3GPP TSG-RAN WG2 Meeting #123 R2-23xxxxx

Toulouse, France, 21-25 August 2023

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

## 4.4 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).

This Agenda Item will be handled by email.

# 5 NR Rel-15 and Rel-16

Essential corrections only.

Tdoc Limitation: 8 tdocs in total for all 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 treatee 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)

(NR\_pos-Core; leading WG: RAN1; REL-16; started: Mar 19; target; Jun 20; WID: RP-200218).

(NR TEI16 Positioning)

### 5.3.1 General and Stage 2 corrections

Including incoming LSs if any, Including impact to 36.305 and 38.305. 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.

Incoming LS

[R2-2308268](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308268.docx) LS on SSR orbit and clock correction reference for BDS in 3GPP LPP (contact: Ericsson) RTCM SC 104 LS in Rel-16 NR\_pos-Core To:RAN2

* Noted

CRs

[R2-2308476](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308476%20BDSSSR.docx) GNSS SSR BDS orbit emphemeris reference clarification to align with RTCM Ericsson CR Rel-16 37.355 16.11.0 0460 - F NR\_pos-Core

Discussion:

CATT indicate that B3I is not enabled in Rel-16, so there is a problem with this version of the CR: It should only refer to B1I.

Qualcomm note that there is an editorial issue with the quote marks (should be straight, not “curly”). Can be fixed in update.

* Agreed with these changes as R2-2309102

[R2-2308477](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308477%20BDSSSR.docx) GNSS SSR BDS orbit emphemeris reference clarification to align with RTCM Ericsson CR Rel-17 37.355 17.5.0 0461 - A NR\_pos-Core

* Agreed as R2-2309103 (changed to cat F)

Withdrawn/Not available

R2-2307357 Correction to 38.305 on E-CID Huawei, HiSilicon CR Rel-16 38.305 16.9.0 0137 - F NR\_pos-Core Withdrawn

R2-2307358 Correction to 38.305 on E-CID Huawei, HiSilicon CR Rel-17 38.305 17.5.0 0138 - A NR\_pos-Core Withdrawn

### 5.3.2 RRC corrections

Including impact to 36.331, 38.331, and 38.306.

### 5.3.3 LPP corrections

[R2-2308474](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308474%20GNSSTropo.docx) Correcting GNSS Ionospheric and Troposperic Delay Correction quality representation Ericsson CR Rel-16 37.355 16.11.0 0458 - F NR\_pos-Core

* Not pursued

[R2-2308475](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308475%20GNSSTropo.docx) Correcting GNSS Ionospheric and Troposperic Delay Correction quality representation Ericsson CR Rel-17 37.355 17.5.0 0459 - A NR\_pos-Core

* Not pursued

Discussion:

CATT understand that the definition of the correction was copied from the RTCM message, and this would introduce a conflict. Ericsson indicate it was copied from CLAS; Qualcomm understand that this is the same as the RTCM CSSR.

Qualcomm do not see this as a correction; they agree the grids can be large, but this is also the case in CLAS. Nokia have the same view and think it is an enhancement rather than a correction.

Swift are generally supportive but have a few questions for clarification. They understand the interpretation is that you must receive the precorrection as well as the residual, and they think the model being used for extrapolation also needs to be included.

Ericsson think it is a practical issue from Rel-16.

Qualcomm think nothing is broken in the existing specs.

Apple agree that this is an enhancement, not a correction.

Swift think some clarification is needed to the existing interpretation of the tiles. Qualcomm think this would be a separate issue and a separate CR.

Ericsson indicate that a large grid will create quality differences across the grid if we do not have corrections per grid point. Qualcomm think we do not provide assistance data for grids of a size that would make it critical (e.g. notification area, not the whole of Europe). Ericsson think this depends on implementation, and the specification allows very large grid areas.

Nokia think it is clearly an enhancement and could be considered as a TEI18 proposal.

[R2-2308688](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308688_Addition%20of%20field%20descriptions%20for%20nr-DL-PRS-ResourceSetID_nr-DL-PRS-ResourceID-R16.docx) Addition of missing field description for nr-DL-PRS-ResourceID/nr-DL-PRS-ResourceSetID Samsung CR Rel-16 37.355 16.11.0 0462 - F NR\_pos-Core

* Not pursued

[R2-2308689](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308689_Addition%20of%20field%20descriptions%20for%20nr-DL-PRS-ResourceSetID_nr-DL-PRS-ResourceID-R17.docx) Addition of missing field description for nr-DL-PRS-ResourceID/nr-DL-PRS-ResourceSetID Samsung CR Rel-17 37.355 17.5.0 0463 - A NR\_pos-Core

* Not pursued

Discussion:

Nokia do not see it as an essential correction; they think the description of the corresponding IE is sufficient. CATT also do not think it is an essential correction, and for DL-TDOA the wording is not correct.

Ericsson have the same view as Nokia.

vivo agree with Ericsson and Nokia and think the spec is currently clear enough. Samsung are OK to follow the majority view, but they indicate that in the Provide Location Information message, the resource is used for each measurement element, and the intention was to capture this in the field description.

### 5.3.4 MAC corrections

# 6 NR Rel-17

## 6.2 NR Sidelink relay

(NR\_SL\_Relay-Core; leading WG: RAN2; REL-17; WID: RP-212601)

Tdoc Limitation: 2 tdocs

### 6.2.1 Control plane and Stage-2 corrections

A single CR with miscellaneous corrections is encouraged. Small editorial corrections should be sent directly to the CR rapporteur. Larger open issues can be discussed with contributions (limited time).

Rapporteur summary

[R2-2308953](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308953%20Report%20of%20%5bPre123%5d%5b401%5d%5bRelay%5d%20Summary%20of%20AI%206.2.1.docx) [Pre123][401][Relay] Summary of AI 6.2.1 on Rel-17 relay control plane (Huawei) Huawei, HiSilicon discussion Rel-17

38.300 corrections

Proposal 1: The stage 2 CRs in R2-2308272 and R2-2308553 are not essential, thus not pursued.

* R2-2308272 and R2-2308553 are not pursued

38.331 corrections

Proposal 2: The following RRC changes are agreeable. Can further discuss whether to merge into one Miscellaneous CR or have separate CRs.

1) the change in R2-2307194: Updated the text to clarify that UuMessageTransferSidelink message includes only one PagingRecord.

2) the change in R2-2307239: Adding trigger condition “or if the information carried by the sl-PagingInfo-RemoteUE has changed since the last transmission of the RemoteUEInformationSidelink message”.

3) the changes in R2-2307727: Change #1: In 5.3.3.1a, added the conditions to check SIB12 whether the network supports L2 U2N relay discovery or L3 U2N relay discovery or non-relay discovery. Change #2: In 5.3.13.a1, added the conditions to check SIB12 whether the network supports L2 U2N relay discovery or L3 U2N relay discovery or non-relay discovery.

4) the change in R2-2307755: Correct the “ue-TimersAndConstantsRemoteUE” in the specification text to “sl-TimersAndConstantsRemoteUE”.

5) the changes in or related to R2-2307852: In 5.3.8.3 and 5.3.11, clarify that relay UE can reestablish SL-RLC0/SL-RLC1/SRAP entity after release or not release SL-RLC0/SL-RLC1 /SRAP entity upon going to idle/inactive state. In 9.2.5, added “RRCResumeRequest1” and changed “Identity” to “identity”.

6) the change in R2-2307853: In 5.8.3.3, moved the inclusion of “sl-SourceIdentityRemoteUE“ to one level up (from level-4 to level-3), so that it can be decided independently from the level-3 Rx Discovery conditions.

7) the changes in R2-2308210: Change #1: In clause 5.8.15.2, add “PCell” before “camping cell”, to cover connected state, i.e. when RSRP of Pcell is evaluated, Remote UE should take Relay UE’s serving cell as Pcell. Change #2: In clause 6.3.2, add discovery case into the IE description of ReportConfigNR-SL, and related field description. Change #3: In clause 6.3.5, add discovery case into the IE description of SL-BWP-Config, and SL-ConfigDedicatedNR. Change #4: In 5.3.3.7, 5.3.3.8, 5.3.5.5.2, 5.3.13.5, 5.3.15.2, “Notification message” is replaced with “NotificationMessageSidelink” in the sentence “sends Notification message to the connected L2 U2N Remote UE(s) in accordance with 5.8.9.10.”. Change #5: In 5.3.7.7, fix typo “receiption”.

8) the change related to R2-2308271: For a UE capable of L2 U2N Remote UE, it can perform relay selection when cell selection is triggered, which can be added as a unified condition of relay selection in 5.8.15.3.

9) the changes in R2-2308275: In subclause 5.5.3.2, add the “for U2N Relay (re)selection evaluation” entry to apply Layer 3 filtering, and remove “L2” to cover both L2 and L3 U2N Relay UEs (if applicable).

10) the change in R2-2308550: in Section 6.3.5, remove “, e.g. SRAP-Config” from the IE description of SL-L2RelayUE-Config.

11) the change in R2-2308714: In clause 5.2.2.2.1, “clause 5.8.9.8.3” in the corresponding statement is modified as “clause 5.8.9.9.3”.

Discussion:

Xiaomi understand that point 2 is not in line with past decisions. OPPO indicate that the current text does not explain the conditions clearly. Apple agree with Xiaomi that the current sentence indicates that any information change in RemoteUEInformationSidelink will trigger this message.

Xiaomi think if we take this change we should reconsider R2-2207179.

Apple wonder why we need the initial “upon change of any information” in this section if we do not retransmit upon any change.

Huawei recall that when the spec was drafted, we had a general principle that if any information was changed the UE could send this message, and the additional conditions were added later, creating some apparent overlap. The contribution referred to by Xiaomi is about change of interest in the SIB, and they understand that companies felt this was already clear. They also agree with Apple that we could generalise the text and avoid including more details in the conditions.

Xiaomi think the earlier proposal and this change are quite similar in their effects.,

Ericsson want to make sure that a generic solution would not include any specific scenarios.

To be included in offline.

Apple understand the intention of point 3, but they think it is only for the discovery process and may not apply to the L2 relay case; they understand that the condition will never be evaluated in this case. They also are not sure why the UE wants to go to connected state in this scenario. Ericsson have a similar understanding; upon reception of SIB12, the UE knows whether it can use discovery. They think this was discussed in the last meeting.

Samsung think this change is needed to align with previous meetings’ discussion of how to handle SIB12. For Apple’s concern, they understand that we had some general discussion on the upper layer interpretation, but relay selection will be triggered from upper layers and the AS layer will deliver the AS container to the upper layer; they see that it applies for L2/L3 relay.

Huawei indicate that last meeting, we said the UE checks SIB12 and calls the discovery procedure if discovery is supported, and there is currently no mention of how the UE obtains the resource pool configuration; there is a procedure that triggers the UE to move into RRC\_CONNECTED if there is no resource pool in SIB12. So they understand that the change is needed. To Apple’s comment, they agree that a UE implementation may have this kind of inter-layer interaction, but it has not been specified.

Ericsson think this is just about whether the network supports relay discovery, and they understand that we captured in a NOTE that it is up to network implementation to guarantee that the UE has the needed resource pools.

NEC agree with the intention of the CR, but when they checked the IE structure of SIB12, they found that the wording is not quite accurate and it should be about whether the gNB can support the corresponding operation.

Samsung agree that NEC’s comment is correct, but the CR tries to follow the existing wording in SIB12. NEC think it is not accurate as written.

Ericsson understand that the concern is that the UE gets into connected state and the network does not support discovery, and this allows the UE to request a dedicated configuration. They do not see the point of such a scenario, so they think the first case is not valid. Huawei understand the intention is to avoid the UE moving to RRC\_CONNECTED when it cannot get a configuration because the network does not support the feature. Ericsson think the UE will not request a relay configuration without knowing if the network supports it. Samsung indicate that this is directed to the case where SIB12 indicates support but there is no Tx discovery pool.

Apple think the change may not be necessary because the condition will never trigger, and maybe a different change could be considered to capture an indication to upper layers to prevent them from trying to transmit inappropriately.

* Intention is to avoid the UE going to connected mode to request a relay configuration that the network cannot provide.
* Offline to conclude on how best to realise this.

Nokia think on point 5, the intention is to add some clarification on whether the UE releases or re-establishes the RLC channels; they are not sure if something is wrong with the current spec.

Apple think the current spec has a problem because it forces the RLC channels to be released, and the relay UE will not be able to receive on them.

Huawei indicate that upon going to idle/inactive, the relay UE will release all resources including RLC channels, but the remote UE will re-establish SL-RLC0/1, which should only be needed at unicast link establishment. So they understand that the current spec forces the remote UE to perform unicast link release and establishment, which is not absolutely broken but not ideal, and they think it makes sense to allow re-establishment of the entities instead of release.,

Nokia agree that nothing is broken. Apple think the current normative text has the remote and relay keep the PC5 unicast link, which gives the impression that the link will be reused, but the reuse can never be successful because the RLC channels have been released.

OPPO wonder if this is NBC. Huawei understand that if we required that the relay shall not release the channels, this would impact existing implementations, but if we add a NOTE that the relay is allowed to maintain them, this would be BC. Nokia agree it does not break existing implementations.

Apple indicate the intention is to allow the relay to keep receiving messages from the remote UE. They think the NOTE suggested by Huawei would be acceptable.

* Capture a NOTE that the relay may re-establish the RLC channels.

Ericsson wonder if point 8 is already covered in 38.304. Huawei indicate that in the relay reselection subclause there is no condition for triggering based on cell selection.

Xiaomi think it is already specified that the UE can perform relay selection or cell selection.

OPPO understand that there are conditions for the UE handling in different states for this case, and they think all cases are clearly captured.

Huawei agree that relay reselection triggered by cell selection during RRC re-establishment/release has already been captured, but for this clause there are a lot of detailed triggers listed, and the cell reselection case has not been included.

Nokia think the current text covers the case under “if the UE has no serving cell”.

NEC think the intention is that it is up to UE implementation to perform relay selection or cell selection, and they think the NOTE we have is safer than changing the normative text.

ZTE can accept having the existing NOTE.

* Point 8 is not included.

Apple note that L2 has been removed in the first change of point 9, and they think it is a little strange that we would take the first change without the second. Huawei think the changes to the second clause are not needed because relay reselection does not need to invoke the second clause, but they can accept keeping “L2” in the first clause (i.e., keep the last two changes in the first clause).

vivo think the procedure is intended to cover both L2 and L3, so we should delete “L2” in both.

Huawei indicate the relay reselection clause reuses the filtering procedure, so the filtering procedure is applicable to both L2 and L3, but the measurement derivation is only for L2.

Apple can accept taking the last two changes in the first section.

* Do not delete “L2” in the first requirement of section 5.5.3.2

Apple think one big CR would be OK.

* [AT123][427][Relay] Rel-17 relay RRC CR (Huawei)

Scope: Merge agreed changes for 38.331 to a single general CR.

