3GPP TSG-RAN WG2 Meeting #129 R2-25xxxxx

Athens, Greece, 17-21 February 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: 2 tdocs in total for all sub agenda items NOTE: some agenda items have additional Tdoc limits.

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

## 5.3 NR Positioning Support

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

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

(NR TEI16 Positioning)

Stage 2 corrections shall be discussed with the specification rapporteur (Sven Fischer sfischer@qti.qualcomm.com) before submission. Stage 2 CRs not discussed with the specification rapporteur will not be treated.

Tdoc Limitation: 1 tdoc

[R2-2500817](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202502 - RAN2_129, Athens\\Extracts\\R2-2500817 Correction on SP posSRS de-activation MAC CE-r16.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202502 - RAN2_129, Athens\Extracts\R2-2500817 Correction on SP posSRS de-activation MAC CE-r16.docx) Correction on SP positioning SRS (de-)activation MAC CE Huawei, HiSilicon CR Rel-16 38.321 16.18.0 2034 - F NR\_pos-Core

[R2-2500818](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500818%20Correction%20on%20SP%20posSRS%20de-activation%20MAC%20CE-r17.docx) Correction on SP positioning SRS (de-)activation MAC CE Huawei, HiSilicon CR Rel-17 38.321 17.11.0 2035 - A NR\_pos-Core

[R2-2500819](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500819%20Correction%20on%20SP%20posSRS%20de-activation%20MAC%20CE-r18.docx) Correction on SP positioning SRS (de-)activation MAC CE Huawei, HiSilicon CR Rel-18 38.321 18.4.0 2036 - A NR\_pos-Core

# 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

## 6.2 NR Sidelink relay

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

CRs

[R2-2500908](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500908%20Miscellaneous%20corrections%20for%20Rel-17%20SL%20relay.docx) Miscellaneous corrections for Rel-17 SL relay ZTE Corporation, Sanechips CR Rel-17 38.331 17.11.0 5243 - F NR\_SL\_relay-Core

[R2-2500909](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500909%20Miscellaneous%20corrections%20for%20Rel-17%20SL%20relay-mirror.docx) Miscellaneous corrections for Rel-17 SL relay ZTE Corporation, Sanechips CR Rel-18 38.331 18.4.0 5244 - A NR\_SL\_relay-Core

New proposals outside WI scope

[R2-2500316](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202502 - RAN2_129, Athens\\Extracts\\R2-2500316.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202502 - RAN2_129, Athens\Extracts\R2-2500316.docx) RRC Connection Establishment for Multihop-Parallel Relay IIT, Kharagpur discussion Rel-17

[R2-2500325](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500325.docx) Data distribution and HARQ management for multihop-parallel relay topology in 5G NR IIT, Kharagpur discussion Rel-17

## 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))

[R2-2500602](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202502 - RAN2_129, Athens\\Extracts\\R2-2500602 Correction on spatial relation info in SP SRS activation deactivation MAC CE (R17).docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202502 - RAN2_129, Athens\Extracts\R2-2500602 Correction on spatial relation info in SP SRS activation deactivation MAC CE (R17).docx) Correction on spatial relation info in SP SRS activation deactivation MAC CE (R17) ZTE Corporation, Ericsson, Qualcomm, CATT, Samsung, vivo, Nokia, Xiaomi CR Rel-17 38.321 17.11.0 1977 2 F NR\_pos\_enh-Core R2-2410985

[R2-2500603](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500603%20Correction%20on%20spatial%20relation%20info%20in%20SP%20SRS%20activation%20deactivation%20MAC%20CE%20(R18).docx) Correction on spatial relation info in SP SRS activation deactivation MAC CE (R18) ZTE Corporation, Ericsson, Qualcomm, CATT, Samsung, vivo, Nokia, Xiaomi CR Rel-18 38.321 18.4.0 1978 2 A NR\_pos\_enh-Core R2-2410986

[R2-2500813](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500813%20Correction%20to%20BDS%20issue%20of%20data%20indication-r17.docx) Correction to BDS issue of data indication Huawei, HiSilicon CR Rel-17 37.355 17.9.0 0546 - F NR\_pos\_enh-Core

[R2-2500814](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500814%20Correction%20to%20BDS%20issue%20of%20data%20indication-r18.docx) Correction to BDS issue of data indication Huawei, HiSilicon CR Rel-18 37.355 18.4.0 0547 - A NR\_pos\_enh-Core

[R2-2500815](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500815%20Correction%20to%20PRS%20priority%20subset%20for%20DL-AoD-r17.docx) Correction to PRS priority subset for DL-AoD Huawei, HiSilicon, Ericsson, VIVO, Samsung CR Rel-17 38.305 17.7.0 0182 - F NR\_pos\_enh-Core

[R2-2500816](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500816%20Correction%20to%20PRS%20priority%20subset%20for%20DL-AoD-r18.docx) Correction to PRS priority subset for DL-AoD Huawei, HiSilicon, Ericsson, VIVO, Samsung CR Rel-18 38.305 18.4.0 0183 - A NR\_pos\_enh-Core

# 7 Rel-18

## 7.1 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))

Time budget: 0 TU

Tdoc Limitation: 1 tdoc

Minor and editorial issues should be coordinated with the appropriate spec rapporteur and submitted by rapporteur company together with any additional corrections the rapporteur company may have. Larger issues can be discussed based on contributions/individual CRs.

### 7.1.1 Organizational

Including incoming LSs and rapporteur inputs.

[R2-2500007](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202502 - RAN2_129, Athens\\Extracts\\R2-2500007_R1-2410708.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202502 - RAN2_129, Athens\Extracts\R2-2500007_R1-2410708.docx) Reply LS on CBR range (R1-2410708; contact: CATT) RAN1 LS in Rel-18 NR\_pos\_enh2-Core To:RAN2

[R2-2500276](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500276%20Correction%20of%20SL%20CBR%20Range%20and%20level%20parameters.docx) Corrections of SL CBR Range and level related parameters CATT, Ericsson CR Rel-18 38.331 18.4.0 5204 - F NR\_pos\_enh2-Core

### 7.1.2 Stage 2

Impact to 38.300, 37.340, and 38.305.

