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

Prague, Czech Republic, 13-17 October 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: 3 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.

# 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: 3 Tdocs in total for agenda item 5 (incl. its sub agenda items) and agenda item 6 (incl. its sub agenda items)

## 6.1 Common

(NR\_MG\_enh-Core; leading WG: RAN4; REL-17; WID: [RP-211591](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_92e/Docs/RP-211591.zip))

(NR\_UDC\_enh-Core; leading WG: RAN2; REL-17; WID: [RP-211203](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_92e/Docs/RP-211203.zip))

(NG\_RAN\_PRN\_enh-Core; leading WG: RAN3; REL-17; WID: [RP-202363](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_90e/Docs/RP-202363.zip))

(NR\_IAB\_enh-Core; leading WG: RAN2; REL-17; WID: [RP-211548](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_92e/Docs/RP-211548.zip))

(NR\_UE\_pow\_sav\_enh-Core; leading WG: RAN2; REL-17; WID: [RP-212630](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_93e/Docs/RP-212630.zip))

(LTE\_NR\_DC\_enh2-Core; leading WG: RAN2; REL-17; WID: [RP-201040](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_88e/Docs/RP-201040.zip))

(LTE\_NR\_MUSIM-Core; leading WG: RAN2; REL-17; WID: [RP-212610](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_93e/Docs/RP-212610.zip))

(NR\_Slice-Core; leading WG: RAN2; REL-17; WID: [RP-212534](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_93e/Docs/RP-212534.zip))

(NR\_QoE-Core; leading WG: RAN3; REL-17; WID: [RP-211406](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_92e/Docs/RP-211406.zip))

(NR\_ext\_to\_71GHz-Core; leading WG: RAN1; REL-17; WID: [RP-212637](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_93e/Docs/RP-212637.zip))

(NR\_cov\_enh-Core; leading WG: RAN1; REL-17; WID: [RP-211566](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_92e/Docs/RP-211566.zip)): non-RACH-indication parts

(NR\_redcap-Core; leading WG: RAN1; REL-17; WID: [RP-211574](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_92e/Docs/RP-211574.zip))

(NR\_feMIMO-Core; leading WG: RAN1; REL-17; WID: [RP-212535](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_93e/Docs/RP-212535.zip))

(NR\_SmallData\_INACTIVE-Core, leading WG: RAN2; REL-17; WID: [RP-212594](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_93e/Docs/RP-212594.zip))

(NR\_IIOT\_URLLC\_enh-Core; leading WG: RAN2; REL-17; WID: [RP-210854](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_91e/Docs/RP-210854.zip))

(NR\_MBS-Core; leading WG: RAN2; REL-17; WID: [RP-201038](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_88e/Docs/RP-201038.zip))

(NR\_ENDC\_SON\_MDT\_enh-Core; leading WG: RAN3; REL-17; WID: [RP-201281](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_88e/Docs/RP-201281.zip))

(NR\_NTN\_solutions-Core; leading WG: RAN2; REL-17; WID: [RP-211557](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_92e/Docs/RP-211557.zip))

(NR\_SL\_enh-Core; leading WG: RAN1; REL-17; WID: [RP-202846](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_90e/Docs/RP-202846.zip))

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

PRACH partitioning items

(NR TEI17)

Includes Rel-17 Work Items without specific R2 Agenda Item, e.g. RAN1 and RAN4 led items, SA2 and CT1 led items (was previously “Rel-17 Other”)

Includes aspects that does not fit under the more specific AIs, e.g. multi-WI aspects.

Corrections for NR\_NTN\_solutions-Core might be treated in the NTN breakout session.

### 6.1.3 Control Plane corrections

#### 6.1.3.1 NR RRC

Corrections to 38331, and related change to other TS if applicable, except UE caps.

[R2-2507097](file:///C%3A%5C%5CUsers%5C%5Cmtk16923%5C%5CDocuments%5C%5C3GPP%20Meetings%5C%5C202510-%20RAN2_131bis%2C%20Prague%5C%5CExtracts%5C%5CR2-2507097%20RRC_R17_RLC-channel-config-v1.docx%22%20%5Co%20%22C%3AUsersmtk16923Documents3GPP%20Meetings202510-%20RAN2_131bis%2C%20PragueExtractsR2-2507097%20RRC_R17_RLC-channel-config-v1.docx) Correction on PC5 Relay RLC channel configuration Apple, CATT CR Rel-17 38.331 17.14.0 5508 - F NR\_SL\_relay-Core

* Not pursued

Discussion:

Ericsson understand it is up to the network to make sure the configurations are internally consistent. Apple confirm that this is the intention, and the proposal is to clarify that the SL dedicated configuration and SRAP configuration should both be taken into account. Ericsson think the UE should be able to understand the relationship; Apple indicate that we do not show the dependency today on the SRAP configuration.

Huawei think the spec is already clear and the add/modify/release part handles it.

Chair wonders if an implementation reading the spec today would do anything wrong. Apple understand that the relay has to set up SRAP configurations blindly for all the remote UEs with all the relay RLC channels, and we have no procedure now that says what to do when the SRAP configuration changes.

ZTE think Apple’s observation is correct, and we could capture the SRAP configuration in the same sentence as the sl-ConfigDedicatedNR.

Nokia understand that nothing is broken, just not optimized. Apple understand that over-configuring the RLC channels would be an incorrect behaviour by the relay. Nokia think it does not break the system and this is for Rel-17, which has been frozen for a long time; Apple think it is not what we intended to design. Huawei agree with Nokia that we should only consider changes to Rel-17 if they are critical.

Chair asks if a relay UE that implements the sensible configuration is in violation today. Ericsson think it depends on the network to have consistent configurations.

OPPO think since we have a common understanding of the correct implementation and there is some lack of clarity in the spec, adding a NOTE could be a compromise way forward. Nokia think we could capture it in the minutes; they have some concern about adding the NOTE to a frozen release.

Apple interpret that a relay UE doing the right thing would be in violation of the spec today, because it applies a configuration different from what the spec tells it to do.

LG have no strong opinion but think Apple’s proposal is reasonable, and we could consider taking a CR from Rel-18.

Huawei think capturing it in the minutes would be enough. ZTE think we could capture it in Rel-19 (which is not frozen), as they see the change as being necessary for aligned UE behaviour.

Nokia think a UE doing the right thing is not in violation. ZTE think it may violate what the network expects, and without guidance we could see two different UE behaviours. Nokia think both implementations are valid. Chair understands that the “extra” RLC channels would never be used because the SRAP configuration cannot direct traffic to them. Apple think a relay UE implementing the spec must set up the extra channels, or else it is going outside what the spec tells it to do.

Apple think a change from Rel-19 would be all right, but we should capture something for the earlier releases at least in the minutes.

LG agree we could put something in the minutes and take the CR from Rel-19 with the magic sentence.

Agreement:

RAN2 confirm that a L2 U2N relay UE initiates a PC5 Relay RLC channel addition towards a L2 U2N Remote UE if the sl-RLC-ChannelID received in sl-ConfigDedicatedNR is indicated for this L2 U2N Remote UE in accordance with sl-SRAP-ConfigRelay, and a PC5 Relay RLC channel with the received sl-RLC-ChannelID was not configured before.

[R2-2507098](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507098%20RRC_R18_RLC-channel-config-v1.docx) Correction on PC5 Relay RLC channel configuration Apple, CATT CR Rel-18 38.331 18.7.0 5509 - A NR\_SL\_relay-Core

* Not pursued

[R2-2507099](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507099%20RRC_R19_RLC-channel-config-v1.docx) Correction on PC5 Relay RLC channel configuration Apple, CATT CR Rel-19 38.331 19.0.0 5510 - A NR\_SL\_relay-Core

* Update to category F and add magic sentence
* Agreed in principle with these changes as R2-2507792

## 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 NR 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: 4*

#### 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))

[R2-2507076](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507076%20Correction%20on%20UE%20capability%20for%20MP%20split.docx) Correction on UE capability for MP split ZTE Corporation, Sanechips, CATT CR Rel-18 38.306 18.7.0 1357 - F NR\_SL\_relay\_enh-Core

* Agreed in principle

Discussion:

Qualcomm wonder if it is needed considering the capability name. ZTE clarify that the split DRB is separate from PDCP duplication.