Intended outcome: Agreeable CR in R2-2309109

Deadline: Thursday 2023-08-24 2000 UTC

Other contributions

[R2-2307194](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307194_38.331_CR_Corrections%20to%20processing%20of%20paging%20information%20received%20via%20Relay%20UE.docx) 38.331\_CR\_Corrections to processing of paging information received via Relay UE Samsung Electronics Co., Ltd CR Rel-17 38.331 17.5.0 4177 - F NR\_SL\_relay-Core

[R2-2307239](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\38331_CR4180_(REL-17)_R2-2307239%20-%20Correction%20of%20RemoteUEInformationSidelink%20transmission%20condition.docx) Correction of RemoteUEInformationSidelink transmission condition OPPO CR Rel-17 38.331 17.5.0 4180 - F NR\_SL\_relay-Core

[R2-2307727](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\38331_CR4209_R2-2307727_Correction%20on%20NR%20SL%20discovery%20transmission.docx) Conditions for RRC connection establishment and resume for NR sidelink discovery Samsung, Huawei, HiSilicon CR Rel-17 38.331 17.5.0 4209 - F NR\_SL\_relay-Core, NR\_SL\_enh-Core

[R2-2307755](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Docs\R2-2307755.zip) Correction on NR Sidelink Relay RRC Philips International B.V. CR Rel-17 38.331 17.5.0 4212 - F NR\_SL\_relay-Core

[R2-2307852](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307852%2038331_Correction_SRAP_configuration.docx) Corrections on SRAP related configurations for SL relay Apple CR Rel-17 38.331 17.5.0 4215 - F NR\_SL\_relay-Core

[R2-2307853](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307853%2038331_Correction_L2_Src_ID.docx) Corrections on the reporting of L2 ID for L2 U2N relay operation Apple CR Rel-17 38.331 17.5.0 4216 - F NR\_SL\_relay-Core

[R2-2307955](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307955_Correction%20on%20CHO%20and%20Path%20Switching%20of%20Remote%20UE.docx) Correction on CHO and Path Switching of Remote UE NEC Corporation CR Rel-17 38.300 17.5.0 0695 - F NR\_SL\_relay-Core

[R2-2308210](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\38331_CR4235_(Rel-17)_R2-2308210%20Miscellaneous%20corrections%20for%20SL%20relay.docx) Miscellaneous corrections for SL relay Huawei, HiSilicon CR Rel-17 38.331 17.5.0 4235 - F NR\_SL\_relay-Core

[R2-2308271](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308271_Corrections%20to%20TS%2038.331%20on%20SL%20relay%20(re)selection.docx) Corrections to TS 38.331 on SL relay (re)selection ZTE, CAICT, Sanechips CR Rel-17 38.331 17.5.0 4241 - F NR\_SL\_relay-Core

[R2-2308272](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308272_Corrections%20to%20TS%2038.300%20on%20SL%20relay%20(re)selection.docx) Corrections to TS38.300 on SL relay (re)selection ZTE, CAICT, Sanechips CR Rel-17 38.300 17.5.0 0698 - F NR\_SL\_relay-Core

[R2-2308275](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308275_Correction%20to%2038.331%20on%20U2N%20relay%20(re)selection.docx) Correction to 38.331 on U2N relay (re)selection vivo CR Rel-17 38.331 17.5.0 4240 - F NR\_SL\_relay-Core

[R2-2308550](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308550%20-%2038.331_CR4261_Rel17_Miscellaneous%20Corrections%20SL%20Relays.docx) Miscellaneous Corrections for SL Relays Ericsson España S.A. CR Rel-17 38.331 17.5.0 4261 - D NR\_SL\_relay-Core

[R2-2308553](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308553%20-%2038.300_CR0703_Rel17_Miscellaneous%20Corrections%20SL%20Relays.docx) Miscellaneous Correction for SL Relays Ericsson CR Rel-17 38.300 17.5.0 0703 - D NR\_SL\_relay-Core

[R2-2308714](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308714%20Corrections%20on%20U2N%20Relay.docx) Corrections on U2N Relay ASUSTeK CR Rel-17 38.331 17.5.0 4281 - F NR\_SL\_relay-Core

### 6.2.2 User plane corrections

A single CR with miscellaneous corrections is encouraged. Small editorial corrections should be sent directly to the CR rapporteur for the corresponding spec. Larger open issues can be discussed with contributions (limited time).

[R2-2307238](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\38351_CR0023_(REL-17)_R2-2307238%20-%20Correction%20of%20IE%20name%20sl-SRAP-ConfigRemote.docx) Correction of IE name sl-SRAP-ConfigRemote OPPO CR Rel-17 38.351 17.5.0 0023 - F NR\_SL\_relay-Core

* Agreed

Discussion:

Huawei agree with the intention, but they think the current description is a bit unclear.

Samsung think Huawei’s concern is not related to the change in the name.

[R2-2307756](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Docs\R2-2307756.zip) Correction on SRAP for sidelink relay Philips International B.V. CR Rel-17 38.351 17.5.0 0024 - F NR\_SL\_relay-Core

Discussion:

Samsung wonder if the clarification is needed. Philips understand we have the parallel clarification in the uplink direction.

Huawei agree that we should align uplink and downlink.

Apple think the current description of BEARER ID is OK, and if the procedure text covers all cases, we do not need to update the field description.

OPPO would prefer to agree to the Philips CR, and then the Huawei CR in R2-2308211 is not needed.

Huawei are OK to take the Philips CR, but they think a general description of the field is also useful.

Samsung agree that the change from Philips is needed, and they are concerned that we will have redundant text if we also take the change from Huawei. Huawei indicate that there is a bracket in the procedural text explaining the interpretation, but they do not think it is redundant wrt the text in the field definition.

Nokia suggest aligning the text in 5.2.3. Samsung think this could be looked at offline.

Apple think the RAN box should not be checked.

* [AT123][428][Relay] BEARER ID correction in SRAP (Philips)

Scope: Check the CR in R2-2307756 and determine if a parallel change is needed in section 5.2.3.

Intended outcome: Agreeable CR in R2-2309111

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2308211](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\38351_CR0025_(Rel-17)_R2-2308211%20Clarification%20on%20the%20BEARER%20ID%20in%20SRAP%20data%20PDU.docx) Clarification on the BEARER ID in SRAP data PDU Huawei, HiSilicon CR Rel-17 38.351 17.5.0 0025 - F NR\_SL\_relay-Core

Discussion:

Samsung note a typo (srb-Identity should be drb-Identity the second time).

OPPO indicate that “info” should be “information”.

Chair notes additional typos: “se” for “set” and “idenfity” for “identify”.

* Agreed with typos fixed as R2-2309110

## 6.4 NR positioning enhancements

(NR\_pos\_enh-Core; leading WG: RAN1; REL-17; WID: RP-210903)

Tdoc Limitation: 2 tdocs

### 6.4.1 Stage 3 corrections

A single CR per TS (RRC, LPP, MAC, UEcap 306) with miscellaneous corrections is encouraged. Small editorial corrections should be sent directly to the CR rapporteur. Larger open issues can be discussed with contributions (limited time).

[R2-2307359](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307359%20Correction%20to%20Multi-RTT.docx) Correction to Multi-RTT Huawei, HiSilicon CR Rel-17 37.355 17.5.0 0455 - F NR\_pos\_enh-Core

* Agreed as R2-2309104, with ASN.1 alignment fixed

Discussion:

Ericsson think we wanted to avoid having conditions in the uplink. They think we could add something in the field description, but not a condition indicator.

Qualcomm think the CR is fine because we already use the same description for DL-TDOA and DL-AoD, and they disagree with Ericsson’s comment because this is different from a need code as such; they see it as an oversight.

CATT do not think it is essential, because the request already indicates whether this field should be reported.

vivo agree with Qualcomm and think we have the condition for DL-TDOA and DL-AoD.

Intel agree with Qualcomm.

Nokia wonder why the CR does not apply to other methods, and they ask if we cannot report one instance with the existing field.

Samsung share the view of Qualcomm and vivo.

Huawei clarify that the intention is not to have both fields present at the same time, and if the request uses the legacy format, the response will use the legacy field.

Intel agree that this is alignment with the downlink methods.

OPPO agree with the CR.

Qualcomm think there are editorial details with the ASN.1 alignment that should be fixed to save effort in CR implementation.

CATT indicate that the reason for the difference from the DL methods is that there is no UE-based multi-RTT. Qualcomm think it is still valid for UE-assisted and this was just a copying oversight.

[R2-2307360](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307360%20Correcton%20to%20UE%20capability%20for%20batch%20reporting.docx) Correction to UE capability for batch reporitng Huawei, HiSilicon CR Rel-17 37.355 17.5.0 0456 - F NR\_pos\_enh-Core

* Postponed

Discussion:

Lenovo wonder what the reason was for the addition in the Provide Location Information. Huawei indicate that this is the question they want to address: The LMF can request differently for different methods, but the UE only has a single capability.

vivo think the issue is valid but would prefer to fix the field description (Huawei’s approach 1), because RAN1 indicated only a single capability for this feature.

Intel agree that the capability came from RAN1, and they understand the guidance was that the UE supports it as one capability. They do not think it should be changed in RAN2.

Nokia wonder whether UE-based was also intended by RAN1.

Ericsson agree with Intel and think that RAN1 intended to capture a single functionality for multiple measurements or multiple locations.

Apple think it would be good to have separate capabilities. Qualcomm also think it makes sense, and they suggest that we could ask RAN1. Intel agree.

ZTE agree with sending an LS, and they wonder if we should include the additional option of changing the field description. Intel think how we implement it would be a RAN2 decision, but we can ask RAN1 if it is needed to have a separate capability.

* [AT123][420][POS] LS to RAN1 on batch reporting capability (ZTE)

Scope: Draft an LS to RAN1 inquiring about the need for multiple capabilities for batch reporting, as proposed in R2-2307360.

Intended outcome: Approved LS (without CB if possible) in R2-2309105

Deadline: Wednesday 2023-08-23 2000 UTC

[R2-2307504](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307504_LPP%20CR%20Missing%20error%20cause%20code%20for%20DL%20PRS%20Measurements.docx) Missing error cause code for DL PRS Measurements Fraunhofer IIS, Ericsson CR Rel-17 37.355 17.5.0 0457 - F NR\_pos\_enh-Core

* Not pursued

Discussion:

Qualcomm wonder what the new cause code really means, and if we need to start having cause codes at such fine granularity. There could be many reasons for an “unable to measure” condition.

Lenovo agree with Qualcomm and think the priority setting is quite dynamic, so they are not sure if the new code helps the LMF.

vivo agree with Qualcomm and think it is too detailed; the network is already aware of the PPW configuration, and if this situation occurs, they think the UE should request a measurement gap.

Ericsson agree that it is granular, but they think the inability to measure in certain PPWs is an error case that should be reflected in the error report. They see that the LMF would benefit from gathering statistics on this sort of event.

[R2-2308478](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308478%20PeriodicCR.docx) Missing finer periodicities than 1s Ericsson CR Rel-17 37.355 17.5.0 0450 1 F NR\_pos\_enh-Core R2-2306026

* Not pursued

[R2-2308479](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308479%20PeriodicD.docx) Missing LPP support for sub 1s location information reporting periodicity Ericsson discussion Rel-17

* Noted

Discussion:

Huawei are generally fine with the proposal, and consider that the AS layer granularity should generally be finer than the service layer granularity. They do wonder in which release we should introduce it.

Qualcomm think this is not a correction; they understand that we implemented the RAN1 feature list correctly, and this should be considered as an enhancement.

CATT also think it is not a correction, and they think we need to determine which use case needs it to infer which release it should be introduced in.

vivo note that the minimum value in NRPPa is 640 ms, which is not drastically off from 1 s, so they do not see a big gain from alignment.

Apple think it is an enhancement, not a correction. They think such an enhancement should normally come from lower layers.

Ericsson indicate that the proposal did come from lower layers, and we considered finer periodicities during Rel-17 discussions. They see that the network specs have sub-second periodicities in Rel-17 and LPP is the missing piece, so they consider this an alignment correction rather than an enhancement. They think that the Rel-17 latency requirements force us to have the ability to schedule the reporting with short intervals, so the device can report measurements/position estimates close in time.

Qualcomm think periodic reporting is not really a low-latency feature. They think if we change periodic reporting it should apply to all positioning methods, which again suggests that this is more of an enhancement.

Huawei understand that the LPP periodic reporting is intended to align with the periodicity requests from the service layer, and this just brings LPP into line with CT4 specs.

Ericsson indicate that the CT4 agreements apply to all positioning methods.

vivo think if CT4 want a change, there should be an LS to guide us.

Qualcomm see no connection between LPP periodic reporting and the CT4 specs, which are for deferred MT-LR, whereas periodic reporting in LPP is between UE and LMF, They do not see that the specs are broken.

CATT wonder what the CT4 spec defines for periodic reporting between LMF and AMF. Ericsson indicate that the CT4 specs for reporting between LMF/AMF/GMLC/MAP have all been updated with sub-second periodicities.

CATT think CT4 should send an LS.

OPPO agree there should be an LS.

Qualcomm would like to see how it works end-to-end.

[R2-2308690](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308690_Addition%20of%20missing%20values%20for%20dl-prs-ResourceSetPeriodicityReq-r17.docx) Addition of missing values for dl-prs-ResourceSetPeriodicityReq-r17 Samsung CR Rel-17 37.355 17.5.0 0464 - F NR\_pos\_enh-Core

Discussion:

Lenovo support the CR.

vivo think it is not needed, because the periodicities are indicated in the SCS of the PCell.

Qualcomm think these are periodicities supported for the PRS, but not supported in the on-demand request. They think this is a real correction.

CATT ask if the proponent checked the RAN1 parameter list; if RAN1 did not provide these periodicities, they think maybe we should check with RAN1. Samsung indicate that they did not find the periodicities in the RAN1 list, but we have a misalignment between the ASN.1 and the field description; they would be OK to send an LS to check.

Lenovo agree that there is a mismatch.

Nokia think it is an essential correction, but they are OK to confirm with RAN1.

CATT would like time to check the RRC parameters.

* [AT123][421][POS] dl-prs-ResourceSetPeriodicityReq-r17 range check (Samsung)

Scope: Evaluate the change proposed in R2-2308690 in light of the RAN1 parameter list.

Intended outcome: Agreeable CR if necessary and report in R2-2309106

Deadline: Wednesday 2023-08-23 2000 UTC

### 6.4.2 Stage 2 corrections

A single CR with miscellaneous corrections is encouraged. Small editorial corrections should be sent directly to the CR rapporteur. This agenda item will be handled at lower priority.

[R2-2308759](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308759%20CR_38305_PRU.docx) Correction of PRU overview description Nokia, Nokia Shanghai Bell CR Rel-17 38.305 17.5.0 0139 - F NR\_pos\_enh-Core

* Not pursued

Discussion:

Qualcomm think the existing text is correct and the change would be wrong. Their understanding is that you know the PRU location and what it is supposed to measure, and the point is to compare the measurements taken by the PRU at a known location to the reported measurements from a UE.

vivo agree with Qualcomm and think the comparison is about the measurements.

CATT have the same view, and they checked the LS from RAN1 and found that it did not mention how to use the measurements. They think an alternative change to replace “compared” with “used” could be valid.

Intel wonder if we need to do anything for PRUs in Rel-17.

Nokia can accept majority view and keep the existing text.

# 7 Rel-18

## 7.2 Expanded and improved NR positioning

(NR\_pos\_enh2; leading WG: RAN1; REL-18; WID: RP-231460)

Time budget: 2 TU

Tdoc Limitation: 4 tdocs

### 7.2.1 Organizational

Including incoming LSs and rapporteur inputs.

