – RAN2 to confirm that the Intermediate Relay UE sets the indication type to a specific value, relayUE-RelayReselection, to clearly signal that the notification is triggered by its own reselection action, which follows a notification of AS failure received from its parent relay UE.

Discussion:

Lenovo think if the intermediate relay UE is in coverage, it may perform cell selection instead. LG note that it is up to UE implementation whether to keep or release the PC5 link, and if the intermediate relay UE keeps the link with the parent relay UE, the new cause value is not appropriate.

InterDigital think a new cause value is needed so that the remote UE knows if it needs to take a recovery action. They agree with Lenovo’s comment and think we could have a single cause value for cell and relay reselection.

Apple think we could have one new cause value for reselection and upstream RLF, and suppress the indication if the parameters are not changed.

Huawei agree with Lenovo about cell reselection, and we should avoid double notification cases.

Samsung think there is some relation to how to transmit the notification for multi-path relay, and we could see contributions.

Proposal 7 – RAN2 to discuss if we need to further fine tune the timers value calculation for the multihop scenario.

Proposal 8 – RAN2 should clarify in TS 38.300 or TS 38.331 that, for Scenario C and Scenario D, the Remote UE shall report only Relay UEs in RRC\_CONNECTED state for path switching, based on the Relay State indication received in the discovery message RRC container.

Discussion:

OPPO understand the network can select and there is no need for the reporting restriction. LG agree.

CATT also agree and think we do not need the resitrction.

Lenovo also think the network can handle it.

Huawei wonder what happens if we have idle/inactive UEs and the UE does not report any connected UE; presumably the gNB would take no action, and the intention here is to guarantee that the gNB can do something.

Samsung think we can reduce the reporting from remote UEs and this is the main benefit; they support the proposal.

Ericsson agree with Lenovo and think we could leave it to UE implementation if anything.

InterDigital think the proposal makes sense and we should think about extending to more hops in the future, where unnecessary measurement reports would be a worse problem; they also think we should consider future inter-gNB cases.

Kyocera agree with Samsung and InterDigital.

Qualcomm think we concluded last time that how to use it was up to UE implementation.

Chair wonders what the gNB will do with idle/inactive UEs. OPPO understand the gNB can page an inactive relay into RRC\_CONNECTED; they think the key point is that the gNB selects the target path and so we should not have UE filtering.

LG think the proposal is not needed and the gNB can determine; they also think that OPPO’s comment is valid and the gNB can page some UEs into RRC\_CONNECTED.

Samsung note that the report is triggered by some event, and we should try to reduce the possible failure cases.

Xiaomi think we should at least prioritise the connected UEs, but if there are no connected UEs the network may be able to do something; they suggest that we could include the state in the measurement report.

InterDigital somewhat agree with Samsung that the reports can be useless to the network if it is too late to do anything; they think Xiaomi’s suggestion could be a way forward.

Apple have a similar view to InterDigital.

OPPO do not see why the state is needed, since the network already knows it. Kyocera agree that it is not necessary, and they agree also that the gNB may need to page a relay UE.

Ericsson think an indication for RRC\_IDLE would be enough.

Proposal 9 – RAN2 confirms that the existing note, stating that the Remote UE may prioritize selecting/reselecting a suitable Relay UE that is in the RRC\_CONNECTED state based on RRC state information included in the Discovery Message container, is retained in the running CR.

Discussion:

Qualcomm think it is up to implementation and we do not need to capture anything in the spec.

OPPO agree with Qualcomm and note that latency depends on other characteristics besides the RRC state; they would like to leave it clearly fully up to UE implementation.

Lenovo also agree with Qualcomm, and they wonder about prioritisation between a suitable relay and a suitable cell.

InterDigital think the intention is not to dictate the implementation but indicate what the UE could do with the information; they agree there are other cases but think the current note is good.

Toyota note that “may” still means it is up to UE implementation, and we could also note that the UE may choose to minimise the number of hops.

Qualcomm think stage 2 would be suitable and we could list different information from the discovery message as examples.

Ericsson think the note is a bit misleading since what can be considered depends on many things, and they see this note as somewhat breaking the layer boundary. Toyota think we should keep the list of examples to benefit the UE implementation. Ericsson think it is already clear what is in the discovery message.

Huawei do not see how the note is misleading, and the inter-layer aspect is about information that has to be shared anyway.

LG are not sure that the state information is essential in discovery, and they understand that upstream relay UEs could be in any state if the first relay UE is not connected, so the latency is not predictable; they also think the states can change.

ZTE think the SA2 spec indicates that every relay UE will generate its own AS container, so it will show only the state of the first relay UE.

Huawei think we could include multiple states, but if the first relay is connected then all the upstream relays are connected, and such a path would be preferable for the remote; they understand that if the state changes, the discovery messages will be updated.

Apple think adding extra states would have SA2/CT1 impact.

Qualcomm think ZTE are mistaken and the container is forwarded down from the last relay UE.

Kyocera understand that in model B, the last relay UE selects the path, so it needs to know the downstream states.

Agreements:

RAN2 confirm that the selection of a suitable relay is up to UE implementation.

Capture in a revision of the existing note in RRC running CR (relay reselection section 5.8.15.3) that the UE may prioritise relays based on any information available in the discovery message for the applicable model.

Working assumption on having RRC\_CONNECTED state indication for the announcing/responding UE (only) in the discovery AS container is confirmed. No SA2/CT1 impact is expected.

[R2-2505796](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505796%20-%2038323%20CR%200150%20for%20R19%20SL%20Relay.docx) Introduction of multi-hop U2N relay in TS 38.323 Ericsson CR Rel-19 38.323 18.5.0 0150 - B NR\_SL\_relay\_multihop

* Endorsed (for further changes this meeting)
* [Post131][415][Relay] Rel-19 relay 38.323 CR (Ericsson)

Scope: Update the CR in R2-2505796 in accordance with decisions of RAN2#131.

Intended outcome: Agreed CR in R2-2506327

Deadline: Short (for RP)

[R2-2506047](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506047.docx) Introduction of multi-hop U2N relay in TS 38.304 MediaTek Inc. CR Rel-19 38.304 18.4.0 0444 - B NR\_SL\_relay\_multihop-Core

* Endorsed (for further changes this meeting)
* [Post131][416][Relay] Rel-19 relay 38.304 CR (MediaTek)

Scope: Update the CR in R2-2506047 in accordance with decisions of RAN2#131.

Intended outcome: Agreed CR in R2-2506328

Deadline: Short (for RP)

UE capabilities

[R2-2505771](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505771_%5bPost130%5d%5b401%5d%5bRelay%5d%20Rel-19%20relay%20capability(Samsung)_v8.docx) Summary on [Post130][401][Relay] Rel-19 relay capability Samsung discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 1: FFS on capability differentiation between last relay UE and intermediate relay UE. If the differentiation is needed, RAN2 is kindly asked to discuss how to define two capabilities based on the following two options:

 Option 1: define two new capabilities, LastRelayUE-MH-Operation-L2, and IntermediateRelayUE-MH-Operation-L2, where the remoteUE-MH-Operation-L2 is the prerequisite of IntermediateRelayUE-MH-Operation-L2;

 Option 2: keep relayUE-MH-Operation-L2 for both last relay UE and intermediate relay UE, while for intermediate relay UE, the remoteUE-MH-Operation-L2 also indicates.

Discussion:

Huawei think we cannot have UEs without Uu interface.

Apple think we do not need to differentiate the capabilities, so we may not need either option. They think it is harmful to public safety use cases if relays cannot switch roles when needed.

OPPO understand the capabilities do not imply that an intermediate could not switch to a last, but a UE may not implement Uu SRAP and then could not be a last relay UE. They see the differentiation as being the Uu SRAP for the last relay and remote UE functionality for the intermediate.

AT&T do not see the need for differentiation; they understand that a relay UE should implement both.