[R2-2507077](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507077%20Correction%20on%20UE%20capability%20for%20MP%20split.docx) Correction on UE capability for MP split ZTE Corporation, Sanechips, CATT CR Rel-19 38.306 19.0.0 1358 - A NR\_SL\_relay\_enh-Core

* Agreed in principle

[R2-2507213](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507213%20CR5422r1%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 18.7.0 5422 1 F NR\_SL\_relay\_enh-Core R2-2505543 Revised

* Revised in R2-2507553

[R2-2507553](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507553%20CR5422r3%20to%2038.331%20on%20SI%20reception%20for%20MP.docx) Correction to SI reception by remote UE for multi path LG Electronics CR Rel-18 38.331 18.7.0 5422 3 F NR\_SL\_relay\_enh-Core R2-2507213

* Impact analysis to be added
* Agreed in principle with this change, as R2-2507795

[R2-2507214](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507214%20CR5422r2%20to%2038.331%20on%20SI%20reception%20for%20MP.docx) Correction to SI reception by remote UE for multi path LG Electronics CR Rel-19 38.331 19.0.0 5422 2 A NR\_SL\_relay\_enh-Core R2-2505543

* Withdrawn (needs a new CR number)

[R2-2507697](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507697%20CR5563%20to%2038.331%20on%20SI%20reception%20for%20MP.docx) Correction to SI reception by remote UE for multi path LG Electronics CR Rel-19 38.331 19.0.0 5563 - A NR\_SL\_relay\_enh-Core

* Impact analysis to be added
* Agreed in principle with this change, as R2-2507796

[R2-2507215](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507215%20Correction%20to%20SI%20reception%20by%20remote%20UE%20for%20MP.doc) Correction to SI reception by remote UE for multi path LG Electronics Inc. discussion Rel-18 NR\_SL\_relay\_enh-Core

* Noted

[R2-2507474](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507474%20-%2038.300_1045_Rel18_U2URelays_Peer%20Remote%20UE%20Control%20Plane%20Procedures.docx) U2U Relays, Peer Remote UE Control Plane Procedures Ericsson, Nokia CR Rel-18 38.300 18.7.0 1045 - F NR\_SL\_relay\_enh-Core

* Steps 4 through 9 to be replaced with steps 5 through 9
* Agreed in principle with this change, as R2-2507793
* Rel-19 mirror agreed in principle as R2-2507794

Discussion:

Huawei wonder if there are no data from the other side to be transmitted, if the peer procedures would be needed; they understand that if there are data, the peer side will initiate the procedures already, so the spec is OK without the CR.

Samsung think the CR is technically correct, but we have a general assumption in some places that the peer will do the same procedure. Ericsson understand that it matters here because it is U2U and the setup procedure is controlled by the UEs themselves. To Huawei’s comment, Ericsson understand that when we set up the link it should be done in both directions.

Apple do not see that step 4 needs to be performed by both sides. Ericsson think the end-to-end link needs to be set up bidirectionally. Nokia agree with Apple.

#### 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))

Including outcome of email discussion [Post131][410][POS] Stage 2 descriptions for Rel-18 positioning (CATT)

[R2-2506821](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506821%20Report%20of%20%5BPost131%5D%5B410%5D%5BPOS%5D%20Stage%202%20descriptions%20for%20Rel-18%20positioning%20%28CATT%29.docx) Report of [Post131][410][POS] Stage 2 descriptions for Rel-18 positioning (CATT) CATT discussion Rel-18 NR\_pos\_enh2-Core

* Noted

Discussion:

ZTE wonder why the eDRX extension should not be included, since we have the feature in Rel-18. Qualcomm indicate that we did not agree on this feature in the positioning session and it was only for eRedCap. Ericsson point out that it was mentioned in our WID and we are supporting it; they think it would be enough to provide a reference to 38.300 and say it is supported.

CATT confirm that 38.300 has a sentence about the eDRX extension, and they are fine with referring to it.

Huawei indicate that the extension was for RRC\_INACTIVE in Rel-18, and they wonder if for us it applies in RRC\_IDLE from Rel-17. CATT think we would need separate sentences in the clauses for positioning in idle and inactive respectively.

Qualcomm note that some reference numbers are missing in the added text.

Qualcomm doubt if there is meaningful impact to positioning from this feature. vivo agree with Qualcomm because there is no clear indication of the relationship between DRX and positioning.

Huawei checked 38.305 and found that in RRC\_INACTIVE, there is no mention of the alignment between PRS and DRX; they think it would be more useful to document in stage 2 that this alignment is for power saving, but if we do not want to be this specific, we could just say the features can be supported together. Ericsson think we should not capture too much detail about the purpose of configuring something that is supported in the spec, and a simple pointer would be good enough.

Qualcomm wonder what the UE behaviour would be related to this spec change. Nokia have some sympathy with Qualcomm’s comment and think a simple statement that “this is supported” does not shed much light, so they would prefer to have some linkage to positioning if we have the text at all.

Huawei understand that there should be no impact to UE behaviour.

Ericsson think there is stage 3 text related to the longer SRS periodicity.

Xiaomi wonder if the Rel-19 CR should cover FH. CATT indicate that the Rel-19 CR here is a true shadow without Rel-19-specific content. Qualcomm think there is confusion due to two versions of FH for RedCap and non-RedCap, so they think it should be kept separate if captured in stage 2.

[R2-2506824](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506824%20Corrections%20on%20LPHAP%2C%20carrier%20phase%2C%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 3 F NR\_pos\_enh2-Core R2-2505124

* Agreed in principle

[R2-2506825](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506825%20Corrections%20on%20LPHAP%2C%20carrier%20phase%2C%20bandwidth%20aggregation%20and%20frequency%20hopping%20for%20positioning%28R19%20Cat.%20A%20CR%29.docx) Corrections on LPHAP, carrier phase, bandwidth aggregation and frequency hopping for positioning(R19 Cat. A CR) CATT, Ericsson, Nokia, ZTE Corporation CR Rel-19 38.305 18.6.0 0198 - A NR\_pos\_enh2-Core

* Agreed in principle

[R2-2506969](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506969%20Correction%20on%20AdditionalSpectrumEmission%20in%20SL%20positioning.docx) Correction on AdditionalSpectrumEmission in SL positioning ZTE Corporation CR Rel-18 38.331 18.7.0 5494 - F NR\_pos\_enh2-Core

* Agreed in principle

Discussion:

Huawei wonder if this is only for the dedicated pool; if so, it should be made clear. ZTE indicate that for the shared pool, the SL frequency is the same as for data, so the frequency is already included in SIB12 with the additional spectrum emission.

[R2-2506970](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506970%20Correction%20on%20AdditionalSpectrumEmission%20in%20SL%20positioning-r19.docx) Correction on AdditionalSpectrumEmission in SL positioning ZTE Corporation CR Rel-19 38.331 19.0.0 5495 - A NR\_pos\_enh2-Core

* Agreed in principle

[R2-2507040](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507040%20Correction%20for%20the%20description%20of%20rangeAndOrDirection.docx) Correction for the description of rangeAndOrDirection Huawei, HiSilicon CR Rel-18 38.355 18.6.0 0016 - F NR\_pos\_enh2-Core Revised

* Revised in R2-2507355

[R2-2507355](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507355%20Correction%20for%20the%20description%20of%20rangeAndOrDirection.docx) Correction for the description of rangeAndOrDirection Huawei, HiSilicon CR Rel-18 38.355 18.6.0 0016 1 F NR\_pos\_enh2-Core R2-2507040

* Not pursued

Discussion:

Chair wonders if it is a mandatory CR. Huawei think so.

Qualcomm think it is not needed because this is the interpretation we always use; they understand that the usage of 0..180 to mean -90..90 is typical. They think for AoA we have a reference to a RAN1 TR in LPP/NRPPa. Huawei think the SA2 description suggests otherwise, and maybe they need to align to our convention.

Ericsson agree with Qualcomm and think there are other places where we use 0..180; they think something could be clarified in SA2.

CATT agree with Qualcomm about the existing LPP convention; they think it is CT4’s responsibility to translate from LPP representation to SA2’s representation.

[R2-2507349](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507349%20Correction%20for%20the%20description%20of%20rangeAndOrDirection.docx) Correction for the description of rangeAndOrDirection Huawei, HiSilicon CR Rel-19 38.355 19.0.0 0017 - A NR\_pos\_enh2-Core

* Not pursued

[R2-2507246](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507246%20Correction%20on%20RequestLocationInformation%20IE%20for%20DL-TDOA%20and%20DL-AOD.docx) Correction on RequestLocationInformation for DL-TDOA and DL-AOD Samsung, Qualcomm CR Rel-18 37.355 18.6.0 0562 - F NR\_pos\_enh2-Core

* Not pursued (can be done from Rel-19)

Discussion:

Ericsson think it is not critical to fix in Rel-18 but could be done from Rel-19. Huawei agree with Ericsson and think it is a small issue.

Qualcomm think it could be handled in the ASN.1 review.

Samsung think we could agree to capture it in Rel-19.

Agreement:

RAN2 confirm that “location measurements” in the description of RequestLocationInformation for DL positioning in 37.355 should read “location information” and this issue can be fixed from Rel-19.

[R2-2507328](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507328%20Correction%20on%20NCD-SSB%20Configuration%20for%20Positioning%28R18%29.docx) Correction on NCD-SSB Configuration for Positioning China Telecom CR Rel-18 38.331 18.7.0 5524 - F NR\_pos\_enh2-Core

* Needs to be revised for ASN.1 backward compatibility
* Postponed

Discussion:

ZTE checked RAN1 agreements and did not find an indication that NCD-SSB is supported as a reference.

CATT checked with RAN1 and understand that NCD-SSB can be used, but they are not sure why the offset is required since the UE can still find the NCD-SSB according to the SSB configuration.