This agenda item may be handled at lower priority.

### 7.1.3 SLPP corrections

Impact to 38.355.

[R2-2500845](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202502 - RAN2_129, Athens\\Extracts\\R2-2500845_(CR 38355-i40).docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202502 - RAN2_129, Athens\Extracts\R2-2500845_(CR 38355-i40).docx) Missing additional measurements for SL-TDOA and SL-TOA Qualcomm Incorporated CR Rel-18 38.355 18.4.0 0009 1 F NR\_pos\_enh2-Core R2-2408513

### 7.1.4 LPP corrections

Impact to 37.355.

### 7.1.5 RRC corrections

Impact to 38.331 and 38.306.

[R2-2500166](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202502 - RAN2_129, Athens\\Extracts\\R2-2500166_RRC_SLP.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202502 - RAN2_129, Athens\Extracts\R2-2500166_RRC_SLP.docx) RRC Sidelink Positioning Correction Fraunhofer IIS, Fraunhofer HHI, Ericsson CR Rel-18 38.331 18.4.0 5201 - F NR\_pos\_enh2-Core

[R2-2500277](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500277%20Corrections%20on%20activation%20of%20non-preconfigured%20SRS%20with%20the%20type%20of%20semi-persistent.docx) Corrections on activation of non-preconfigured SRS with the type of semi-persistent CATT, Ericsson, Qualcomm Incorporated, ZTE Corporation, Samsung CR Rel-18 38.331 18.4.0 5205 - F NR\_pos\_enh2-Core

[R2-2500812](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500812%20Correction%20to%20sidelinkUEInformation%20for%20SL%20POS.docx) Correction to sidelinkUEInformation for SL-PRS shared resource pool Huawei, HiSilicon, Vivo CR Rel-18 38.331 18.4.0 5230 - F NR\_pos\_enh2

[R2-2500971](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500971%20RRCLPHAP.docx) Low Power High Accuracy Positioning Correction Ericsson CR Rel-18 38.331 18.4.0 5252 - F NR\_pos\_enh2-Core

### 7.1.6 MAC corrections

Impact to 38.321.

[R2-2500513](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202502 - RAN2_129, Athens\\Docs\\R2-2500513 .zip) Miscellaneous corrections on SL-PRS ASUSTeK CR Rel-18 38.321 18.4.0 2026 - F NR\_pos\_enh2-Core

[R2-2500545](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500545.docx) Correction on parameters for SL-PRS for configured grant Type 1 Sharp CR Rel-18 38.321 18.4.0 2030 - F NR\_pos\_enh2-Core

[R2-2500604](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500604%20Correction%20on%20SRS%20hopping%20in%20positioning.docx) Correction on SRS hopping in positioning ZTE Corporation CR Rel-18 38.321 18.4.0 2031 - F NR\_pos\_enh2

### 7.1.7 Corrections to other specifications

Impact to any specifications not identified above.

## 7.5 Enhanced NR Sidelink Relay

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

Time budget: 0TU

Tdoc Limitation: 1 tdoc

1 additional tdoc on top of the limit is allowed for co-sourced contribution with 3 or more companies.

Minor and editorial issues should be coordinated with the appropriate spec rapporteur and submitted by rapporteur company together with any additional corrections the rapporteur company may have. Larger issues can be discussed based on contributions/individual CRs.

### 7.5.1 Organizational

Including incoming LSs and rapporteur inputs.

### 7.5.2 Stage 2 corrections

Impact to 38.300.

### 7.5.3 Control plane corrections (including UE capabilities)

Impact to 38.331, 38.304, and 38.306.

[R2-2500411](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202502 - RAN2_129, Athens\\Extracts\\R2-2500411 Corrections to SidelinkUEInformationNR setting and E2E SL DRB release.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202502 - RAN2_129, Athens\Extracts\R2-2500411 Corrections to SidelinkUEInformationNR setting and E2E SL DRB release.docx) Corrections to SidelinkUEInformationNR setting and E2E SL DRB release ASUSTeK CR Rel-18 38.331 18.4.0 5208 - F NR\_SL\_relay\_enh-Core

[R2-2500567](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500567_38331_CR5214r0_(Rel-18)_%20Correction%20on%20indirect%20path%20failure%20information.docx) Correction on indirect path failure information China Telecom, Huawei, HiSilicon CR Rel-18 38.331 18.4.0 5214 - F NR\_SL\_enh2-Core

[R2-2500802](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500802.docx) Correction on T400 configuration Xiaomi, Apple CR Rel-18 38.331 18.4.0 5229 - F NR\_SL\_relay\_enh-Core

[R2-2500907](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500907%20Corrections%20for%20Rel-18%20SL%20relay.docx) Corrections for Rel-18 SL relay ZTE Corporation, Sanechips CR Rel-18 38.331 18.4.0 5242 - F NR\_SL\_relay\_enh-Core

[R2-2501236](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501236%20Correction%20to%20UE%20information%20transfer%20on%20sidelink.docx) Correction to UE information transfer on sidelink Huawei, HiSilicon CR Rel-18 38.331 18.4.0 5270 - F NR\_SL\_relay\_enh-Core

### 7.5.4 User plane corrections (including SRAP)

Impact to 38.351, 38.321, 38.322, and 38.323.

# 8 Rel-19

## 8.13 NR sidelink multi-hop relay

(NR\_SL\_relay\_multihop; leading WG: RAN2; REL-19; WID: [RP-242349](http://ftp.3gpp.org/tsg_ran/TSG_RAN/TSGR_105/Docs/RP-242349.zip))

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

### 8.13.1 Organizational

LSs and rapporteur input, including workplan, etc.

