**3GPP TSG-RAN WG2 Meeting #109 electronic R2-20xxxxx**

**24 Feb – 6 Mar 2020**

**Agenda item: 6.4.2.1**

**Source: Huawei (Rapporteur)**

**Title: Report for the offline discussion on Category-2 proposals in RRC summary**

**Document for: Discussion and Decision**

# Introduction

This document includes the offline discussion #702 on the related issues and proposals which were discussed in the RRC summary submitted in R2-2002093 [1]. According to the scope clarified during the on-line discussion on Monday, only the Proposal C-2 and proposals in Category 2, i.e. “Proposal that need further discussion [FFS]” in [1] are within the scope of this offline discussion. Note that original proposal C-3 and C-3a which are related to MAC reset aspects will be handled by MAC related offline discussion, not here.

R2-2002093 Summary document for AI 6.4.2.1 - RRC aspects Huawei (Rapporteur) discussion Rel-16 5G\_V2X\_NRSL-Core

* Proposal C-1 is agreed.
* Proposal C-2b will be discussed in offline.
* Proposal C-11 is agreed.
* Proposal C-2 to proposal C-10a will be discussed in offline (may exclude some proposals, Proposal C-3 will be discussed in MAC related offline.).
* [Offline Disc#702]: To discuss the proposals identified in the above for further offline discussion (Huawei, R2-2001965) (Comeback Thurs.)
* [Offline Disc#703]: To update and agree 38.331/36.331 CR (Huawei, R2-2001966 for 38.331 CR, R2-2001967 for 36.331 CR) (Comeback Thurs. or next Wed.)

# Discussions

### Discussion on Proposal C-2/C-2a/C-2b – SL-RSRP reporting

The below questions are to collect companies’ views of proposal C-2 and C-2a in [1]. It is about SL-RSRP reporting and what is specifically going to be discussed is “whether to introduce a “delta” measurement result for the event triggered SL-RSRP reporting from the RX UE to the TX UE, or even more trigger events are needed (e.g. TX UE triggered RX UE reporting)”. The specific technical issue is that, if only relying on the A1-like and A2-like events agreed in the last meeting for even-triggered SL-RSRP from the RX UE to the TX UE, i.e. reporting if the absolute SL-RSRP result becomes above/below an threshold, there may be the case that the SL-RSRP keeps on staying above/below the corresponding threshold, so that the TX UE cannot get any SL-RSRP result, thus unable to carry out power control as RAN1 expected.

* **Question 1**: Should an event based on “delta” SL-RSRP measurement results be supported for the event triggered SL-RSRP reporting at the RX UE?

1. Yes, if the delta value between the current measured SL-RSRP and the last reported SL-RSRP exceeds a threshold, then the SL-RSRP reporting is triggered;
2. No, it is not needed.

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| **Companies are invited to provide views below for Question 1** | | |
| **Companies** | **Preferred options** | **Comments if any** |
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**Result and Conclusion of Q1:**

* **Question 1a**: On top of the events already agreed, are there even more events that need to be specified for the event triggered SL-RSRP reporting from the RX UE to the TX UE?

1. Yes, TX-triggered SL-RSRP reporting for the RX UE is needed. If this option is selected, please detail the standard impacts (i.e. how TX UE decides whether/when the SL-RSRP reporting needs to be triggered, what message is used to inform the RX UE if triggered, etc.)
2. No, it is not needed.

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| **Companies are invited to provide views below for Question 1a** | | |
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**Result and Conclusion of Q1a:**

The below question is to collect companies’ views of proposal C-2b in [1]. It is about SL-RSRP reporting and the issue to be addressed is “what if the SL-RSRP result is not available at each periodic SL-RSRP reporting occasion, due to no-ongoing SL transmission on the corresponding SL-RSRP reporting period”. Based on the on-line discussion on Monday, the candidates include that the UE does not perform SL-RSRP reporting in such case, and that it is up to UE implementation how to deal with this situation.