Qualcomm think we should support the case of a fixed last relay UE that is never called on to become an intermediate.

Ericsson agree with AT&T. Kyocera also support no differentiation. FirstNet also agree.

Samsung agree with Qualcomm’s comment and think differentiation gives more deployment flexibility.

LG think fragmentation is bad and we should not have differentiation.

Xiaomi think there should be differentiation. Qualcomm wonder what harm there is for the network in differentiation.

AT&T think it is more important to have flexibility in deployment with relays switching roles when needed.

OPPO do not think having different capabilities restricts this scenario; it just means that UEs would be needed that supported both roles.

Samsung think option 2 may be a middle ground.

Proposal 2: In Rel-19, the new band combination capability for multi-hop relay discovery is not needed.

Proposal 3: In Rel-19, the new path switch capability for multi-hop relay is not needed.

Proposal 4: In Rel-19, the L3 relay capability for multi-hop relay is not needed.

Agreements:

RAN2 confirm that UEs without Uu interface support are not in scope of this WI.

In Rel-19, the new band combination capability for multi-hop relay discovery is not needed.

In Rel-19, the new path switch capability for multi-hop relay is not needed.

In Rel-19, the L3 relay capability for multi-hop relay is not needed.

Keep relayUE-MH-Operation-L2 for both last relay UE and intermediate relay UE, while at least for intermediate relay UE, the remoteUE-MH-Operation-L2 is also indicated. Whether remote operation is a prerequisite for relay operation can be discussed in maintenance.

[R2-2505772](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505772_MHSLRelayCap_CR_v0_Rapp.docx) Introduction of multi-hop sidelink relay capability Samsung CR Rel-19 38.306 18.6.0 1334 - B NR\_SL\_relay\_multihop-Core

* Endorsed (for further changes this meeting)
* [Post131][417][POS] Rel-19 relay capability CRs ()

Scope: Update the CR in R2-2505772 in accordance with decisions of RAN2#131 and develop a complementary CR to 38.331.

Intended outcome: Endorsed CRs in R2-2506329 (38.306) and R2-2506330 (38.331)

Deadline: Very short (for merge into mega CRs)

Agreement:

Rel-19 relay WI is complete from RAN2 point of view (pending closure of the CR email discussions).

Withdrawn/Not available

R2-2505431 Introduction of NR sidelink multi-hop relay in TS 38.331 Huawei, HiSilicon draftCR Rel-19 38.331 18.6.0 F NR\_SL\_relay\_multihop-Core Withdrawn

* Withdrawn

### 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.

RRC-5/RRC-12: notification and cause code

Discussed jointly

[R2-2505085](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505085_(RRC-5%2011%2012)%20Notification%20message%20handling%20for%20intermediate%20relay%20UE.docx) (RRC-5/11/12) Notification message handling for intermediate relay UE vivo discussion Rel-19

Proposal 1: (RRC-5/12) When an intermediate relay UE receives a NotificationMessageSidelink message from the parent relay, it forward a copy of the original notification (with the same cause) to its child UEs.

Proposal 2: (RRC-5/12) When intermediate relay UE detects PC5 RLF, it should set the cause value to ‘relayUE-PC5-RLF’ to its child UE.

[R2-2505418](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505418%20(R19%20SL%20Relay%20WI_AI8132%20RelayDiscoverySelection).doc) Open Issues on Discovery and Relay (Re)Selection for Multi-hop U2N Relays InterDigital discussion Rel-19 NR\_SL\_relay\_multihop

Proposal 5: In case of notification message triggered by an error (e.g., RLF) the intermediate relay UE can send cell/relay reselection cause value to the remote UE in RRC\_IDLE/INACTIVE if it successfully performs a recovery action. Otherwise, it sends relayUE-PC5-RLF cause value if PC5 RLF is detected by itself or the same cause value received in the notification message from the parent node.

Proposal 6: In case of notification message triggered by an error (e.g., RLF), the intermediate relay UE sends relayUE-PC5-RLF cause value if PC5 RLF is detected by itself or the same cause value as received by the parent node in the notification message to an RRC\_CONNECTED remote UE.

Discussion:

OPPO generally agree that the intermediate relay should generate its own notification message, but they are not sure on the details of the InterDigital proposals; they think forwarding the notification may cause double triggering.

Kyocera also agree with InterDigital’s approach and think the timing of the notification needs to be considered.

vivo are not clear about the double trigger; they understand that the notification will be sent after reselection happens, and they do not see that generating a new notification automatically suppresses the double cases.

Huawei are not sure how forwarding can avoid double notification, because the original event and the reselection both happen.

LG think the intermediate relay UE can decide whether to keep the PC5 link with the parent, and it should forward the notification if it keeps the link but generate its own if it releases the link; they think this will avoid double notification cases.

Samsung understand that the intention of the notification is to indicate the UE’s own link status, not that of the parent, so they think it is unnecessary to send a copy.

Ericsson think the main thing is to let the remote UE know the upstream status, and either approach can work as long as this information is there.

InterDigital agree with Ericsson; we need to agree that if we use the legacy behaviour, a failure at the last relay will affect all the relays downstream, and it eliminates any possibility of recovery.

ZTE think either cause value will cause the same remote UE behaviour, so they would like to keep a single cause value.

Apple think there is a need to differentiate because reselection and RLF are two different scenarios, and the intermediate relay can generate a notification based on its own status.

OPPO understand vivo’s intention is that the notification would happen only on the subsequent reselection but not on the reception of the upstream notification itself, and this avoids double notification.

Cause value:

OPPO understand that the RLF cause value can be used for both cases because the behaviour will be the same: It should always check the following discovery message to know if a potential relay is suitable, so it cannot rely on the cause value.

Lenovo think there are different cases depending on the state of the relay UE; the connected relay will always perform re-establishment, and they think we could use the PC5-RLF cause value for all cases.

Agreements:

Notification by an intermediate relay UE at least in idle/inactive, when caused by an upstream reselection/RLF/link release, occurs upon the intermediate relay UE’s handling after receiving the notification or release message (e.g., relay reselection or cell selection), but not triggered by the reception of the upstream notification itself. RRC\_CONNECTED case to be considered as part of service continuity.

In case of notification message triggered by an error (e.g., RLF), for intermediate relay UE in idle/inactive, the intermediate relay UE can send cell/relay reselection cause value to the remote UE in RRC\_IDLE/INACTIVE if it successfully performs a recovery action. If recovery action is not successful or if it opts to release the upstream PC5 link, it sends relayUE-PC5-RLF cause value if PC5 RLF is detected by itself or the same cause value received in the notification message from the parent node.

RRC-11: notifications in idle/inactive

[R2-2505773](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505773_RelayDisc&Resel_v0.0.docx) Discussion on remaining issues of relay discovery and (re)selection Samsung discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 5: RAN2 is kindly asked agree that the intermediate relay UE in RRC\_IDLE/INACTIVE can omit the notification message transmission if the relay reselection does not cause the change of the hop count or serving cell.

Discussion:

Apple support the proposal. LG support it as well, but they note that the hop count is in the upper layer.

InterDigital think the serving cell is obvious, and for the hop count they acknowledge that upper layers are responsible for selection based on hop count, they think we can still have a single mechanism to inform the child UE.

OPPO understand that we cannot assume the hop count and other upper-layer parameters are available without checking with SA2; they think other parameters like the user info would need to be considered as well.

ZTE can accept the proposal; on OPPO’s concern, they think we cannot capture all upper-layer parameter behaviour, and they agree that there are some interactions but it can be left to UE implementation.

Apple think the hop count is available for sure without needing to ask SA2, and we can coordinate parameters between layers by implementation.

Ericsson are not sure if the hop count will be visible to AS layer, but they are OK with the serving cell.

Qualcomm agree that the notification is only sent when AS-layer aspects change, but maybe we don’t need to consider upper-layer parameters like the hop count. Chair wonders if this would mean we had cases of the notification being suppressed when the hop count changes; Qualcomm understand that this information could be propagated through discovery messages instead of the notification.