Incoming LSs with “take into account” action only

[R2-2500064](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Docs\R2-2500064.zip) LS on Authorization information for Layer-2 multi-hop U2N relaying to NG-RAN (S2-2501296; contact: LGE) SA2 LS in Rel-19 5G\_ProSe\_Ph3 To:RAN2, RAN3

[R2-2500068](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Docs\R2-2500068.zip) Reply LS on relay discovery announcement (S2-2501334; contact: LGE) SA2 LS in Rel-19 NR\_SL\_relay\_multihop-Core, 5G\_ProSe\_Ph3 To:RAN2

Rapporteur CR

[R2-2500866](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500866%20-%2038323_running%20CR%20for%20R19%20SL%20Relay.docx) Introduction of multi-hop U2N relay in TS 38.323 Ericsson draftCR Rel-19 38.323 18.4.0 NR\_SL\_relay\_multihop

### 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.

P3 (cross-cell cases)

[R2-2500307](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500307_RelayDisc&Resel.docx) Considerations on relay discovery and (re)selection Samsung discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 3: RAN2 is kindly asked to agree that the last relay UE over one cell cannot be operated as an intermediate relay UE towards a different cell.

P4-P5 (L2IDs)

[R2-2500508](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500508-Discussion%20on%20the%20discovery%20and%20relay%20(re)selection%20for%20multi-hop%20U2N%20relay.docx) Discussion on the discovery and relay (re)selection for multi-hop U2N relay LG Electronics Inc. discussion

Proposal 4: In Figure 2.5A-2, the L2 ID(D) and LD ID(D’) can be the same or a difference value. If the last Relay UE reports the source L2 IDs and destination L2 IDs by using SUI, the last Relay UE should report the source-destination L2 ID pair to identify other links.

Proposal 5: In Figure 2.5B-1, the L2 ID(B) and LD ID(B’) can be the same or a difference value. if the intermediate Relay UE reports the source L2 IDs and destination L2 IDs by using SUI, the last Relay UE should report the source-destination L2 ID pair to identify other links.

P4-P5 (discovery thresholds and resource pools)

[R2-2500865](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500865%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

Proposal 4 Reuse the same Uu RSRP thresholds as in the legacy (i.e., single hop L2 U2N relay) for L2 Remote UE and L2 U2N last Relay UE in multi-hop U2N relay.

Proposal 5 Reuse the same discovery resource pool(s) and configurations as in the legacy (i.e., single hop L2 U2N relay) in multi-hop U2N relay.

P9-P11 (AS conditions for discovery forwarding)

[R2-2500905](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500905_Discussion%20on%20multi-hop%20Relay%20discovery%20and%20(re)selection.doc) Discussion on multi-hop Relay discovery and (re)selection ZTE Corporation, Sanechips discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 9: For Model A discovery, the intermediate relay UE forwards/propagates the discovery message when the PC5 RSRP between the relay UE and its parent relay UE is above a threshold.

Proposal 10: For Model B discovery, the intermediate relay UE forwards the discovery solicitation/response message when the PC5 RSRP between the relay UE and the UE from which the discovery solicitation/response message is received is above a configured threshold.

Proposal 11: For Model B discovery, after receiving a discovery solicitation message from an intermediate relay, the last relay UE transmits the discovery response message when the PC5 RSRP between the last relay UE and the intermediate relay is above a configured threshold.

P1 (FFS on upper RSRP threshold for intermediate relay UE)

[R2-2500724](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500724%20Relay%20discovery%20and%20(re)selection.docx) Relay discovery and (re)selection Nokia discussion NR\_SL\_relay\_multihop R2-2410288

Proposal 1. In Rel-19 multi-hop relay, RAN2 prioritizes the same cell scenario, and the last relay UE should not operate as an intermediate relay UE.

P8-P11 (selection/reselection criteria, reselection by remote and intermediate relay UEs)

[R2-2500192](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500192%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

Proposal 8 For multi-hop U2N relay selection at the remote UE, it reuses the trigger condition of R17 single-hop U2N relay, i.e.: 1) Direct Uu signal strength of current serving cell of the multi-hop U2N Remote UE is below a configured signal strength threshold; 2) Indicated by upper layer of the U2N Remote UE.

Proposal 9 For multi-hop U2N Relay reselection trigger at the remote UE, reuse the following R17 single-hop U2N Relay reselection trigger condition:

- PC5 signal strength of current direct connected multi-hop U2N Relay UE is below a (pre)configured signal strength threshold.

- When U2N Remote UE receives a PC5-S link release message from current direct connected multi-hop U2N Relay UE.

- When U2N Remote UE detects PC5 RLF with the current direct connected multi-hop U2N Relay UE.

- Indicated by upper layer.

Proposal 10 Multi-hop U2N Remote UE triggers relay reselection upon PC5-RRC signaling indicating (FFS on the detailed PC5-RRC signaling design):

- cell reselection, handover, Uu RLF, or Uu RRC connection establishment/resume failure between the multi-hop U2N Relay UE(s) and network.

- PC5 RLF/release between the multi-hop U2N Relay UE(s).

Proposal 11 RAN2 to discuss intermediate relay UE performs relay (re)selection with the same trigger condition defined for the remote UE. Upon relay reselection, it sends notification to the remote UE to indicate PC5 link release with its parent relay.