* **Question 2** For a reporting occasion in periodic SL-RSRP reporting, if the SL-RSRP measurement result is unavailable in the latest reporting period, due to no ongoing reporting SL transmission, how should the UE behave at this reporting occasion?

1. The SL-RSRP reporting is not carried out by the UE at this specific reporting occasion
2. It is up to UE implementation, and a NOTE is captured in the TS 38.331.
3. It is up to UE implementation, and not any standard impact is needed.

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| **Companies are invited to provide views below for Question 2** | | |
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**Result and Conclusion of Q2:**

### Discussion on Proposal C-4/C-4a/C-4b – Mode-2 TX pool selection

The below questions are to collect companies’ views on Proposal C-4/C-4a/C-4b in [1]. It is about mode-2 TX resource pool selection, and the reason why this issue is discussed as one of the RRC aspects is that in LTE V2X SL, it is RRC layer of the UE which selects the specific mode-2 TX pool used at a given time and instructs the selected TX pool to the lower layers. As per proposal C-4, there could be three options, i.e. zone-based selection, HARQ FB based selection and UE implementation based selection, as indicated in the below Question 3.

Rapporteur would like to note that besides the per-pool configurations in LTE V2X SL, e.g. CBR-priority lookup table, speed-priority look-up table, etc., even more factors have been agreed by RAN1 to be configured in a per-pool manner in NR SL, e.g. applicable MCS table. As a result, it seems not enough to consider only some isolated factors like zone, HARQ FB resources, priority, CBR, etc., separately for the selection of a resource pool; instead, all above potential should be taken into account. It is obvious not desirable to specify how the UE exhaust all of above factors in the standard, and thus the simplest way is to leave the mode-2 TX resource pool selection to UE implementation which is going to take into consideration all above factors and make the best choice.

* **Question 3**: How is mode-2 TX resource pool selection performed, in case multiple pools are (pre-)configured?

1. Zone-based resource pool selection – the UE selects resource pool(s) associated with its current geo-location;
2. HARQ FB based resource pool selection – the UE selects the resource pool based on whether there is an SLRB with HARQ FB enabled and whether the resource pools have PSFCH resources;
3. Resource pool selection is up to UE implementation – no standardization efforts, simplest way.

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| **Companies are invited to provide views below for Question 3** | | |
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**Result and Conclusion of Q3:**

* **Question 3a**: In case Option a) is selected in Q3, are two sets of zone configurations needed (with one used for mode-2 resource pool selection and the other used for distance calculation by RAN1)?

1. Yes. If this option is selected, please clarify the reason.
2. No.

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| **Companies are invited to provide views below for Question 3a** | | |
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**Result and Conclusion of Q3a:**

As there is anyway the issue on whether the UE’s RRC layer instructs all (pre-)configured mode-2 TX resource pools to the lower layers, or only instructs the selected one, regardless of which option is selected above in Q3; therefore, below question is to discuss this issue.

* **Question 4**: Should the RRC layer of the UE instruct all the mode-2 TX resource pools (pre-)configured or instruct only the mode-2 TX resource pool selected to the lower layers?

1. Instruct all the mode-2 TX resource pools (pre-)configured to the lower layers, with lower layers performing pool selection (similar to LTE D2D);
2. Instruct the selected mode-2 TX resource pool to the lower layers, with RRC layer carrying out the resource pool selection (similar to LTE V2X SL).

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| **Companies are invited to provide views below for Question 4** | | |
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**Result and Conclusion of Q4:**

### Discussion on Proposal C-5 – AS configuration failure related

This section discuss the *RRCReconfigurationFailureSidelink* content in Proposal C-5 in [1], *together with* the AS configuration failure procedure not having been concluded from the email discussion [2] (specifically related to Proposal 4 and 5 therein). The discussion on the content of *RRCReconfigurationFailureSidelink* message comes first.