LG agree with Qualcomm that a changed hop count or path information will be reflected in discovery and the upper layer can handle it.

Kyocera support the proposal and think the relay UE should be able to determine if the hop count has changed upstream, so it can decide whether to send the notification.

InterDigital think whether to send the notification is an AS layer decision, and that functionality can depend on upper-layer parameters as done before in previous releases.

OPPO understand we agreed and notified SA2 that if the reselection is triggered by AS conditions, it will be handled by AS-layer signalling; they understand that LG and Qualcomm are suggesting we would revert that agreement and have an AS trigger handled by upper layers.

Huawei think we are optimizing; they are not sure it is critical to do this.

Samsung think we could focus on the serving cell as an AS layer parameter and leave the rest to upper layers.

OPPO think the upper layer does not know the situation since there will be no upper layer signalling, and they think there will be no unnecessary interruptions since the remote UE can decide by implementation whether to keep or release the link.

Samsung are not sure it is an optimization, and they think we faced a similar situation with the recovery case and decided that the notification can be avoided; they think we should reduce the signalling on each hop. LG have the same understanding and think it is unnecessary to trigger relay reselection by the remote UE in these cases.

Ericsson wonder if we could leave it to intermediate relay UE implementation.

InterDigital think it cannot be entirely implementation, because if the serving cell changes there must be a notification.

Apple think we already agreed that this can be done and the question is which parameters are visible to AS layer, so they think we could omit the hop count and only have serving cell.

Lenovo note that we should consider cell selection as well.

Kyocera note that the hop count could increase and the notification would still be omitted. OPPO also wonder about this scenario.

InterDigital think reselection can be triggered with no discovery message sent because the PC5 link is still of good quality. Kyocera understand that the intermediate relay UE would look at the discovery signalling from the candidate upstream relay. LG think this is not a concern in model B, and in model A the announcement message will change because the path has changed.

OPPO would like to understand the specification impact; would it be a NOTE? InterDigital understand that by default, any reselection will trigger the notification, but if the intermediate relay does not change the serving cell, it is allowed to suppress the notification; however, this does not speak to the hop count. InterDigital are OK with the agreement. Apple think it should be normative text.

Agreement:

The intermediate relay UE in RRC\_IDLE/INACTIVE may omit sending the notification message if the relay reselection or cell selection (from multihop to direct path for the intermediate relay) does not cause the change of the serving cell. This does not preclude the implementation considering other parameters such as hop count if they are made visible to AS layer by implementation. Capture this in a NOTE in the stage 3 spec.

RRC-6: model B without PC5 link

[R2-2505174](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505174%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

Proposal 2: (RRC-6) RAN2 confirms that the case for the last relay UE to check AS conditions before responding to intermediate relay UE’s discovery model B request is valid and the corresponding FFS can be deleted without further handling.

Discussion:

LG think the SA2 spec says the intermediate relay UE can respond if it already has a PC5 link with the parent, and in this case the intermediate relay UE has to check PC5-RSRP. CATT think this is correct but not the same scenario, where we focus on the last relay UE. LG suggest that we have to discuss the intermediate relay UE case as well. CATT think we should focus on the RRC open issue.

OPPO can accept the proposal.

Proposal 3: In case the Last Relay UE needs to decide whether to send a discovery response message to the Intermediate Relay UE, RAN2 introduces a separate SD-RSRP threshold similar as the threshold used by the Intermediate Relay UE to determine whether to forward the solicitation message be applied.

Discussion:

OPPO think we could reuse the threshold configured for the intermediate relay. CATT can follow majority view on this point.

Agreements:

RAN2 confirms that the case for the last relay UE to check AS conditions before responding to intermediate relay UE’s discovery model B request is valid and the corresponding FFS can be deleted without further handling.

In case the Last Relay UE needs to decide whether to send a discovery response message to the Intermediate Relay UE, it uses the same SD-RSRP threshold as the Intermediate Relay UE to determine whether to forward the solicitation message.

WA on state information in discovery message [resolved by earlier discussion]

[R2-2505616](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505616-Discussion%20on%20discovery%20and%20relay%20reselection%20for%20multi-hop%20U2N%20relay.docx) Discussion on discovery and relay reselection for multi-hop U2N relay LG Electronics Inc. discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2505844](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505844_relay_reselection.docx) Relay reselection and discovery under multihop relay Kyocera discussion

Potential SA2 interaction (both documents moved from AI 8.13.3)

[R2-2505932](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505932_U2NRRCContainer.docx) Feasibility of Including RRC State Information through RRC Container in Discovery Messages for L2 Multi-hop U2N Relay NIST discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal: RAN2 is kindly asked to discuss the three options for the intermediate relay to handle the RRC container in the discovery messages, taking into account the difference between Model A and Model B based solutions as pointed out in the Observation. Inform SA2 if needed

Option 1: No change to the RRC container received from the parent node, just forward.

Option 2: Add its own RRC state indication to the RRC container received.

Option 3: Replaces the RRC state indication in the RRC container received with its own RRC state indication.

Discussion:

NIST consider that we agreed the container will contain the state of only one node, but we may need to clarify if it is the last relay or the first relay, and this is not clearly specified in SA2; the intermediate relay could keep the same RRC container or modify it, and they think we should clarify for SA2.

Chair understood we agreed option 3. Huawei have the same understanding.

ZTE think options 1 and 3 are both feasible in terms of the implementation details, because the UE can omit regenerating the container if it has the same state as the parent; they do not see that we need to notify SA2.

Huawei understand from SA2 colleagues that each intermediate relay UE can have its own RRC state and include it in the container.

Kyocera think we are talking about the state, not just the RRC\_CONNECTED indication.

Agreement:

The RRC\_CONNECTED indicator in the discovery message RRC container reflects the state of the UE that sends the discovery message. The UE modifies the container if necessary to include this information, but this does not preclude a UE from forwarding the container unchanged if it has the same RRC\_CONNECTED status as the UE from which it received the container. Detailed spec impact can be discussed in the running CR implementation.

[R2-2506044](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506044.docx) Ensure L2 Multi-hop U2N relay operation conditions Qualcomm Incorporated discussion NR\_SL\_relay\_multihop-Core

Proposal 1 If the intermediate Relay UE has established PC5 connection for one RSC associated with one last Relay UE, the intermediate Relay UE does not transmit other RSC(s) in any discovery message.

Proposal 2 RAN2 discusses the two options for the case whether a UE has established connection via direct path can be act as an intermediate Relay UE.

Option 1: The intermediate Relay UE performs path switch from direct path to indirect path when receiving relay request from the Remote UE/child UE.

Option 2: The Relay UE does not forward discovery message received from a relay UE, that means the UE cannot be an intermediate Relay UE.

Proposal 3 Sends LS to SA2 to on the above two proposals.

Discussion:

Apple are not sure P1 is correct; they understand that the last relay may support multiple RSC in the discovery message towards the same node.

LG are not sure the intermediate relay UE uses just one RSC; they think once the intermediate relay UE has a PC5 link with one upstream UE, it cannot establish one towards another upstream UE.

OPPO support P1 to avoid cross-path topologies and think an LS does need to go to SA2. On Apple’s point, they understand that from UE perspective it does not know whether the different RSCs correspond to different UEs. Apple think the L2ID might be the same.

Qualcomm understand that different RSCs must have different L2IDs and different PC5 links, so they think multiple RSCs cannot be supported.

Huawei support the proposal.

OPPO think we could notify SA2 of the topology restriction and leave the details to them to implement.

Apple think neither option has SA2 impact. Qualcomm think if we have a restriction on discovery transmission when the UE has a direct path, there is SA2 impact.

Qualcomm think if we interpret option 2 of P2, we would still need to notify SA2. OPPO understand that a UE that has a direct path will not act as an intermediate relay due to existing agreements. Qualcomm are concerned about the case where the UE has a direct path but does not satisfy the criteria for a last relay UE.