Other contributions

[R2-2500122](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500122%20Discussion%20for%20U2N%20multi-hop%20relay%20discovery%20and%20relay%20reselection.docx) Discussion on multi-hop U2N relay discovery and relay selection NEC discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2500187](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500187%20Discussion%20on%20Multi-hop%20Discovery%20and%20(Re)selection.docx) Discussion on Multi-hop Discovery and (Re)selection CATT discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2500420](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500420%20One%20remaining%20issue%20on%20multi-hop%20U2N%20Relay%20Discovery%20message%20forwarding.docx) One remaining issue on multi-hop U2N Relay Discovery message forwarding ASUSTeK discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2500432](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500432%20Discussion%20on%20relay%20discovery%20and%20selection.docx) Relay discovery and selection for Multi-hop UE-to-NW Relay Apple discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2500497](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500497%20(R19%20SL%20Relay%20WI_AI8132%20RelayDiscoverySelection).doc) Discovery and Relay (Re)Selection for Multi-hop U2N Relays InterDigital discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2500570](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500570_Consideration%20on%20multi-hop%20relay%20discovery%20and%20reselection.docx) Consideration on multi-hop relay discovery and reselection China Telecom discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2500632](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500632%20Relay%20(re)selection%20in%20Multi-hop%20relay%20v2.doc) Relay (re)selection in Multi-hop relay Lenovo discussion Rel-19

[R2-2500700](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500700%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

[R2-2500723](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500723%20Draft%20LS%20on%20legacy%20UE%20participation%20in%20multi-hop%20UE%20communica.docx) [Draft] LS on legacy UE participation in multi-hop UE communication Nokia LS out NR\_SL\_relay\_multihop To:SA2

[R2-2500753](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500753.docx) Multi-hop relay selection/re-selection Sony discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2500933](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202502 - RAN2_129, Athens\\Extracts\\R2-2500933_relay_discovery_reselection.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202502 - RAN2_129, Athens\Extracts\R2-2500933_relay_discovery_reselection.docx) Discovery and (re)selection under multihop relay Kyocera discussion

[R2-2501118](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501118_Discussion%20on%20topology%20and%20intermediate%20relay%20UE%20(re)selection.docx) Discussion on topology and intermediate relay UE (re)selection vivo discussion Rel-19

[R2-2501174](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501174%20SL%20selection.docx) Relay discovery and (re)selection TCL discussion

[R2-2501183](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501183-MH-reselection.docx) discussion on Relay discovery and (re)selection for multi-hop relay Sharp discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2501259](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501259-Discovery%20and%20Relay%20(re)selection%20for%20multi-hop%20U2N%20relay.docx) Discovery and Relay (re)selection for multi-hop U2N relay Qualcomm Incorporated discussion NR\_SL\_relay\_multihop-Core

### 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.

Including outcome of email discussion [Post128][401][Relay] Control plane baseline solution (InterDigital)

* [AT129][401][Relay] SRAP for Rel-19 multihop relay (OPPO)

Scope: F2F offline for advance discussion of header format in SRAP. Related proposals from R2-2500194 / R2-2500434 / R2-2500701 / R2-2500913 / R2-2501184 can be taken into account but need not be treated exhaustively.

Intended outcome: Report to Wednesday session

Time: Monday 2025-02-17 1630-1700 EET, in Brk3

Deadline: Wednesday 2025-02-19 1000 EET (for tdoc availability—rapporteur is asked to provide the report earlier for company comments)

Email discussion summary

[R2-2500496](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500496%20Report%20of%20%5bPOST128%5d%5b401%5dRelay%20Control_Plane.docx) Report of [Post128][401][Relay] Control Plane Baseline Solution InterDigital discussion Rel-19 NR\_SL\_relay\_multihop

Easy Proposals (at most 1 company disagrees strongly)

Proposal 1: RAN2 assumes that discovery and PC5 connection establishment can be performed in each intermediate UE prior to processing the received RRCSetupRequest by the remote UE. The related FFS can be removed from the stage 2 description.

Proposal 2: For the baseline solution, the last relay sending SUI on behalf of other relay UEs is not supported. The related FFS can be removed from the stage 2 description.

Proposal 3: For the baseline solution, Rel17 SUI message and format is re-used.

Proposal 4: No further clarification in stage 2 description is needed to clarify that a relay UE can establish its RLC channel for relaying of SRB1 during its own connection establishment and details will be clarified in stage 3. The related FFS can be removed from the stage 2 description.

Proposal 5: For system information acquisition in multi-hop, the remote UE:

o When RRC\_CONNECTED, uses Uu RRC signaling to obtain its system information directly from its connected cell.

o When RRC\_IDLE/RRC\_INACTIVE, can request SI using PC5-RRC signaling (e.g., RemoteUEInformationSidelink message)

o When in RRC\_IDLE/RRC\_INACTIVE, receives the required SI from PC5-RRC signaling (e.g., UuMessageTransferSidelink)

Proposal 6: For system information acquisition by the remote UE in multi-hop, the same triggers as Rel17 are supported for sending the PC5-RRC message (e.g., RemoteUEInformationSidelink) namely:

o when there is a change in the required SI while in RRC\_IDLE/RRC\_INACTIVE, or when entering RRC\_IDLE/RRC\_INACTIVE

o when it entering RRC\_CONNECTED, a PC5-RRC message (e.g., RemoteUEInformationSidelink) is sent to cancel a previously sent required SI

Proposal 7: The last relay UE in multihop can forward SI (e.g., in a UuMessageTransferSidelink) to an intermediate Relay upon:

• acquisition of the SIB(s) requested (in a hop by hop manner) by a connected child node (intermediate node and/or remote UE)

• reception of updates of any SIBs requested by a remote UE or another a child relay UE (in a hop-by-hop manner), including SIB1

• deciding to perform unsolicited SIB1 forwarding

Proposal 8: An intermediate relay UE that is RRC\_CONNECTED uses Uu RRC signaling to obtain its system information directly from its connected cell (i.e., behaving as a remote UE).

Proposal 12: The intermediate UE, when it receives SI from a parent relay, forwards the SI message only to the child UEs which requested the SI (i.e., the intermediate UE keeps track of the required SI for each child node). FFS on the need for including a “remote UE ID” in the request.