China Telecom understand that this is a full configuration, so the offset is needed.

Huawei think we should clarify whether this is for intra- or inter-band; for intra-band they understand there is no need for the offset, and inter-band SSB was introduced for NES and has the offset. They have no strong view on whether to support it, but they think the CR needs to be revised to be ASN.1 BC.

Nokia looked at the RAN1 parameter list and did not find the offset mentioned, so they understand that the need should be confirmed by RAN1.

Ericsson note that we did SRS for positioning in Rel-16 and the time offset was added only in Rel-17, so there would not be anything in the parameter list; they are not sure if anything is broken without the CR, but they think other parts of the RRC configuration include it and it may not be necessary to duplicate it here.

Ericsson note that for SRS for MIMO we do not provide the offset, but the difference here may be that neighbour cells are also involved; they would like more time to check.

CATT agree with Nokia that it should be checked with RAN1 colleagues.

Huawei agree with Ericsson that we should not cause impact to other features; they think it would be good to consult internally with companies’ RAN1 colleagues.

[R2-2507330](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507330%20Correction%20on%20NCD-SSB%20Configuration%20for%20Positioning%28R19%29.docx) Correction on NCD-SSB Configuration for Positioning China Telecom CR Rel-19 38.331 19.0.0 5525 - A TEI19, NR\_pos\_enh2-Core

* Postponed

[R2-2507533](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507533%20Correction%20on%20processing%20of%20sidelink%20grant%20on%20Dedicated%20SL-PRS%20resource%20pool.docx) Correction on processing of sidelink grant on Dedicated SL-PRS resource pool ASUSTeK CR Rel-18 38.321 18.7.0 2131 - F NR\_pos\_enh2-Core

* First change to be replaced with “2> if sl-PRS-MaxNum-Transmissions is configured and the number of transmissions of the SL-PRS has not reached the selected maximum number of SL-PRS transmissions; or 2> if sl-PRS-MaxNum-Transmissions is not configured:”
* Agreed in principle as R2-2507797
* Mirror CR agreed in principle as R2-2507798

Discussion:

Huawei are not sure the third change is correct: There are two SR procedures, one for normal transmission and one for sidelink, and they think we may not need to specify a particular one. ASUSTeK clarify that the current reference just points to a MAC CE, and the parallel requirements in the same paragraph point to the procedures.

Huawei think the first change may be wrong because removing the condition would remove it also for scheme 2.

LG understand that the CR would remove the reference to the parameter completely.

Xiaomi think the first change is not needed because the parameter will not be checked if it is not configured for scheme 1. ASUSTeK think then it should be removed from the section that is common to both schemes.

Ericsson think we should fix the misnamed RRC parameter in Rel-18. Chair thinks there are other cases. Huawei agree that there are other cases and we could let it pass now.

Withdrawn/Not available

[R2-2507152](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507152%20Correction%20on%20RequestLocationInformation%20IE%20for%20DL-TDOA%20and%20DL-AOD.docx) Correction on RequestLocationInformation for DL-TDOA and DL-AOD Samsung CR Rel-18 37.355 18.6.0 0561 - F NR\_pos\_enh2-Core Withdrawn

# 8 NR Rel-19

## 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: 0 TU

Tdoc Limitation: 2 tdocs

### 8.13.1 Organizational

LSs and rapporteur input

SRAP open issues and rapporteur CR

[R2-2506805](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506805%20-%20SRAP%20open%20issues%20for%20NR%20sidelink%20multi-hop%20relay_V03_Rapp.docx) SRAP open issues for NR sidelink multi-hop relay OPPO report NR\_SL\_relay\_multihop

* Noted

[R2-2507150](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507150-Miscellaneous%20SRAP%20corrections%20for%20multi-hop%20U2N%20Relay.docx) Miscellaneous SRAP corrections for multi-hop U2N Relay OPPO, ASUSTeK CR Rel-19 38.351 19.0.0 0042 - F NR\_SL\_relay\_multihop

* [Post131bis][402][Relay] Rel-19 relay SRAP CR (OPPO)

 Scope: Update the CR in R2-2507150 in line with decisions of RAN2#131bis.

 Intended outcome: Endorsable CR to RAN2#132

 Deadline: Long

38.304 open issues

[R2-2507183](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507183.docx) Open issues on Rel-19 multihop relay 38.304 CR MediaTek Inc. discussion Rel-19 NR\_SL\_relay\_multihop-Core

* Noted

MAC open issues

[R2-2507455](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507455_MAC_OpenIssuesList.doc) MAC Open Issues Discussion InterDigital France R&D, SAS discussion

* Noted

Capability open issues

[R2-2507559](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507559_%5BPost131%5D%5B417%5D%5BRelay%5D%20Rel-19%20relay%20capability_OpenIssues_summary.docx) Open issues on Rel-19 Relay Capability Samsung discussion Rel-19 NR\_SL\_relay\_multihop-Core

* Noted

Proposal: The remote UE operation is not a prerequisite of the relay UE operation, and no further specification change is needed.

Agreement:

The remote UE operation is not a prerequisite of the relay UE operation, and no further specification change is needed.

ASN.1 review and RRC rapporteur CR

K002, W500, and W501 are PropReject but with related documents under AI 8.13.2

E049, E050, and H453 are PropAgree and implemented in the CR but have related documents under AI 8.13.2

[R2-2507488](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507488%20Corrections%20to%20WI%20SLRelay.docx) Corrections to WI SLRelay Huawei, HiSilicon (Rapporteur) CR Rel-19 38.331 19.0.0 5537 - F NR\_SL\_relay\_multihop-Core Late

[R2-2507489](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507489%20SLRelay%20Review%20file%20v022.docx) WI SLRelay ASN.1 Review file Huawei, HiSilicon (Rapporteur) discussion Rel-19 NR\_SL\_relay\_multihop-Core Late

* Noted

[R2-2507490](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507490%20SLRelay%20Comments%20file%20v022.docx) WI SLRelay ASN.1 Comments file Huawei, HiSilicon (Rapporteur) discussion Rel-19 NR\_SL\_relay\_multihop-Core Late

* Noted

### 8.13.2 Control plane

Impact to 38.331 (except for capability issues), 38.304

RIL documents (prioritise ToDo RILs)

Note: J011, X500 are ToDo without documents

O503/O505/O508

[R2-2506804](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506804%20-Discussion%20on%20control%20plane%20corrections%20for%20NR%20sidelink%20multi-hop%20relay.docx) Discussion on control plane correction for multi-hop U2N relay OPPO discussion Rel-19 NR\_SL\_relay\_multihop

* Noted

Proposal 1 (O505) RAN2 to discuss whether to introduce sl-PagingDelivery-List to enable the Paging delivery of multiple remote UEs within the same UuMessageTransferSidelink message.

Discussion:

Qualcomm think it is an optimisation that only applies to a rare case (when multiple remote UEs are paged at exactly the same time).

Apple think from a signalling perspective the proposal is harmless, and there may be many child UEs resulting in a reasonable probability of simultaneous paging.

NEC agree with Qualcomm and think simultaneous paging would be unusual, and the proposal costs some specification effort.

Huawei agree that it is an optimisation.

Proposal 2 (O508) Add the missing discovery transmission threshold condition as proposed in O508.

Proposal 3 (O503) Add the missing conditions of SUI initiation for discovery transmission at the intermediate relay and last relay as proposed in O503.

Discussion:

Huawei wonder why the intermediate relay UE needs to check the remote UE threshold condition for discovery, since it will check anyway when it connects. OPPO agree that it will check when it connects, but they understand that it should be checked also for every discovery transmission based on Rel-17 principles.

OPPO clarify that this aligns with the agreement to reuse the remote UE threshold value for the intermediate relay UE threshold.

Huawei wonder if the last relay UE really needs to check if it has a PC5 connection with the child. OPPO indicate that it is not checking this condition for transmission, but it creates two different cases.

Agreements:

Do not introduce sl-PagingDeliveryList in this release. O505 can be closed.

Add the missing discovery transmission threshold condition (as in issue O508). Refer to TP in R2-2506804. O508 can be closed.

Add the missing conditions of SUI initiation for discovery transmission at the intermediate relay and last relay (as in issue O503). Refer to TP in R2-2506804. O503 can be closed.

B100/B101/B102

[R2-2506925](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506925%20%5BB100%5D%5BB101%5D%5BB102%5D%20issues%20for%20notification%20message%20v1.0.docx) [B100][B101][B102] issues for notification message Lenovo discussion Rel-19

* Noted

Proposal 1: The case that the intermediate relay UE in idle/inactive can trigger a notification message after receiving release message from its parent has been agreed in RAN2#131 meeting. But it is not captured in RRC specification. RAN2 to agree TP#1 for this case.

Discussion:

Huawei indicate that so far we have not mixed upper-layer and AS-layer conditions; they understand that the intermediate relay UE can release the child UE in upper layers without an AS trigger for the message.

InterDigital wonder if we should then revert the agreement to send the notification message.