Samsung think the relay UE can reselect if it needs to.

OPPO understand that a connected UE is under network control for mobility, and for idle/inactive it is not clear what it would mean for a UE to have a direct path. Qualcomm think the network does not know if it needs to switch the UE to an indirect path.

Agreement:

LS to SA2 to notify them that RAN2 excludes cross-path topologies for L2 and that a UE should not attempt to function as an intermediate relay UE towards two different parent nodes. Leave to SA2 the possible spec impact to reflect this.

* [Post131][407][Relay] LS to SA2 on cross-path topologies (Qualcomm)

Scope: Draft an LS to SA2 to notify them that RAN2 excludes cross-path topologies for L2 and that a UE should not attempt to function as an intermediate relay UE towards two different parent nodes. Action is just to take into account (no reply expected).

Intended outcome: Approved LS

Deadline: Short (not for RP)

Other contributions

[R2-2505100](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505100%20Discussion%20on%20Relay%20discovery%20and%20(re)selection.doc) Discussion on Relay discovery and (re)selection ZTE Corporation, Sanechips discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2505341](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505341%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

[R2-2505433](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505433%20Relay%20discovery%20and%20(re)selection%20for%20multi-hop%20Relay.docx) Relay discovery and (re)selection for multi-hop Relay Huawei, HiSilicon discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2505450](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505450%20Discussion%20on%20relay%20discovery%20and%20reselection.docx) Discusison on Remaining issue on relay discovery and reselection Apple discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2505662](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505662.docx) Multi-hop relay selection/re-selection Sony discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2505697](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505697%20Discussion%20on%20notification%20message%20v1.0.doc) Discussion on notification message Lenovo discussion Rel-19

[R2-2505732](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505732_Discovery%20(Model-B)%20forwarding%20thresholds%20for%20multi-hop%20U2N%20relay.docx) Discovery (Model-B) forwarding thresholds for multi-hop U2N relay Jio Platforms Limited CR Rel-19 38.331 18.6.0 5431 - B NR\_SL\_relay\_multihop

[R2-2505795](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505795%20-%20discussion%20on%20discovery%20and%20relay%20(re)selection.docx) Discussion on relay discovery and relay (re)selection Ericsson discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2506019](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506019-MH-reselection.docx) Remaining issues and solutions on Relay discovery and (re)selection for multi-hop relay Sharp discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2506036](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506036%20Discussion%20on%20remaining%20issues%20on%20notification%20message.docx) Discussion on remaining issues on notification message ASUSTeK discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2506043](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506043-Open%20issues%20on%20relay%20discovery%20and%20(re)selection.docx) Open issues on relay discovery and (re)selection Qualcomm Incorporated discussion NR\_SL\_relay\_multihop-Core

[R2-2506165](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Docs\R2-2506165.zip) Relay (re)selection in multi-hop Relay TOYOTA Info Technology Center discussion Rel-19

### 8.13.3 Control Plane Procedures and SRAP impact

Contributions should focus on control plane procedures and can include SRAP impact and QoS handling to support additional hops.

RRC-10: SFN-DFN offset

[R2-2505698](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505698.doc) Passing the SFN-DFN offset in multi-hop scenario Lenovo discussion Rel-19

Proposal 1(RRC-10): support passing the SFN-DFN offset at the L2 U2N Relay UE or at the L2 Last U2N Relay UE in a multi-hop scenario.

Proposal 2(RRC-10): the intermediate relay UE sets sfn-DFN-OffsetSupported to supported once the intermediate relay UE obtains the SFN-DFN offset from the connected parent relay UE if the previous setting is absent.

[R2-2505127](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505127%20Remaining%20issues%20for%20Multi-hop%20Relay.docx) Remaining issues for Multi-hop Relay NEC discussion Rel-19 NR\_SL\_relay\_multihop

Proposal-1[RRC-10]: When the Remote UE requests the SFN-DFN offset from the connected parent Relay UE, the SFN-DFN offset provided at the L2 U2N Relay UE or the L2 Last U2N Relay UE should be compensated by the timing offset between the UEs when it is forwarded by intermediate U2N Relay UEs within the multi-hop relay chain.

Agreement:

For this WI, we do not specify forwarding of the SFN-DFN offset. It can be addressed under TEI with the input of positioning experts. RRC-10 can be closed.

RRC-13: timers

[R2-2505434](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505434%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

Proposal 5: Extend the T300, T301 and T319 timer for multi-hop U2N relay operation in accordance with the hop count for connection establishment/ re-establishment and resume procedure by either

• Multiplying the UE-TimersAndConstants with the hop count ( eg t300 \* hop count) that includes only the Uu hop count; or

• Introducing PC5-specific timers (t300-PC5/t301-PC5/t319-PC5) and calculating the timer value as t300 + t300-PC5\*n, where n is the number of PC5 hops and one Uu hop is included.

Discussion:

Chair wonders about the meaning of “only the Uu hop count”. Huawei clarify that it means legacy operation would use hop count 1.

InterDigital think the second option may be a bit overspecified; they would prefer to use the same timers, and they note that the Rel-17 timers already consider two hops, so multiplication looks like the wrong computation.

Samsung would prefer option 2. ZTE agree and think this resolves concerns with the previous agreement.

CATT support option 1 to limit the spec impact.

OPPO understand the current running CR works and as long as the timer is long enough there should be no problem; they think no option is 100% perfect but they would prefer keeping the current CR.

vivo agree with OPPO and think the running CR can work, but they think it can be discussed in ASN.1 review.

LG agree with InterDigital.

Qualcomm and Lenovo agree with OPPO.

Ericsson think option 1 is simpler.

InterDigital think we could exclude option 2, and we could determine during ASN.1 review if the multiplication is performed on the Rel-17 timers or the legacy timers.

Samsung understand that the UE normally just applies the timer value from the network, but here it would be somewhat inferring the timer by itself and it changes the range of the timer; they have some concern about UE impact. Huawei think this is analogous to what we did in Rel-17 and the range we have is good enough.

Samsung’s concern is that the timers may not have a well-defined maximum time.

Agreements:

Exclude the option of defining new multihop timers for T300/T301/T319.

No change to the running CR now in this respect; whether to multiply the Rel-17 timers or the legacy Uu-only timers can be confirmed in ASN.1 review. RRC-13 can be closed.

Paging issues

[R2-2505175](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505175%20Discussion%20on%20the%20Control%20Plane%20Procedures.docx) Discussion on the Control Plane Procedures CATT discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 1: Once the intermediate relay UE enters into RRC\_CONNECTED mode, it should release the paging-related information in the parent for its child UEs if there is any.

Proposal 2: When Last Relay UE in RRC CONNECTED and L2 Remote UE(s) or Intermediate Relay UE(s) in RRC\_IDLE/RRC\_INACTIVE, the Last Relay UE can monitor PO on behalf of each RRC\_IDLE/RRC\_INACTIVE intermediate relay UE or remote UE connected to it via multi-hop if the active DL BWP of Last Relay UE is configured with common CORESET and common search space.

Discussion:

Qualcomm understand this means the intermediate relay UE can monitor paging for the child, but they are not sure the coverage situation will support this well; frequent changes of coverage may mean the monitoring changes all the time, so they would prefer relying only on the last relay UE.

InterDigital are fine with the proposals and think they align with what we agreed for SI. Qualcomm think paging is different because it is not for the intermediate itself but for the child UE.

Samsung understand P1 implies that once the intermediate goes to connected, it will stop forwarding paging even if it is already stored.

LG understand that for system information, the intermediate can forward information that it does not need for itself, but here it may not be essential to have the intermediate do the monitoring.

Apple think the intermediate cannot know what node will receive the paging for its child. They think it can be left to relay implementation whether it releases the information or not.