Proposal 13: The PC5-RRC message containing the required SI that is transmitted by the remote UE or by the intermediate relay UE to the parent node contains at least the requested SIB list.

Proposal 14: Re-use RemoteUEInformationSidelink as the PC5-RRC message transmitted by the remote UE or by the intermediate relay UE to the parent node (intermediate relay or last relay) to request the required SI.

Proposal 15: The PC5-RRC message transmitted by the last relay UE or by the intermediate relay UE that provides the SI to a child UE contains at least containers with SIB1 and other system information requested by the child UE.

Proposal 16: Re-use UuMessageTransferSidelink as the PC5-RRC message transmitted by the Last relay or by the intermediate relay UE that provides SI to the child UE.

Proposal 18: The remote UE in multi-hop:

o When RRC\_IDLE/RRC\_INACTIVE, can request to receive paging by sending its paging information using PC5-RRC signaling (e.g., RemoteUEInformationSidelink message)

o When in RRC\_IDLE/RRC\_INACTIVE, can receive paging record from PC5-RRC signaling (e.g., UuMessageTransferSidelink)?

Proposal 19: For a remote UE in multi-hop, the same triggers as Rel17 are supported for sending the PC5-RRC message (e.g., RemoteUEInformationSidelink) namely:

o when there is a change in the paging information while in IDLE/INACTIVE, or when entering RRC\_IDLE/RRC\_INACTIVE

o when it entering RRC\_CONNECTED, a PC5-RRC message (e.g., RemoteUEInformationSidelink) is sent to release the paging information

Proposal 20: The last relay UE in multihop can forward paging to an intermediate Relay upon receiving paging message related to a multihop remote UE, or intermediate relay UE.

Proposal 25: When the intermediate UE receives a paging message from a parent relay on PC5, it forwards the paging message only to the remote UE/intermediate UE being paged or the intermediate UE serving a UE being paged.

Proposal 26: The PC5-RRC message containing the paging information that is transmitted by the remote UE or by the intermediate relay UE to the parent node contains at least paging ID and paging cycle of the remote UE and any serving (parent) intermediate relay UEs.

Proposal 27: Re-use RemoteUEInformationSidelink as the PC5-RRC message transmitted by the remote UE or by the intermediate relay UE to the parent node (intermediate relay or last relay) to provide the paging information.

Proposal 28: The PC5-RRC message transmitted by the last relay UE or by the intermediate relay UE contains at least one or multiple paging record(s) associated with intermediate relay UE(s) and/or remote UE(s).

Proposal 29: Re-use UuMessageTransferSidelink as the PC5-RRC message transmitted by the Last relay or by the intermediate relay UE that provides paging record to the child UE(s).

Proposals requiring further discussion (more than one company having different views on some aspects)

Proposal 9: When an intermediate relay UE is in RRC\_IDLE/RRC\_INACTIVE it can obtain the SI required by it or requested by the remote UE by requesting SI from the parent relay UE in PC5-RRC (e.g., using RemoteUEInformationSidelink). FFS if it can also receive it directly from SIB broadcast by the cell on Uu (when the the intermediate relay UE is in coverage).

Proposal 10: The intermediate relay UE sends SI request in PC5-RRC (e.g., in RemoteUEInformationSidelink) to the parent relay (intermediate relay or last relay):

• when there is a change in the SI required by the intermediate UE

• when the intermediate UE enters RRC\_IDLE/RRC\_INACTIVE

• when the intermediate UE enters RRC\_CONNECTED (to cancel a previously sent SI request)

• upon reception of new/changed required SI received from a remote UE/child relay UE

• FFS when there is a change in the ability of the intermediate UE to receive SIB broadcast on Uu (e.g., moving in/out of coverage) to initiate/cancel SI forwarding by the parent relay.

Proposal 11: The intermediate relay UE can send SI (e.g., in UuMessageTransferSidelink) to a child node:

a) Upon reception of SI received from a parent node (intermediate relay or last relay) containing SI requested by a child node (intermediate relay or remote UE)

b) Upon acquisition (from the network) of SI requested by a child node (intermediate relay or remote UE)

c) Upon receiving updated SIBs from the network which have been requested by a child node (intermediate relay or remote UE)

d) Upon reception of SIB1 received from a parent relay (i.e., this case may correspond to SIB1 update detected by the last relay, or unsolicited SIB1 forwarding by the last relay)

e) Upon receiving updated SIB1 from the network (as in Rel17)

f) Upon unsolicited SIB1 forwarding to a connected child node (intermediate relay UE or remote UE)

FFS if b), c), and e) are limited to RRC\_CONNECTED relay UE or apply in all states. FFS whether to consolidate some of the conditions in stage 3 specification text.

Proposal 17: RAN2 discusses/confirms that if multiple remote UEs connected to a single intermediate relay UE, the multiple remote UEs must connect to the same cell.

Proposal 21: An intermediate relay UE in RRC\_CONNECTED releases its paging-related information in the parent UE at least for itself. FFS whether it also releases it for the child UEs and how the child UEs receive the paging when the intermediate relay UE is in RRC\_CONNECTED.

Proposal 22: When an intermediate relay UE is in RRC\_IDLE/RRC\_INACTIVE it can obtain paging from the parent relay UE in PC5-RRC (e.g., using RemoteUEInformationSidelink). FFS if it can also receive it directly on Uu (when the the intermediate relay UE is in coverage).

Proposal 23: What triggers the intermediate relay UE to request paging monitoring by the parent relay (intermediate relay or last relay) in PC5-RRC (e.g., in RemoteUEInformationSidelink)?

• when there is a change in the paging information of the intermediate UE or child UE

• when the intermediate UE enters RRC\_IDLE/RRC\_INACTIVE

• when the intermediate UE enters RRC\_CONNECTED (to cancel paging monitoring request)

• upon reception of paging monitoring request from a remote UE/child relay UE?