Lenovo understand that Huawei’s interpretation would restrict the intermediate relay UE behaviour to always release the child, which would change the agreement and need to be documented in the spec.

NEC recall that we sent the agreement to SA2 for confirmation but think we did not hear back, and they think we should keep the agreement unless told otherwise. InterDigital think the agreement aligns with other upstream failure cases.

Proposal 2: The intermediate relay UE in RRC connected state can be triggered to transmit the notification message towards the child UE after receiving the release message from its parent relay UE. RAN2 to agree TP#2.

Proposal 3: The intermediate relay UE can be triggered to transmit the notification message towards the child UE upon intermediate Relay UE's RRC connection failure including RRC connection reject as specified in 5.3.3.5 and 5.3.13.10, and T300 expiry as specified in 5.3.3.7, and RRC resume failure as specified in 5.3.13.5. RAN2 to agree TP#3.

Discussion:

Huawei think there is no impact from this case to Uu resources, so they wonder if the network will really reject the RRC connection. Lenovo indicate that from the intermediate perspective it will establish an end-to-end connection, and the network is allowed to reject, e.g., for load reasons.

Apple support the proposal and think we should document the case since the UE cannot get into connected state. OPPO have the same understanding.

Agreements:

Capture in RRC that the intermediate relay UE in idle/inactive can trigger a notification message after receiving release message from its parent, as in issue B100. Refer to TP in R2-2506925. B100 can be closed.

The intermediate relay UE in RRC connected state can be triggered to transmit the notification message towards the child UE after receiving the release message from its parent relay UE, as in issue B101. Refer to TP in R2-2506925. B101 can be closed.

The intermediate relay UE can be triggered to transmit the notification message towards the child UE upon intermediate Relay UE's RRC connection failure including RRC connection reject as specified in 5.3.3.5 and 5.3.13.10, and T300 expiry as specified in 5.3.3.7, and RRC resume failure as specified in 5.3.13.5, as in issue B102. Refer to TP in R2-2506925. B102 can be closed.

Z454/Z456/Z455

[R2-2506983](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506983%20Discussion%20on%20RIL%20%5BZ452%5D%5BZ454%5D%5BZ455%5D%5BZ456%5D%5BZ458%5D%5BZ459%5D.doc) Discussion on RIL [Z452][Z454][Z455][Z456][Z458][Z459] ZTE Corporation, Sanechips discussion Rel-19 NR\_SL\_relay\_multihop

* Noted

Proposal 2. [Z454]MH remote UE will report it’s own SRC L2 ID to network. And adopt the TP in annex clause.

Proposal 3. [Z455]Introduce a paging ID list in SL-TxResourceReqL2U2N-Relay-r17 included in SUI message.

Proposal 4. [Z456]RAN2 is suggested to discuss below two solutions for UE to set UE type in SUI message:

Solution1: Clarify that intermediate relay UE will use different L2 IDs for remote UE discovery function and relay UE discovery function, which may need double check with SA2.

Solution2: It is possible that UE use same L2 ID for remote UE and relay UE discovery, a new UE type is needed.

Discussion:

ZTE clarify that P4 can focus on whether there is a need to introduce a new UE type for the intermediate relay.

Qualcomm think P3 is not needed; the SUI will only include the direct child remote UE. NEC have the same understanding. ZTE think if the relay and remote are both in idle/inactive, the last relay UE will report both paging IDs.

NEC understand that each UE reports its own paging ID through its own SUI. OPPO understand that the relay UE reports the paging ID for the remote UE, and the connected UE does not need to report its own paging ID.

OPPO understand the list is needed since currently we can only report a single destination.

Qualcomm consider that each intermediate relay UE reports only its direct child(ren). ZTE ask if there is a two-hop case where the remote and intermediate are both in idle, which UE is responsible for receiving the paging message for the remote UE, the intermediate or last relay UE? Qualcomm think this goes to the question of whether the intermediate relay UE can monitor paging directly. ZTE consider that the last relay UE may need to know the paging ID of the remote UE in order to monitor its paging.

Qualcomm think it can be done with multiple SUI messages.

Apple think there is a difference between Qualcomm’s discussion of the intermediate relay UE and ZTE’s proposal for the last relay UE; they understand that for the last relay UE, ZTE’s proposal is needed so it can know the paging ID of the downstream remote(s).

NEC have concerns on the specification impact; we have not made any changes within the SUI, and we would need to have a new Rel-19 field for this case with corresponding procedural text.

Qualcomm would prefer to postpone the issue for more offline discussion on how paging monitoring works. Huawei think this discussion was on a different issue.

ZTE think multiple SUIs will not work because the UE only reports its direct child(ren), and a new SUI replaces the old SUI from network perspective. Qualcomm wonder what we do then about multiple remote UEs for the same relay UE in legacy operation; ZTE clarify that each SUI needs to include all the children. OPPO think we discussed this previously and excluded reporting of indirect child UEs, so Qualcomm’s suggestion would require additional PC5-RRC signalling. Apple agree with OPPO and see ASN.1 impact from Qualcomm’s proposal.

Qualcomm wonder if the ZTE proposal includes only paging ID or also other information. ZTE clarify that it is just the paging ID of indirect child UEs.

Xiaomi think on P4, the current spec is clear that the L2IDs for remote and relay operation will be different, and no need to check with SA2. Qualcomm understand that the intermediate relay UE will set the appropriate role for whatever role it is acting in at the moment (remote or relay).

ZTE clarify that the UE type is in the root of the SUI message, so each message can only report one UE type. Xiaomi think it will report different types in different instances of the SUI.

Apple think Xiaomi’s suggestion does not work because the network will drop the previous SUI.

NEC think a new UE type is needed and the impact is clear.

Qualcomm think we can leave it to intermediate relay UE implementation and the network will know which UE is an intermediate relay.

OPPO indicate that in previous releases, the UE role is used by the network to provide different configurations, e.g., the appropriate threshold conditions for the role, so they see that a new type is helpful.

ZTE think if we do not have a new UE type, we would have some spec impact to clarify that it is left to UE implementation. Qualcomm agree that there would be something to document.

NEC think with no new UE type, we would have to have new discussions on when the intermediate acts as a remote and when it acts as a relay.

Ericsson have the same understanding as Qualcomm and think the gNB will distinguish the two roles; they see the proposal as an optimization.

OPPO understand that both options are feasible for the network, explicit indication with a new UE type or implicit solution where the network relies on knowledge that the UE is an intermediate relay.

Xiaomi think the current spec works and a new UE type would have SA2 impact. ZTE do not see the SA2 impact.

Chair understands that from network implementation perspective, it is a question of whether the SUI always replaces the previous version. ZTE understand that it does, under general principles of uplink messages. Apple have the same understanding as ZTE; we do not have delta signalling in the uplink.

Qualcomm think even if the SUI overrides previous versions, a network-based solution can work, and we already expect the network to remember some information from SUIs.

Ericsson think we could add a NOTE to describe the expected network behaviour; they see that introducing a new UE type is a bigger spec change.

Agreements:

MH remote UE will report its own SRC L2 ID to network as in issue Z454. Refer to TP in R2-2506983. Z454 can be closed.

Introduce a paging ID list in SL-TxResourceReqL2U2N-Relay-r17 included in SUI message, used to report paging IDs of indirect child UEs at least for last relay UE, as in issue Z455. Refer to TP in R2-2506983. Z455 can be closed. FFS (related to A500) whether the intermediate relay UE in RRC\_CONNECTED can monitor paging for child UEs.

Z456 can be left to UE implementation to set the UE type and network implementation to identify which UE is an intermediate.

X501/X502/X503/X505 (last three are PropReject)

[R2-2506994](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506994%20Discussion%20on%20Rel-19%20SL%20MH-Relay%20RILs.docx) Discussion on Rel-19 SL MH-Relay RILs Xiaomi discussion Rel-19 NR\_SL\_relay\_multihop

Proposal 1: (X501) To clarify that the understanding of “UE has SIB request information to provide” also includes the requested SIB(s) from the child UE, RAN2 is requested to agree to adopt the TP (first change) proposed in R2-2506994.

Discussion:

Apple understand the concern but think the problem is that we did not capture anything in the reception behaviour about the SIB forwarding, and they think something should be added in the SIB request reception instead of in the definition of “SIB request information”.

Xiaomi think both solutions can resolve the issue and they are open to either.

OPPO slightly prefer the option from Apple, which can address the paging equivalent issue as well.

Agreement:

For paging and system information forwarding, describe the triggering of RemoteUEInformationSidelink when the request from a child UE is received. X501 can be closed (captured in this agreement). Details to be checked in CR implementation/ASN.1 review.

Proposal 2: (X502) To avoid confusion regarding “paging information” when handling actions related to the transmission of the RemoteUEInformationSidelink message, RAN2 to clarify “paging information” as “paging UE ID/paging cycle” and agree to adopt the TP (second change) proposed in R2-2506994.

Discussion:

Huawei understand that the term “paging information” is used in two contexts at least since Rel-17, and they do not see a need to change it now. Apple think this is an overloaded term and we could fix it from Rel-17. Huawei think it is clear in the context of each procedure.