Agreement:

Management of paging monitoring information at the relay UEs can be further checked in maintenance; no update to the running CR in this respect now.

Multi-hop QoS

[R2-2506020](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506020-MH-Cplane.docx) Remaining issues and solutions on C-plane procedure for multi-hop relay Sharp discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 6. QoS related optimization should be considered since very low E2E latency is required for some use cases.

Proposal 7. The principles of resource allocation follow the legacy mechanism, i.e., last relay can be configured with mode 1 resource allocation, and remote UE and other relay UEs are configured with mode 2 resource allocation.

Proposal 8. UE reports hop-by-hop link quality to gNB for path selection and split QoS configuration.

Discussion:

Samsung wonder about the specification impact; they think it is network implementation except for proposal 8.

Huawei think it is not really essential since the network can have information about the path from the individual UEs.

Apple have some uncertainty about the P8 impact since each UE reports its own PC5 conditions; they see that this information is already known to the gNB.

LG think P7 is the same as legacy operation; on P8, they agree with Apple. Lenovo also agree with Apple.

Chair wonders if P7 has spec impact for us.

RLC channel configuration

[R2-2505451](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505451%20Discussion%20on%20remaining%20issues%20on%20UP%20and%20CP.docx) Discusison on Remaining UP and CP issues for multi-hop U2N relay Apple discussion Rel-19 NR\_SL\_relay\_multihop

Proposal 1 RAN2 discuss whether each SL-RLC Channel configuration in sl-ConfigDedicatedNR for Intermediate relay UE is to be established in all N+1 PC5-RRC connections (N child node, 1 parent node). If not, what would be the correct UE behaviour in Rel-19.

[R2-2505343](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505343%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

Proposal 5 Similar to SIB request, a paging information list is be introduced for the intermediate relay UE to carry the paging information from the downstream remote UEs as in the TP above.

Discussion:

Apple support the proposal to avoid sending a lot of individual requests.

Qualcomm think the UE implementation can decide whether to batch the signalling together.

ZTE wonder if the relay UE will hold paging requests for some time to build the list. Apple think there are scenarios where a lot of requests come at the same time, e.g., for cancellation after link failure. OPPO have the same understanding as Apple and intend to align with what we have for SIB requests.

Huawei wonder if the intermediate prefers sending the individual requests, if there is any point in the list. Apple think it is most useful in the release case to save overhead.

Agreement:

Similar to SIB request, a paging information list is introduced for the intermediate relay UE to carry the paging information from the downstream remote UEs. Signalling details can be checked in the ASN.1 review as usual.

SRAP-1: reflective bearer mapping

[R2-2505102](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505102%20Discussion%20on%20Reflective%20Bearer%20mapping%20of%20SL%20relay.doc) Discussion on Reflective Bearer mapping of SL relay ZTE Corporation, Sanechips, Ericsson, Apple, Nokia discussion Rel-19 NR\_SL\_relay\_multihop

Proposal 1. (SRAP-1)Re-use legacy remote UE add/mod/release list to configure indirect remote UE’s SRAP configuration in intermediate relay UE.

Proposal 2. (SRAP-1)RAN2 to downselect the two options:

Option 1 - reflective bearer mapping is mandatory supported for indirectly connected child, no new field is needed to be included(TP in 4.2.1).

Option 2 - reflective bearer mapping is optional, we need to include a new field sl-DLNextHop-L2Identity-r19 in SRAP configuration, based on absence or presence of the field, it is indicated that the intermediate relay UE shall apply reflective bearer mapping or not(TP in 4.1 and 4.2.2).

* [AT131][406][Relay] TP on reflective bearer mapping (ZTE)

Scope: F2F offline to check the TP from R2-2505102 for correctness/completeness.

Intended outcome: Report to Wednesday relay session in R2-2506312

Schedule: Tuesday 1030-1100 in Brk3

Deadline: Tuesday 2025-08-27 1900 IST

[R2-2506312](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506312%20Discussion%20on%20TP%20for%20Reflective%20Bearer%20mapping.doc) Discussion on TP for Reflective Bearer mapping ZTE Corporation discussion Rel-19 NR\_SL\_relay\_multihop

Discussion:

OPPO have two concerns: RRC configuration (network includes the SRAP and RLC channel configurations, and the UE can apply them immediately; but under the proposal, the relay UE would have to wait to apply the configuration until the first uplink message), and error handling (relay UE needs to check that the received packet is from the correct ingress link, and this cannot be done in the reflective model, so an error will send all the following packets to the wrong egress link and the relay has no way to recover).

Apple think the RLC channel configuration is independent of the SRAP configuration anyway, and we do not have a requirement for them to be configured at the same time; on the error handling point, they do not have a big concern and think if the first uplink traffic has the wrong ID, it will not be handled by the gNB and there will be no traffic responding, so no error to detect in the relay UE.

Qualcomm have additional concerns; they think that reusing the legacy remote UE IDs to provide configurations for the other child UEs means that the relay UE knows the remote UE, and with the reflective model it only knows its directly connected UEs.

ZTE consider that on RLC channel configuration, the configuration from the network is not restricted to be applied together; on the error handling concern, they understand that OPPO assume the network configuration is reliable, but the network configuration is also based on the first packet, so the same problem could occur there; and on the third issue raised by Qualcomm, they understand there is no requirement to follow the legacy single-hop behaviour.

OPPO think the error case is about the mapping between the L2ID and the local ID, and the network relies on the reported L2ID; the difference is whether the routing table is based on the network configuration or on the first received packet.

OPPO understand that the network provides the local ID based on the L2ID, which should be reliable. Apple think in the error case mentioned by OPPO, it can result in an erroneous entry, but it will never be used and will not present a real problem.

Ericsson think we already have the UE remembering the request for system information, and if the concern is right that this information is not reliable, we need to back out the previous agreement.

Qualcomm think we always trust the gNB configuration; if the first uplink packet is wrong, then the whole configuration will be wrong. Apple think the uplink packet will have the wrong local ID.

ZTE think the first packet will be the RRC setup request, and the gNB can detect if the ID is wrong in this message and it will not respond to the problematic UE.

OPPO are not sure how the network detects the error. Apple understand that the network allocates the local ID and can see if it is used by the wrong L2ID. OPPO think the network cannot tell since the L2ID is not carried.

ZTE think this is not an issue for the reflective bearer mapping alone. OPPO think in legacy operation, the SUI contains the L2ID and SRB0 is forwarded based on the allocated local ID, so the relay is following the mapping provided by the network, as opposed to the mapping being derived by the relay UE.

Apple think the network can recognise if the local ID comes from a different egress link. ZTE think the message in an erroneous case may not be appropriate for the first RRC message, and the network can detect this.

OPPO are not sure how the network knows which link it came on, since for the network there is only the Uu link.

[Chair’s note: Discussion continues after further informal offline time]

ZTE understand after further discussion that the issue can be solved by other means, e.g., gNB implementation, but it is difficult to reach consensus. They suggest that it could be an optional feature and vendors who do not consider it reliable will not support it.

OPPO think error cases can happen and we need to handle them; the baseline solution handles this situation correctly, but the reflective model does not detect it, and they see impact to the real UE’s RRC connection (blocked by the fake UE); they also do not see concrete gains over the baseline solution.

Apple think the error is in a very short time window, and it comes from an intermediate relay rather than a remote UE; the offending UE has passed authorisation, so we might not expect that it is malicious.

Samsung think we have spent a lot of time without reaching consensus, and they think we could leave it open to adopt this in maintenance if we can see solutions to solve the error case.

Ericsson are uncertain of the scenario, since the legacy security will prevent the connection being set up towards the wrong UE.

LG think the current CR is workable, and they wonder what the benefit of the reflective mapping is and/or what the problem with the current solution is.

Huawei think making it optional would be complicated because it requires considering the whole chain, where some UEs may support it and others not. Apple think this can be addressed by signalling capabilities.