• FFS upon change in the ability of the intermediate UE to monitor paging on Uu (e.g., moving in/out of coverage) to initiate/cancel paging monitoring by the parent relay).

Proposal 24: The intermediate relay UE sends paging message (e.g., in UuMessageTransferSidelink) to a child node

• Upon reception of paging message received from a parent node (intermediate relay or last relay) that is intended for a child node (intermediate relay or remote UE)

• FFS upon acquisition (from the network) of paging message that is for a child node (intermediate relay or remote UE)

P1-P3 (baseline/Approach 2)

[R2-2500864](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500864%20-%20discussion%20on%20control%20plane%20procedure.docx) Discussion on control plane procedures Ericsson, Apple, AT&T, InterDigital Inc, FirstNet, Qualcomm Incorporated discussion Rel-19 NR\_SL\_relay\_multihop

Proposal 1 RAN2 to further work on the approach that allows a RRC\_IDLE/RRC\_INACTIVE intermediate UE in the path, aiming for limited additional design complexity and specification efforts for RAN2.

Proposal 2 RAN2 to work on mechanisms to allow an intermediate relay UE to stay in RRC\_INACTIVE when the remote UE triggers RRC connection establishment.

Proposal 3 RAN2 to send an LS to SA2 and SA3 to query whether there is any authorization concern to support an intermediate relay UE to stay in RRC\_IDLE when the remote UE triggers RRC connection establishment.

P1 (message forwarding before transition to connected)

[R2-2500934](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500934_relay_CP.docx) Control Plane under multihop L2 U2N relaying Kyocera discussion

Proposal 1 The intermediate relay UE should be allowed to forward the remote UE’s RRC Setup Request in case while it is still in RRC IDLE/INACTIVE.

P5b-P5c, P7 (details of setup procedure, local ID allocation)

[R2-2500701](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500701%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 5b. The Last Relay UE cannot send the SUI on behalf of all other relay UEs. Each relay UE shall report the SUI and indicate the L2 ID of its adjacent child UE to the gNB.

Proposal 5c. RAN2 can discuss the necessity to enable the parallel RLC channel establishment for relaying of SRB1 at each relay UE.

Proposal 7: Reusing the single-hop relay mechanism to support the Local ID allocation for multi-hop relay:

• Parent relay UE of the remote UE reports the L2 ID to the gNB to request the local ID allocation, the uniqueness of the local ID can be guaranteed by the gNB by implementation.

• The remote UE local ID is 8 bits.

P1-P2, P11-P12 (protocol stacks, RLC channel configuration)

[R2-2500898](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500898%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

Proposal 1. Adopt the following CP and UP protocol stacks for multi-hop L2 U2N relay.

Proposal 2. Capture following protocol stack for discovery:

Proposal 11. In multi-hop L2 U2N relay, SL-RLC0/1 defined in R17 can be reused for multi-hop remote UE’s SRB0/1 forwarding over the first PC5 hop. PC5 RLC channels for remote UE’s SRB2/DRBs forwarding over the first PC5 hop are configured by gNB via dedicated signalling.

Proposal 12. For each intermediate PC5 hops, the PC5 RLC channels used to forward remote UE’s SRBs/DRBs are configured by gNB via dedicated signalling.

P11-P15 (RLF handling)

[R2-2500188](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500188_Discussion%20on%20the%20Control%20Plane%20Procedures.docx) Discussion on the Control Plane Procedures CATT discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 11: In approach 1, when Remote UE detects PC5 RLF, its behaviors are same as Rel-17 U2N Remote UE.

Proposal 12: In approach 1, when the first Relay UE detects PC5 RLF between the Remote UE and the first Relay UE, its behaviors are same as Rel-17 U2N Relay .

Proposal 13: In approach 1, when the first Relay UE detects PC5 RLF between the first Relay UE and Intermediate Relay/last Relay UE, it can send NotificationMessageSidelink to the Remote UE to indicate the failure between first Relay UE and Intermediate Relay/last Relay UE.

Proposal 14: In approach 1, when the last Relay UE detects PC5 RLF, its behaviors are same as Rel-17 U2N Relay UE.

Proposal 15: In approach 1, when the last Relay UE detects Uu RLF, it can send NotificationMessageSidelink to its child Relay UE, and its child Relay UE can forward it to the Remote UE.

P16-P17 (further details on notification message)

[R2-2501184](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501184-MH-Cplane.docx) discussion on C-plane procedure for multi-hop relay Sharp discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 16. NotificationMessageSidelink should be sent hop-by-hop if needed.

Proposal 17. RAN2 discusses whether the remote UE including intermediate UEs should perform RRC re-establishment (, unicast link release or cell re-selection) upon reception of NotificationMessageSidelink.

SRAP aspects (TBD following offline)

Other contributions

[R2-2500194](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500194%20-%20Control%20plane%20procedures%20of%20multi-hop%20U2N%20relay.docx) Control plane procedures of multi-hop U2N relay OPPO discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2500300](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500300%20Control%20Plane%20aspects%20for%20Multi-hop%20Relay.docx) Control Plane aspects for Multi-hop Relay NEC discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2500308](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500308_CP_v0.docx) Consideration on CP issues for multi-hop SL relay Samsung discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2500433](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500433%20Discussion%20on%20CP%20v1.docx) Discussion on Control Plane for Multi-hop UE-to-NW Relay Apple discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2500434](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500434%20Discussion%20on%20SRAP.docx) Discussion on SRAP for Multi-hop Layer-2 U2N Relay Apple discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2500498](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500498%20(R19%20SL%20Relay%20WI_AI8.13.3%20CP).doc) Control Plane Handling for Multi-hop U2N Relays InterDigital discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2500509](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500509-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