Agreement:

X502 is not captured in the CR now, but checking can continue in the ASN.1 review if there is interest.

Proposal 3: (X503) RAN2 to agree to adopt the TP (third change) proposed in R2-2506994, which revises Figure 5.8.9.8.1-1 to support the transmission of the RemoteUEInformationSidelink message to both the remote UE and the child UE.

Discussion:

Huawei think we have generally reused the figures without changing them, because the intermediate/child UEs will in any case function also as remote UEs.

Apple think this is a forwarding behaviour, and it would make sense to add “child UE” in the notation.

ZTE support the change and think it is about the logical functions, not a physical function as described by Huawei’s comment.

Agreement:

Revise Figure 5.8.9.8.1-1 to support the transmission of the RemoteUEInformationSidelink message to both the remote UE and the child UE. X503 can be closed.

Proposal 4: (X505) RAN2 is requested to agree to adopt the TP (fourth change) proposed in R2-2506994, which removes the prefix of the “mh-indicationType” IE.

Discussion:

Huawei think the change is incorrect because there should be a distinct name from the legacy field.

OPPO understand it is a procedural/ASN.1 misalignment, since the procedural text refers to it as indicationType, and we should align. Apple, ZTE, and OPPO understand that we aligned the procedural text to the new type in Rel-18.

Agreement:

Align the procedural text to use the name mh-IndicationType in the RemoteUEInformationSidelink message where appropriate. X505 can be closed.

A500/O505/X501/H451

[R2-2507103](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507103%20Discussion%20on%20SL%20relay%20ASN.1.docx) ASN.1 issues for SI/Paging forwarding (A500/O505/X501/K002/H451) Apple discussion Rel-19 NR\_SL\_relay\_multihop

[Focus on A500 and related issues]

Proposal 2 Specify RemoteUEInformationSidelink transmission behaviour for RRC\_CONNECTED intermediate relay UE in TS 38.331.

Discussion:

Huawei think the changes related to SFN-DFN offset are not needed, because we did not adopt it for multihop so far. Apple indicate this is related to P3 below, but they are combined in the TP and need to be teased apart.

OPPO think the SFN-DFN offset is not a concern, since the relay UE in multihop will not indicate support of forwarding the offset (pending TEI19 discussion). Apple clarify that the intention is to have all the multihop behaviour in the newly added text at the end of the TP section.

Proposal 3 Single-hop and Multi-hop SI/Paging forwading are to be separately specified in clarity in 5.8.9.8.2 for the transmission of RemoteUEInformationSidelink.

Proposal 4 The triggering of the transmission of RemoteUEInformationSidelink is also described in respective subclauses when SL RLF occurs or when child UE’s request is received.

Agreement:

Specify RemoteUEInformationSidelink transmission behaviour for RRC\_CONNECTED intermediate relay UE in TS 38.331. Refer to second and third sections of the TP in R2-2507103. A500 can be closed.

E044

[R2-2507427](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507427%20-%20Discussion%20on%20RIL%20E044%20and%20E029.docx) Discussion on RIL E044 and RIL E029 Ericsson discussion Rel-19 NR\_SL\_relay\_multihop

Proposal 1 Include the condition in the note 4 that the note is only applicable to multi-hop L2 U2N Relay communication.

Proposal 2 Update the note 4 that the L2 U2N Remote UE may prioritize the selection or reselection of suitable NR sidelink U2N Relay UE based on the RRC state information in the discovery message.

Proposal 3 Adopt the TP for RIL E044 captured in clause 4.

Discussion:

Chair understands we agreed any information can be used, not just the RRC state. Ericsson think the RRC state is clear and we can leave the rest to implementation.

Huawei think the NOTE currently is aligned with what we agreed. Apple think we could say “e.g., RRC state”. Ericsson would be OK with Apple’s suggestion.

Xiaomi could accept “e.g.”. Toyota agree that we agreed to use any information, notably the hop count, so we should not make it specific to the state.

Toyota think the agreement of the last meeting was clear and the hop count is visible from the NAS message; they consider that the current text is already a compromise.

Agreement:

Include the condition in the note 4 that the note is only applicable to multi-hop L2 U2N Relay communication. Do not otherwise update the text of the note. E044 can be closed.

H455/H454/H452

[R2-2507491](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507491%20Discussion%20on%20Multi-hop%20Relay%20RILs%20%5BH452%5D%2C%5BH454%5D%20and%20%5BH455%5D.docx) Discussion on Multi-hop Relay RILs [H452],[H454] and [H455] Huawei, HiSilicon discussion Rel-19 NR\_SL\_relay\_multihop-Core Late

[H455] How to restrict inter-gNB direct/single-hop to multi-hop indirect path switching

Proposal 1: Add an indication in the measurement report to indicate whether the candidate Relay UE is on a single-hop or multi-hop target path as indicate in the text proposal in the Annex 1.

Discussion:

NEC understand the intention and tend to agree with it, but they do not think the method is perfect because it does not capture the details of the hop count. They would prefer to include hop count in the report.

LG think we already agreed that only RRC\_CONNECTED UEs are candidates for the target, and the SUI should allow the network to know the hop count. Huawei are concerned about the inter-gNB case, which can be supported for single-hop only.

Qualcomm think even for the intra-gNB case there can be a problem before the SUI is sent.

OPPO think there is no problem for the intra-gNB case because the target is necessarily RRC\_CONNECTED per the WID.

Xiaomi agree with OPPO and think we just need to provide service continuity for the intra-gNB case.

Qualcomm indicate that in the intra-gNB case, the gNB cannot know if the target path is single-hop or multihop, so it can only select RRC\_CONNECTED targets even though that restriction is not there for single-hop.

Lenovo support the proposal and think Qualcomm’s case is correct, as well as the situation of inter-gNB candidates where the serving gNB does not know if they are single- or multihop.

Toyota understand from the discussion that there is a problem to solve, and we should either take Huawei’s proposal or NEC’s; they see that NEC’s solution with the hop count is more consistent with the information that we already have.

OPPO wonder if hop count 1 means single-hop or multihop with only one link, in terms of the capability of the relay UE; they understand that a multihop relay acting as a last relay UE should not be considered for inter-gNB path switch.

Qualcomm think we could clarify this issue in the field description; for example, absent means single-hop, while hop count 1 means a multihop relay acting as a last relay UE.

LG think if the indication is introduced in the measurement report, it needs to be transferred to the target gNB. Huawei indicate that the source can take the decision without passing the information to the target.

LG have some concern about a corner case where the target changes from single-hop to multihop during the procedure, but they think we can solve it somehow. Toyota want to avoid having the same problem happen repeatedly. Huawei think a relay reselection during the procedure will cause the target to change its discovery signalling and the remote will recognize the issue.

NEC note that the hop count in discovery is an optional parameter, and we have to figure out what to do if it is absent.

OPPO think a single-hop/multihop indicator is simpler, and for multihop, the serving gNB knows the hop count since everything is RRC\_CONNECTED and intra-gNB.

CATT agree with OPPO and Xiaomi and think it is not in scope to address multihop inter-gNB scenarios.

Apple think this issue is in scope because it interferes with the intra-gNB solution.

Huawei indicate that the hop count is mandatory in Rel-19 discovery per CT1 spec.

OPPO think the hop count is not needed for RRC\_CONNECTED intra-cell candidates, and they wonder if we should ask whether the upper layer can provide the RSC to AS layer to determine the hop status in case the hop count is omitted.

Agreement:

Add an indication in the measurement report to indicate the hop status of the candidate relay UE (single-hop or multihop); details (e.g., mandatory or optional, what to report when the hop count is absent) can be discussed in CR implementation/ASN.1 review. H455 can be closed.

[H452] Condition for Discovery message transmission

Proposal 2: The UE should check the hop count condition against the configured hop limit before transmitting a discovery message as indicated in the text proposal in the Annex 2.

Discussion:

ZTE think it should be an SA2 decision, because we do not have a hop limit in AS. Ericsson think we do not need to resolve this right away.

Qualcomm indicate that this criterion is already in SA2 spec. LG think it is an upper layer decision.

Agreement:

Rely on SA2 to limit discovery message transmission above the hop count limit. H452 can be closed.

[H454] Notification message from Intermediate Relay UE

Proposal 3: The intermediate relay UE in RRC\_IDLE or RRC\_INACTIVE state should send a notification to all its child UE(s) when the hop count of the target path increases, allowing the child UE(s) to determine whether to maintain the PC5 connection with the intermediate relay UE as indicated in the text proposal in the Annex 3

Discussion:

Apple wonder if this is specific to the path switch case. They wonder if we need the notification in addition to discovery signalling. Huawei explain that the hop count change will be seen by the relay UE first and it may be useful to notify the child(ren) before discovery.

Ericsson think we should not be considering an upper-layer metric so much in RAN2, and there could be other metrics like QoS that we do not look at.

NEC recall that we agreed that the remote UE can perform reselection according to the hop count, and they also think we can rely on the discovery signalling.

Apple think the proposal just reduces the latency of reselection for the remote(s) and it is not urgent to send the notification right away.