Qualcomm also see that the current CR works, and it is not clear why we talk about an additional feature; they share OPPO’s concern that the error handling will be compromised.

ZTE point out that the baseline solution was adopted exactly as a baseline, not a final agreement, to allow progress, but we have been considering the reflective solution. They think the reflective solution reduces spec impact.

Show of hands: 4 companies (CATT, OPPO, Qualcomm, LG) cannot accept the reflective solution even if it is optional; no company thinks the system does not work without it.

ZTE think the first uplink packet is always unreliable. OPPO consider that the mapping associated with it is reliable, i.e., the routing table will be right; the contents of the packet need to be checked by security as usual.

OPPO emphasise that nothing is broken without this feature.

Apple recall that we agreed to draft the running CR on the baseline solution, while keeping the reflective discussion open; they think the error case is not very serious and may not be different from the single-hop scenario, but there may be too much attachment to keeping the existing solution.

Qualcomm understand the previous agreement differently: They think we intended to adopt the reflective solution only if the baseline was broken, and here we are seeing that the baseline is not broken and the reflective solution has a risk.

ZTE think we started with the baseline partly because it had larger spec impact and needed time to implement and review; they note that in the L3 relay this may be a problem as well, and if SA3 can accept it for L3 they should be able to accept it for L2.

Qualcomm think security/reliability is one reason to specify L2 rather than L3.

Agreement:

Reflective bearer mapping is not adopted; maintenance of the SRAP configuration follows the currently implemented running CR. SRAP-1 can be closed.

Fast failover proposal

[R2-2505726](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505726_Fast%20failover%20via%20pre‑configured%20egress%20candidate%20list%20for%20multi‑hop%20L2%20U2N%20relay.docx) Fast failover via pre-configured egress candidate list for multi-hop L2 U2N relay Jio Platforms Limited CR Rel-19 38.331 18.6.0 5430 - B NR\_SL\_relay\_multihop

Other contributions

[R2-2505086](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505086_(SRAP-1%20RRC-13)%20Discussion%20on%20SRAP%20configuration%20and%20timer%20extension%20in%20multi-hop%20relay.docx) (SRAP-1/RRC-13) Discussion on SRAP configuration and timer extension in multi-hop relay vivo discussion Rel-19

[R2-2505101](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505101%20Discussion%20on%20paging%20for%20multi-hop%20relay.doc) Discussion on paging for multi-hop relay ZTE Corporation, Sanechips discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2505342](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505342%20-%20SRAP%20configuration%20for%20multi-hop%20U2N%20Relay.docx) SRAP configuration for multi-hop U2N Relay OPPO discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2505419](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505419%20(R19%20SL%20Relay%20WI_AI8133_CP).doc) Remaining Issues on Control Plane for Multi-Hop U2N Relays InterDigital discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2505617](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505617.doc) Remaining issues on control plane procedure for SL relay KT Corp. discussion

[R2-2505618](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505618-Discussion%20on%20the%20control%20plane%20procedure%20for%20multi-hop%20U2N%20relay.docx) Discussion on the control plane procedure for multi-hop U2N relay LG Electronics Inc. discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2505759](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505759%20Discussion%20on%20control%20plane%20procedures%20for%20multi-hop%20SL%20Relay.doc) Discussion on control plane procedures for multi-hop SL Relay ZTE Corporation, Sanechips discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2505774](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505774_CP_v0.0.docx) Discussion on remaining issues of MH SL relay control plane procedures Samsung discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2505775](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505775%20Outstanding%20issues%20related%20to%20MH%20SRAP%20design.docx) Outstanding issues related to MH SRAP design Samsung R&D Institute UK discussion

[R2-2505794](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505794%20-%20discussion%20on%20control%20plane%20procedure.docx) Discussion on control plane procedures Ericsson discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2505927](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505927%20On%20SFN%20DFN%20offset%20and%20time%20sensitive%20applications.docx) On SFN DFN offset and time sensitive applications Nokia discussion NR\_SL\_relay\_multihop

[R2-2506037](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506037%20Missing%20Intermediate%20U2N%20Relay%20UE%20behaviours%20upon%20sidelink%20radio%20link%20failure.docx) Missing Intermediate U2N Relay UE behaviours upon sidelink radio link failure ASUSTeK discussion Rel-19 38.331 NR\_SL\_relay\_multihop

* Revised in R2-2506199

[R2-2506199](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506199%20Missing%20Intermediate%20U2N%20Relay%20UE%20behaviours%20upon%20sidelink%20radio%20link%20failure.docx) Missing Intermediate U2N Relay UE behaviours upon sidelink radio link failure ASUSTeK discussion Rel-19 38.331 NR\_SL\_relay\_multihop

### 8.13.4 Service continuity

First priority scenarios: (A) intra-gNB multi-hop indirect to direct path switch, (B) intra-gNB multi-hpo indirect to single-hop indirect path switch. Second priority scenarios: (C) intra-gNB direct to multi-hop indirect path switch, (D) intra-gNB single-hop indirect to multi-hop indirect path switch.

RRC-14: reporting of target relays

[R2-2505797](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505797%20-%20Intra%20gNB%20Service%20Continuity%20for%20Multihop%20Relays.docx) Service Continuity for Multi-Hop Relays Ericsson discussion Rel-19 NR\_SL\_relay\_multihop

Proposal 1 To discuss whether the agreements on RRC state of (first)intermediate/last Relay UE need to be captured in spec or can be up to gNB’s implementation to handle.

Discussion:

Huawei think we should capture something in the spec. CATT think we have the principle in the stage 2, and how to guarantee it is up to gNB implementation. Huawei agree it might be better in stage 2.

LG confirm that there is corresponding text in the stage 2. Ericsson did not find it but can check offline.

Agreement:

The principle of path switch to a connected relay UE is documented in stage 2. Companies can check offline if the current CR captures it adequately, and the wording can be fine-tuned in CR implementation. RRC-14 can be closed.

Inter-gNB cases

Discussed jointly

[R2-2505435](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505435%20Discussion%20on%20service%20continuity%20for%20Multi-hop%20Relay.docx) Discussion on service continuity for Multi-hop Relay Huawei, HiSilicon discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 5: Either the serving gNB shall only allow inter-gNB path switching from indirect (single-hop) to indirect (single-hop) paths for Rel-18 UEs, or RAN2 shall consider adding an indication in the measurement report to specify whether the candidate Relay UE is on a single-hop or multi-hop target path, or to provide the hop count information.

[R2-2506021](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506021-MH-ServiceContinuity.docx) Remaining issues and solutions on service continuity for multi-hop relay Sharp discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 5. The cellIdentity in sl-MeasResultRelay without enhancement can be used for decision whether the candidate first relay UE is connecting with the same gNB.

Discussion:

Huawei understand that the cell ID is not enough information to distinguish.

Samsung agree that the cell ID may not be adequate for the UE, but they think the network side can solve it and will know if the target is multihop or not.

OPPO think SA2 have already agreed that single-hop and multihop will use different RSCs, so a UE targeting multihop will not discover a single-hop relay. Huawei think the UE cannot understand if the target is inter-gNB and the RSC does not help with this; in the inter-gNB case, the source gNB will not know if the target is single-hop or multihop.

Qualcomm have some sympathy with Huawei’s scenario, also considering that the single-hop target may not be connected.

Samsung think the target gNB will reject a handover for a target multihop path.

ZTE the UE can recognise the inter-gNB case if the gNB ID is indicated.

Ericsson think this is a bit of an optimisation and the target will reject. Huawei think this requires extra signalling on Xn for the failed handovers.

Qualcomm think if a remote UE reports an idle candidate, the gNB does not know if it is single-hop or multihop, so the indication is useful for this case as well. Samsung wonder what happens from the network side in this scenario. Qualcomm understand that the gNB can select the idle target for single-hop cases only.

