3GPP TSG-RAN WG2 Meeting #110\_e R2-20xxxxx

Electronic meeting, 1st – 12th June 2020

Agenda Item: 6.2.1

Source: Ericsson (rapporteur)

Title: [Post109bis-e][935]][NR-U] MAC open issues (Ericsson)

Document for: Discussion, Decision

# Introduction

This document shall be used to capture open issues and identify new issues in the following email discussion:

* [Post109bis-e][935]][NR-U] MAC open issues (Ericsson)

Address stage-3 remaining open issues from 109e. Capture identified NEW, if any, stage-3 corrections/issues from other companies.  Issues that have already been discussed and not pursued should not be brought up again.

      Intended outcome: CR for 38.321 addressing open issues (including editorials received offline)

      Deadline: Next Meeting

In order to allow all companies to comment on any new issues, please bring up any new issues before Monday May 18th 23.59 PST.

First we have section 2 that can be used for entering NEW issues, note that issues that have already been discussed and not pursued should not be brought up again. Please add any new issues in section 2.

Then we will have text proposals in section 3 (or in a CR) and a summary in section 4.

# Open issues

## LS to RAN2 on clarification of RVID for the first transmission for CG-PUSCH

At RAN2#109\_e RAN2 made the following agreement on redundancy versions:

1. The UE uses RV zero for the initial transmission. The RV selection for auto-retransmission is left up to UE implementation, as for feLAA.

RAN2 received questions from RAN1 in the LS [R2-2004359](https://www.3gpp.org/ftp/tsg_ran/wg2_rl2/TSGR2_110-e/LSin/R2-2004359.zip), where they state problems of understanding and implementing this agreement when repetitions are configured. RAN1 asks RAN2 to change the agreement and leave the selection of redundancy version to the UE implementation.

* Q1: Was this RAN2 agreement made by also accounting for the case when parameters *cg-nrofSlots-r16* and *cg-nrofPUSCH-InSlot-r16* are configured and *repK*>1? In that case, does this agreement enforce the first transmission out of *repK* from using RV0? RAN1 finds some difficulties to implement this at least for short CG-PUSCHs.
* Q2: In general, given that the CG-UCI includes information related to the RVID of the current CG-PUSCH, is it possible to leave the choice of RVID up to the UE implementation? Keep in mind, that 1) a reasonable UE implementation will not intentionally choose an RVID that would worsen performances, and 2) fixing for the initial transmission RV to 0 does not help gNB’s implementation, since gNB is still unaware of when the initial transmission would happen. In fact, the gNB needs to perform blind detection to determine the CG-PUSCH location, and attempt to decode CG-UCI before decoding the CG-PUSCH.
* Q3: Is it possible from RAN2 perspective to remove the text in square brackets in the above TP and leave the choice of RVID completely up to UE when *cg-RetransmissionTimer* is provided?

**Question 2.1a: Do you agree to change the agreement and let UE implementation select the redundancy version when *cg-RetransmissionTimer* is configured?**

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| **Company** | **Reply (yes/no)** | **Additional comments** |
| OPPO | No | We think for the case when rep-K = 1, i.e., no repetition case, we see no reason to revert the agreement, i.e., initial transmission use RV=0. However, when rep-k>1, there was a concern from RAN1 that the UE may not be able to change the RVs if the initial transmission fails due to LBT, then we think it’s up to UE implementation to select any RVs, however, it should be noted that at least there should be a transmission using RV=0 in the bundle otherwise it might have issue for the network to decode the bundle. |
| Qualcomm | Yes | As explained in the RAN1 LS, the RV=0 selection for the first transmission does not help gNB implementation and the intention was to simplify the specification and have a uniform text for both CG and repK. If the concern is that some bad UE implementation does not use RV=0 for the first transmission, this can be captured in the Chair Notes, e.g. “RAN2 assumes that the UE implementation will select RV=0 for the first transmission”. |
| Huawei | Yes | We think the rationale for doing this is reasonable that even for the initial transmision, there is no strict need to restrict the RV to 0 and the RV can always be indicate to the network with UCI. |

**Question 2.1b: If answered “no” to question 2.1a, how do you propose solving the issues brought up by RAN1?**

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| **Company** | **Reply (yes/no)** | **Additional comments** |
| OPPO |  | For repK>1, UE implementation selects redundancy version for the bundle, RV=0 should be selected at least for one of the transmissions for the bundle. |

**Question 2.1c: Do you agree that RAN2 did not consider repK>1 when agreeing to use RV zero for the initial transmission?**

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| **Company** | **Reply (yes/no)** | **Additional comments** |
| OPPO | yes |  |
| Qualcomm | Yes | The discussion in RAN2 was only for CG with retransmission timer and repK > 1 was not considered. |
| Huawei | Yes |  |

**Question 2.1d: Do you agree that if RAN2 answers “yes” to to question 2.1a, then that shall also solve the RAN1 issues mentioned in the LS Q1?**

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| **Company** | **Reply (yes/no)** | **Additional comments** |
| OPPO | No | It will not really solve the issue. |
| Qualcomm | Yes | As indicated in the LS, selection of RV = 0 for the first transmission in repK > 0 is problematic due to possible LBT failures where the UE will not be able to use the prepared TB in another slot. Therefore, RV=0 in the first transmission should not be mandated for repK > 1. In addition, we should not tie the answer to Q1 and Q2 together. Even if RAN2 decides to keep RV=0 mandate for CG with retransmission (i.e. No to Q2, Q3), the decision for repK > 0 (Q1) should be independent. RAN1’s main technical concern is for repK case in Q1. The request in Q2 and Q3 to simplify the specification for CG case. |
| Huawei | Yes | For Q1, we can answer directly to RAN1 that for repK, it follows the design for R15 and the above agreement in RAN2 has no impacts on that. For Q2, since RAN1 has expressed difficulty in implementing RV=0 for initial transmission, it is also OK from RAN2 perspective to select the RV for initial tranmsission by UCI indication. |

# Text proposals

# Summary