**3GPP TSG-RAN WG2 #119bis-e *R2-221xxxx***

**E-meeting, October 2022**

Agenda Item: 6.7.2.3

Source: OPPO

Title: Report of [420]

Document for: Discussion, Decision

# Introduction

* [AT119bis-e][420][Relay] Rel-17 SRAP CR (OPPO)

 Scope: Check the wording of P1 from R2-2210770 and the content of P2, and develop a CR to 38.351.

 Intended outcome: Agreeable CR

 Deadline: Friday 2022-10-14 1000 UTC

# Contact Points

Respondents to the email discussion are kindly asked to fill in the following table.

|  |  |  |
| --- | --- | --- |
| Company | Name | Email Address |
| OPPO | Boyuan Zhang | zhangboyuan@oppo.com |
| vivo | Boubacar | kimba@vivo.com |
| CATT | Hao Xu | xuhao@catt.cn |
| Xiaomi | Li Zhao | zhaoli6@xiaomi.com |
| Nokia | Jakob Buthler | Jakob.buthler@nokia.com |
| Huawei, HiSilicon | Rui Wang | Wangrui46@huawei.com |
| ZTE | Mengzhen Wang | Wang.mengzhen@zte.com.cn |
| MediaTek | Ming-Yuan Cheng | ming-yuan.cheng@mediatek.com |
| Samsung |  Milos Tesanovic | m.tesanovic@samsung.com |
| Qualcomm | Karthika Paladugu | kpaladug@qti.qualcomm.com |
| Apple | Zhibin Wu | Zhibin\_wu@apple.com |
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# Discussion

## Phase-I discussion on Proposal-2(deadline as 2022-10-13 0400UTC)

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc No.** | **Source** | **Reason for change** | **Summary of change** |
| [**R2-2210043**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119bis-e/Docs/R2-2210043.zip) | Samsung R&D Institute UK | Make various essential corrections. | 4. In 5.2.2.1 (Egress link determination), clarified that an egress link can only be selected if it is not in RLF. |
| [**R2-2210043**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119bis-e/Docs/R2-2210043.zip) | Samsung R&D Institute UK | Make various essential corrections. | 6. In 5.4 (Handling of unknown, unforeseen, and erroneous protocol data), add the underlying bit: “For U2N Remote UE, if sl-RemoteUE-RB-Identity isand sl-LocalIdentity are both configured, when a SRAP Data PDU with SRAP header that contains a UE ID field or BEARER ID field which is not included in sl-SRAP-ConfigRemote is received, the SRAP entity shall:…”. Otherwise (if sl-LocalIdentity is not configured), checking the UE ID field for a match is meaningless - why check whether the packet contains a UE ID field included in sl-SRAP-Config-Remote, when the Remote UE ID has not been configured anyway? |
| [**R2-2209904**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119bis-e/Docs/R2-2209904.zip) | ZTE, Sanechips | 3. In clause 4.5, for configuration of SRAP via RRC signalling, it is confusion to use “BEARER ID” and “UE ID” field. Suggest to remove. | 3. In clause 4.5, remove the BEARER ID field and UE ID field. |

Q1.1 Does company agree with the change-4 in R2-2210043?