Incoming LSs with RAN2 in Cc:

[R2-2307007](C:\\Users\\mtk16923\\Documents\\3GPP Meetings\\202308 - RAN2_123, Toulouse\\Extracts\\R2-2307007_R1-2306208.docx" \o "C:\Users\mtk16923\Documents\3GPP Meetings\202308 - RAN2_123, Toulouse\Extracts\R2-2307007_R1-2306208.docx) Reply LS on Sidelink positioning procedure (R1-2306208; contact: Xiaomi) RAN1 LS in Rel-18 Ranging\_SL To:SA2 Cc:RAN2

* Noted

[R2-2307031](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307031_R3-233424.docx) Reply LS on Authorization and Provisioning for Ranging/SL positioning service (R3-233424; contact: Xiaomi) RAN3 LS in Rel-18 Ranging\_SL, NR\_pos\_enh2 To:SA2 Cc:RAN1, RAN2

* Noted

[R2-2307052](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307052_S1-231370.docx) Reply LS on the requirement on low power or high accuracy positioning (S1-231370; contact: Huawei) SA1 LS in Rel-18 5G\_eLCS\_Ph3 To:SA2 Cc:RAN1, RAN2

* Noted

Incoming LS with “take into account” action

[R2-2307004](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307004_R1-2306157.docx) LS reply on the RAT-dependent positioning integrity (R1-2306157; contact: InterDigital) RAN1 LS in Rel-18 NR\_pos\_enh2 To:RAN2 Cc:RAN3

* Noted

Other incoming LSs and draft replies

[R2-2307010](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307010_R1-2306214.docx) LS to RAN2 on SRS bandwidth aggregation for positioning (R1-2306214; contact: ZTE) RAN1 LS in Rel-18 NR\_pos\_enh2 To:RAN2

[R2-2308139](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308139%20%5bdraft%5dReply%20LS%20to%20RAN1%20on%20SRS%20bandwidth%20aggregation%20for%20positioning.docx) [draft]Reply LS to RAN1 on SRS bandwidth aggregation for positioning ZTE Corporation LS out Rel-18 NR\_pos\_enh2 To:RAN1

* [AT123][402][POS] LS to RAN1 on SRS bandwidth aggregation (ZTE)

Scope: Draft a reply to R2-2307010, taking online discussion into account.

Intended outcome: Approved LS (without CB if possible)

Deadline: Wednesday 2023-08-23 2000 UTC

[R2-2307032](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307032_R3-233474.docx) Reply LS on SRS Configuration Request (R2-2302278; contact: Huawei) RAN3 LS in Rel-18 NR\_pos\_enh2 To:RAN2 Cc:RAN1

* To be concluded after LPHAP discussion

[R2-2307042](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307042_R4-2310166.docx) LS on reporting granularity for timing related positioning measurements (R4-2310166; contact: Huawei) RAN4 LS in Rel-18 NR\_pos\_enh2 To:RAN2, RAN3 Cc:RAN1

[R2-2307126](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307126%20Draft%20reply%20LS%20on%20timing%20measurement%20reporting%20granularity_v01.doc) Draft reply LS on timing measurement reporting granularity Huawei, HiSilicon LS out Rel-18 NR\_pos\_enh2 To:RAN4 Cc:RAN1, RAN3

[R2-2307127](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307127%20Discussion%20on%20measurement%20reporting%20granularity_v01.docx) Discussion on measurement reporting granularity Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

* [AT123][403][POS] LS to RAN4 on timing measurement reporting granularity (Huawei)

Scope: Draft a reply to R2-2307042, taking online discussion into account.

Intended outcome: Approved LS (without CB if possible)

Deadline: Wednesday 2023-08-23 2000 UTC

[R2-2307054](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Docs\R2-2307054.zip) Reply LS to LS to SA2 on Sidelink positioning procedure (S2-2305735; contact: Xiaomi) SA2 LS in Rel-18 Ranging\_SL To:RAN2, RAN1 Cc:SA3

[R2-2307056](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307056_S2-2307553.docx) LS on assistance information provided to UE (S2-2307553; contact: Xiaomi) SA2 LS in Rel-18 Ranging\_SL To:RAN2

* [AT123][404][POS] LS(s) to SA2 on sidelink positioning (Xiaomi)

Scope: Draft a reply (or separate replies) to R2-2307054 and R2-2307056, taking online discussion into account.

Intended outcome: Approvable LS(s)

Deadline: Wednesday 2023-08-23 2000 UTC

LS-related documents from non-contact companies

[R2-2308053](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308053%20Discussion%20on%20the%20draft%20reply%20LSs%20to%20SA2%20on%20SL%20Pos.docx) Discussion on the reply LSs to SA2 on SL Positioning OPPO discussion Rel-18 NR\_pos\_enh2

Draft TS

[R2-2307663](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Docs\R2-2307663.zip) TS 38.355 v0.0.4 Intel Corp]oration draft TS Rel-18 38.355 0.0.4 NR\_pos\_enh2

Discussion:

Lenovo think this TS may not be stable enough to submit to plenary from this meeting.

Intel think we should follow the WI schedule and send the TS for information, but they agree it is not very developed yet.

Nokia think there should be post-meeting review time for the TS and the running CRs generally. Huawei agree that we will need post-meeting discussions to implement the agreements of this meeting.

* [AT123][409][POS] TS 38.355 (Intel)

Scope: Collect comments on the draft TS in R2-2307663 and produce an endorsable version, taking into account also discussion of the proposals in R2-2307662.

Intended outcome: Endorsable draft TS

Deadline: Thursday 2023-08-24 2000 UTC

Running CRs

[R2-2307124](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307124%20Draft%20running%20MAC%20CR%20for%20LPHAP_v02.docx) Running MAC CR for LPHAP Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

[R2-2307125](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307125%20Draft%20running%20MAC%20CR%20for%20sidelink%20positioning_v03.docx) Running MAC CR for Sidelink Positioning Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

* [AT123][405][POS] Rel-18 positioning MAC CRs (Huawei)

Scope: Collect comments on the CRs in R2-2307124 and R2-2307125 and produce endorsable versions.

Intended outcome: Endorsable CRs

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2307391](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307391%20LPP%20running%20CR%20for%20RAT-dependent%20integrity.docx) LPP running CR for RAT-dependent integrity CATT draftCR Rel-18 37.355 17.5.0 NR\_pos\_enh2

* [AT123][406][POS] Rel-18 LPP CR on RAT-dependent integrity (CATT)

Scope: Collect comments on the CR in R2-2307391 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2308385](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308385_(Running%20Stage%202%20CR).docx) Running Stage 2 CR for 'Expanded and improved NR positioning' Qualcomm Incorporated draftCR Rel-18 38.305 17.5.0 B NR\_pos\_enh2

[R2-2308386](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308386_(Stage%202%20TP%20MT-LR%20MO-LR).docx) Stage 2 TP for SL-MO-LR/SL-MT-LR Qualcomm Incorporated discussion

[R2-2308387](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308387_(Stage%202%20TP%20SLPP%20Transport%20Between%20UE%20and%20LMF).docx) Stage 2 TP for SLPP Transport between UE and LMF Qualcomm Incorporated discussion

[R2-2308395](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308395_(Stage%202%20TP%20SLPP%20Transport%20Between%20UEs).docx) Stage 2 TP for SLPP Transport between UEs Qualcomm Incorporated discussion

* [AT123][407][POS] Rel-18 positioning stage 2 CR and TPs (Qualcomm)

Scope: Collect comments on the CR in R2-2308385 and related TPs in R2-2308386 / R2-2308387 / R2-2308395, and produce an endorsable version of the CR.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2308484](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308484%20RRCRappCR.docx) Rapporteur CR for Positioning RRC Changes Ericsson draftCR Rel-18 38.331 17.5.0 B NR\_pos\_enh2

* [AT123][408][POS] Rel-18 positioning RRC CR (Ericsson)

Scope: Collect comments on the CR in R2-2308484 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

Rapporteur inputs on spec handling

[R2-2307662](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307662%20SLPP%20considerations.docx) Further considerations on SLPP specification Intel Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2308259](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308259%20Discussion%20on%20R18%20positioning%20UE%20capabilities.doc) Discussion on R18 positioning UE capabilities Xiaomi discussion

* [AT123][410][POS] Rel-18 positioning capabilities (Xiaomi)

Scope: Discuss the proposals in R2-2308259 and conclude on handling of the Rel-18 capabilities.

Intended outcome: Report to CB session

Deadline: Wednesday 2023-08-23 2000 UTC

Other

### 7.2.2 Sidelink positioning

Positioning architecture and signalling procedures (e.g. configuration, measurement reporting, etc) to enable sidelink positioning. Including measurements to enable RTT-based positioning, SL-AoA, and SL-TDOA; signalling and associated UE behaviour for support of unicast, groupcast (not including many-to-one) and broadcast of SL-PRS transmissions; reporting signalling and procedures to facilitate support of SL positioning in all coverage scenarios and for PC5-only and joint PC5-Uu scenarios; and signalling to NG-RAN for SL positioning and service authorization as needed.

Including report of [Post122][402][POS] SLPP session handling (Intel)

Email discussion summary

[R2-2307660](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307660%20%5bPost122%5d%5b402%5d%5bPOS%5d%20SLPP%20session%20handling.docx) Report of [ 402] SLPP session handling Intel Corporation discussion Rel-18 NR\_pos\_enh2 Late

Proposal 1: For LMF involved SL based positioning, follow SA2 on how to handle LMF involved SL based positioning between UE (who has connection with network), LMF and AMF. FFS on how to handle session for UEs involved in the same LMF involved SL based positioning and the relationship between routing ID/correlation ID and session ID.

Discussion:

Ericsson think following SA2 is fine, but the FFSs may be possible to resolve. They understand that when the LMF is initiating the session it can assign the session ID. Huawei think this may not be possible for the SLPP session ID, but the routing ID and correlation ID can be assigned by the LMF as usual. Huawei think we could follow the UE-only case.

Intel suggest postponing the discussion on the FFS aspects until we handle the summary below and determine if we have conclusions.

Lenovo are OK in principle with the proposal, but they wonder if SA2 will do anything further without prompting from us; they should be into the maintenance phase. They think we may need to update SA2 about our status.

Qualcomm do not see SA2 impact from these aspects. They understand the LMF can only talk to one UE, and the question is whether the LMF also needs to see a second SLPP session ID between the UEs; this is a RAN2 question. Huawei agree with Qualcomm and think the SLPP session ID only needs to be used between UEs; it should have no SA2 impact.

Ericsson also agree that there is no SA2 impact. They think that at least for the SL MT-LR case, the LMF needs to know what session it needs to get measurement results from; they agree that some more discussion is needed.

Intel think we should focus on the proposal instead of expanding the discussion. They have not identified SA2 impact and think we can continue discussion, with the understanding that we will notify SA2 if something comes up.

CATT think on Ericsson’s comment, the handling depends on the solution for the session between the LMF and the UE. They agree with Intel that we can follow the overall SA2 procedure, and they do not think an SLPP session ID is required between the UE and the LMF.

vivo think SA2 may have some impact from RAN2 decisions; the anchor UE can distinguish different sessions by the correlation ID or routing ID, but if there are different correlation IDs for different SLPP sessions, then the SLPP session ID is not needed between LMF and anchor UE.

Proposal 2: RAN2 should focus on single target scenario and will continue the discussion on multiple target UEs, and broadcast/groupcast once the basic functionality has been defined.

Discussion:

OPPO think SA2 have already covered multiple targets with SL MT-LR, and they do not see the RAN2 impact of supporting it. Huawei agree; from RAN2 perspective, there may be only stage 2 description for multiple targets and for broadcast/groupcast.

Huawei point out that SA3 are still working on the security aspects, and this might be the bottleneck for groupcast.

Xiaomi see some misunderstanding between RAN2 and SA2: SA2 have specified one target UE and multiple reference UEs, and for multiple target UEs they have not specified any detailed procedures, although they may address it this meeting cycle. They think we can at least discuss groupcast/broadcast.

Intel see different understandings from companies about SA2 status, and the intention of the proposal is that we focus our discussion on the basic procedure with one target and unicast first.

Nokia agree with Intel: The proposal does not preclude multiple target UEs, it just prioritises where we focus our time. Ericsson agree.

Qualcomm think there is some support in SA2 for multiple target UEs, although it is not complete through all specs. They do not consider single target/unicast to be the basic functionality, because SL positioning always involves multiple UEs, and unicast is just a transport option that may not affect SLPP. If such a prioritisation is needed, they would like to delete the second half of the proposal.

Xiaomi understand that there is a preference to focus on the stage 3 impact.

Proposal 3: For UE-only operation, introduce explicit field “sessionID” in SLPP, and put it under message header of SLPP message. FFS how session ID is defined

Discussion:

OPPO think LPP embeds the session ID in the NAS layer, and for SLPP maybe we should follow the legacy behaviour and use the V2X/ProSe layer below SLPP. Intel indicate that the reason they propose to include it in SLPP is to avoid relying on other groups to specify the ID and inter-layer interaction to use the session ID at the UE.

Huawei think we have already supported UP transport without using PC5-S as a carrier.

Apple support the proposal and think it would be convenient to have the ID in our specs.

vivo think the proposal is OK, and the suggestion from OPPO does not work because we do not have the V2X/ProSe layer. OPPO understand there is a layer to map the service data to QoS flows, and they think there is also such a layer here; they are OK to check the protocol layers and decide later.

Ericsson agree with the proposal and think it will simplify things to have the ID in SLPP; they think there was a preference for a unified solution between network-based and UE-only operation.

CATT support the proposal; they understand that the LMF has a session ID, but there is no legacy session ID between UE and LMF, and in the SLPP case we need to identify the sessions between UEs.

Qualcomm also support the proposal and think SLPP should be self-contained as much as possible.

CEWiT see the benefit of having the session ID in the message.

ZTE also support the proposal; regarding network-based operation, they think there is still a case where UEs need to exchange SLPP, and the session ID will be needed there.

Proposal 4: (10 vs 8) For UE-only operation, RAN2 will continue the discussion on whether “sessionID” is applied for groupcast/broadcast once the basic functionality has been defined.

Proposal 5: (13 vs 4 ) from SLPP perspective, the UE who receives the] LCS request at least needs to:

- Initiate the SLPP procedure;

- Assign the sessionID, and include it in the SLPP messages (Rx side should use the received sessionID for messages in the same positioning session);

Discussion:

Huawei think there should be no session ID for broadcast. Intel think we can continue discussion on broadcast, but we do not have time to fully discuss it online now.

vivo think we need to scope this as “at least for UE-only operation”. Intel think this was the intention.

Huawei would like to understand if there is spec impact. Intel think we should capture the assignment of the session ID. CATT agree with Intel and think we need to reach a common understanding about the procedure; this proposal aligns with SA2.

Huawei think there is no SA2 guidance on which end initiates the SLPP procedure.

Nokia think this does not clarify the scope of uniqueness of the ID, and maybe we could capture that this aspect will be further looked at.

vivo think it is not clear what happens if the target and server UEs are different; they see that in this case two UEs could receive the LCS request. They would prefer to clarify that the server UE performs the allocation. Intel indicate there was no consensus on this point.

Qualcomm think we are repeating a discussion, and the proposal has nothing wrong with it; if it later turns out that it must be a server UE, we can clarify that.

CATT agree with Intel and Qualcomm; we are talking about UEs here irrespective of different roles. They see the proposal as a good way forward.

OPPO agree with the proposal and think the server UE definition does not imply such a function.

Proposal 6: (15 vs 1 ) if the UE who receives the LCS request can act as the SL Positioning Server UE, then the UE shall trigger following procedures with each of UEs (UE2-UEn in the figure) in the SLPP session:

- SL Positioning Capability Transfer procedure,

- SL Location Information Transfer (FFS on who decide positioning method) and

- SL Positioning Assistance Data exchange (depends on RAN1 discussion on how to select the PRS resources)

Proposal 7: (11 vs 2 ) In stage 3 specification, use "Tx Endpoint" and "Rx Endpoint(s) to describe the procedure instead of target UE, anchor UE and server UE concept, e.g. [figure omitted]

Discussion:

Lenovo wonder why we need “Tx” and “Rx”. Qualcomm clarify it came from 38.300, and they think it is helpful to show which side initiates the procedure without tying it to UE roles.