* **Question 5:** What information should be included in *RRCReconfigurationFailureSidelink* from the RX UE to the TX UE?

1. A failure type of “AS configuration failure” is included;
2. The SLRB configurations (signaled in the RRCReconfigurationSidelink from the peer UE) that caused the AS configuration failure are included;
3. Nothing is included, keeping RRCReconfigurationFailureSidelink as an empty message.

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| **Companies are invited to provide views below for Question 5** | | |
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**Result and Conclusion of Q5:**

Based on Monday on-line discussion, regarding what TX UE should do upon receiving *RRCReconfigurationFailureSidelink*, Option C, i.e. up to UE implementation, has already been out; also, based on the atmosphere of the on-line discussion, it seems that Option B, i.e. report a new failure cause to the NW, received the support of a majority of companies. For the sake of progress, therefore, below question tentatively asks whether tOption 2 in [2] can be accepted as a way forward at this stage.

* **Question 5a**: As per on-line discussion on Monday, do companies now agree that the TX UE reports a new failure cause to the NW upon the reception of *RRCReconfigurationFailureSidelink* from the RX UE?

1. Yes.
2. No. If this option is selected, please clarify the reason and specify other solutions (in detail).

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| **Companies are invited to provide views below for Question 5a** | | |
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**Result and Conclusion of Q5a:**

* **Question 5b**: If Option a) is selected in Q5a, how does the TX UE deal with the failing SLRB(s) included in the AS configuration failure message (if any)?

1. Release them.
2. Continue using them.

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| **Companies are invited to provide views below for Question 5b** | | |
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**Result and Conclusion of Q5b:**

### Discussion on Proposal C-6 – RLC AM SLRB release

The below question is to collect companies’ views on Proposal C-6 in [1]. It is about how to release the SLRB configuration provided by the gNB only for RLC AM status reporting. The specific issue is that, the configuration of the peer UE’s SLRB used for RLC AM feedback transmission is triggered by the initiating UE, and the release of this SLRB is also triggered by the reception of the SLRB release signalling in *RRCReconfigurationSidelink* from the initiating UE. However, when the SLRB is released, the peer UE will not report to its own gNB, as the SLRB release is not due to the termination of any PC5 QoS flows in the upper layers, so that the peer UE’s gNB will not know such release without SUI reported by the peer UE and thus cannot release the SLRB configuration properly.

* **Question 6**: When a peer UE receives the release of an RLC AM/UM SLRB via PC5-RRC from the initiating UE, should it report the release of this SLRB to its own gNB?

1. Yes, by excluding the entry in the *sl-RLC-ModeIndicationList* corresponding to the released SLRB in SUI.
2. No, no need to deal with this issue.

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| **Companies are invited to provide views below for Question 6** | | |
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**Result and Conclusion of Q6:**

### Discussion on Proposal C-7 – Handling of SL configuration during state transition

The below question is to collection companies’ vies on proposal C-7 in [1]. It is related to how to handle the SL configuration during the state transition, and the specific issue is “whether such handling during state transition should be supported as full configuration operation”. Specifically, the question below asks whether this is needed, and take one step forward to ask such full configuration is applied to which specific cases and involve what specific SL related configurations (if regarded as needed).

* **Question 7**: Does the SLRB handling during the state transition need to be supported as the full configuration operation?

1. Yes. If this option is selected, please clarify such full configuration applies to which specific cases and involves which specific SL related configurations.
2. No, it is up to UE implementation how to address this issue.