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comment |
| OPPO | No | If there is a RLF, the related handling has been specified in RRC spec, not sure if we need to further specify this aspect in SRAP.  |
| vivo | No | SRAP does not need to handle RLF since detailed RLF operations had been captured in RRC spec. |
| CATT | No | Agree with OPPO, SRAP only performs egress link determination. It is not needed to decides whether the egress link can be selected in SRAP.  |
| Xiaomi | No | Same view as OPPO.  |
| Nokia | No |  |
| Huawei, HiSilicon | No | Similar view as other companies. In RRC spec, the UE behavours of suspending RBs/RLC channels upon initiation of RRC reestablishment are defined, no need to specify RLC handing in UP specs as for non-relay UEs.  |
| ZTE | No | Same view as above comments. |
| MediaTek | No | Similar view as other companies. |
| Samsung | Yes | (Proponent) The intention was to align the SRAP spec with the RRC spec, not to introduce any new behaviour. The current text in the SRAP spec (without the proposed change) states that a link is ‘determined’ (which we feel is not the best word for this, but this is a separate matter) and this implies used. We need this simple clarification to make it clear that this is only true when the link is in RLF. This does not contradict the RRC spec. Please also note that such clarification is present in the BAP spec, which we (SRAP) seem to follow very closely wherever relevant. |
| Qualcomm | No | Agree with OPPO |
| Apple | No | We tend to agree with OPPO that the RLF handling can be left out of this spec. |
| Sharp | No |  |
| LG | No | We agree with OPPO since RLF will be handled following to the current RRC spec. |

Summary: 13 companies participate in answering this question and 12 out of 13 thought no need to adopt the change, where it is a clear majority view.

Q1.2 Does company agree with the change-6 in R2-2210043?

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comment |
| OPPO | No | Whether it is a typical case to consider that the per-bearer SRAP mapping is provided, yet the local ID configuration is not provided? |
| vivo | No | From our understanding, if the local ID of remote UE is not configured, the RB mapping is meaningless and can not be configured alone. Hence, the current description is enough. |
| CATT | Yes | The agreement in RAN2#117-e meeting is:Recommendation 4 [19/19]: When a SRAP Data PDU that contains a UE ID or BEARER ID which is not included in sl-SRAP-Config-Remote (for Remote UE) or sl-SRAP-Config-Relay (for Relay UE) is received, the SRAP entity shall discard the received SRAP Data PDU.Therefore, both sl-RemoteUE-RB-Identity and sl-LocalIdentity should be configured. |
| Xiaomi | Yes | Same view as CATT.  |
| Nokia | No | Same considerations as OPPO |
| Huawei, HiSilicon | Yes | We are ok with the change, because it is inline with the second sentence which also says the UE needs to check the IDs if the IDs are configured. |
| ZTE | Yes | It’s more clearer to add, otherwise one may concern why UE ID field is checked while the if sentence doesn’t mention remote UE identity. |
| MediaTek | Yes | Agree with CATT |
| Samsung | Yes |  |
| Qualcomm | Yes |  |
| Apple | No | According to ASN.1, *sl-LocalIdentity* is mandatory but bearer mapping is optional. So, if *sl-RemoteUE-RB-Identity* is configured, the local ID must already be configured. So, the current text is fine and the change is not essential. |
| Sharp | No |  |
| LG | Yes | Agree with CATT |

Summary: 13 companies participate in answering this question and 8 out of 13 thinks the change-6 in R2-2210043 is reasonable, where there seems to have a majority view, therefore, rapp suggest that (detailed wording to be checked in Ph2).

**Proposal 1: RAN2 agree with change-6 in R2-2210043.**

Q1.3 Does company agree with the change 3 in R2-2209904?

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comment |
| OPPO | No | Not see obvious problem in the current spec |
| vivo | No | Current spec is ok for us. |
| CATT | Yes | Mapping is from a RB to RLC channel. |
| Xiaomi | No | Same view as OPPO.  |
| Nokia | No |  |
| Huawei, HiSilicon | Yes | The change seems more accurate, because indeed RRC configures mapping from SRB id/DRB id (but not the field name in SRAP header) to egress RLC channel for a remote UE.  |
| ZTE | Yes | Mapping configuration in RRC signalling doesn’t include “BEARER ID” and “UE ID” field, why to say mapping from “BEARER ID” and “UE ID” field to RLC channel? It is not correct. |
| MediaTek | Yes | Agree with CATT and Huawei. |
| Samsung | Yes | Same view as Huawei. |
| Qualcomm | No | Current spec seems fine |
| Apple | Yes | We think it is better to avoid using the terms not existing in RRC spec when describing RRC configuration. |
| Sharp | No | Current spec is ok for us. |
| LG | No | Current spec is fine for us. |

Summary: 13 companies participate in answering this question and 7 out of 12 thought there is no need to adopt the change. Since it is a half-half view so that there is no majority view on either side, therefore, there is no consensus on whether to adopt the change-3 in R2-2209904. Rapp understand it is hard to accept the change anyway.