Huawei intend to clarify the NOTE that says when we can suppress the message, and it should indicate guidance to the relay rather than normative behaviour. Chair is not sure that the proposal changes the specified functionality.

Kyocera understand that cases other than the same-serving-cell case are not addressed in the note; for example, if everyone is in idle, there is an RRC setup in flight, and the relay reselects without notification, what happens? Chair understands we rely on the failure of the RRC procedure to recover from this.

Huawei intend to allow the remote UE(s) to reselect if they need to without waiting for discovery.

ZTE think we should consider accumulated QoS instead of ho pcount, as this is the root reason for wanting to reselect. Apple think we should not re-discuss this issue.

Agreement:

Rely on discovery signalling to address the case of reselection in the same serving cell without notification from the intermediate relay UE, including where it causes an increase of hop count. H454 can be closed (no spec change except to fix the language of the NOTE to replace “may not” with “may be omitted” or something similar).

Additional documents related to H455 (note: R2-2507353 contains an additional proposal)

[R2-2506844](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506844%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

[R2-2507353](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507353-Remaining%20issue%20on%20U2N%20multi-hop%20U2N%20relay%20control%20plane.docx) Remaining issue on U2N multi-hop U2N relay control plane Qualcomm Incorporated discussion NR\_SL\_relay\_multihop-Core

[R2-2507451](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507451%20%28R19%20SLR%20WI_A8.13.2%20ServiceContinuity%29.doc) Correction on Restricting Service Continuity for Inter-gNB cases InterDigital France R&D, SAS discussion Rel-19

Documents on RILs not marked ToDo

K002 (PropReject but with multiple documents)

[R2-2507541](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507541%20%5BK002%5D%20Required%20SIB%20and%20Paging%20information%20release%20due%20to%20SL%20RLF.docx) [K002] Required SIB and Paging information release due to SL RLF ASUSTeK discussion Rel-19 38.331 NR\_SL\_relay\_multihop

Proposal 1: When a L2 Intermediate U2N Relay UE in RRC\_IDLE/RRC\_INACTIVE detects sidelink radio link failure with its child UE, the L2 Intermediate U2N Relay UE should initiate the Remote UE information for NR sidelink communication procedure to its parent UE to release the required SIB(s) and the related Paging information associated with the child UE.

Discussion:

Apple think this is one of the motivations for the paging information list, allowing a relay to cancel for multiple child UEs at once.

Huawei think any reasonable UE implementation will do this and we do not necessarily need normative text. Apple think we should not leave things out of the spec.

ZTE wonder if we need to capture this specific cause or just have a general statement for “upon change of the requested SIB/paging”; they are afraid there could be many different causes for corner cases.

Xiaomi agree with Huawei that it should be left to implementation to avoid expanding the spec. Apple think it is something the UE has to do. CATT wonder what the consequence is if we do not do it; Apple clarify that the monitoring is wasted, and CATT are not sure this is a big problem that requires fixing in the spec.

ZTE think if we do not capture the release, the parent may need to spend extra time/energy to monitor paging that is not needed downstream.

Ericsson agree to capture the behaviour to avoid unnecessary monitoring and signalling.

Huawei note that in idle/inactive there is no data transfer, so they are not sure sidelink RLF will even happen in this case. ASUSTeK understand that it can happen due to sidelink traffic between the UEs. Apple think there can be ongoing procedures between the UEs even without data relaying; Ericsson agree that we do not exclude the local traffic scenario.

Huawei understand that the remote UE will do relay reselection. Apple think this does not help the upstream UE reduce monitoring/forwarding.

Huawei think it is a bit strange to consider idle/inactive when the rest is for connected.

LG think if the failure happens during setup, the intermediate has not requested monitoring yet and there is nothing to cancel, and SL-SRB2/SL-SRB3 may not be there.

Agreement:

When a L2 Intermediate U2N Relay UE in RRC\_IDLE/RRC\_INACTIVE detects sidelink radio link failure with its child UE, the L2 Intermediate U2N Relay UE should initiate the Remote UE information for NR sidelink communication procedure to its parent UE to release the required SIB(s) and the related Paging information associated with the child UE. Details of implementation to be worked out in CR implementation/ASN.1 review. K002 can be closed.

O503/Z454/Z455/Z456/O505/E044/H452/H454

[R2-2507590](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507590-MH-Cplane.docx) [O503] [Z454] [Z455] [Z456] [O505] [K002] [E044] [H452] [H454] discussion on remaining issues related to C-plane procedure for multi-hop relay Sharp discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 7. [K002] RAN2 to agree that intermediate relay UE in IDLE/INACTIVE sends remote UE information to release SIB/Paging information at parent UE when the UE detects some trouble on downstream. Procedural text should be further checked in CR.

W500/W501 (PropReject)

[R2-2506946](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506946_%5BW500%5D%5BW501%5DDiscussion%20on%20SUI%20report%20for%20multi-hop%20U2N%20relay.docx) [W500][W501]Discussion on SUI for multi-hop U2N Relay NEC Corporation discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 1: It is suggested to adopt RIL[W500] to allow Last Relay UE to request local ID for L2 Intermediate U2N Relay UE.

Proposal 2: It is suggested to adopt RIL[501] to allow Last Relay UE to receive the paging UE ID from peer L2 Intermediate U2N Relay UE.

Discussion:

Apple think it works today because the intermediate relay UE acts as a remote UE. NEC think there are multiple remote UEs and the last relay UE needs to know which one is involved.

ZTE understand that from the parent UE’s perspective, there is no such thing as a downstream intermediate and it will always be considered as a remote.

Apple think there is no ambiguity for the gNB, and we understand that an indirectly connected child cannot send direct signalling to a UE multiple hops upstream (“grandparent”).

CATT agree with Apple and ZTE but think the scenario can be further discussed.

Apple consider that the second change (on paging ID) is not needed since we are already introducing multiple paging IDs in the ASN.1, but we can check after implementation of this meeting’s agreements.

Agreement:

W500 and W501 remain open (to be checked after implementation of this meeting’s agreements).

E049/E050 (PropAgree, both labelled E049 in comments file)

[R2-2507428](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507428%20-%20discussion%20on%20RIL%20E049%20and%20E050.docx) discussion on RIL E049 and RIL E050 Ericsson discussion Rel-19 NR\_SL\_relay\_multihop

Proposal 1 Correct the need code for the field sl-SRAP-ConfigRelay-ToAddModList-r19 and sl-SRAP-ConfigRelay-ToReleaseList-r19 from Need R to Need N.

Proposal 2 Include UE procedure texts handling release action for the fields sl-SRAP-ConfigRelay-ToAddModList-r19.

Proposal 3 Delete the field sl-SRAP-ConfigRelay-ToAddModList-r19.

Proposal 4 Update the description for the IE SL-RelayUE-ConfigMH as the below

1. The IE SL-RelayUE-ConfigMH specifies the threshold configuration information for NR sidelink Last U2N Relay UE (in case of multi-hop L2 U2N Relay communication) or Intermediate U2N Relay UE or First U2N Relay UE.

Discussion:

Ericsson clarify that they understand the RIL implementations need some adjustment, and P3 is a new issue; they understand that the ToAddModList here is not useful.

Huawei think we should see a TP next meeting.

Ericsson will create a corresponding ASN.1 review issue.

Agreement:

E049 and E050 remain open for further discussion of how to implement. Issues can be discussed in CR implementation/ASN.1 review and/or next meeting.

H453 (PropAgree; note that R2-2506843 contains an additional proposal)

[R2-2506843](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506843%20Further%20Discussion%20on%20Control%20Plane%20Leftover%20Issues.docx) Further Discussion on Control Plane Leftover Issues CATT discussion Rel-19 NR\_SL\_relay\_multihop-Core

* Noted

Proposal 2: RAN2 agrees to multiply the timers in ue-TimersAndConstants with the hop count (eg t300 \* hop count) for multi-hop relay T300/T301/T319 cases.

Discussion:

Huawei indicate that the current CR implementation adds the case where the timers are not provided in the MH case. CATT understand that this aligns with the proposal and everything is OK.

[R2-2506877](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506877%20Remaining%20issues%20for%20CP%2C%20SL%20Relay.docx) Remaining CP issues for Multi-hop Relay NEC discussion Rel-19 NR\_SL\_relay\_multihop

* Noted

Proposal-1: For multi-hop scenarios involving two or more Relay UEs, allow the Remote UE to choose to whether apply the legacy t300-RemoteUE or t300-RemoteUE\*hopCount based on UE implementation.

Other issues

* [AT131bis][401][Relay] Rel-19 relay RRC non-RIL issues (Huawei)

 Scope: F2F offline to briefly discuss the RRC proposals not related to RILs, with the goal to prioritise what needs to be treated online and progress towards consensus where possible.