Apple would prefer not to have the Tx and Rx language.

CATT think we should clarify SLPP Tx/Rx vs. SL-PRS Tx/Rx.

Xiaomi note that the transmitter of one operation may be the receiver of another, so the Tx/Rx terminology may not be clear.

ZTE think in stage 3, we always have the SLPP Tx/Rx, not the SL-PRS Tx/Rx. So they think Tx/Rx can be kept.

Proposal 8: Reuse LPP session management as a start, and we may revisit it if any issue is found.

Discussion:

Intel clarify the intention is to avoid introducing new session management procedures.

Qualcomm do not think we need an agreement in this direction and there is no clear definition of LPP session management. They see benefit from having explicit session start/end.

Lenovo agree with Qualcomm’s comment and think it is related to session release at the UE. We have not discussed how many sessions a UE can support.

Xiaomi agree with Qualcomm and think we could have an FFS on the session release.

CATT wonder what the stage 3 impact for session start/release is.

Nokia think the proposal does not have a big impact.

Agreements:

For LMF involved SL based positioning, follow SA2 on how to handle LMF involved SL based positioning between UE (who has connection with network), LMF and AMF. FFS on how to handle session for UEs involved in the same LMF involved SL based positioning and the relationship between routing ID/correlation ID and session ID.

At least for UE-only operation, introduce explicit field “sessionID” in SLPP, and put it under message header of SLPP message. FFS how session ID is defined.

At least for UE-only operation, the UE who receives the LCS request at least needs to:

- Initiate the first SLPP procedure;

- Assign the sessionID, and include it in the SLPP messages (Rx side should use the received sessionID for messages in the same positioning session).

FFS within what scope the session ID is unique.

At least for UE-only operation, if the UE who receives the LCS request can act as the SL Positioning Server UE, then the UE shall trigger following procedures with each of UEs (UE2-UEn in the figure) in the SLPP session:

- SL Positioning Capability Transfer procedure,

- SL Location Information Transfer (FFS on who decide positioning method) and

- SL Positioning Assistance Data exchange (depends on RAN1 discussion on how to select the SL-PRS resources)

In stage 3 specification, use "Endpoint A" and "Endpoint B” to describe the procedure instead of target UE, anchor UE and server UE concept, e.g. [figure omitted]

Agenda item summary (excluding items related to the email discussion)

[R2-2308973](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308973%20%5bPre123%5d%5b402%5d%5bPOS%5d%20Summary%20of%20AI%207.2.2%20on%20sidelink%20positioning%20(CATT).docx) Summary of AI 7.2.2 Sidelink positioning CATT discussion Rel-18 NR\_pos\_enh2

[Scenario aspect]

Proposal 3: RAN2 to apply terms of “UE-only Operation” and “Network-based Operation” defined in TS 23.586 by SA2 for SLPP procedures.

Discussion:

Lenovo wonder why network-assisted operation is not included. CATT indicate that the terms are not intended to be exclusive, and they understand that SA2’s “network-assisted operation” just means UE-based positioning in our terms; they see it as not relevant to the scenario issues.

Huawei agree with Lenovo and think we should capture the network-assisted term.

OPPO checked the SA2 spec and found that UE-only operation only applies when the network is not involved, so this is not related to UE-based/UE-assisted.

Xiaomi think we should follow the SA2 terminology.

Proposal 4: RAN2 to discuss how to capture the cases of “UE-only Operation” and “Network-based Operation” in stage-2 specification. The following definition can be as baseline:

Network-based operation:

- Case 1: at least one of a UE has NAS connection, and 5GC supports SL positioning.

• Case 1-1: both target UE and all anchor UEs have NAS connection; (in-coverage)

• Case 1-2: target UE has NAS connection, and at least one of anchor UE does not have NAS connection; (partial-coverage)

• Case 1-3: target UE does not have NAS connection, while at least one of the anchor UEs has NAS connection; (partial-coverage)

UE-only operation:

- Case 2: none of the UE has NAS connection; (out-of-coverage)

- Case 3: target UE has NAS connection, but SL-MO-LR request is rejected by the network. (in-coverage)

Discussion:

Lenovo think per SA2 specs, there is a missing case 4: UE is configured by NW to allow UE-only operation.

Intel wonder if we need to care about these cases in RAN2; we need to specify SLPP, and the scenarios are more in SA2 scope. Qualcomm agree with both Intel and Lenovo; they think it is not complete and does not impact our work. Nokia agree as well.

ZTE think P4 is useful for progressing the stage 2, but we should not have the brackets with the coverage scenarios.

Xiaomi understand the motivation for capturing something in stage 2, but they think there are additional SA2 criteria that are not captured here.

Apple are not sure what the purpose of the scenarios is in light of the next proposal; they also have some concerns with the language.

CATT indicate the intention is just to get a common understanding of the coverage scenarios.

Nokia think we are repeating SA2 discussions; the LMF is used if a UE can reach the LMF.

Proposal 5: RAN2 can prioritise to discuss in-coverage and out-of-coverage sidelink positioning cases. The additional functionality for partial-coverage cases can be revisited if time allows.

Discussion:

InterDigital think partial coverage should be considered.

Xiaomi think we should look at the stage 3 impacts, and if we can support partial coverage without extra work it is OK. They do not see differences so far.

Intel think it is related to forwarding messages from other UEs.

Apple support P5 and think we should look at what is realistic to support.

Nokia think we should not divide the work into subcases but try for a unified design that covers seamlessly.

Huawei understand SA2 have already supported the partial coverage scenario, and they do not identify RAN2 impact. They wonder why RAN2 should veto another group’s decisions. They understand that it is only related to MO-LR.

OPPO think whether to treat partial coverage depends on how big the delta is. They see the delta as identifying the relay point for the UEs out of coverage and potentially using sidelink relay to forward the messages; they are not sure how big the impact is as a whole.

Qualcomm agree with Huawei; from a procedural point of view, they think partial coverage is the same as out of coverage.

Intel support the proposal and agree that we would need to identify the impact; they see that there is a concern with the amount of time left and we need to prioritise. MediaTek agree with Intel.

CATT clarify that the intention is not to exclude partial coverage but to prioritise.

vivo agree with Intel and think this is related to forwarding of messages. We would have to design a forwarding mechanism for out of coverage UEs.

Ericsson think we could use UE-to-network relay. Huawei think this could be used as transport for the out-of-coverage UEs and it would be transparent from the positioning pov. To vivo’s comment, they think we need to identify what the required changes are.

InterDigital think the anchor UE can forward messages for an out-of-coverage target UE, and if we reuse the UE-to-network relay there would be no extra impact. Chair wonders if we would assume that all SL positioning UEs support relaying.

Xiaomi point out that even for in-coverage, forwarding may be needed, because some of the anchor UEs may not be served by the same LMF, and in this case one UE will forward the information from those anchor UEs.

Nokia also agree that forwarding is needed.

Qualcomm are not prepared to agree to the forwarding capability; they see it as a corner case. Their understanding of the SA2 specs is that the LMF talks to one UE and that UE instigates the SLPP sessions.

CATT found there are two candidate solutions: sidelink relay and SLPP message forwarding. Their concern is finalising the procedures for the in-coverage and out-of-coverage procedures.

Huawei point out that SA2 are not considering sidelink relay but the case where an “OOC” UE does not have a NAS connection.

Apple agree with Qualcomm.

Ericsson agree with Huawei and think we do not need a new mechanism for forwarding.

Qualcomm think the LMF in any case will only talk to a single UE. They think we could take the original proposal, and they understood the intention was to exclude SLPP PDU forwarding, but they think forwarding of information from UEs to the LMF is required by the SA2 design.

Qualcomm think PDU forwarding between the LMF and a non-connected UE is not feasible.

Lenovo think the “forwarding” involves additional information added to the forwarded message.

Apple think the forwarding is not completely clear, e.g., in what happens with the session IDs.

Agreement:

RAN2 to apply terms of “UE-only Operation” and “Network-based Operation” defined in TS 23.586 by SA2 for SLPP procedures.

* [AT123][429][POS] UEs without connection to LMF and SLPP forwarding (Apple)

Scope: Discuss the need for support of communication with UEs that do not have a direct connection to the LMF (e.g., no NAS connection) and potential need for a forwarding mechanism in SLPP. Sidelink relay is not considered in this discussion.

Intended outcome: Report to CB session

Deadline: Thursday 2023-08-24 2000 UTC

[Discovery related including information and procedures]

Proposal 8: RAN2 to discuss whether define the individual metafield structures separately for different discovery messages (Announcement message, Solicitaion message and Response message).

Proposal 9: RAN2 to discuss following parameters can be included in the metadata in the discovery message:

1) Supported sidelink positioning methods; (CATT,vivo, Xiaomi, Intel, OPPO, CMCC)

2) In coverage or not; (CATT, Xiaomi, Philips)

3) Location; (CATT,vivo, Xiaomi, Spreadtrum, CMCC)

4) PLMN; (CATT，Xiaomi)

5) Stationary or movable; (CATT,vivo, Xiaomi)

6) Location accuracy; (Xiaomi，Philips)

7) Filter condition: e.g. Requested SL positioning methods, Low Mobility required, In coverage required, LOS path required, Location accuracy requirement, PLMN, required QoS requirement; (Nokia, vivo, Xiaomi, OPPO, Ericsson)

8) Supported positioning QoS requirement(s); (OPPO, Ericsson)

9) SLPP support; (Lenovo, CMCC)

[Anchor UE selection]

Proposal 10: RAN2 to discuss who performs anchor UE selection: LMF/server UE or target UE.

Proposal 11: Anchor UE selection bases on information from discovery procedure and the positioning capability exchange procedure.

[Server UE selection]

Proposal 12: The SL positioning server UE can be either co-located in a target UE/anchor UE, or operated by a separate UE.

Proposal 13: The following parameters can be considered for SL positioning server UE selection:

1) Supported roles of UE (SL positioning server UE)

2) Supported sidelink positioning methods

3) RSRP

4) Stationary or movable

* [AT123][430][POS] Discovery and selection for sidelink positioning (CATT)

Scope: Discuss further on P8/P9/P10/P11/P12/P13 of R2-2308973 and progress toward agreements.

Intended outcome: Report to CB session

Deadline: Thursday 2023-08-24 2000 UTC

[SLPP Reliable transport]

Proposal 21: SLPP over PC5-U supports reliable transport for groupcast.The same principles of LPP reliable transport (including duplicate detection, acknowledgement and message retransmissions) shall be used for SLPP.

[SL-PRS resources allocation and request]

Proposal 23-1: RAN2 to discuss UE how to request sidelink resource in Scheme 1 for SL-PRS transmission, including allocation from gNB by CG and DG:

- When SL-PRS transmission is triggered for the UE configured with Scheme1 SL-PRS resource allocation by configured grant, the UE sends an RRC message to the gNB for SL-PRS transmission. The UE sends a CG confirmation MAC CE when the DCI for CG type 2 activation/deactivation is successfully received.

- When SL-PRS transmission is triggered for the UE configured with Scheme1 SL-PRS resource allocation by dynamic grant, the UE sends a MAC CE to the gNB for SL-PRS resource request. SR can be triggered for SL-PRS resource allocation request MAC CE when there is no UL-SCH resources to accommodate the MAC CE.

Send LS to RAN1 to confirm the mechanism and detailed content in the MAC CE if required.

Proposal 23-2: RAN2 to discuss how to select a dedicated SL resource pool or a shared SL resource pool and agree the below rules to align with RAN1 agreement:

- When there are both sidelink data and SL-PRS pending for transmission, select shared resource pool.

- When there are only SL-PRS pending for transmission while there is no data, prioritize dedicated resource pool

- For shared resource pool, all the legacy conditions for resource selection/reselection can be reused.

Proposal 23-3: RAN2 to support CBR measurement on both shared and dedicated resource pool for SL-PRS transmission, FFS how to report CBR in line with RAN1 progress.

[SL-PRS priority]

Proposal 22: RAN2 determines an SL-PRS priority value for SL-PRS, given defined SL positioning QoS (5/8). UE’s own higher layer provides this value of SL-PRS priority to its physical layer. There is no RAN2 impact when the SL-PRS priority value is provided by the SCI from the peer UE triggering the SL-PRS transmission. RAN2 to send the agreement to RAN1 for confirm and inform SA2.

[MAC issues]

Proposal 25: RAN2 discuss if there is a MAC specification impact for the case that only SL-PRS transmission in a shared resource pool when the UE may not have data available for transmission.

Proposal 26: RAN2 further discuss the MAC issues when SL-PRS transmission in share resource pool, including the destination selection and how to handle the SL-PRS priority and SL-SCH priority, in line with RAN1.

Proposal 27: RAN2 further discuss the MAC issues of P12, P13, P14, P15, P17 in R2-2307123.

* [AT123][431][POS] Sidelink positioning MAC issues (Huawei)

Scope: Progress discussion on P22/P23-x of R2-2308973 (possible extension to post-meeting discussion), prioritising topics related to SL resource allocation.

Intended outcome: Report to CB session

Deadline: Thursday 2023-08-24 2000 UTC

The following documents will not be individually treated

[R2-2307122](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307122%20Discussion%20on%20higher%20layer%20aspects%20for%20Sidelink%20Positioning_final.docx) Discussion on higher layer aspects for Sidelink Positioning Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

[R2-2307123](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307123%20Discussion%20on%20lower%20layer%20aspects%20for%20SL%20positoining_v06.docx) Discussion on lower layer aspects for Sidelink Positioning Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

[R2-2307185](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307185_Sidelink_Fraunhofer.docx) UE Positioning using Sidelink in OoC Fraunhofer IIS, Fraunhofer HHI discussion

[R2-2307187](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307187_Preconfigured_AD_Sidelink_Fraunhofer_Ericsson.docx) Preconfigured Assistance Data for UE Positioning in Hybrid Uu and PC5 scenarios Fraunhofer IIS, Fraunhofer HHI, Ericsson discussion

[R2-2307232](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307232.docx) Discussion of SLPP / LPP signalling procedures Nokia Netherlands discussion Rel-18

[R2-2307241](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307241.docx) Discussion of session-less and session-based positioning Nokia Netherlands discussion Rel-18

[R2-2307340](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307340.docx) SLPP signalling in UE-only sidelink positioning/ranging procedure MediaTek Inc. discussion Rel-18 NR\_pos\_enh2

[R2-2307341](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307341.docx) Pathological cases of network-based operation for sidelink positioning MediaTek Inc. discussion Rel-18 NR\_pos\_enh2 Revised

[R2-2307392](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307392%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning CATT discussion Rel-18 NR\_pos\_enh2

[R2-2307426](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307426%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2307507](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307507%20Discussion%20on%20SL%20positioning.doc) Discussion on SL positioning Xiaomi discussion Rel-18

[R2-2307661](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307661.docx) Further considerations on sidelink positioning Intel Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2307778](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307778%20(7.2.2)%20SLPP%20design%20in%20session%20aspects.docx) SLPP design for session aspects Samsung Electronics Romania discussion

[R2-2307823](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307823-SL-POS-procedures-v0.docx) SL positioning procedures Apple discussion NR\_pos\_enh2

[R2-2308052](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308052%20Further%20discussion%20on%20sidelink%20positioning.docx) Further discussion on sidelink positioning OPPO discussion Rel-18 NR\_pos\_enh2

[R2-2308125](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308125%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning Spreadtrum Communications discussion Rel-18

[R2-2308138](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308138%20Discussion%20on%20sidelink%20positioning.docx) Discussion on sidelink positioning ZTE Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2308152](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308152_SL_Pos_Res.docx) Considerations on sidelink positioning resources Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2308276](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308276_SLPosDiscussion.docx) Discussion on SL Positioning Lenovo discussion Rel-18