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc No.** | **Source** | **Reason for change** | **Summary of change** |
| [**R2-2209893**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119bis-e/Docs/R2-2209893.zip) | CATT | In RAN2#119-e meeting, one clarification that the handling of DL SRB0 can be the receiving part at the Uu interface to remove the SRAP header was added into TS38.351. For UL, it is also reasonable to allow the receiving part at the PC5 interface to add the SRAP header for UL SRB0. | In section 4.2.2, add the general description to allow the receiving part at the PC5 interface to add the SRAP header for UL SRB0. |
| [**R2-2209904**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119bis-e/Docs/R2-2209904.zip) | ZTE, Sanechips | 2. For DL SRB0 packets, for the alternative case, If Uu SRAP Rx part removes the SRAP header and delivers SRAP SDUs to the PC5 Tx part, then the description “construct an SRAP Data PDU without SRAP header” is needed in clause 5.2.2 before submitting the SRAP Data PDU to lower layer. Consequently, in clause 5.2.2, it shall be distinguished whether the SRAP data PDU or SRAP SDU is received from the collocated Uu SRAP Rx part. For simplicity, for both UL and DL SRB0, it is suggested that the SRAP Rx part directly delivers the received SRAP Data PDU to the collocated SRAP Tx part. | 2. In clause 4.2.2, for DL SRB0 packets, remove the alternative case. |

During last meeting, the change that the handling of DL SRB0 can be the receiving part at the Uu interface to remove the SRAP header was added into the spec. Correspondingly, the change in R2-2209893 proposed that the similar handling for UL SRB0 should also be applied, i.e., to allow the receiving part at the PC5 interface to add the SRAP header for UL SRB0. On the other side, the change-2 in R2-2209904 proposed that if adopting the added handling of DL SRB0, it will cause complexity to differentiate whether the SRAP data PDU or SRAP SDU is received, so they proposed to revert the spec back, i.e. remove the handling that for DL SRB0 it can be the receiving part at the Uu interface to remove the SRAP header.

Q2.1 Does company agree with the change 2 in R2-2209904 to revert the spec back, i.e. remove the handling that the receiving part on the SRAP entity of Uu interface may remove the SRAP header?

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comment |
| OPPO | No | There seems no big need to revert this agreement. |
| vivo | No | Both two alternatives can work. No need to revert the agreement. |
| CATT | No | It has been agreed. The agreement should not be reverted if no strong reason. |
| Xiaomi | No | Same view as OPPO. |
| Nokia | No |  |
| Huawei, HiSilicon | No | The two alternatives have been agreed to allow flexibility for UE implementation and captured in SRAP from the very beginning. Do not see the technical reason to say one alternative will cause complexity now. |
| ZTE | Yes | There are misalignment between 4.2.2 for DL SRB0 packets and 5.2.2. - Option 1: keep 4.2.2 as it is, change in 5.2.2. Specifically, If Uu SRAP Rx part removes the SRAP header and delivers SRAP SDUs to the PC5 Tx part, then the description “construct an SRAP Data PDU without SRAP header” is needed in clause 5.2.2 before submitting the SRAP Data PDU to lower layer. Consequently, in clause 5.2.2, it shall be distinguished whether the SRAP data PDU or SRAP SDU is received from the collocated Uu SRAP Rx part.- Option 2: change 4.2.2 (remove the alternative part), then 5.2.2 is no need to change.Both options are OK, we think Option 2 has less spec impact.When the transmitting part of the SRAP entity on the PC5 interface has an SRAP Data PDU to transmit, the transmitting part of the SRAP entity on the PC5 interface shall:- Determine the egress link in accordance with clause 5.2.2.1;- Determine the egress RLC channel in accordance with clause 5.2.2.2;- if the SRAP Data PDU is for SRB0 (the BEARER ID field is 0, and the bearer is identified as SRB based on *sl-RemoteUE-RB-Identity* associated with the entry containing the *sl-EgressRLC-ChannelUu* which matches the Uu Relay RLC Channel of the LCID from which the SRAP Data PDU is received):- Removes the SRAP header from the SRAP Data PDU;- Submit this SRAP Data PDU to the determined egress RLC channel of the determined egress link. |
| MediaTek | No |  |
| Samsung | No | Same view as vivo. |
| Qualcomm | No |  |
| Apple | See comment | Maybe we can move the alternative to a NOTE. So, there is no contradictory at least in normative text. |
| Sharp | No |  |
| LG | No |  |