Lenovo think the RAN3 spec may not provide a suitable cause value for the multihop rejection on Xn, so the Huawei proposal makes sense. OPPO understand that the rejection is still possible, and for the idle case mentioned by Qualcomm we can rely on the network.

Samsung are not sure the path switch to an idle relay can be allowed without somehow triggering paging before the path switch. Qualcomm understand that we do allow idle targets in single-hop. LG wonder how the target gNB can page the target knowing only the L2ID.

LG agree that the target should be in connected mode for multihop, and they think the gNB can handle it, but they are OK to discuss further in maintenance if something is broken.

Samsung note that it is a new issue and there could be RAN3 impact, and we should check in maintenance.

CATT agree with LG and Samsung that this is not a blocking issue.

Agreement:

No enhancement is added now to allow indicating the hop count of a candidate target relay UE to the gNB. It can be discussed in maintenance if something is broken with the case where the target relay UE is in idle/inactive.

Path switch for relay UE

[R2-2506045](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506045.docx) Service continuity discussion Qualcomm Incorporated discussion NR\_SL\_relay\_multihop-Core

Proposal 2 The intermediate Relay UE can report measurement report UE to gNB for path switching to direct path or indirect path acting as a Remote.

Proposal 3 When the intermediate Relay UE performs path switching to direct path or indirect path, the intermediate Relay UE informs the Remote UE via the child intermediate relay UE with release cause 'RRC connection failure'.

Proposal 4 When the Remote UE receives notification from the relay UE, the Remote UE should go back to IDLE.

Discussion:

LG think the gNB has the context of the UEs, so it is different from group handover; they do not think the notification is needed.

InterDigital think the situation is similar to single-hop, where when the relay is handed over there is a notification to the remote UE.

Lenovo think P2 is legacy operation as long as the target indirect path is single-hop. They think on P3, the legacy cause value could be reused, and on P4, the remote UE could re-establish instead of going to idle.

Ericsson have the same understanding as Lenovo and think P2 is a bit confusing: There is no restriction in the spec that would state otherwise. They also think P3 is legacy behaviour except for the new cause value, which they are not sure is necessary; on P4, they think relay reselection could also be triggered as already captured in the spec.

LG think it is different from the single-hop case because the path switch for us will always be intra-gNB; they do not see it as group handover and think service continuity will still be possible.

OPPO think the notification is needed and the cause value should be handover; they think it is necessary to avoid group path switch even in the intra-gNB case, and the gNB implementation can choose to switch the remote UE(s) first.

Huawei think we should stick to the legacy behaviour.

Kyocera have some sympathy for LG’s view; they think re-establishment will usually bring the remote UE back to the same intermediate relay, so the notification seems a bit redundant.

Ericsson think we may be overengineering, and if the notification results in coming back to the same relay UE, that is just the outcome that happens. They would like to stick to the notification behaviour.

Samsung and Lenovo think there is no specification impact if we keep the legacy behaviour.

Kyocera think this is not a group handover case.

LG still think it is an unnecessary disruption.

Lenovo think there are a lot of notification use cases that need to be considered. InterDigital note that we are talking about the connected cases, so reselection does not apply; they think it is OK to forward what is sent to the child node.

Samsung wonder how the intermediate relay UE can know if its handover is intra- or inter-gNB.

Huawei think we should not over-optimize this case.

Agreements:

When the intermediate Relay UE receives a path switch command, the intermediate Relay UE sends a notification downstream using the handover cause value. Handling of the notification is in accordance with the existing CR and legacy behaviour.

When the RRC\_CONNECTED intermediate relay UE does re-establishment as a remote UE, the intermediate Relay UE sends a notification downstream, with the cause value to be confirmed in CR implementation.

Other contributions

[R2-2505087](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505087_(RRC-14)%20Reporting%20of%20Target%20Relay%20UEs%20for%20scenario%20C%20and%20D.docx) (RRC-14) Reporting of Target Relay UEs for scenario C and D vivo discussion Rel-19

[R2-2505176](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505176%20Intra-gNB%20Service%20Continuity%20for%20Multi-hop%20U2N%20Relay.docx) Intra-gNB Service Continuity for Multi-hop U2N Relay CATT discussion Rel-19 NR\_SL\_relay\_multihop-Core

## 8.15 NavIC L1 SPS A-GNSS support

(LCS\_NAVIC\_L1\_SPS\_NR\_LTE-Core; leading WG: RAN2; REL-19; WID [RP-251552](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_108/Docs/RP-251552.zip)

Time budget: 0 TU

Tdoc Limitation: 1 tdoc

[R2-2505776](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505776_(SSR%20Orbit-Clock%20Corrections%20Set%202).docx) Missing Capabilities for SSR Orbit/Clock Corrections Set2 Qualcomm Incorporated discussion

* Noted

[R2-2505720](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505720%20NR.docx) Introduction of NavIC L1 SPS A-GNSS in NR Stage 2 specification Ericsson, Reliance Jio, ISRO, MediaTek Inc., CEWiT, Huawei CR Rel-19 38.305 18.6.0 0179 2 B LCS\_NAVIC\_L1\_SPS\_NR\_LTE-Core R2-2504298

* Agreed

[R2-2505721](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505721%20LTE.docx) Introduction of NavIC L1 SPS A-GNSS in LTE Stage 2 specification Ericsson, Reliance Jio, ISRO, MediaTek Inc., CEWiT, Huawei CR Rel-19 36.305 18.0.0 0120 2 B LCS\_NAVIC\_L1\_SPS\_NR\_LTE-Core R2-2504299

* Agreed

[R2-2505722](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505722%20LPPNaVIC.docx) Introduction of NavIC L1 SPS A-GNSS in LPP Ericsson, Reliance Jio, ISRO, MediaTek Inc., CEWiT, Huawei CR Rel-19 37.355 18.5.0 0532 5 B LCS\_NAVIC\_L1\_SPS\_NR\_LTE-Core R2-2504893

* Revised in R2-2506430

[R2-2506430](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506430%20LPPNaVIC.docx) Introduction of NavIC L1 SPS A-GNSS in LPP Ericsson, Reliance Jio, ISRO, MediaTek Inc., CEWiT, Huawei CR Rel-19 37.355 18.5.0 0532 6 B LCS\_NAVIC\_L1\_SPS\_NR\_LTE-Core R2-2505722

* Agreed

Agreement:

Rel-19 NavIC WI is complete from RAN2 point of view.

## 8.16 BDS B2b in A-GNSS

LCS\_BDS\_B2b\_LTE\_NR; leading WG: RAN2; REL-19; WID [RP-250767](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_107/Docs/RP-250767.zip))

Time budget: 0 TU

Tdoc Limitation: 1 tdoc

[R2-2505094](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505094%20Introduction%20of%20B2b%20signal%20in%20BDS%20system%20in%20A-GNSS_37355_CR0545r2_(Rel-19)_rev%20of%20R2-2501435.docx) Introduction of B2b signal in BDS system in A-GNSS CAICT, CATT, CMCC, China Telecome, China Unicom, Ericsson, Huawei, HiSilicon, Lenovo, OPPO, vivo, Xiaomi, ZTE, MediaTek Inc, Qualcomm Incorporated CR Rel-19 37.355 18.5.0 0545 2 B LCS\_BDS\_B2b\_LTE\_NR-Core R2-2501435

* Agreed

[R2-2505095](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505095%20Introduction%20of%20BDS%20B2b%20in%20A-GNSS_CR0121r1_(Rel-19)_rev%20of%20R2-2410158.docx) Introduction of BDS B2b in A-GNSS CAICT, CATT, CMCC, China Telecome, China Unicom, Ericsson, Huawei, HiSilicon, Lenovo, OPPO, vivo, Xiaomi, ZTE CR Rel-19 36.305 18.0.0 0121 1 B LCS\_BDS\_B2b\_LTE\_NR-Core R2-2410158