[R2-2500561](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500561%20Discussion%20on%20control%20plane%20aspects%20for%20NR%20sidelink%20multi-hop%20relay.docx) Discussion on control plane aspects for NR sidelink multi-hop relay China Telecom discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2500633](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500633%20Control%20plane%20in%20Multi-hop%20relay%20v2.doc) Control plane in Multi-hop relay Lenovo discussion Rel-19

[R2-2500913](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500913%20SRAP%20design%20for%20R19%20multi-hop%20SL%20relaying.docx) SRAP design for R19 multi-hop SL relaying Samsung R&D Institute UK discussion

[R2-2500953](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500953.doc) Discussion on control plane procedure for SL multi-hop relay KT Corp. discussion

[R2-2501119](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501119_Discussion%20on%20CP%20and%20SRAP%20impact%20for%20baseline%20procedure.docx) Discussion on CP and SRAP impact for baseline procedure vivo discussion Rel-19

[R2-2501260](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501260-Open%20issue%20for%20control%20plane%20.docx) Open issue for control plane approach 1 Qualcomm Incorporated discussion NR\_SL\_relay\_multihop-Core

Withdrawn/Not available

R2-2500725 SRAP impacts on MH relay Nokia discussion NR\_SL\_relay\_multihop R2-2410290 Withdrawn

### 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.

Cases A/B (m2x, higher priority):

P1-P2, P5-P6 (measurement report contents)

[R2-2501120](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501120_Discussion%20on%20Service%20continuity%20for%20multi-hop%20relay.docx) Discussion on Service continuity for multi-hop relay vivo discussion Rel-19

Proposal 1: For multi-hop i2d, Remote UE evaluates both relay link (for the link between remote UE and serving first relay UE) and Uu link, where the sidelink relay measurement report shall include at least serving first relay UE's source L2 ID, serving cell ID and sidelink measurement quantity result.

Proposal 2: For multi-hop i2d, first relay UE/ Intermediate relay UE evaluates adjacent relay link, where the sidelink relay measurement report shall include at least measured relay UE's source L2 ID, serving cell ID and sidelink measurement quantity result.

Proposal 5: For multi-hop i2i, the remote UE reports serving first relay UE and candidate single-hop relay UE(s), including at least a source L2 ID, serving cell ID, and a sidelink measurement quantity information.

Proposal 6: For multi-hop i2i, first/ intermediate relay UE evaluates adjacent relay links, where the sidelink relay measurement report shall include at least serving intermediate/ last relay UE's source L2 ID, serving cell ID and sidelink measurement quantity result.

P1-P2 (reuse of reconfigurationWithSync)

[R2-2500733](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500733_Considerations%20on%20Service%20Continuity%20of%20Multi-hop%20Relay.docx) Considerations on Service Continuity of Multi-hop Relay NEC discussion

Proposal 1: Using reconfigurationWithSync without sl-PathSwitchConfig for path switching of Scenario A and an added step to release the first relay UE of the source indirect path.

Proposal 2: Using reconfigurationWithSync including sl-PathSwitchConfig for path switching of Scenario B and an added step to release the first relay UE of the source indirect path.

P2 (reconfiguration of relays)

[R2-2500927](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500927.docx) Intra-gNB Service Continuity for Multi-Hop Relays Ericsson discussion Rel-19

Proposal 2 For both mh2d and mh2i, it is up to network implementation when the first/last/intermediate relay UEs are reconfigured after the path switch command is sent to the remote UE.

Cases C/D (x2m, lower priority):

P2, P4 (events for cases C and D)

[R2-2500562](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500562%20Discussion%20on%20service%20continuity%20for%20multi-hop%20relay.docx) Discussion on service continuity for multi-hop relay China Telecom discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 2: Event Y1/ Y2 could be used for intra-gNB direct to multi-hop indirect path switching. The PC5 quality between the remote UE and candidate U2N relay/candidate first relay is considered for evaluating Event Y1/ Y2.

Proposal 4: Event Z1/ Y2 could be used for intra-gNB multi-hop indirect to direct path switching. The remote UE shall consider the first relay as serving L2 U2N relay for evaluating Event Z1.

P2, P6 (no special handling for relays already in path)

[R2-2500193](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500193%20-%20Service%20continuity%20of%20multi-hop%20U2N%20relay.docx) Service continuity of multi-hop U2N relay OPPO discussion Rel-19 NR\_SL\_relay\_multihop-Core

Proposal 2 RAN2 to confirm for scenario B, no spec impact is needed for the remote UE to identify whether the U2N Relay at the target side is the intermediate or last relay at the source side.

Proposal 6 RAN2 to confirm for scenario D, no specific handling is needed for the case that the either intermediated relay or last relay at the target side is the U2N relay UE at the source side compared with the normal case.

P3 (procedure for C), P6-P7 (message contents for C), P10-P12 (procedure and message contents for D)

[R2-2500189](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500189%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

Proposal 3: Suggest RAN2 to adopt Figure-2 as the baseline signaling flow for intra-gNB direct to multi-hop indirect path switching.

Proposal 6: The UE will perform the legacy measurement event Y1/Y2 except the description on candidate L2 U2N Relay UE in event Y1/Y2 should be revised to include the candidate First Relay UE.

Proposal 7: For Scenario C, the network will send RRC reconfiguration message to the target Last/Intermediate/First Relay UE, which includes at least the Ingress/Egress RLC channel and mapping configuration for L2 U2N Remote UE.

Proposal 10: Suggest RAN2 to adopt Figure-3 as the baseline signaling flow for intra-gNB single-hop indirect to multi-hop indirect path switching.

Proposal 11: The UE will perform the legacy measurement event X2/Y2/Z1 except the description on candidate L2 U2N Relay UE in event Y2/Z1 should be revised to include the candidate First Relay UE.

Proposal 12: For Scenario D, the network will send RRC reconfiguration message to the target Last/Intermediate/First Relay UE, which includes at least the Ingress/Egress RLC channel and mapping configuration for L2 U2N Remote UE.