Summary: 13 companies participate in answering this question and 11 out of 13 thought there is no need to revert the spec back. Since there is the clear majority view so that no need for this change.

Q2.2 Does company agree that similar handling of UL SRB0 should also be applied in the spec, i.e., add the general description to allow the receiving part at the PC5 interface to add the SRAP header for UL SRB0?

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comment |
| OPPO | See comment | It seems wired to require PC5 entity to add the header to be used for Uu.. so we tend to be negative, yet open to hear the view from others. |
| Vivo | No  | The transmitting part on the SRAP entity of Uu interface is more suitable to add the header than the receiving part on the SRAP entity of PC5 interface since the header is used and carried on Uu interface. |
| CATT | Yes | It is better to align UL with DL. |
| Xiaomi | OK to follow majority | We have some sympathy on this proposal but also see the concern from OPPO and vivo. So we are fine to follow the majority.  |
| Nokia | Fine to follow majority |  |
| Huawei, HiSilicon | Yes | Given that the two alternatives are supported, it would be better that either alternative can work for any cases, UL or DL, SRB or DRB, to ensure the UE can have a unified handling for the bearers if one alternative is implemented. We do not see it’s necessary to debate which alternative is better than the other at this moment… |
| ZTE | No | According to current spec, the collocated Rx part can either deliver the SRAP Data PDU received from PC5 to Uu Tx part, or remove the SRAP header and deliver the SRAP SDU to Uu Tx part. It has no responsibility to add a SRAP header.On the other hand, if the function of add SRAP header is allowed for collocated Rx part, then how to construct a SRAP Data PDU (as highlighted bellow) may need to move to 5.3.2? And in 5.3.3, there is no need to construct SRAP header again.Maybe it could be changed as following (if companies want to support). But as discussed in Q3.1, it is prefer to change SRAP SDUs to SRAP Data PDU.- For UL data packet corresponding to SRB0, the receiving part on the SRAP entity of PC5 interface delivers SRAP Data PDUs or SRAP SDUs to the transmitting part on the collocated SRAP entity of Uu interface, and the transmitting part on the SRAP entity of Uu interface adds the SRAP header in accordance with clause 5.3.3. 5.3.2 Receiving operation of U2N Relay UEUpon receiving an SRAP Data PDU from lower layer, the receiving part of the SRAP entity on the PC5 interface shall:- deliver the SRAP data packet to the transmitting part of the collocated SRAP entity on the Uu interface.5.3.3 Transmitting operation of U2N Relay UEThe transmitting part of the SRAP entity on the Uu interface of U2N Relay UE can receive SRAP data packets from the receiving part of the SRAP entity on the PC5 interface of the same U2N Relay UE, and construct SRAP Data PDUs as needed (see clause 4.2.2).Upon receiving SRAP data packet from the receiving part on the collocated SRAP entity on the PC5 interface, the transmitting part of the SRAP entity on the Uu interface shall:- if the SRAP Data PDU is received from SL-RLC0 as specified in TS 38.331 [3]:- Determine the UE ID field and BEARER ID field in accordance with clause 5.3.3.1;- Construct an SRAP Data PDU with SRAP header, where the UE ID field and BEARER ID field are set to the determined values, in accordance with clause 6.2.2;- Determine the egress RLC channel in accordance with clause 5.3.3.2;- Submit this SRAP Data PDU to the determined egress RLC channel. |
| MediaTek | No | Agree with Vivo |
| Samsung | Yes | We should apply the same reasoning; if not, we may imply that certain implementations are better than others. |
| Qualcomm | No |  |
| Apple | See comment | We think the alternative implementation can be captured as a NOTE. Capture two alternative implementations both in normative text are confusing |
| Sharp | Fine to follow majority |  |
| LG | No |  |