 Intended outcome: Report to Wednesday relay session in R2-2507791

 Schedule: Monday 2025-10-13 16:30 CET in Brk2

 Deadline: Tuesday 2025-10-14 19:00 CET (for report availability)

[R2-2507791](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507791%20Report%20of%20%5BAT131bis%5D%5B401%5D%5BRelay%5D%20Rel-19%20relay%20RRC%20non-RIL%20issues%20%28Huawei%29.docx) Report of [AT131bis][401][Relay] Rel-19 relay RRC non-RIL issues (Huawei) Huawei, HiSilicon discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 1: Once the intermediate relay UE moves in the cell coverage, it is left to intermediate relay UE implementation whether to release the paging-related information in the parent relay UE for itself and for its its child UE(s). There are no spec impacts.

Proposal 2: RAN 2 assumes that parallel RRC Reconfiguration procedure will not be performed by the network when providing SRB 0 and SRB 1 mapping configuration for the multi hop relay UEs in R19.

Proposal 3: Flexiblity for the Intermediate relay UEs to include the received paging information in the sl-PagingInfo-RemoteUE or sl-PagingInfo-RemoteUE-List based on its implimintation is not pursued.

Proposal 4: RAN2 to discuss and confirm to capture in the specifications the case for discovery model B, where an intermediate relay UE that already has a PC5 connection with a parent UE may send a response message directly to the remote UE—without forwarding the solicitation message to its parent UE—if the PC5 AS conditions with the child UE are met.

Discussion:

Apple wonder if P1 really has no spec impact; they see that the request to the parent relay should be cancelled. Huawei indicate that this is a temporary condition where the intermediate relay may be moving in and out of coverage, and we should be able to avoid constant updates, but they do not see that we need to specify behaviour for this. Apple think this will result in double monitoring by the intermediate and the parent, and we should require the intermediate to update when it changes monitoring status.

Huawei think we similarly did not specify in-and-out-of-coverage behaviour for the remote UE in Rel-17.

OPPO understand that we do not have a clear specification today; we say “if the UE has paging information to provide” or “if any paging information has changed”, so they think it can cover the proposed behaviour without spec impact. Apple think this language applies to the request, not the paging monitoring, and they think our agreement to minimize double monitoring means we should not allow this.

Qualcomm have a similar view to Apple and think the easiest thing is to let the last relay UE monitor paging always. However, they do not see double paging as a big problem since the remote UE will ignore the duplicate page; they think this can happen even on Uu.

Huawei agree that double paging does not cause any systemic harm.

OPPO understand we agreed that in idle/inactive the intermediate relay can monitor paging, and it is FFS only for the connected case.

Apple and Qualcomm think the intermediate relay UE should never release the paging information and we can accept the double paging. Qualcomm think a good intermediate relay UE should not monitor directly.

Apple wonder if P2 has spec impact. ZTE understand that if there is nothing specified, the network may do anything.

OPPO think it is the same as in Rel-17, when the network is expected to configure the relay first and then the remote to make sure the relay can forward the configuration for the remote, with no spec impact.

Qualcomm think P4 is in upper-layer scope and we do not need to capture it in RAN2.

LG agree that the operation is in SA2 scope, but whether to check the AS conditions is in RAN2 scope.

Xiaomi also think it is an upper-layer issue and we should not agree to ignore a message received from upper layers.

Huawei indicate that we do not have this case captured in the spec now; we have the case with no PC5 connection and we forward the message after checking the threshold, and to support the case with a connection we would have to add something.

Apple understand based on Huawei’s explanation that there is no issue; the UE should check the AS condition first, and then if it passes, upper layers should handle it.

LG understand that the last relay UE checks the RSRP before sending the response message, and the original intention may be that the last relay UE selects the best path, so the intermediate relay UE has to check the RSRP.

Huawei indicate that we have a case where the intermediate relay UE checks the condition when it does not have a PC5 link with the parent, and the issue here is whether to do the same thing in the case where it does have a PC5 link.

Qualcomm agree that the intermediate checks the receiving link in all cases and then forwards the message to upper layers; they think there is no special behaviour in the AS layers here. Huawei understand that the message is forwarded in different directions in the two cases, and upper layers rely on us to forward it.

Qualcomm understand that the upper layer will handle the forwarding. Huawei wonder if the solicitation message will be sent to upper layers only on condition that the AS condition is met.

LG consider that the intermediate relay UE does not currently check the AS condition for forwarding; Apple understand that this is because it checks before passing the solicitation message to upper layers. Huawei indicate that the intermediate relay checks for the link, then checks the condition, and accordingly forwards the message to the parent. Qualcomm think the exact order of checks is a UE internal implementation issue, but they agree that we specify in RAN2 which node the message should be forwarded to, as in U2U relay.

OPPO understand LG’s concern is that a bullet for sending the response message would need to be added in our spec.

Agreements:

Once the intermediate relay UE moves in the cell coverage, it is left to intermediate relay UE implementation whether to start monitoring paging directly for its child UEs. There are no spec impacts.

RAN2 assumes that parallel RRC Reconfiguration procedures for child UEs will not be performed by the network when providing SRB0 and SRB1 mapping configuration for the multi hop relay UEs in R19. No spec impact is expected, but RAN2 understand that a parallel configuration is likely to mean that the parent relay cannot tell if a packet is valid and will drop the packet.

Flexibility for the Intermediate relay UEs to include the received paging information in the sl-PagingInfo-RemoteUE or sl-PagingInfo-RemoteUE-List based on its implementation is not pursued.

For discovery model B, an intermediate relay UE that already has a PC5 connection with a parent UE may send a response message directly to the remote UE—without forwarding the solicitation message to its parent UE—provided the PC5 AS conditions with the child UE are met. How this is realised in the UE layers is up to implementation. Capture the possibility to transmit the response to the remote UE in our spec.

[R2-2507257](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507257-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

[R2-2507259](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507259-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

[R2-2507452](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507452%20%28R19%20SL%20Relay%20WI_AI8132%20Control%20Plane%20correction.doc) Corrections on Notification Message Handling InterDigital France R&D, SAS discussion Rel-19

[R2-2507492](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507492%20Remaining%20issues%20for%20Multi-hop%20Relay.docx) Remaining issues for Multi-hop Relay Huawei, HiSilicon discussion Rel-19 NR\_SL\_relay\_multihop-Core

### 8.13.3 User plane corrections

Impact to 38.351, 38.321, and 38.323.

SRAP-6

[R2-2506803](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506803%20-%20User%20Plane%20correction%20for%20R19%20Multi-hop%20U2N%20Relay.docx) Discussion on user plane correction for multi-hop U2N Relay OPPO discussion Rel-19 NR\_SL\_relay\_multihop

* Noted

Discussion:

Apple wonder if the proposal actually changes the default behaviour; they think we could use the default behaviour for all hops and not change the spec. OPPO understand that the default SL-RLC1 is for the case of the first message when neither the remote nor relay has a dedicated RRC configuration, and in this case all hops besides the first should already be in RRC\_CONNECTED and have dedicated configuration.

LG have the same understanding and think the proposal is aligned with Rel-17 behaviour; if the first relay UE is in connected it can use the dedicated configuration.

Apple understand that the proposal requires the network to give a dedicated configuration to the intermediate relay UE(s), and they do not see the need for this constraint.

OPPO consider that in Rel-17, default was only used for the first hop, and we have never discussed using it on the other hops, so they do not see that there is a new requirement in the proposal.

Ericsson think we should keep the flexibility for the network and agree with Apple, but they think the gNB can (not “must”) provide the dedicated signalling.

OPPO understand that the network will provide dedicated configuration for all the bearers including SRB0, so they do not see the concern for SRB1. Apple indicate that configuring SRB1 would use up a channel ID and the network may want to conserve it. OPPO do not think the additional channel ID is mandatory; the network can configure multihop bearers using the same channel ID, and there is nothing special about SRB1 in this respect.

Apple note that the LCID for SRB1 is reserved, and if the network sends a dedicated configuration there is a risk that it uses an additional LCID.

Chair wonders if anything is broken if we have the flexibility for the network as suggested by Apple and Ericsson. OPPO do not see a functional problem, but they think there would be some spec impact, and they note that the intermediate relay UE loses some ability to do error checking on SRB1. Apple think it can associate the packet with a source remote UE from the SRAP header on SRB1 (unlike SRB0), so they see nothing broken.

Xiaomi do not think OPPO’s proposal restricts the flexibility, since the relay UEs will always be connected as remote UEs first. Apple note that SL-RLC1 is bidirectional, and they think the configuration as a remote UE can use the default SL-RLC1 rather than a dedicated configuration as in Rel-17.

ZTE indicate that we already ask the network to provide a dedicated channel for SRB0, and the added flexibility for SRB1 is not too significant; they would rather rely on dedicated configuration as proposed by OPPO. Apple think the current spec allows the network to do this.

Sharp see that there would be impact to the RRC spec for error handling from the Apple/Ericsson interpretation.

Agreement:

At the link between remote UE and the first relay UE, the link between intermediate relay UEs, and the link between intermediate relay and the last relay, or the link between the last relay and the network, the network may provide a dedicated configuration for SL-RLC1. If the network does not provide such a configuration, the default PC5 SL-RLC1 configuration is used.