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| **Companies are invited to provide views below for Question 7** | | |
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**Result and Conclusion of Q7:**

### Discussion on Proposal C-8 – PC5-S connection vs. PC5-RRC connection

The below question is to discuss proposal C-8 in [1]. It is related to the clarification on a previous RAN2 agreement “For a pair of UEs performing unicast communication, PC5-S connections and PC5 RRC connections are 1 to 1 mapping”, as some companies think the wording of this agreement is literally not aligned with SA2’s latest progress in TS 23.287 on PC5-S connection in the upper layers. It has been clarified in [1] that the true intention of this agreement on the relationship between PC5-S connection and PC5-RRC connections was to decide how to the model *PC5-RRC connection* in the AS (so as to avoid further introducing a so called *“UE ID” in the AS* @RAN2 #107bis), but *NOT* to decide how the PC5-S connection in the upper layers is configured/maintained (which should be an SA2-decided issue). Therefore, with the PC5-RRC connection agreed by RAN2 as an AS connection between a pair of SRC L2 ID and DST L2 ID, as already indicated in the earlier LS to SA2/RAN1 and now specified in TS 38.331 running CR [5], it is fully up to SA2 on whether to have more than one PC5-S connections in the upper layers on a PC5-RRC connection, and this seem to be pure upper layer issues without obvious AS impacts. As a result, it seems that only a clarification is needed on the relationship of PC5-S connection vs. PC5-RRC connection in the upper layers.

* **Question 8**: Do companies agree that it is up to SA2 whether more than one PC5-S connections can be associated with a PC5-RRC connection (which was agreed and specified as an AS connection between a pair of SRC L2 ID and DST L2 ID by RAN2)?

1. Yes.
2. No. If this option is selected, please clarify the reason.

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| **Companies are invited to provide views below for Question 8** | | |
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**Result and Conclusion of Q8:**

### Discussion on Proposal C-9 – SRC L2 ID in SUI or not

The below question is to collect companies’ views on proposal C-9 in [1]. It is related to whether to report the SRC L2 ID in the SUI, along with the DST L2 ID. Note that even if the reporting SRC L2 ID itself can be agreed, at this stage of Relase-16 it is not desirable to perform further enhancements (e.g. some enhancement based on the gNB awareness of the paring relation between two UEs) based on that. So this point is still to be confirmed in the below questions.

* **Question 9**: Does the SRC L2 ID also need to be reported in the SUI?

1. Yes. If this option is selected
2. No.

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| **Companies are invited to provide views below for Question 9** | | |
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**Result and Conclusion of Q9:**

* **Question 9a**: If “yes” is selected in Q9, do companies agree that no other enhancements based on the reporting of SRC L2 ID should be further pursued in this release (e.g. enhancements with gNB awareness of the pairing of two UEs), besides the reporting of SRC L2 ID itself?

1. Yes.
2. No.

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| **Companies are invited to provide views below for Question 9a** | | |
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**Result and Conclusion of Q9a:**

### Discussion on Proposal C-10/10a – SIB size reduction or not

The below question is to collect companies’ views on proposal C-10/10a in [1]. It is related to whether SIB size reduction should be done for the NR SL specific SIB in various cases. For this issue, since only one company provided calculation of the current SIB size, perhaps the most RAN2 can do in this meeting is to attempt to discuss the need of it. Therefore, the below question only covers the need itself. IT should be noted that, at least until now, even the need of SIB reduction has not been sufficiently analysed by companies’ documents, not mentioning the solutions on how to do it. Therefore, even if the SIB size reduction were to really be determined as needed, it could only be done in April/May meeting as ASN.1 correction, not possibly in this meeting or before March

**Question 10**: In SIB size reduction needed for the NR SL specific SIB?

1. Yes, but should only be done in the ASN.1 correction phase (i.e. in April/May, not before March);
2. No at least for the time being, with the need FFS in April/May;
3. No, not needed at all;
4. Others.

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| **Companies are invited to provide views below for Question 10** | | |
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**Result and Conclusion of Q10:**

# Conclusion

To be added later…

# Reference

1. R2-2002093 Summary document of AI 6.4.2.1 – RRC aspects Huawei, HiSilicon
2. R2-2000757 Summary of email discussion [108#44][V2X] - Miscellaneous RRC issues for 5G V2X with NR Sidelink Huawei, HiSilicon