[R2-2308284](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308284%20Bosch_Discussion_on_sidelink_positioning.docx) Discussion on sidelink positioning ROBERT BOSCH GmbH discussion Rel-18

[R2-2308316](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308316%20Considerations%20on%20Sidelink%20positioning.doc) Considerations on Sidelink positioning CMCC discussion Rel-18 NR\_pos\_enh2

[R2-2308384](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308384%20(R18%20NR%20POS%20A722%20SL%20POS).docx) Discussion on sidelink positioning InterDigital, Inc. discussion Rel-18 NR\_pos\_enh2

[R2-2308396](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308396_(Sidelink%20Positioning).docx) Sidelink Positioning Protocol (SLPP) Signaling and Procedures Qualcomm Incorporated discussion

[R2-2308416](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308416.docx) Pathological cases of network-based operation for sidelink positioning MediaTek Inc., CATT discussion Rel-18 NR\_pos\_enh2 R2-2307341

[R2-2308480](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308480%20Sidelink%20positioning.docx) Sidelink positioning Ericsson discussion Rel-18

[R2-2308557](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308557.docx) Discussion of resource allocation aspects Nokia Netherlands discussion

[R2-2308595](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308595%20Discussion%20on%20higher%20layer%20aspects%20for%20sidelink%20positioning.docx) Discussion on higher layer aspects for sidelink positioning LG Electronics Inc. discussion Rel-18

[R2-2308600](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308600%20Discussion%20on%20lower%20layer%20aspects%20for%20sidelink%20positioning.docx) Discussion on lower layer aspects for sidelink positioning LG Electronics Inc. discussion Rel-18

[R2-2308657](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308657%20Discussion%20on%20priority%20value%20for%20SL-PRS.doc) Discussion on priority value for SL-PRS Samsung Electronics Co., Ltd discussion Rel-18 NR\_pos\_enh2

[R2-2308800](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308800-Further%20Discussions%20on%20Sidelink%20Positioning%20and%20Ranging.docx)  Further Discussions on Sidelink Positioning & Ranging CEWiT discussion

[R2-2308884](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308884%20Discussion%20on%20Anchor%20UE%20discovery%20and%20selection%20in%20sidelink%20positioning.docx) Discussion on Anchor UE discovery and selection in sidelink positioning KT Corp. discussion Rel-18 NR\_pos\_enh2

[R2-2308908](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308908_On%20the%20selection%20of%20Anchor%20UEs%20for%20Sidelink%20Positioning.doc) On the selection of Anchor UEs for Sidelink Positioning Philips International B.V. discussion Rel-18 NR\_pos\_enh2

[R2-2308935](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308935%20SL%20pos%20server.docx) On the support of UE-only SL positioning in in-coverage and partial coverage scenarios Philips International B.V. discussion Rel-18 NR\_pos\_enh2

### 7.2.3 RAT-dependent integrity

Error modelling parameters, signalling, and procedures to support UE-based and LMF-based integrity of RAT-dependent positioning methods.

[R2-2308397](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308397_(integrity).docx) Integrity of NR Positioning Technologies Qualcomm Incorporated discussion

Proposal 1: The DNU flags are provided per TRP and per error contribution (e.g., TRP location, RTD, beam information, etc.) in a new IE NR-Integrity-ServiceAlert.

Proposal 2: DNU flags for TRP/UE positioning measurements are not needed.

Proposal 3: Analogous to GNSS, the mean and standard deviation of rate error bounds can optionally also be provided for the NR positioning error sources.

Proposal 4: The 'Integrity Correlation Times', defining the minimum time interval beyond which two sets of assistance data parameters for a given error can be considered to be independent from one another, can optionally be provided for the integrity assistance data.

Proposal 5: Confirm the Working Assumption: "It is left to LMF implementation to decide the measurement error source bound distribution based on the measurement results from UE and/or NG-RAN."

Proposal 6: The beam related information (Beam Bore-Sight Direction/Beam Antenna Information) are error sources for DL-AoD positioning.

[R2-2307393](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307393%20Discussion%20on%20RAT-Dependent%20integrity.docx) Discussion on RAT-Dependent integrity CATT discussion Rel-18 NR\_pos\_enh2

[R2-2307427](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307427%20Discussion%20on%20remaining%20issues%20for%20positioning%20integrity.docx) Remaining issues of RAT-dependent integrity vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2307664](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307664%20Integrity.docx) Further considerations on RAT dependent integrity Intel Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2307999](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307999%20Discussion%20on%20RAT-dependent%20integrity.doc) Discussion on RAT-dependent integrity Lenovo discussion Rel-18

[R2-2308050](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308050%20Consideration%20on%20RAT-dependent%20positioning%20integrity.docx) Consideration on RAT-dependent positioning integrity OPPO discussion Rel-18 NR\_pos\_enh2

[R2-2308136](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308136%20Discussion%20on%20RAT-dependent%20methods%20positioning%20integrity.docx) Discussion on RAT-dependent methods positioning integrity ZTE Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2308260](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308260%20Discussion%20on%20RAT-dependent%20positioning%20integrity.doc) Discussion on RAT-dependent positioning integrity Xiaomi discussion

[R2-2308482](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308482%20RAT%20dependent%20Integrity.docx) On RAT-dependent positioning Integrity Ericsson discussion Rel-18

[R2-2308616](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308616%20(R18%20NR%20POS%20A723%20RAT%20dependent%20integrity).doc) Discussion on RAT dependent integrity InterDigital, Inc. discussion Rel-18

### 7.2.4 LPHAP

Enhancements for enabling LPHAP use case 6 (TS 22.104), including extending eDRX cycle (coordinated with RedCap WI); SRS configuration enhancements based on validity area for UEs in RRC\_INACTIVE; DL-PRS measurements in RRC\_IDLE and reporting in RRC\_CONNECTED; and alignment between eDRX and PRS configurations.

Including report of [Post122][401][POS] SRS configuration and activation in LPHAP (CATT)

Email discussion summary

[R2-2308812](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308812%20Report%20of%20%5bPost122%5d%5b401%5d%5bPOS%5d%20SRS%20configuration%20and%20activation%20in%20LPHAP.docx) Report of [Post122][401][POS] SRS configuration and activation in LPHAP (CATT) CATT discussion Rel-18 NR\_pos\_enh2

Easy agreed:

SRS configuration request

Proposal 1: When the UE reselects out of the positioning validity area during SRS transmission, the UE may send an RRC message to the network for SRS configuration request. The SRS configuration request is sent in the RRC message RRCResumeRequest (18/18). RAN2 to confirm a new resume cause is introduced for the use case.

SRS activation/deactivation

Proposal 2-1: Periodic SRS is supported to be configured with validity area (18/18). And activation/deactivation is not required for periodic SRS (14/18).

Proposal 2-3: Aperiodic SRS is not supported to be configured with validity area (18/18). Send an LS to RAN1 to confirm this conclusion.

Preconfigured SRSs

Proposal 5: RAN2 no further consider providing pre-configured SRS via system information in Rel-18 (10/18).

Proposal 6: For the activation indication and/or request for preconfigured SRSs, RRCResumeRequest message is used (16/18). And 1 bit indication in the RRCResumeRequest is introduced for this use (12/16).

Proposal 7: The resume cause introduced for the SRS configuration request can be reused for the activation indication of the pre-configuration SRS (10/18).

Proposal 9: Sending the activation indication and/or requesting for preconfigured SRS using Msg1 is not supported (15/18).

Further discussed:

Configured UE-specific SRS

Proposal 2-2: RAN2 to further discuss whether semi-persistent SRS is supported to be configured with validity area (11/18), with considering the power consumption and whether legacy activation/deactivation mechanism can be reused for semi-persistent SRS.

Proposal 3: If semi-persistent SRS is supported to be configured with validity area, RAN2 agree to reuse legacy mechanism to deactivate the SP SRS (12/15).

Proposal 4: RAN2 postpone the discussion if there is an issue of blind monitoring by the network when UE sends periodic SRS.

Preconfigured SRSs

Proposal 8: RAN2 to clarify the concept of preconfigured SRS, including

- For the concept of pre-configured SRS, what SRS type can be supported? e.g., periodic SRS and SP SRS.

- Whether there should be only one SRS configuration for one validity area?

- Whether there is a need to support multiple validity areas for the same cell?

Agenda item summary (excluding items related to the email discussion)

[R2-2308959](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308959.docx) Summary for 7.2.4 LPHAP excluding SRS configuration & activation part OPPO discussion Rel-18 NR\_pos\_enh2

The following proposals are to be agreed (potentially long-time discussion is needed for proposal 2):

Proposal 1: RAN2 to agree that alignment of PRS to fixed (e)DRX should be adopted to ensure the alignment between PRS and (e)DRX.

Proposal 2: RAN2 to agree that both of UE-initialized and LMF-initialized on-demand PRS request procedure are adopted for the alignment from the PRS configuration to the (e)DRX configuration.

Proposal 6: RAN2 to agree that the PRS periodicity is extended to be larger than 10240ms to suit the eDRX cycle value for eDRX paging cycle in RRC\_INACTIVE and/or RRC\_IDLE. LS to RAN1 for confirmation of the feasibility.

Proposal 8: RAN2 to agree to support UE to utilize the positioning assistance data through posSIB or pre-configured assistance data in RRC\_CONNECTED when UE is to perform positioning in RRC\_IDLE.

Proposal 12: RAN2 to agree that the following criteria needs to be defined for the start/re-start of the area-specific TA timer:

 Reception of RRCRlease message containing the SRS configuration

Proposal 13: RAN2 to agree that following criteria needs to be defined for the stop of the area-specific TA timer (FFS other conditions):

 Reception of RRCResume message

 Reception of RRCSetup message

The following proposal is to be discussed:

Proposal 3: RAN2 to discuss whether following IEs are needed to be included or enhanced in the UE-initiated on-demand request message:

 to include the demanded PRS time offset associated with each requested PRS periodicity, to align with PO location>

 to include the demanded PRS time duration associated with each requested PRS periodicity, to align with PO location.

 to include more than one of the demanded PRS periodicities per PFL, to align with PO locations within and outside the PTW, respectively.

 to include requested DL-PRS activation periodicity/start offset/duration, to align with periodic PTW location.

 to include UE-related (e)DRX information and LPHAP indication

Proposal 4: RAN2 to discuss whether a LS needs to be sent to RAN3 to trigger them for discussion of how to align the PRS with the DRX of serving cell and/or neighbour cell.

Proposal 5: RAN2 to discuss whether it is needed to align the LPHAP UEs waking up time and if the answer is yes, FFS how.

Proposal 7: RAN2 to discuss that whether or not the UE shall only enter the sleep phase after the UE has received some form of feedback that the NW has obtained the UE position with the required accuracy. FFS: How the feedback is informed, via LPP or MAC-CE.

Proposal 9: RAN2 to discuss whether or not triggered event(s) should be defined for the positioning in the RRC\_IDLE state for the UE to transit to RRC\_Connected state for the measurement reporting. FFS what kind of triggered event should be introduced.

Proposal 10: RAN2 to discuss whether to introduce following two UE capabilities in the LPP and RRC spec, after more conclusions are made for SRS with validity area and SRS pre-configuration:

 supporting SRS with validity area in RRC\_INACTIVE

 supporting SRS pre-configuration in RRC\_INACTIVE

Proposal 11: RAN2 to discuss which option(s) to be adopted as the criteria to release the pre-configured SRS configuration:

 Network-initiated message:

 New TA timer to be introduced controlling how long the SRS resource is reserved for the UE within the validity area

 Area-specific TA timer expiration

 Reselection to other cell out of the SRS validity area

The following documents will not be individually treated

[R2-2307121](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307121%20Discussion%20on%20LPHAP_final.docx) Discussion on LPHAP Huawei, HiSilicon discussion Rel-18 NR\_pos\_enh2

[R2-2307186](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307186_LPHAP_Fraunhofer.docx) Enhancements for supporting LPHAP Fraunhofer IIS, Fraunhofer HHI discussion

[R2-2307394](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307394%20Discussion%20on%20SRS%20configuration%20with%20validity%20area%20and%20alignment%20between%20PRS%20and%20(e)DRX.docx) Discussion on SRS configuration with validity area and alignment between PRS and (e)DRX CATT discussion Rel-18 NR\_pos\_enh2

[R2-2307428](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307428_Discussion%20on%20solution%20of%20LPHAP.doc) Discussion on solution of LPHAP vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2307665](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307665%20LPHAP.docx) Further considerations on LPHAP Intel Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2307824](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307824-PRS-DRX-alignment-v1.docx) Alignment between DRX and PRS Apple discussion NR\_pos\_enh2

[R2-2308000](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308000%20Discussion%20on%20low%20power%20high%20accuracy%20positioning.doc) Discussion on low power high accuracy positioning Lenovo discussion Rel-18

[R2-2308051](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308051%20Discussion%20on%20LPHAP%20enhancement.docx) Discussion on LPHAP enhancement OPPO discussion Rel-18 NR\_pos\_enh2

[R2-2308126](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308126%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP Spreadtrum Communications discussion Rel-18

[R2-2308135](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308135%20Discussion%20on%20LPHAP.docx) Discussion on LPHAP ZTE Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2308153](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308153LPHAP.docx) Considerations on Low Power High Accuracy Positioning Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2308261](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308261%20Discussion%20on%20LPHA%20positioning.doc) Discussion on LPHA positioning Xiaomi discussion

[R2-2308317](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308317%20Further%20considerations on LPHAP.doc) Further considerations on LPHAP CMCC discussion Rel-18 NR\_pos\_enh2

[R2-2308398](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308398_(LPHAP).docx) Enhancements for LPHAP Qualcomm Incorporated discussion

[R2-2308481](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308481%20LPHAP.docx) Discussion on Low Power High Accuracy Positioning Ericsson discussion Rel-18

[R2-2308618](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308618%20(R18%20NR%20POS%20A724%20LPHAP).doc) Discussion on LPHAP InterDigital, Inc. discussion Rel-18

[R2-2308693](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308693_Discussion%20on%20alignment%20between%20(e)DRX%20and%20PRS.docx) Discussion on alignment between (e)DRX and PRS Samsung discussion Rel-18 NR\_pos\_enh2

[R2-2308694](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308694_Discussion%20on%20SRS%20configuration%20in%20RRC_INACTIVE.docx) Discussion on SRS configuration in RRC\_INACTIVE Samsung discussion Rel-18 NR\_pos\_enh2

### 7.2.5 RedCap positioning, carrier phase positioning, and bandwidth aggregation for positioning

RAN1 led objectives that may require progress in RAN1 before RAN2 can take decisions.

[R2-2308001](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308001%20Discussion%20on%20RedCap,%20carrier%20phase%20positioning%20and%20PRS,SRS%20bandwidth%20aggregation.doc) Discussion on RedCap positioning, carrier phase positioning and PRS/SRS bandwidth aggregation Lenovo discussion Rel-18

Redcap Positioning:

Proposal 1: LMF may request gNB to provide PRS FH configuration and then indicates the determined PRS FH configuration to UE by LPP ProvideAssistanceData message.

Proposal 2: LMF may request serving gNB to provide the SRS FH configuration with SRS configuration to UE and feedback the SRS FH configuration to LMF.

Proposal 3: UE performs hop switch or BWP switch autonomously according to the configuration from network.

Carrier phase positioning:

Proposal 4: UE indicates the support of carrier phase positioning in LPP ProvideCapabilities message, and further includes the support of RSCP or RSCPD measurement.