Summary:13 companies participate in answering this question and 6 companies thought no need to adopt the change, while 4 companies (including Apple) agree to adopt and other 3 companies are fine to follow majority view. So obviously there is no majority view and thus, there is no consensus on whether to add the general description to allow the receiving part at the PC5 interface to add the SRAP header for UL SRB0.

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc No,** | **Source** | **Reason for change** | **Summary of change** |
| [**R2-2209904**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119bis-e/Docs/R2-2209904.zip) | ZTE, Sanechips | 1. For UL SRB0 packets, actually,the SARP data PDU (without SRAP header here) is equal to SRAP SDU. It’s better to say “deliver the SRAP data PDU” to Uu Tx part, and then the Uu Tx part to reconstruct the SRAP data PDU with SRAP header. Otherwise, if we say “deliver SRAP SDUs to...”, the description in clause 5.3.3 needs to be changed accordingly, E.g. “if the SRAP Data PDU is received from SL-RLC0...” --> “if the SRAP Data PDUSDU...”. | 1. In clause 4.2.2, for UL SRB0 packets, change the SRAP SDUs to SRAP Data PDUs. |
| [**R2-2209904**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119bis-e/Docs/R2-2209904.zip) | ZTE, Sanechips | 6. In clause 5.3.3, use the same wording as in clause 5.2.2. | 6. In clause 5.3.3, change the sentence “Upon receiving SRAP data packet from the receiving part on the collocated SRAP entity on the PC5 interface” to “When the transmitting part of the SRAP entity on the PC5 interface has an SRAP Data PDU to transmit”. |

For the first change in R2-2209904, rapp understands that the motivation is not strong enough since rapp does not agree that if we stick to the wording “deliver SRAP SDUs to”, then we need to have the change in 5.3.3 from “if the SRAP Data PDU is received from SL-RLC0” to ”if the SRAP Data SDU…..” since the thing comes out of RLC can only be SRAP data PDU. Also in section 4.2.2, it talks about the packet forwarding between PC5 Rx and Uu Tx. Thus, rapp suggests not to adopt the first change in R2-2209904.

Q3.1 Does company agree with the intention of change-1 in R2-2209904?

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comment |
| OPPO | No | As stated above. |
| vivo | No | Current spec is ok. |
| CATT | No | Agree with OPPO.  |
| Xiaomi | No | Same view as OPPO. |
| Nokia | No |  |
| Huawei, HiSilicon | No | Agree with rapporteur. |
| ZTE | Yes | As rapp says, “the thing comes out of RLC can only be SRAP data PDU”, so why does the PC5 Rx part not directly deliver the SRAP Data PDU to Uu SRAP Tx part? On the other hand, if deliver SRAP SDUs to collocated SRAP Tx part, spec impact may be needed in 5.3.3, similar discussion as discussed in Q2.1 to remove the alt part for DL SRB0.- For UL data packet corresponding to SRB0, the receiving part on the SRAP entity of PC5 interface delivers SRAP SDUs to the transmitting part on the collocated SRAP entity of Uu interface, and the transmitting part on the SRAP entity of Uu interface adds the SRAP header in accordance with clause 5.3.3. |
| MediaTek | No |  |
| Samsung | No | Otherwise we get into the discussion of whether what is received from RLC is an SDU or a PDU, and as rapporteur points out it can only be PDU, even when it has ‘no header’. |
| Qualcomm | No |  |
| Apple | No |  |
| Sharp | No |  |
| LG | No |  |

Summary: 13 companies participate in answering this question and 12 out of 13 thinks there is no need to adopt the change-1 in R2-2209904, so rapp suggest to follow the majority view, so no need for this change.

