**3GPP TSG RAN WG1 Meeting #110 R1-220xxxx**

**Toulouse, France, August 22-26, 2022**

**Agenda Item: 7.2.5**

**Source: Moderator (Huawei, HiSilicon)**

**Title: Summary of correction on UL prioritization cases related to CG PUSCHs**

**Document for: Discussion and Decision**

# Introduction

In RAN1#109-e, remaining cases for UL prioritization related have been discussed. The FL summary for that topic is found in [1]. During that discussion it has been commented that in Clause 9 of TS 38.213, the word “grant” should be added to the sentence “*a configured grant PUSCH of larger priority index and a configured grant PUSCH of smaller priority index on a same serving cell*” , since otherwise there is an ambiguity which also would be in conflict with the Rel-16 agreement on HP configured grant.

For his issue two companies have provided papers to RAN1#110, Huawei/HiSilicon in [2] and Nokia/Nokia Shanghai Bell in [3].

**R1-2205782 Correction on UL prioritization cases related to CG PUSCHs, Huawei, HiSilicon**

**R1-2206143 [Draft CR] Correction on intra-UE prioritization for configured grant PUSCHs, Nokia, Nokia Shanghai Bell**

Both companies present the same TP.

# Discussion

## Input papers to the meeting

**Huawei/HiSilicon raises this issue in R1-2205782 [2].**

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| In Rel-16, collision resolution for CG-PUSCH and CG-PUSCH with different priorities was agreed in RAN1#101-e meeting as follows.***Agreement**** *For collision handling between CG and CG with different priorities*
	+ *If MAC delivers two MAC PDUs, it is up to UE implementation to make sure that the low priority CG PUSCH transmission can be cancelled before the start of the high priority CG PUSCH.*

In TS 38.213, the above agreement was captured as: *“a configured grant PUSCH of larger priority index and a configured PUSCH of smaller priority index on a same serving cell”.* For CG, two different wordings are used in the sentence, which are “a configured grant PUSCH” and “a configured PUSCH” respectively. For the latter one, it may be misunderstood that PUSCH with SP-CSI without DCI is also included, which is not covered in the Rel-16 agreement above. Therefore, “grant” should be inserted before “PUSCH” to avoid the ambiguity. The same correction has already been captured in the Rel-17 spec since vh10. Accordingly, section 9 in TS 38.213 needs to be updated to reflect the above handling. |

**Nokia raises the same issue in R1-2206145 [3].**

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| Correctly reflect the Rel-16 agreement on HP CG (configured grant) PUSCH vs. LP CG PUSCH, i.e. this agreement doesn’t cover other scenarios. Also, based on the current specs version, there is discrepancy between Rel-17 and Rel-16 specifications regarding this scenario.Ambiguity on what Rel-16 specs cover. Also, discrepancy between Rel-17 and Rel-16 specs. |

**The same TP is provided in R1-2205782 [2] and R1-2206143 [3]**

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| 9 UE procedure for reporting control information< Unchanged parts are omitted >If a UE would transmit the following channels, including repetitions if any, that would overlap in time- a first PUCCH of larger priority index with SR and a second PUCCH or PUSCH of smaller priority index, or - a configured grant PUSCH of larger priority index and a PUCCH of smaller priority index, or- a first PUCCH of larger priority index with HARQ-ACK information only in response to PDSCH(s) reception without corresponding PDCCH(s) and a second PUCCH of smaller priority index with HARQ-ACK information only in response to PDSCH(s) reception without corresponding PDCCH(s), or a second PUCCH of smaller priority index with SR and/or CSI, or a configured grant PUSCH with smaller priority index, or a PUSCH of smaller priority index with SP-CSI report(s) without a corresponding PDCCH, or - a PUSCH of larger priority index with SP-CSI reports(s) without a corresponding PDCCH and a PUCCH of smaller priority index with SR, or CSI, or HARQ-ACK information only in response to PDSCH(s) reception without corresponding PDCCH(s), or- a configured grant PUSCH of larger priority index and a configured grant PUSCH of smaller priority index on a same serving cellthe UE is expected to cancel a repetition of the PUCCH/PUSCH transmissions of smaller priority index before the first symbol overlapping with the PUCCH/PUSCH transmission of larger priority index if the repetition of the PUCCH/PUSCH transmissions of smaller priority index overlaps in time with the PUCCH/PUSCH transmissions of larger priority index.< Unchanged parts are omitted > |

## Round 1

The Rel-16 agreement on HP CG vs LP CG only includes these scenarios and not PUSCH with SP-CSI without DCI. This should be clarified, which also is in-line with the wording in the Rel-17 specification.

Companies are encouraged to share their view if they have a concern on the TP presented in in [2] and [3]

Question 1: Do you have a concern with the following TP presented in R1-2205782 [2] and R1-2206143 [3]

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| **Company** | **View** |
| ZTE | No concern. The TP is fine. |
| Nokia | Support the TP (no concern) |
| Apple | Okay. |
| DOCOMO | Fine with the TP. |
| CATT | Fine with the TP. |
| Samsung | Okay with the TP. We think that it should be part of an alignment/editorial CR, not an individual CR. Also, same text (“until the first uplink symbol of a configured PUSCH”) is also in section 7.7 (power headroom report). So, it seems better to update together in the alignment/editorial CR.  |
| Qualcomm | Fine with the TP. |
| Spreadtrum | Support the TP |
| vivo | Fine with the TP. |

# Outcome

TBD.

# References

[1] [R1-2205440](file:///D%3A%5Cold_drive_E%5Cwork%5C%E5%85%88%E8%BF%9B%E7%AE%97%E6%B3%95%E7%A0%94%E7%A9%B6%E7%BB%84%5C%E6%A0%87%E5%87%86%5C03%20%E6%8F%90%E6%A1%88%5CRAN1%5CDocs%5CR1-2205440.zip), Summary of [109-e-R16-URLLC-07] Issue#8: Remaining issues on UL prioritization cases related to SP-CSI, Moderator (Huawei), RAN1 #109-e

[2] [R1-2205782](file:///C%3A%5CUsers%5Cyounsun%5CDocuments%5C3GPP%20documents%5CRAN1%20tdocs%5CTSGR1_110%5CDocs%5CR1-2205781.zip), Correction on UL prioritization cases related to CG PUSCHs, Huawei, HiSilicon

[3] R1-2206143 [Draft CR] Correction on intra-UE prioritization for configured grant PUSCHs Nokia, Nokia Shanghai Bell