* Revised in R2-2606314

[R2-2506314](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506314%20Introduction%20of%20BDS%20B2b%20in%20A-GNSS_CR0121r1_(Rel-19)_rev%20of%20R2-2505095.docx) Introduction of BDS B2b in A-GNSS CAICT, CATT, CMCC, China Telecome, China Unicom, Ericsson, Huawei, HiSilicon, Lenovo, OPPO, vivo, Xiaomi, ZTE, MediaTek Inc., Qualcomm Incorporated CR Rel-19 36.305 18.0.0 0121 2 B LCS\_BDS\_B2b\_LTE\_NR-Core R2-2415095

* Agreed

[R2-2505096](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505096%20Introduction%20of%20BDS%20B2b%20in%20A-GNSS_CR0180r1_(Rel-19)_rev%20of%20R2-2410159.docx) Introduction of BDS B2b in A-GNSS for TS 38305 CAICT, CATT, CMCC, China Telecome, China Unicom, Ericsson, Huawei, HiSilicon, Lenovo, OPPO, vivo, Xiaomi, ZTE CR Rel-19 38.305 18.6.0 0180 1 B LCS\_BDS\_B2b\_LTE\_NR-Core R2-2410159

* Revised in R2-2506315

[R2-2506315](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506315%20Introduction%20of%20BDS%20B2b%20in%20A-GNSS_CR0180r1_(Rel-19)_rev%20of%20R2-2505096.docx) Introduction of BDS B2b in A-GNSS for TS 38305 CAICT, CATT, CMCC, China Telecome, China Unicom, Ericsson, Huawei, HiSilicon, Lenovo, OPPO, vivo, Xiaomi, ZTE, MediaTek Inc., Qualcomm Incorporated CR Rel-19 38.305 18.6.0 0180 2 B LCS\_BDS\_B2b\_LTE\_NR-Core R2-2410159

* Agreed

Agreement:

The Rel-19 BDS B2b WI is complete from RAN2 point of view.

## 8.19 TEI19

Time budget: 1 TU

Tdoc Limitation: 1 tdoc for new proposals and 1 tdoc for old proposals for RAN2-led.

1 additional tdoc for primary co-sourcing company on top of the limit is allowed for co-sourced contribution with 4 or more companies.

Companies are encouraged to submit co-sourced contributions, which will have priority for discussion in RAN2#130

### 8.19.1 RAN2-led

Periodic assistance data for integrity service alert (new)

[R2-2505321](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505321%20Introduction%20of%20periodic%20delivery%20of%20NR%20integrity%20service%20alert%20%5bIntegrityPeriodicAD%5dlpp.docx) Introduction of periodic AD for NR integrity service alert [IntegrityPeriodicAD] Huawei, HiSilicon, Ericsson, Vivo CR Rel-19 37.355 18.5.0 0558 - B TEI19

* Revised in R2-2506316

[R2-2506316](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506316%20Introduction%20of%20periodic%20delivery%20of%20NR%20integrity%20service%20alert%20%5bIntegrityPeriodicAD%5dlpp_v02.docx) Correction on the periodic AD of NR integrity service alert [IntegrityPeriodicAD] Huawei, HiSilicon, Ericsson, Vivo CR Rel-19 37.355 18.5.0 0558 1 B TEI19 R2-2505321

Discussion:

Lenovo think there are some detailed issues (suffixes, ASN.1 extension brackets, etc.).

Qualcomm agree there are some errors, connected to the applicability of the common IEs and how the capability is introduced (should be just a capability for the procedure).

Huawei would like to understand if we need additional capabilities for DL-TDOA according to Qualcomm’s comment. Qualcomm understand that for DL-TDOA the capability is already there.

* [Post131][408][POS] LPP CR on periodic integrity assistance data (Huawei)

Scope: Revise the CR in R2-2506316 in accordance with the comments raised during the meeting and check the details.

Intended outcome: Agreed CR

Deadline: Short (for RP)

[R2-2505322](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505322%20Introduction%20of%20periodic%20delivery%20of%20NR%20integrity%20service%20alert%20%5bIntegrityPeriodicAD%5dstage2.docx) Introduction of periodic delivery of NR integrity service alert [IntegrityPeriodicAD] Huawei, HiSilicon, Ericsson, VIVO CR Rel-19 38.305 18.6.0 0192 - B TEI19

* Revised in R2-2505676

[R2-2505676](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505676%20Introduction%20of%20periodic%20delivery%20of%20NR%20integrity%20service%20alert%20%5bIntegrityPeriodicAD%5dstage2.docx) Correction on the periodic AD of NR integrity service alert [IntegrityPeriodicAD] Huawei, HiSilicon, Ericsson, Vivo CR Rel-19 38.305 18.6.0 0192 1 B TEI19 R2-2505322

* Title to be changed to match R2-2505322
* Coversheet to include cross-reference to LPP CR
* Agreed with these changes as R2-2506319

Discussion:

Qualcomm note that the title is inconsistent.

CATT think the coversheet should include cross-reference to the LPP CR.

Equal integer ambiguity level assistance data (postponed from RAN2#130)

[R2-2505840](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505840%20TEI19_RTKequalIntegerAmbiguityLevel.docx) UE request for equalIntegerAmbiguityLevel assistance data [GNSS-EqualIntegerAmbiguity] AT&T, Ericsson, Huawei, CATT, Samsung, ZTE Corporation, Nokia, Deutsche Telekom CR Rel-19 37.355 18.5.0 0557 1 B TEI19 R2-2504306

* Revised in R2-2506318

[R2-2506318](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2506318.docx) UE request for equalIntegerAmbiguityLevel assistance data [GNSS-EqualIntegerAmbiguity] AT&T, Ericsson, Huawei, CATT, Samsung, ZTE Corporation, Nokia, Deutsche Telekom CR Rel-19 37.355 18.5.0 0557 2 B TEI19 R2-2504306

* Agreed

### 8.19.2 Other WG-led

SRS frequency hopping ofr non-RedCap UE (CRs endorsed at RAN2#130)

[R2-2505032](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505032_R3-253749.docx) Reply LS on non-RedCap UE UL SRS frequency hopping for positioning (R3-253749; contact: ZTE) RAN3 LS in Rel-19 TEI19 To:RAN1, RAN2

* Noted

[R2-2505594](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505594%20Introduction%20of%20UE%20capability%20for%20SRS%20frequency%20hopping%20for%20non-RedCap%20UE%20in%2037355%20%5bPos_SRSHop%5d.docx) Introduction of UE capability for SRS frequency hopping for non-RedCap UE in 37355 [Pos\_SRSHop] ZTE Corporation CR Rel-19 37.355 18.5.0 0553 1 B TEI19 R2-2503877

* “Other specs affected” to be updated on coversheet: include RRC CR, untick “N” box, replace tdoc number with CR number
* Refer to LPP capability instead of RRC capability in field description of posSRS-TxFH-RRC-Inactive-NonRedCap
* “Inactive-NonRedCap” should be “InactiveNonRedCap” in all IE/field names
* Agreed with these changes as R2-2506320

Discussion:

Lenovo think there are a few minor issue in “Other specs affected” on the coversheet and in the field description with a dependency on RRC signalling (could refer to the same field in LPP instead).

[R2-2505595](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202508%20-%20RAN2_131,%20Bengaluru\Extracts\R2-2505595%20Introduction%20on%20the%20SRS%20frequency%20hopping%20for%20non-RedCap%20UE%20in%2038331%20%5bPos_SRSHop%5d.docx) Introduction on the SRS frequency hopping for non-RedCap UE in 38331 [Pos\_SRSHop] ZTE Corporation, Ericsson CR Rel-19 38.331 18.6.0 5290 2 B TEI19 R2-2503878

* “Other specs affected” to be updated on coversheet: include LPP CR, untick “N” box, replace tdoc number with CR number
* Second sentence in “Reason for change” to be updated to include also the restriction for FR2
* Agreed with these changes as R2-2506321