For change-6 in R2-2209904, firstly rapp understands that if to align the wording between 5.2.2 and 5.3.3, one can choose to change the wording either in 5.2.2 or in 5.3.3, which is worthwhile for a discussion. Secondly, the change to 5.3.3 is wrong since it is not ‘When the transmitting part of the SRAP entity on the **PC5** interface’ but should be **Uu**? But anyway, detailed wording can be further discussed in the CR discussion.

Q3.2 In order to align the wording between 5.3.3 and 5.2.2, which section would company like to change?

|  |  |  |
| --- | --- | --- |
| Company | Change Section (5.2.2/5.3.3) | Comment |
| CATT | 5.3.3 | Change to “When the transmitting part of the SRAP entity on the Uu interface has an SRAP Data PDU to transmit，” |
| Xiaomi | 5.3.3  | Agree with OPPO the change is not correct, should be Uu.  |
| Nokia | 5.3.3 |  |
| ZTE | 5.3.3 | Should be Uu. It is a typo. |
| MediaTek | 5.3.3 |  |
| Samsung | 5.3.3  |  |
| Qualcomm | 5.3.3 |  |
| Apple | 5.3.3 |  |
| Sharp | 5.3.3 |  |
| LG | 5.3.3 |  |

Summary: 10 companies participate in answering the question and all of them agree to adopt the change in section 5.3.3 to align the wording with section 5.2.2. Therefore, rapp suggest that (with the detailed wording to be checked in Ph2):

**Proposal 2: RAN2 agrees with change-6 in R2-2209904.**

## Phase-I discussion on CR based on Proposal 1 (deadline as 2022-10-13 0400 UTC)

In order to keep a clean track on each iteration on the CR updating, rapp suggests to use the below table to collect companies’ view on the running CR and every iteration will be made based on the table, and also please note that **currently the tracking is only for the changes based on P1, the remaining changes based on P2 will be initiated when phase II begin**.

|  |  |  |
| --- | --- | --- |
| Company | Current changes | Comment |
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|  |  |  |

## Phase II discussion on CR based on the above proposal 1/2(deadline as 2022-10-14 1000UTC)

Any view on the changes made corresponding to the above proposal 1 and proposal 2 can be input in the below table, in order for a clean track of the CR itself.

|  |  |  |
| --- | --- | --- |
| Company | Current changes | Comment |
| Apple | Change 6 in 10043 | As we decide to pursue a change, I suggest to add “*sl-LocalIdentity”* ahead of the “*sl-RemoteUE-RB-Identity* “, because UE need check if local ID is in the context first, and the bearer ID is only associated with a local ID. |
| Samsung | Change 6 in 10043 | We understand Apple’s reasoning, and while perhaps not essential, we are OK with their proposal immediately above. |

# Conclusion

We have the following proposals:

**Proposal 1: RAN2 agree with change-6 in R2-2210043.**

**Proposal 2: RAN2 agrees with change-6 in R2-2209904.**

# Reference

1. R2-2209893 Correction on SRAP for L2 U2N Relay CATT
2. R2-2209904 Correction on SRAP for L2 U2N relay ZTE, Sanechips
3. R2-2210043 Miscellaneous corrections to 38.351 Samsung R&D Institute UK
4. R2-2210673 DraftCR 38.351 Miscellaneous SRAP changes Nokia, Nokia Shanghai Bell