Proposal 1 (SRAP-6) For the DL and UL SRB1 of remote UE in multi-hop U2N Relay:

- At the link between remote UE and the first relay UE, the default PC5 RLC channel (i.e., SL-RLC1) can be used as in R17 single hop U2N Relay;

- At the link between intermediate relay UEs or the link between intermediate relay and the last relay, or the link between the last relay and the network, the RLC channel is configured by the network via dedicated RRC message.

[R2-2507591](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507591-MH-Uplane.docx) (SRAP-6) discussion on remaining issues related to U-plane procedure for multi-hop relay Sharp discussion Rel-19 NR\_SL\_relay\_multihop-Core

* Noted

Discussion:

Sharp clarify that some additional text is needed for the uplink case.

Apple think we do not need this level of detail in the spec as the behaviour is similar to the Rel-17 case; in particular, they think that the requirement to release SL-RLC1 is not right since it may be used for the UE’s own setup as a remote UE.

OPPO checked the Rel-17 spec and found that the release behaviour aligns with the TP. Apple understand that this is a different case since the intermediate relay UE(s) can have traffic as a remote UE.

OPPO wonder how the UE can know if a dedicated SRB1 configuration is for its own traffic or for relay traffic. ZTE understand that the dedicated configuration will have an associated L2ID that indicates this. OPPO do not see the use case for the network to provide a dedicated configuration for relay but leave the default configuration for the UE’s own traffic; Apple think it is a possible case.

OPPO understand that relative to Sharp’s TP, we would need to clarify whether the configuration is for a particular destination.

Huawei wonder if the gain is worth the spec complexity. Apple think some simplification is possible.

Agreement:

Capture in the RRC spec that when a dedicated configuration is received for SL-RLC1, the intermediate relay UE releases the corresponding default configuration for SL-RLC1 on the same link. Spec impact to be evaluated in CR implementation (refer to TP in R2-2507591, subject to simplification where possible).

Proposal 1. (SRAP-6) Add procedural text in the RRC specification to describe the SRB1 behaviour for Intermediate U2N Relay UE, dedicated signalling can be used to configure RLC channel for SRB1 for both of a remote UE and an intermediate relay UE.

Other issues

[R2-2506984](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506984%20Discussion%20on%20SRAP%20issue.doc) Discussion on SRAP layer issue ZTE Corporation, Sanechips discussion Rel-19 NR\_SL\_relay\_multihop

* Noted

Discussion:

ZTE understand after offline discussion that the current spec captures this behaviour, but some clarification may be needed.

LG think the TP is not quite aligned with the definitions of the terminology.

OPPO understand ZTE’s concern is that the “connected child UE” terminology is not consistent, and this can be handled in CR implementation.

Proposal 1. Only the first intermediate relay UE needs to remove the SRAP header. Adopt the TP in annex clause.

[R2-2507633](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507633%20SRAP%20error%20handling%20and%20related%20TP.docx) SRAP error handling and related TP Samsung discussion

* Noted

Discussion:

Apple think there is some irregular terminology in the TP. Samsung agree that some of it is a placeholder for parameter names that would need to be defined. OPPO have the same understanding as Apple, and they think the functionality is already provided by the current error handling.

Samsung agree that the error check for multihop may not be necessary since there is only a single path, but they can conceive of an error case where the relay UE receives a packet for a child UE that it does not serve. OPPO think this case is already handled based on whether the child UE is configured to this relay UE by the network, and if not the packet will be dropped. ZTE have the same understanding as OPPO.

Proposal. RAN2 to agree the TP in the Appendix of this document, capturing in the SRAP specification the case of unknown/incorrect next-hop ID on the downstream, and the case of the UE ID of the indirect parent being compared to the sl-LocalIdentity corresponding to L2 ID of the ingress link on the upstream.

### 8.13.4 Others

Impact to specs not listed above, including capability aspects of 38.331.

[R2-2507354](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2507354-Last%20relay%20UE%20capability.docx) Last relay UE capability Qualcomm Incorporated, vivo, Samsung, Xiaomi, OPPO discussion NR\_SL\_relay\_multihop-Core

* Noted

Proposal 1 Remote operation is not a prerequisite for the last relay UE, and keep the current specification as it is.

## 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

## 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

## 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

[R2-2506876](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506876%20Extension%20of%20SFN-DFN%20mechanism%20for%20SL%20multi-hop%20relay.docx) Extension of SFN-DFN mechanism for SL multi-hop relay NEC, Ericsson discussion Rel-19 TEI19

* Noted

Proposal 1 Intermediate relay UE forwards the SFN-DFN offset and timing offset(s) if present provided by its parent UE and an additional timing offset to a child UE.

Proposal 2 Intermediate relay UE sets the additional timing offset according to the relation between its DFN timeline and the DFN timeline of its parent.

Proposal 3 The remote UE determines the SFN time line of the serving network based on its DFN time line, the SFN-DFN offset and the additional timing offsets forwarded in the relay chain.

Proposal 4 Adopt the TPs captured in Clause 5

Discussion:

ZTE think we should justify the scenario first; they wonder if a multihop remote will actually be in PRS coverage. Qualcomm have a similar view and think the SFN-DFN offset should not be treated in isolation; we have a remote UE indication in LPP that the LMF can take into account, and the LMF may assume it is a single-hop remote when it is actually much further away due to multihop, so they think a dedicated analysis is needed rather than just an RRC CR.

Qualcomm think the ability to adjust the offset for upstream timing is a new UE capability different from the ability to compute SFN-DFN offset; they are also not sure if we can compensate easily for degradation in the accuracy of the offset as it travels along a chain of relays, and it seems necessary to involve RAN4 to check this point.

Ericsson think if we need to support positioning for multihop, we have to make some sort of assumption, and the easiest thing would be to take E-CID-like measurements; they understand that if the UE can use the SFN-DFN offset and propagation delay compensation to determine where the PRS are located, it may be able to take measurements that support some kind of positioning.

Qualcomm think positioning for multihop is only for GNSS, because PRS is unlikely to be visible, and the offset would only be useful for GNSS timing.

Ericsson think one use case is that the remote UE will understand the SFN timing of the serving cell and be able to find the PRS. Qualcomm think for single-hop, detectability of the PRS is plausible, but not for multihop.

Lenovo think from the relay point of view, the remote UE and intermediate relay UE actually can be in coverage; in Rel-18 for single hop, cell edge was a use case, and for multihop they think it is possible that the remote UE could be close in enough to receive PRS.

Ericsson agree with Lenovo’s comment and think one additional hop does not necessarily add a big distance since maximum sidelink range is only ~1 km.

Xiaomi wonder if we could restrict to the in-coverage case. Ericsson think we could support the signalling and let the deployment decide when it is useful.

Apple have similar concerns to Qualcomm about the probability that the UE can see the PRS.

Ericsson wonder if it is intended to allow the UE to sync with GNSS; they understand that if this is the only possibility, the feature is probably not needed.

Xiaomi think there are different coverage cases as well as the GNSS case, and we may need to discuss which ones make sense.

Qualcomm wonder if the remote UE knows if it is in coverage or not; the LMF may assume the remote UE is in coverage of the serving cell. They see LPP impact to inform the LMF that this is a multihop remote UE.

Ericsson would like to keep it simple and are thinking of an NRPPa+RRC-based solution for UE Rx-Tx measurements, which should allow the LMF to position the UE without the weight of LPP and without depending on PRS. Qualcomm wonder what gNB would be the target of the SRS transmission for Rx-Tx.

NEC wonder what the alternative to an RRC CR solution is. Qualcomm do not think there is an obvious alternative, but we need a discussion of whether/how to support positioning for multihop.

ZTE agree with Qualcomm that we took multiple meetings to discuss the single-hop case, and having just the offset is not a complete solution here; they are not convinced about the use case.

[R2-2506948](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506948%20Discussion%20on%20SFN-DFN%20offset%20in%20multi-hop%20scenario%20v1.1.doc) Discussion on SFN-DFN offset in multi-hop scenario Lenovo discussion Rel-19

Proposal 1: support forwarding 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: the intermediate relay UE sets sfn-DFN-OffsetSupported to support once the intermediate relay UE obtains the SFN-DFN offset from the connected parent relay UE if the previous setting is absent.

[R2-2506951](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506951%20CR5493%20Introduction%20of%20SFN-DFN%20offset%20in%20Multi-hop%20scenario%20v1.2.docx) Introduction of SFN-DFN offset in Multi-hop scenario [PosMultiplehop] Lenovo CR Rel-19 38.331 19.0.0 5493 - B TEI19

### 8.19.2 Other WG-led

[R2-2506713](file:///C%3A%5CUsers%5Cmtk16923%5CDocuments%5C3GPP%20Meetings%5C202510-%20RAN2_131bis%2C%20Prague%5CExtracts%5CR2-2506713_R1-2506531.docx) Reply LS on non-RedCap UE UL SRS frequency hopping for positioning (R1-2506531; contact: ZTE) RAN1 LS in Rel-19 TEI19 To:RAN3 Cc:RAN2

* Noted