Proposal 5: The legacy LPP RequestLocationInformation and ProvideLocationInformation message for time-based positioning are enhanced to carry the CPP measurement configuration and CPP measurement reporting.

Proposal 6: For double differential CPP measurement, LMF indicates the time period of SRS transmission to the serving gNB of UE including target UE and PRU by enhancing current requested UL-SRS transmission characteristics information for UL positioning.

Proposal 7: For double differential CPP measurement, LMF indicates the time period for PRS measurement to target UE and PRU by LPP provide assistance data message.

PRS/SRS bandwidth aggregation:

Proposal 8: For DL PRS bandwidth aggregation across PFLs, RAN2 to consider following signalling enhancements:

− Include the joint measurement indication and the aggregated PRSs resource PRS sets IDs across PFLs in LPP RequestLocationInformation message.

− Include the PFL aggregation indication and the aggregated measurement results with PRS resource sets ID in LPP ProvideLocationInformation message.

Proposal 9: For UL SRS bandwidth aggregation across two or three carriers, the signalling enhancement between gNB and LMF to support the bandwidth aggregation indication should be confirmed with RAN3.

P2/P3/P4 provided for reference in discussion of the previous document (cf. P6/P7 above)

[R2-2307395](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307395%20Discussion%20on%20carrier%20phase%20positioning,%20bandwidth%20aggregation%20for%20positioning%20and%20Redcap%20positioning.docx) Discussion on carrier phase positioning, bandwidth aggregation for positioning and Redcap positioning CATT discussion Rel-18 NR\_pos\_enh2

Proposal 2: To enable simultaneous transmission of UL SRS and measurement of target UE and a PRU which are agreed in RAN1, there are impacts on RRC and NRPPa, including:

-RRC: gNB configure the transmission of the UL SRS resources within indicated time window(s);

-NRPPa: LMF request serving gNB of a UE to configure the transmission time window(s). LMF request the serving gNB and neighboring gNBs of the UE to measure the UL SRS resources from the UE within indicated time window(s).

Proposal 3: To enable simultaneous measurements on same DL PRS by a target UE and a PRU which are agreed in RAN1, there are impacts on LPP: LMF request the UEs to perform measurements within indicated time window(s).

Proposal 4: RAN2 to provide assistance data which is DL carrier phase measurement reported by a PRU to a target UE for UE-based carrier phase positioning which is agreed in RAN1.

[R2-2307429](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307429%20RAN2-related%20issues%20about%20bandwidth%20aggregation.docx) RAN2-related issues about bandwidth aggregation vivo discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2307455](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307455%20Discussion%20on%20RAN1%20led%20positioning%20topics.docx) Discussion on RAN1 led positioning topics Huawei, HiSilicon discussion

[R2-2307666](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307666%20RAN1%20led%20items.docx) Considerations on other RAN1 led items Intel Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2307827](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307827-on-demand-prs-aggregation-v0.docx) On-demand PRS with bandwidth aggregation Apple discussion NR\_pos\_enh2

[R2-2308137](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308137%20Discussion%20on%20BW%20aggregation%20and%20RedCap%20positioning.docx) Discussion on BW aggregation and RedCap positioning ZTE Corporation discussion Rel-18 NR\_pos\_enh2

[R2-2308174](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308174%20RedCap%20Positioning.docx) Discussion on Frequency hopping for Positioning for RedCap Ues Sony discussion Rel-18 FS\_NR\_pos\_enh2

[R2-2308262](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308262%20Discussion%20on%20RedCap%20positioning,%20carrier%20phase%20positioning%20and%20bandwidth%20aggregation%20for%20positioning.doc) Discussion on RedCap positioning, carrier phase positioning and bandwidth aggregation for positioning Xiaomi discussion

[R2-2308399](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308399_(PRS%20Aggregation).docx) Configuration Enhancements for DL-PRS Aggregation Qualcomm Incorporated discussion

[R2-2308483](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308483%20RedCap.docx) Discussion based upon RAN1 agreements on CPP, RedCap, Bandwidth aggregation Ericsson discussion Rel-18

[R2-2308619](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308619%20(R18%20NR%20POS%20A725%20Others).doc) Discussion on positioning for RedCap positioning, carrier phase positioning, and bandwidth aggregation for positioning InterDigital, Inc. discussion Rel-18

[R2-2308761](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308761%20Carrier%20Phase%20Positioning.docx) Assessment of impact of carrier phase positioning on higher layer protocols Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_pos\_enh2-Core]

## 7.9 Enhanced NR Sidelink Relay

(NR\_SL\_relay\_enh-Core; leading WG: RAN2; REL-18; WID: RP-223501)

Time budget: 1.5 TU

Tdoc Limitation: 4 tdocs

### 7.9.1 Organizational

Including incoming LSs and rapporteur inputs.

Incoming LSs with “take into account” action

[R2-2307057](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307057_S2-2307707.docx) Reply LS to SA2 on authorization for multi-path Scenario 2 (S2-2307707; contact: LGE) SA2 LS in Rel-18 NR\_SL\_relay\_enh, 5G\_ProSe\_Ph2 To:RAN2 Cc:RAN3

[R2-2307072](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307072_S3-233323.docx) Reply LS on security for L2 UE-to-UE relay (S3-233323; contact: Lenovo) SA3 LS in Rel-18 NR\_SL\_relay\_enh, FS\_5G\_ProSe\_Ph2 To:RAN2

Other incoming LS

[R2-2307055](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307055_S2-2305915.doc) Reply LS on 5G ProSe Layer-2 UE-to-UE Relay QoS enforcement (S2-2305915; contact: Qualcomm) SA2 LS in Rel-18 5G\_ProSe\_Ph2 To:RAN2

Running CRs and related documents

[R2-2307235](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\38351_CRyyyy_(REL-18)_R2-2307235_Running%20CR%20of%20TS%2038.351%20for%20SL%20Relay%20enhancement.docx) Running CR of TS 38.351 for SL Relay enhancement OPPO draftCR Rel-18 38.351 17.5.0 B NR\_SL\_relay\_enh-Core

* [AT123][411][Relay] Rel-18 SRAP CR (OPPO)

Scope: Collect comments on the CR in R2-2307235 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2307546](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307546_Introduction%20of%20NR%20sidelink%20U2U%20relay.docx) Introduction of NR sidelink U2U relay vivo draftCR Rel-18 38.331 17.5.0 B NR\_SL\_relay\_enh-Core

* [AT123][412][Relay] Rel-18 RRC CR on U2U relay (vivo)

Scope: Collect comments on the CR in R2-2307546 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2307720](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307720.docx) 38.322 running CR for enhanced NR sidelink relay Xiaomi draftCR Rel-18 38.322 17.3.0 B NR\_SL\_relay\_enh-Core

* [AT123][413][Relay] Rel-18 relay RLC CR (Xiaomi)

Scope: Collect comments on the CR in R2-2307720 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2307854](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307854%20Draft%20running%20CR%2038.321.docx) Draft Running CR 38.321 Apple draftCR Rel-18 38.321 17.5.0 B NR\_SL\_relay\_enh-Core

* [AT123][414][Relay] Rel-18 relay MAC CR (Apple)

Scope: Collect comments on the CR in R2-2307854 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2307920](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307920_38.300_DraftCR.docx) Draft running CR 38.300 LG Electronics Inc. draftCR Rel-18 38.300 17.5.0 B NR\_SL\_relay\_enh-Core

* [AT123][415][Relay] Rel-18 relay stage 2 CR (LG)

Scope: Collect comments on the CR in R2-2307920 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2308203](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308203%20RRC%20running%20CR%20for%20Rel-18%20multi-path%20support.docx) RRC running CR for Rel-18 multi-path support Huawei, HiSilicon draftCR Rel-18 38.331 17.5.0 B NR\_SL\_relay\_enh-Core

[R2-2308204](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308204%20Considerations%20on%20Multi-path%20RRC%20running%20CR.docx) Considerations on Multi-path RRC running CR Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

* [AT123][416][Relay] Rel-18 RRC CR on multi-path relay (Huawei)

Scope: Collect comments on the CR in R2-2308203 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2308559](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308559%20-%2038.304_draftCR(Rel-18)_Introduction%20of%20Rel-18%20support%20for%20SL%20Relay%20Enhancements.docx) Introduction of Rel-18 support for SL Relay Enhancements Ericsson España S.A. draftCR Rel-18 38.304 17.5.0 B NR\_SL\_relay\_enh

* [AT123][417][Relay] Rel-18 relay idle mode CR (Ericsson)

Scope: Collect comments on the CR in R2-2308559 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

[R2-2308687](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308687_38331_CR%234277_Rel-18_SL_relay_service_continuity.docx) Introduction of Rel-18 SL relay service continuity MediaTek, Inc CR Rel-18 38.331 17.5.0 4277 - B NR\_SL\_relay\_enh-Core

* [AT123][418][Relay] Rel-18 RRC CR on relay service continuity (MediaTek)

Scope: Collect comments on the CR in R2-2308687 and produce an endorsable version.

Intended outcome: Endorsable CR

Deadline: Thursday 2023-08-24 2000 UTC

### 7.9.2 UE-to-UE relay

Single-hop Layer-2 and Layer-3 UE-to-UE relay for unicast. Including common L2/L3 functionality comprising relay discovery and (re)selection and L2-specific functionality including adaptation layer design, control plane procedures, and QoS handling if needed.

Agenda item summary

R2-2308956 Summary of UE-to-UE relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

* [AT123][401][Relay] Summary proposals on UE-to-UE relay (Qualcomm)

Scope: Discuss the proposals in R2-2308956 and progress towards agreements.

Intended outcome: Report to Wednesday online session in R2-2309101

Deadline: Tuesday 2023-08-22 2000 UTC

R2-2309101 (Report of [AT123][4101]) Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

The following documents will not be individually treated

[R2-2307233](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307233%20-%20Discussion%20on%20U2U%20Relay.docx) Discussion on U2U relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307386](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307386_Discussion%20on%20remaining%20issue%20of%20U2U%20relay.docx) Discussion on remaining issue of U2U relay NEC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307402](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307402%20Discussion%20on%20the%20adaptation%20layer.doc) Discussion on the adaptation layer Fujitsu discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307446](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307446.doc) Discussion on U2U relay Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307547](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307547_Remaining%20issues%20on%20U2U%20discovery%20and%20relay%20(re)selection.docx) Remaining issues on U2U discovery and relay (re)selection vivo discussion

[R2-2307548](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307548_%20Discussion%20on%20the%20remaining%20issues%20of%20L2%20U2U%20relaying.docx) Discussion on the remaining issues of L2 U2U relaying vivo discussion

[R2-2307551](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307551%20Disussion%20on%20U2U%20Relay.docx) Discussion on U2U Relay CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307641](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307641.docx) U2U Relay selection reselection, SRAP design Beijing Xiaomi Mobile Software discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307655](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307655_FhG_SL-Relay_ShortID.docx) Discussion on using short ID in U2U relaying Fraunhofer IIS, Fraunhofer HHI discussion Rel-18 NR\_SL\_relay\_enh

[R2-2307716](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307716%20Discussion%20on%20U2U%20relay.docx) Discussion on U2U relay TCL discussion

[R2-2307732](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307732%20QoS%20and%20bearer%20configuration%20for%20L2%20U2U%20relaying.doc) QoS and bearer configuration for L2 U2U relaying Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307742](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307742-common%20part%20and%20Layer-2%20specific%20part%20on%20U2U%20Relay.docx) Common part and Layer-2 specific part on U2U Relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2307743](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307743-gNB%20involvement%20on%20U2U%20relay.docx) gNB involvement and capability on U2U relay Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2307750](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307750_U2U_relay.docx) Considerations for U2U L2 relay operations Kyocera discussion Rel-18

[R2-2307855](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307855%20Discussion%20on%20U2U%20relay%20issues.doc) Discussion on remaining issues on UE-to-UE Relay Apple discussion Rel-18

[R2-2307932](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307932-Control%20plane%20procedure%20for%20U2U%20relay.docx) Control plane procedure for U2U relay LG Electronics Inc. discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307944](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307944+Further%20discussion%20on%20L2%20U2U%20relay.doc) Further discussion on L2 U2U relay China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307989](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307989%20Discussion%20on%20L2%20U2U%20relay%20v1.0.docx) Discussion on L2 U2U relay Lenovo discussion Rel-18

[R2-2308100](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308100_Discussion%20on%20U2U%20Relay%20discovery%20and%20(re)selection.doc) Discussion on U2U Relay discovery and (re)selection ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308101](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308101_Discussion%20on%20U2U%20relay%20L2%20specific%20functionality.doc) Discussion on U2U relay L2-specific functionality ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308104](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308104%20SRAP%20design%20for%20U2U%20sidelink%20relay_final.doc) SRAP design for U2U Sidelink Relay Samsung discussion

[R2-2308119](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308119%20Discussion%20on%20UE-to-UE%20relay.doc) Discussion on UE-to-UE Relay Spreadtrum Communications discussion Rel-18

[R2-2308160](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308160.doc) UE-to-UE relay (re)selection Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2308161](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308161.docx) Discussion on DRX for Sidelink UE to UE Relay Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2308205](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308205%20Discussion%20on%20UE-to-UE%20relay.doc) Discussion on UE-to-UE relay Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308220](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308220-Remaining_issues_of_UE-to-UE_relay.doc) Remaining issues for UE-to-UE relay Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308321](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308321%20Discussion%20on%20U2U%20relay.docx) Discussion on U2U relay CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308368](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308368%20Considerations%20on%20U2U%20relay%20(re)selection%20and%20Local%20ID%20assignment.docx) Considerations on U2U relay (re)selection and Local ID assignment Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh-Core R2-2305590

[R2-2308380](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308380%20(R18%20SL%20Relay%20WI_AI792%20U2U%20Relays_Open).doc) Open Issues on Discovery, Relay Selection, and SRAP for UE to UE Relays InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308381](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308381%20(R18%20SL%20Relay%20WI_AI792%20U2U%20Relay_QoS).doc) QoS and Configuration for L2 UE-to-UE Relays InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308469](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308469_Discussion_on_Relay_reselection_Discovery.docx) Discussion on Relay (re)selection and Discovery Ericsson España S.A. discussion Rel-18

[R2-2308470](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308470_Control_Plane_Procedures_for_L2_U2U_relays.docx) Control Plane Procedures for Layer 2 UE-to-UE Relays Ericsson España S.A. discussion Rel-18

[R2-2308611](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308611-Discussion%20on%20Adaptation%20Layer%20for%20L2%20U2U%20Relay.doc) Discussion on Adaptation Layer for L2 U2U Relay ETRI discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308721](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308721%20Discussion%20on%20E2E%20PC5-RRC%20procedures.docx) Discussion on E2E PC5-RRC procedures ASUSTeK discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308722](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308722%20Discussion%20on%20AS%20layer%20configuration%20for%20L2%20U2U%20Relay.docx) Discussion on AS layer configuration for L2 U2U Relay ASUSTeK discussion Rel-18 NR\_SL\_relay\_enh-Core

### 7.9.3 Service continuity enhancements for L2 UE-to-network relay

Inter-gNB direct/indirect path switching; intra-gNB indirect/indirect path switching; and inter-gNB indirect/indirect path switching, to be supported by reuse of solutions for the other scenarios.

