**hu3GPP TSG-RAN WG2 Meeting #117 electronic R2-220xxxx**

**Online, February, 2022**

**Agenda item: 8.15.2**

**Source: OPPO**

**Title: Summary of 711**

**Document for: Discussion and Decision**

# Introduction

This document is to discuss the following issue

* [AT117-e][711][V2X/SL] UL and SL prioritization (OPPO)

**Scope:** Prepare the CR with the change above and discuss if the CR is aligned with RAN2 agreements well. Note we’ll focus on the CR and we’ll not have discussion regarding whether circular reference issue needs to be resolved or not.

**Intended outcome:** CR in R2-2203692. Email approval.

**Deadline:** 3/3 10:00am UTC

   There are 4 changes in the draft-CR as follows:

1. In 5.4.2.2, change to the plural form for LTE V2X communication considering CA in LTE-V2X;
2. In 5.22.1.3.1a, add the UL priority comparison condition and the MAC CE prioritization condition for NR UL transmission;
3. In 5.22.1.3.1a, remove the “neither prioritized as specified in clause 5.4.2.2 nor” and change the sentence into “none of uplink transmission(s) is prioritized by upper layer according to TS 23.287 [19]” to remove the cross-reference issue;
4. In 5.4.2.2, remove the UL priority comparison condition and the MAC CE prioritization condition since the condition is added in 5.22.1.3.1a.

And the concern for the alignment between the changes and previous RAN2 agreements is on change 2/4, so this discussion will check companies’ on whether change 2/4 are aligned with previous RAN2 agreement.

# Discussion

For the 2nd change in the draft-CR, i.e., add the UL priority comparison condition and the MAC CE prioritization condition for NR UL transmission

The related RAN2 agreements on the prioritization of sidelink transmission are as follows:

For between SL-data and UL-data/SRB, the SL transmission is prioritized if the highest priority value of UL LCH(s) with available data is larger than the UL priority threshold and the highest priority value of SL LCH(s) with available data is lower than the SL priority threshold. Otherwise the UL transmission is prioritized.

And the following changes are including the prioritization condition of UL-threshold comparison and MAC CE in 5.22.1.3.1a directly:

|  |
| --- |
| The transmission of the MAC PDU is prioritized over uplink transmission(s) of the MAC entity or the other MAC entity if the following conditions are met:  1> if the MAC entity is not able to perform this sidelink transmission simultaneously with all uplink transmission(s) at the time of the transmission, and   1. if none of the uplink transmission(s) is prioritized by upper layer according to TS 23.287 [19]; and 2. if none of the NR uplink MAC PDU(s) includes any MAC CE prioritized as described in clause 5.4.3.1.3; and 3. if the value of the highest priority of the logical channel(s) of all the NR uplink transmission(s) is not lower than *ul-PrioritizationThres* if *ul-PrioritizationThres* is configured; and   1> if *sl-PrioritizationThres* is configured and if the value of the highest priority of logical channel(s) or a MAC CE in the MAC PDU is lower than *sl-PrioritizationThres*. |

**Q1: Do you think the above change is aligned with the related previous RAN2 agreements?**

1. **Yes**
2. **No (Please point the not-aligned part and provide the suggestion on revision)**

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comment |
| Samsung | Yes |  |
| ZTE | Yes |  |
| Nokia | Yes, if majority | Just a small note that in the actual draft CR, “the” is missing in the second condition; ‘if none of the uplink’ although it is stated here  OPPO: Thanks for spotting this, will modify in the next version. |
| Huawei, HiSilicon | Yes |  |
| Apple | Yes |  |
| CATT | Yes |  |

Then, since the UL priority comparison condition and the MAC CE prioritization condition for NR UL transmission have been moved to section 5.22.1.3.1a, it is straight forward to remove the corresponding part in 5.4.2.2 to avoid duplication as follows:

|  |
| --- |
| The transmission of the MAC PDU is prioritized over sidelink transmission or can be performed simultaneously with sidelink transmission if one of the following conditions is met:  - if there are both a sidelink grant for transmission of NR sidelink communication and configured grant(s) for transmission of V2X sidelink communication on SL-SCH as described in clause 5.14.1.2.2 of TS 36.321 [22] at the time of the transmission, and neither the transmission of NR sidelink communication is prioritized as described in clause 5.22.1.3.1a nor the transmission(s) of V2X sidelink communication is prioritized as described in clause 5.14.1.2.2 of TS 36.321 [22]; or  - if there are both a sidelink grant for transmission of NR sidelink communication and configured grant(s) for transmission of V2X sidelink communication on SL-SCH as described in clause 5.14.1.2.2 of TS 36.321 [22] at the time of the transmission, and the MAC entity is able to perform this UL transmission simultaneously with the transmission of NR sidelink communication and/or the transmission(s) of V2X sidelink communication; or  - if there is only configured grant(s) for transmission of V2X sidelink communication on SL-SCH as described in clause 5.14.1.2.2 of TS 36.321 [22] at the time of the transmission, and either none of the transmissions of V2X sidelink communication is prioritized as described in clause 5.14.1.2.2 of TS 36.321 [22] or the MAC entity is able to perform this UL transmission simultaneously with the transmission(s) of V2X sidelink communication; or  - if there is only a sidelink grant for transmission of NR sidelink communication at the time of the transmission, and if the transmission of NR sidelink communication is not prioritized as described in clause 5.22.1.3.1a, or there is a sidelink grant for transmission of NR sidelink communication at the time of the transmission and the MAC entity is able to perform this UL transmission simultaneously with the transmission of NR sidelink communication; or  - if there are both a sidelink grant for transmission of NR sidelink communication and configured grant(s) for transmission of V2X sidelink communication on SL-SCH as described in clause 5.14.1.2.2 of TS 36.321 [22] at the time of the transmission, and either only the transmission of NR sidelink communication is prioritized as described in clause 5.22.1.3.1a or only the transmission(s) of V2X sidelink communication is prioritized as described in clause 5.14.1.2.2 of TS 36.321 [22] and the MAC entity is able to perform this UL transmission simultaneously with the prioritized transmission of NR sidelink communication or V2X sidelink communication: |

**Q2: Do you think the above change is aligned with the related previous RAN2 agreements/specification?**

1. **Yes**
2. **No (Please point the not-aligned part and provide the suggestion on revision)**

|  |  |  |
| --- | --- | --- |
| Company | Yes or No | Comment |
| Samsung | Yes |  |
| ZTE | Yes |  |
| Nokia | Yes, if majority |  |
| Huawei, HiSilicon | Yes |  |
| Apple | Yes |  |
| CATT | Yes |  |

**Q3: Do you have any other comments on the running-CR?**

|  |  |
| --- | --- |
| Company | Comment |
| Huawei, HiSilicon | With the current changes, I believe all prioritization handling between UL and SL will happen in 5.22.1.3.1a. There shall be no reference of such prioritization back to 5.4.2.2. “prioritized as specified in clause 5.4.2.2” in one of the level 1 conditions shall be removed (as done in our CR R2-2202716). I provided one revision on this.  OPPO: Thanks for the comment. For the deletion of the other reference to 5.4.2.2 (as in your CR), we may have different understanding.   * Firstly, this reference is used for determination of whether a SL transmission can be performed instead of SL prioritization; * And if we delete this some cases where SL is prioritized but cannot be transmitted (since UL should be transmitted in the same time) will be missing. For example, in UL CA case, according to 5.22.1.3.1a SL is prioritized when simul-tx between SL and “all uplink transmission(s)” cannot be done, while according to 5.4.2.2 UL is prioritized when simul-tx between SL and “this UL transmission” can be done, i.e., UL and SL transmission can be prioritized in the same time. And in this case, according to legacy spec, our understanding is SL transmission should not be performed.   Therefore, our understanding is this reference to 5.4.2.2 cannot be removed, please correct me if any misunderstanding here. |
| Apple | Actually, we have different view as Huawei, all prioritization handling between UL and SL is now in 5.4.2.2 as 5.4.2.2 includes not only a reference to 5.22.1.3.1a, but also have more full set of rules. So, what we need to delete is the “ and the sidelink transmission is prioritized over uplink transmisison “ part which is no longer needed. |

# Summary

# Reference

1. R2-2202193 Correction on UL-SL prioritization\_option1 OPPO
2. R2-2202716 Clarification on the UL and NR SL prioritization Huawei, HiSilicon, Lenovo, Motorola Mobility