P2 (state of target relay UE), P3 (T420 reuse)

[R2-2500634](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500634%20Service%20continuity%20in%20Multi-hop%20relay%20v2.doc) Service continuity for Multi-hop system Lenovo discussion Rel-19

Proposal 2: RAN2 confirm that the target relay UE as first intermediate relay UE should be RRC connected state for the path switch towards multi-hop indirect path.

Proposal 3: Timer T420 can be reused for path switching towards multi-hop indirect path.

[R2-2500421](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500421%20RRC%20states%20of%20candidate%20Relay%20UEs%20for%20path%20switching.docx) RRC states of candidate Relay UEs for path switching ASUSTeK discussion Rel-19 NR\_SL\_relay\_multihop

[R2-2500510](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500510-Discussion%20on%20service%20continuity%20for%20multi-hop%20U2N%20relay.docx) Discussion on service continuity for multi-hop U2N relay LG Electronics Inc. discussion

[R2-2500702](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500702%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

[R2-2500906](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500906%20Discussion%20on%20service%20continuity%20for%20multi-hop%20relay.doc) Discussion on service continuity for multi-hop SL relay ZTE Corporation, Sanechips discussion Rel-19 NR\_SL\_relay\_multihop-Core

[R2-2500935](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500935_relay_service_continuity.docx) Service Continuity for U2N multihop relay Kyocera discussion

[R2-2501185](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2501185-MH-ServiceContinuity.docx) discussion on service continuity for multi-hop relay Sharp 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-243247)

Time budget: 0.5 TU

Tdoc Limitation: 1 tdoc

Including outcome of email discussion [Post128][403][POS] NavIC L1 stage 3 CR check (Reliance Jio)

Email discussion report

[R2-2500361](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500361.docx) [Post128][403][POS] NavIC L1 stage 3 CR check (Reliance Jio) Reliance Jio discussion Rel-19 LCS\_NAVIC\_L1\_SPS\_NR\_LTE-Core Late

Rapporteur CR

[R2-2500108](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500108-NavIC_L1_stage3_CR.docx) Introduction of NavIC L1 SPS A-GNSS in LPP Reliance Jio, ISRO, Ericsson, MediaTek, CEWiT CR Rel-19 37.355 18.4.0 0532 1 B LCS\_NAVIC\_L1\_SPS\_NR\_LTE-Core R2-2409726 Late

Other contributions

[R2-2500811](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500811%20Discussion%20on%20the%20remaining%20issues%20of%20NavIC%20L1%20SPS.docx) Discussion on the support of NavIC L1 SPS Huawei, HiSilicon discussion Rel-19 LCS\_NAVIC\_L1\_SPS\_NR\_LTE-Core

[R2-2500972](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500972%20NavIC.docx) NavIC broadcast ephemeris to refer to for GNSS SSR corrections Ericsson, Reliance Jio discussion

## 8.16 BDS B2b in A-GNSS

LCS\_BDS\_B2b\_LTE\_NR; leading WG: RAN2; REL-19; WID RP-242459)

Time budget: 0.25 TU

Tdoc Limitation: 1 tdoc

Including outcome of email discussion [Post128][402][POS] BDS B2b stage 3 CR check (CATT)

Email discussion report

[R2-2500278](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500278%20%5bPost128%5d%5b402%5d%5bPOS%5d%20BDS%20B2b%20stage%203%20CR%20check%20(CATT).docx) [Post128][402][POS] BDS B2b stage 3 CR check (CATT) CATT discussion Rel-19 LCS\_BDS\_B2b\_LTE\_NR

Rapporteur CR

[R2-2500279](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500279%20Introduction%20of%20B2b%20signal%20in%20BDS%20system%20in%20A-GNSS_37355_CR0545_(Rel-19).docx) Introduction of B2b signal in BDS system in A-GNSS CATT, CAICT, Ericsson, Huawei, HiSilicon CR Rel-19 37.355 18.4.0 0545 - B LCS\_BDS\_B2b\_LTE\_NR

Other contributions

[R2-2500810](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500810%20Discussion%20on%20the%20remaining%20issues%20for%20BDS%20B2b.docx) Discussion on the remaining issues for BDS B2b Huawei, HiSilicon discussion Rel-19 LCS\_BDS\_B2b\_LTE\_NR

[R2-2500973](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500973%20BDS.docx) Remaining issues of BDS B2b Signal Addition Ericsson discussion

## 8.18 TEI19

Time budget: 1 TU

Tdoc Limitation: 1 tdoc for new proposals and 1 tdoc for old proposals.

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#129.

Positioning: on-demand posSIB

[R2-2500820](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500820%20Discussion%20on%20the%20control%20parameters%20for%20on-demand%20posSIB%20request%20%5bPosOdSIB-Req%5d.docx) Discussion on the control parameters for on-demand posSIB request [PosOdSIB-Req] Huawei, HiSilicon, CATT, Ericsson, Qualcomm discussion Rel-19 TEI19

Positioning: coordinate reference systems

[R2-2500970](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Extracts\R2-2500970-CRS-Dis.docx) Introduction of Location Coordinate Reference Systems Ericsson, AT&T, FirstNet, Deutsche Telekom, MediaTek Inc. discussion

* Revised in R2-2501329

R2-2501329 Introduction of Location Coordinate Reference Systems Ericsson, AT&T, FirstNet, Deutsche Telekom, MediaTek Inc., ESA discussion

## 8.19 NR Others

Tdoc limit: 1

Contributions addressing LS from RAN4 R4-2420410 and any RAN4 LSs not related to any of the AIs above.

[R2-2500047](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202502%20-%20RAN2_129,%20Athens\Docs\R2-2500047.zip) LS on Location service of UEs served by MWAB (S2-2412625; contact: Huawei) SA2 LS in Rel-19 VMR\_Ph2 To:RAN3 Cc:RAN2