[R2-2307945](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307945_Discussion%20on%20the%20procedure%20for%20intra-gNB%20indirect%20to%20indirect%20path%20switch.docx) Discussion on the procedure for intra-gNB indirect to indirect path switch China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307226](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307226.docx) Discussion on service continuity enhancement Xiaomi discussion

[R2-2307281](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307281%20SL%20Relay%20Service%20Continuity.docx) SL Relay service continuity considerations Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307549](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307549_Remaining%20issues%20on%20service%20continuity%20enhancement%20for%20L2%20U2N%20relay.docx) Remaining issues on service continuity enhancement for L2 U2N relay vivo discussion

[R2-2307552](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307552%20Further%20Consideration%20on%20Service%20Continuity%20Enhancements.docx) Further Consideration on Service Continuity Enhancements CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307733](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307733%20Discussion%20on%20measurement%20quantity%20configuration.doc) Discussion on measurement quantity configuration Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307744](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307744-Service%20continuity.docx) Proposal on additional enhancements for service continuity Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2307856](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307856%20path%20switching%20to%20IDLE%20or%20INACTIVE%20relay%20UE.doc) Discussion on path switching to IDLE/INACTIVE relay Apple discussion Rel-18

[R2-2307940](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307940_Discussion%20on%20Remaining%20Issues%20of%20Service%20Continuity.docx) Discussion on Remaining Issues of Service Continuity NEC Corporation discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307990](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307990%20Discussion%20on%20enhanced%20path%20switching%20v2.0.docx) Discussion on enhanced path switching Lenovo discussion Rel-18

[R2-2308102](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308102_Further%20discussion%20on%20service%20continuity%20for%20SL%20relay.doc) Further discussion on service continuity for SL relay ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308162](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308162.doc) Service continuity enhancements for UE sidelink relay Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2308221](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308221-Remaining_issues_for_U2N_path_switching.doc) Remaining issues for U2N path switching Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308322](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308322%20Discussion%20on%20service%20continuity.docx) Discussion on service continuity CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308471](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308471_Discussion_on_Inter_gNB_Service_Continuity.docx) Discussion on Inter-gNB Service Continuity Ericsson España S.A. discussion Rel-18

[R2-2308584](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308584%20Discussion%20on%20service%20continuity.docx) Discussion on Service Continuity Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

### 7.9.4 Multi-path relaying

Mechanisms to support multi-path scenarios where a UE is connected to the same gNB using one direct path and one indirect path via 1) Layer-2 UE-to-Network relay, or 2) via another UE (where the UE-UE inter-connection is assumed to be ideal). This agenda item will include a rapporteur contribution summarising open issues from RAN2#121 (invited contribution not counted against the tdoc limit).

Including report of [Post122][403][Relay] Procedures for multi-path relay (LG)

Email discussion summary

[R2-2307973](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307973%20Report%20of%20%5bPost122%5d%5b403%5d%5bRelay%5d.doc) Report of [AT121bis-e][419][Relay] Remaining high-priority proposals on multi-path (LG) LG Electronics France report Rel-18 NR\_SL\_relay\_enh

* Revised in R2-2308950 (title correction)

[R2-2308950](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308950%20Report%20of%20%5bPost122%5d%5b403%5d%5bRelay%5d.doc) Report of [Post122][403][Relay] Procedures for multi-path relay (LG) LG Electronics France report Rel-18 NR\_SL\_relay\_enh

Proposal 1: Consider the above updated procedures (except direct/indirect path change in Scenario 2) and FFS issues as a baseline and future work.

Proposal 2: RAN2 is requested to include at least the following updated procedures in the running CR to 38.300, possibly with corrections and additional inputs.

 For Scenario 1

 Direct path addition in section 1.1

 Indirect path addition in section 1.2

 For Scenario 2

 Indirect path addition in section 2.1

Proposal 3: RAN2 is requested to discuss whether to include the following updated procedures in the running CR to 38.300, possibly with corrections and additional inputs.

 For Scenario 1

 Direct path change in section 1.3

 Indirect path change in section 1.4

 Direct path release in section 1.7

 Indirect path release in section 1.8

 For Scenario 2

 Indirect path release in section 2.6

Agenda item summary (excluding items related to the email discussion)

[R2-2308949](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308949%20%5bPre123%5d%5b405%5d%5bRelay%5d%20Summary%20of%20AI%207.9.4%20on%20Multi-path%20relay.docx) Offline 402 on A.I 7.9.4 Multi-path relaying Nokia discussion NR\_SL\_relay\_enh-Core

Proposals for agreement

Proposal 1-1: RAN2 confirm the working assumption below:

For Scenario-1/2, MP remote UE is configured with a single cell group, i.e., MCG, for the direct path, and SL configuration, for the indirect path.

For scenario 1, primary path of the split SRB1 and SRB2 is always configured on direct path. And UE switches the primary path to the indirect path for reporting after direct path failure, and this switching is limited to the case where duplication is not configured as in legacy.

For Scenario 2, leave it to relay and remote UE implementation on how to trigger the RRC\_IDLE/RRC\_INACTIVE target relay UE to initiate RRC connection establishment procedure.

Proposal 2.1: For scenario 1, non-split SRB on the indirect path is not supported.

Proposal 4.1.1: T304 timer is reused for the direct path addition/change.

Proposal 4.1.2: Start/stop condition of T304 for direct path addition/change will be discussed after the signalling procedure for direct path addition/change is concluded.

Proposal 4.2.1: The T420 timer is reused for the indirect path addition/change.

Proposal 4.2.2: The T420 timer starts when RRCReconfiguration message for the indirect path addition/change procedure is received.

Proposal 6.1: Support of case G in scenario 2 is deprioritized.

Proposal 7.4: In packet duplication, the PDCP entity shall not indicate to the Uu RLC entity to discard the PDCP PDU when the PC5 RLC entity acknowledges the transmission of the PDCP PDU. FFS for the case where Uu RLC entity acknowledges the transmission of a PDCP PDU.

Proposal 8: RAN2 deprioritize the discussion on path/flow control.

Proposals for discussion

Easily agreeable:

Proposal 2.2: RAN2 discuss whether different bearer type can be configured for SRB1 and SRB2.

Proposal 2.3: RAN2 discuss whether the primary path of the split DRB can be set to either the direct path or the indirect path, or is fixed to the direct path as split SRB.

Proposal 4.3.2: Discuss whether a new T420-like timer is defined or the existing T420 timer is reused for the indirect path addition/release.

Proposal 7.3: RAN2 discuss whether LCH-to-carrier restriction is not required for packet duplication over sidelink multi-path.

Need more discussion:

Proposal 3.1: RAN2 discuss whether additional information such as measurement result, OoC indication, buffer information, can be included in MCGFailureInformation when reporting the direct path failure.

Proposal 3.2: For scenario 1 and 2, RAN2 discuss which message is used for report of indirect path failure from 1) MCGFailureInformation, 2) SidelinkUEInformationNR, and 3) a new message.

Proposal 3.3.1: RAN2 discuss whether failure detection on the existing path while additional path addition is an issue to be resolved. FFS how to resolve it if RAN2 agree to resolve it.

Proposal 3.3.2: RAN2 discuss whether the gNB can configure a condition not to report the RLF.

Proposal 4.1.3: For the expiry of the new T304-like timer, RAN2 discuss the followings:

- In which condition the UE reports the failure of the direct path addition/change

- In which condition the UE reverts to the prior path operation

- In which condition the UE initiates RRC connection re-establishment

Proposal 4.2.3: For the stop of the T420 timer, RAN2 discuss the following options:

- Option 1. Reuse T420 condition, i.e., upon successful sending of RRCReconfigurationComplete message

- Option 2. When PC5-RRC connection establishment is completed

- Option 3. When relay UE is successfully connected to the gNB

- Option 4. When PC5-RRC connection establishment completes, and relay UE is successfully connected to the gNB

Proposal 4.2.4: For the expiry of the T420 timer, Ran2 discuss the followings:

- In which condition the UE reports the failure of the indirect path addition/change

- Whether or if yes, in which condition the UE reverts to the prior path operation

- In which condition the UE initiates RRC connection re-establishment

- Whether additional information needs to be reported to the gNB

Proposal 4.3: RAN2 discuss whether the existing measurement events are sufficient for path addition/change/removal in multi-path operation. If not, discuss what events need to be introduced.

Proposal 5: When the remote UE receives notification message indication relay UE’s handover, RAN2 discuss two options:

1) to rely on network to release configuration of relay UE at remote UE before relay UE handover

2) rely on remote UE to suspend the indirect path upon reception of notification message indicating relay UE handover

Proposal 6.2: RAN2 discuss whether the remote UE reports the RRC\_IDLE and RRC\_INACTIVE relay UE’s ID, and if so, which ID is used.

Proposal 7.1: RAN2 discuss the followings:

1) Whether CA duplication is applied to the direct path of the remote UE. If yes, what is the maximum number of RLC entities over the direct path of the remote UE?

2) Whether CA duplication is applied to the Uu link of the relay UE. If yes, FFS any impact on the specification.

Proposal 7.2: RAN2 discuss how the duplication is activated/deactivated to a certain RLC entity when the remote UE receives the Duplication A/D MAC CE or Duplication RLC A/D MAC CE using a single MAC entity.

Proposal 9: RAN2 discuss if any issue needs to be discussed/resolved for BSR operation by focusing on essential issues from operation perspective than enhancement.

The following documents will not be individually treated

[R2-2307093](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307093%20-%20Discussion%20on%20multi-path%20Relay_V02.docx) Discussion on multi-path SL relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307182](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307182%20Discussion%20on%20Multi-path%20relaying.docx) Discussion on Multi-path relaying Lenovo discussion NR\_SL\_relay\_enh-Core

[R2-2307227](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307227.docx) Discussion on multi-path Xiaomi discussion

[R2-2307363](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307363%20-%20Discussion%20on%20non-split%20SRB.docx) Discussion on non-split SRB OPPO, Samsung, China Telecom, Huawei, HiSilicon, Ericsson, vivo, CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307387](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307387%20Discussion%20on%20remaining%20CP%20issue%20of%20U2N%20multi-path%20relay.docx) Discussion on remaining issue of multi-path relay NEC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307403](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307403%20Discussions%20on%20Multi-path.docx) Discussions on multi-path Fujitsu discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307550](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307550_Remaining%20Issues%20for%20Multi-path%20Scenario%201%202.docx) Remaining Issues for Multi-path Scenario 1 2 vivo discussion

[R2-2307553](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307553%20Discussion%20on%20Multi-path.docx) Discussion on Multi-path CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307656](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307656_FhG_SL-Relay_Throughput_Enhancements.docx) Throughput Enhancement in U2N Relaying Fraunhofer IIS, Fraunhofer HHI discussion Rel-18 NR\_SL\_relay\_enh

[R2-2307719](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307719_Discussion%20on%20multi-path%20scenario%201_III.docx) Discussion on multi-path scenario 1 III discussion NR\_SL\_relay\_enh-Core

[R2-2307745](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307745-open%20issues%20for%20MP%20relay.docx) Open issues on multi-path relay for scenario 1 and scenario 2 Qualcomm Incorporated discussion NR\_SL\_relay\_enh-Core

[R2-2307751](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307751_multipath_relay.docx) Considerations for multipath relay operations for Scenario 1 Kyocera discussion Rel-18

[R2-2307857](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307857%20Discussion%20on%20Multi-path.doc) Discussion on Multi-path Relay Apple discussion Rel-18

[R2-2307941](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307941_Discussion%20on%20UP%20Issues%20of%20Multi-path%20Relaying.docx) Discussion on UP Issues of Multi-path relay NEC Corporation discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307946](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307946%20Discussion%20on%20remaining%20issues%20of%20multi-path%20relaying%20in%20scenario%201.docx) Discussion on remaining issues of multi-path relaying in Scenario 1 China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307947](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307947%20Discussion%20on%20remaining%20issues%20of%20multi-path%20relaying%20in%20scenario%202.docx) Discussion on remaining issues of multi-path relaying in Scenario 2 China Telecom discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307991](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307991%20Procedure%20for%20second%20path%20addition%20v1.0.docx) Procedure for second path addition Lenovo discussion Rel-18

[R2-2308103](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308103%20Further%20discussion%20on%20the%20support%20of%20multi-path%20relaying.docx) Further discussion on the support of multi-path relaying ZTE, Sanechips discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308120](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308120%20Discussion%20on%20multi-path%20relaying.doc) Discussion on multi-path relaying Spreadtrum Communications discussion Rel-18

[R2-2308163](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308163.doc) Multi-path relaying discussion Sony discussion Rel-18 NR\_SL\_relay\_enh

[R2-2308206](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308206%20Remaining%20issues%20on%20multi-path%20operation.docx) Remaining issues on multi-path operation Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308222](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308222-Remaining_issues_for_multi-path_relay.doc) Remaining issues for multi-path relay Sharp discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308224](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308224_SLRelay_v1.2.docx) Discussion on remaining issues on multiple path for sidelink relay Samsung discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308323](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308323%20Discussion%20on%20multi-path%20scenario%201.docx) Discussion on multi-path scenario 1 CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308324](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308324%20Considerations%20on%20multi-path%20scenario%202.docx) Considerations on multi-path scenario 2 CMCC discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308382](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308382%20(R18%20SL%20Relay%20WI_AI794%20MultipathAspects_UP).doc) User Plane Aspects for Multipath InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308383](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308383%20(R18%20SL%20Relay%20WI_AI794%20MultipathAspects_CP).doc) Control Plane Aspects for Multipath InterDigital discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308472](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308472_Discussion_on_multipath%20relays.docx) Discussion on Multipath Relays Ericsson España S.A. discussion Rel-18

[R2-2308723](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308723%20BSR%20reporting%20for%20Multi-path%20Scenario%202.docx) BSR reporting for Multi-path Scenario 2 ASUSTeK discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308724](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308724%20Discussion%20on%20duplicate%20PDCP%20PDU%20discarding%20for%20Multi-path%20transmission%20Scenario%201.docx) Discussion on duplicate PDCP PDU discarding for Multi-path transmission Scenario 1 ASUSTeK discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308749](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308749%20Multipath%20SL%20relay.docx) On Remaining issues on multipath SL relay Nokia, Nokia Shanghai Bell discussion NR\_SL\_relay\_enh-Core

### 7.9.5 DRX

Study the gains and, if needed, specify signalling between gNB and relay UE in sidelink mode 2 to assist the determination of the sidelink DRX configuration used for remote UE. This agenda item will be handled at lower priority.

[R2-2307228](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307228.docx) Discussion on SL DRX in U2N relay Xiaomi discussion

[R2-2307234](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307234%20-%20Discussion%20on%20DRX%20for%20L2%20U2N%20relay.docx) Discussion on DRX for L2 U2N relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307554](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307554%20Discussion%20on%20DRX%20for%20L2%20U2N%20Relay.docx) Discussion on DRX for L2 U2N Relay CATT discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2307858](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307858%20Discussion%20on%20SL-DRX.doc) Discussion on SL DRX for L2 UE-to-NW relay Apple discussion Rel-18 R2-2305065

[R2-2308207](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308207%20Discussion%20on%20sidelink%20DRX%20for%20L2%20U2N%20relay.doc) Discussion on sidelink DRX for L2 U2N relay Huawei, HiSilicon discussion Rel-18 NR\_SL\_relay\_enh-Core

[R2-2308369](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308369%20Considerations%20on%20paging%20and%20DRX%20for%20sidelink%20relay.docx) Considerations on DRX and paging for sidelink relay Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_SL\_relay\_enh-Core R2-2305592

## 7.24 NR TEI18

Specific items may be allocated to a breakout session for treatment.

Time budget: 1 TU

### 7.24.1 TEI proposals by Other Groups

Items initiated by other groups that is/has been communicated by LS, where the other group indicate this is TEI18. (Specific other-group-WIs should use the R18 Other Agenda Item below).

[R2-2307009](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307009_R1-2306212.doc) LS on 1-symbol PRS (R1-2306212; contact: ZTE) RAN1 LS in Rel-18 TEI18 To:RAN2 Cc:RAN3, RAN4

[R2-2308140](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308140%20Introduction%20of%201-symbol%20PRS%20in%2038.331%5b1symbol_PRS%5d.docx) Introduction of 1-symbol PRS in 38.331[1symbol\_PRS] ZTE Corporation CR Rel-18 38.331 17.5.0 4014 3 B TEI18 R2-2306793

* Agreed in principle with alignment of the terminology to the ASN.1 names

[R2-2308141](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308141%20Introduction%20of%201-symbol%20PRS%20in%2037.355%5b1symbol_PRS%5d.docx) Introduction of 1-symbol PRS in 37.355[1symbol\_PRS] ZTE Corporation CR Rel-18 37.355 17.5.0 0437 3 B TEI18 R2-2306794

* Agreed in principle (to be merged into a single LPP CR)

[R2-2308142](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308142%20Introduction%20of%20UE%20capability%20of%201-symbol%20PRS%20in%2037.355%5b1symbol_PRS%5d.docx) Introduction of UE capability of 1-symbol PRS in 37.355[1symbol\_PRS] ZTE Corporation CR Rel-18 37.355 17.5.0 0453 2 B TEI18 R2-2306795

* Agreed in principle (to be merged into a single LPP CR)

[R2-2308143](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308143%20Introduction%20of%20UE%20capability%20of%201-symbol%20PRS%20in%2038.331%5b1symbol_PRS%5d.docx) Introduction of UE capability of 1-symbol PRS in 38.331[1symbol\_PRS] ZTE Corporation CR Rel-18 38.331 17.5.0 4128 2 B TEI18 R2-2306796

* Endorsed to be merged into mega CR

[R2-2308144](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308144%20Introduction%20of%20UE%20capability%20of%201-symbol%20PRS%20in%2038.306%5b1symbol_PRS%5d.docx) Introduction of UE capability of 1-symbol PRS in 38.306[1symbol\_PRS] ZTE Corporation CR Rel-18 38.306 17.5.0 0923 2 B TEI18 R2-2306797

* Endorsed to be merged into mega CR

Discussion:

Huawei are fine with the proposals, but they wonder if the LPP CR needs to be split.

ZTE think separate CRs for functionality and capabilities are cleaner.

Ericsson think we should have one LPP CR. Qualcomm agree and think the CR can be self-contained.

Lenovo think a merged CR is OK. On the RRC CR, they suggest replacing “Type C” and “Type C+D” with the ASN.1 names.

CATT think there is a coversheet issue: The CR numbers for the other specs should be included in the coversheets. Qualcomm think there is no functional interaction between them and we do not need the cross-reference.

### 7.24.2 TEI proposals by RAN2

Items initiated in RAN2.

Tdoc limitation: 1 tdoc, limitation only applicable for non-previously-agreed-to-be-considered TEI proposals.

Relay: paging cause forwarding [previously seen]

[R2-2307176](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307176_Paging%20Cause%20forwarding.doc) Paging Cause forwarding Samsung Electronics Co., Ltd discussion Rel-18 TEI18

[R2-2307694](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307694_Discussion%20on%20MUSIM%20paging%20cause%20forwarding.docx) Discussion on MUSIM paging cause forwarding vivo discussion Rel-18

Relay: emergency cause value [previously seen]

[R2-2307237](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307237%20-%20Discussion%20on%20emergency%20cause%20value%20for%20SL%20Relay.docx) Discussion on emergency cause value for SL Relay OPPO discussion Rel-18 NR\_SL\_relay\_enh-Core, TEI18

Relay: voice/video support [previously seen]

[R2-2308932](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308932_Considerations%20on%20voice%20and%20video%20support%20for%20Relays.docx) Considerations on voice and video support for Relays Philips International B.V., FirstNet, InterDigital, KPN, TNO, discussion Rel-18 R2-2306516

Positioning: multiple QoS [previously seen]

[R2-2307342](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307342.docx) Multiple QoS for positioning MediaTek Inc. discussion Rel-18 TEI18

* Noted

[R2-2308830](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308830%20(7.24.2)%20multiple%20QoS%20handling%20in%20POS%20TEI%2018.docx) Introduction of ‘multiple QoS’ class in positioning Samsung Electronics Romania discussion

* Noted

Proposal 1. When LMF receives the service request with multipleQoS class from LCS client, multiple set of (H-/V-) accuracy values per QoS level same as LMF received from LCS client can be indicated to LPP location information request procedure.

Proposal 2. If UE receives LPP Request Location Information including multiple QoS, UE should evaluate whether the obtained location estimate fulfils the accompanied accuracy requirements for all the given QoS.

Proposal 3. Once the measured result/ location estimate fulfils any accuracy requirements among indicated ones, UE should report the measurement result/location estimate with the indication of the highest preferred accuracy values among fulfilled ones.

Proposal 4. This proposed operation is only applicable to the UE-based positioning.

Discussion:

Qualcomm indicate they checked the SA2 specs and confirmed that the multiple QoS is supported only for deferred MT-LR, which does not affect LPP, so they do not see interaction of the feature with LPP. They understand that the network will try multiple times, typically with different positioning methods.

vivo agree with Qualcomm; the proposal indicates that it derives from SA2, but SA2 specified that the multiple QoS feature is realised through multiple location requests.

MediaTek are concerned that there could be a “lazy UE” problem where the UE only meets the loosest QoS, and agree that SA2 did not put a UE requirement.

Samsung agree that there is no explicit requirement from SA2, but they see that the proposal can reduce LPP signalling overhead. On the “lazy UE” problem, they understand that the UE should make a best effort in any positioning operation.

Apple agree with MediaTek that the feature is not testable; they think the value is not clear.

OPPO agree with Qualcomm that multiple QoS normally means the LMF will try different positioning methods. On the “lazy UE” problem, they agree that the problem exists, but they think the MediaTek proposal does not solve the problem.

Nokia do not see the value, and they understand that multiple QoS in SA2 has no RAN impact.

Intel also do not see RAN2 impact.

Positioning: SSR PCV residuals [previously seen]

[R2-2307757](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2307757.docx) Support for SSR Satellite PCV Residuals Swift Navigation discussion

Proposal 1: RAN2 agrees to introduce the SSR IOD Update IE.

Proposal 2: RAN2 agrees to add the posSIBs for the SSR Satellite PCV Residuals.

Proposal 3: RAN2 agrees to adopt the proposed CRs for the SSR Satellite PCV Residuals.

Discussion:

Qualcomm understand that the proposals introduce a new IE covering the IOD (option 4 in the discussion paper), and they wonder if option 3 would be simpler without requiring a new posSIB. They agree that the proposed approach works, but it forces the new posSIB. Swift indicate that the reason for preferring option 4 was consistency with other bodies working on SSR messages (e.g., RTCM), as well as extensibility in the future. They also indicate that option 3 would require resetting corrections when a new set of PCVs is issued, whereas this option allows a softer update without forcing a reset.

Qualcomm can accept the proposal, but they think RTCM have a different message structure, and we may be better positioned to extend our message formats.

Ericsson think we could go offline for the details.

* [AT123][422][POS] SSR PCV residuals (Swift)

Scope: Discuss the TPs from R2-2307757 and develop a set of CRs.

Intended outcome: Agreeable (in principle) CRs

Deadline: Wednesday 2023-08-23 2000 UTC

Positioning: NavIC enhancements [new]

[R2-2308193](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308193.docx) NavIC L5 A-GNSS support updates to RRC protocol specification Reliance Jio CR Rel-18 38.331 17.5.0 4234 - F TEI18

Discussion:

CEWiT present in the absence of Reliance Jio.

Lenovo agree with the change but wonder if we should make the correction from Rel-17, since there are already NavIC posSIBs in Rel-17. MediaTek agree.

CATT agree that Rel-17 enabled NavIC and introduced the assistance data in LPP, but they understand that broadcast assistance data for NavIC is not fully enabled. They are fine to take the CR in Rel-18.

Qualcomm agree that this is more of a correction.

CEWiT can convert it to a Rel-17 correction. They would like to understand the details of CATT’s comment.

Lenovo think the coversheet can be clearer as well.

* [AT123][423][POS] NavIC broadcast correction (CEWiT)

Scope: Check the CR in R2-2308193 and adapt it to a Rel-17 correction.

Intended outcome: Agreeable CR in R2-2308978

Deadline: Wednesday 2023-08-23 2000 UTC

R2-2308978 NavIC L5 A-GNSS support updates to RRC protocol specification Reliance Jio CR Rel-17 38.331 17.5.0 4234 1 F NR\_pos\_enh-Core

Positioning/relay: positioning for remote UEs [previously seen]

[R2-2308485](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308485%20RelPos.docx) Relay based Positioning posSIB forwarding Ericsson, Deutsche Telekom, AT&T discussion Rel-18

[R2-2308486](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308486%20RRC%20CR.docx) Information on posSIBs relaying to remote UE [PosL2RemoteUE] Ericsson, Deutsche Telekom, AT&T CR Rel-18 38.331 17.5.0 4254 - B TEI18

[R2-2308487](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308487%20NRPPaForInfo.docx) Information on posSIBs relaying to remote UE Ericsson, Deutsche Telekom, AT&T draftCR Rel-18 38.455 17.5.0 B TEI18

Proposal 1 The information on which posSIBs can be relayed is optionally provided by the NW to the UEs.

Proposal 2 RAN2 to agree to the RRC CR as provided in R2-2308486.

Discussion:

Apple understood we agreed last meeting that the forwarding should be transparent to the relay UE, and they wonder if the proposal contravenes this agreement.

Qualcomm do not understand the relation of the described issue to posSIB forwarding; the LMF selects what positioning method to use, based on information that can include coverage/remote status, but they do not see what the difference is if the gNB forwards additional assistance data.

Ericsson think we have dimensioned the assistance data support and expected performance based on assumptions about coverage. They think there could be a latency cost if the first positioning operation uses a method that does not work well out of coverage.

MediaTek have the same understanding as Qualcomm.

Ericsson are concerned about an idle/inactive UE receiving broadcast assistance data.

Qualcomm do not see a connection to the RRC state; the LMF selects the positioning method and tells the UE what to measure, and the UE may or may not have assistance data via posSIBs, irrespective of the RRC state.

Ericsson understand that the posSIBs are a value-added service with encryption, which is the difference from other SIBs. They intend to enable selection of appropriate positioning methods based on coverage/remote status.

Intel understand that the LMF would select an appropriate positioning method, and they do not see that the network can enforce anything because the method selection is transparent to the gNB.

Samsung think this can be helpful to reduce unnecessary overhead from posSIB signalling that would not be useful (e.g., the UE requests a posSIB that doesn’t make sense out of coverage). However, they have the same understanding as other companies regarding network control.

OPPO wonder about the motivation to save signalling overhead for an out-of-coverage remote UE. They do not think the relay UE can differentiate whether the remote UE is in coverage, so they are wondering how it works. Qualcomm agree and think the proposal may make the signalling more excessive; they do not see how the gNB takes the decision on what can be forwarded, considering that the LMF selects the method.

MediaTek also see extra signalling if the LMF picks a positioning method, the UE tries to receive assistance data, and the network says “no”; the UE will just request the same assistance data from the LMF.

Ericsson understand that, e.g., DL-TDOA will not work well out of coverage. MediaTek do not understand the use case, since the LMF selects the positioning method and the UE presumably requests what it needs.

Qualcomm think there is nothing broken with broadcast: The system can provide the assistance data either way, and if it wants to save broadcast overhead, it will use unicast LPP.

Apple also think the remote UE can be out of coverage or in coverage, and it is not clear why the network would block the relay UE from forwarding the posSIBs.

Ericsson think we could go offline for discussion.

* [AT123][424][POS] Network control of posSIBs for remote UEs (Ericsson)

Scope: Discuss the proposal in R2-2308485 and determine if there is support for moving forward with it.

Intended outcome: Report to CB session in R2-2309107

Deadline: Wednesday 2023-08-23 2000 UTC

[R2-2308695](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308695_Discussion%20on%20positioning%20for%20L2%20U2N%20remote%20UE.docx) Discussion on positioning support for L2 U2N remote UE Samsung discussion Rel-18 TEI18

Proposal 1: Allow L2 U2N remote UE in RRC\_CONNECTED to request an SFN-DFN from the connected L2 U2N relay UE via RemoteUEInformationSidelink message as in the TP to 38.331 in Annex.

Proposal 2: Clarify that L2 U2N remote UE can include remoteUE-Indication-r18 in ProvideCapabilities message only when it has been requested by the LMF before as in the TP to 37.355 in Annex.

Proposal 3: Introduce a coverage indication to indicate whether the target device operating as a L2 U2N remote UE is located within the coverage of the serving cell (i.e., the serving cell of the relay UE) as in the TP to 37.355 in Annex.

Proposal 4: Update the field description for primaryCellID-r15 to allow the target device operating as a L2 U2N remote UE to report the identity of the current primary cell/camping cell for the L2 U2N Relay UE as in the TP to 37.355 in Annex.

Discussion:

Apple wonder why P1 is needed, because the UE in RRC\_CONNECTED sees signalling from the gNB. They think the gNB may be able to provide the offset.

Samsung think companies may need some time to review.

* [AT123][425][POS] Proposals on positioning for remote UE (Samsung)

Scope: Discuss the proposals in R2-2308695 and progress towards agreements where possible.

Intended outcome: Report to CB session

Deadline: Wednesday 2023-08-23 2000 UTC

Positioning: BT AoA/AoD [new]

[R2-2308489](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308489%20Bluetooth.docx) Adding support for Bluetooth AoA/AoD Ericsson, AT&T, Polaris Wireless, u-blox discussion Rel-18

* Revised in R2-2308955

[R2-2308955](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308955%20Bluetooth.docx) Adding support for Bluetooth AoA/AoD Ericsson, AT&T, Polaris Wireless, u-blox, T-Mobile discussion Rel-18

Proposal 1 Discuss and agree to introduce support for Bluetooth AoA/AoD positioning in the LPP Bluetooth positioning method

Proposal 2 Endorse the draft CR in the Appendix

Discussion:

Qualcomm are unsure of the objectives of the additional parameters in the CR. They wonder if we can do everything in Rel-18, and they think some discussion is needed on the details.

* [AT123][426][POS] BT AoA/AoD (Ericsson)

Scope: Discuss the proposal in R2-2308955; determine if the general change is agreeable, and if so, start discussion on the approach in the CR.

Intended outcome: Report to CB session in R2-2309108

Deadline: Wednesday 2023-08-23 2000 UTC

## 7.25 R18 Other

Specific items may be allocated to a breakout session for treatment.

Impacts from Other RAN WGs and TSGs that has no separate TU budget in RAN2. LS ins for Rel-18 specific WIs/SIs that has no RAN WI.

Time budget: 2 TU

Tdoc Limitation: -

### 7.25.3 Other

RAN3, SA2, SA3, CT1 led items and others, e.g. eNPN, Slicing.

[R2-2308400](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308400_(PRU%20in%20LPP).docx) On Positioning Reference Unit support in LPP Qualcomm Incorporated discussion

[R2-2308488](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202308%20-%20RAN2_123,%20Toulouse\Extracts\R2-2308488%20PRU.docx) On the Positioning Reference Units aspects Ericsson, vivo discussion Rel-18

* [AT123][419][POS] Location information type for PRUs (Ericsson)

Scope: Discuss the proposals in R2-2308400 and R2-2308488, gather company views, and work towards a conclusion.

Intended outcome: Report to CB session

Deadline: Wednesday 2023-08-23 2000 UTC