**3GPP TSG RAN WG1 #104-e R1-210XXXX**

**e-Meeting, January 25th – February 5th, 2021**

**Agenda item:** 7.1

**Source:** Moderator (CATT)

**Title:** Summary of [104-e-NR-7.1CRs-08] Correction on UCI multiplexing with PUCCH overriding

**Document for:** Discussion and Decision

# Introduction

This document is created to facilitate the email discussion of “[104-e-NR-7.1CRs-08] Correction on UCI multiplexing with PUCCH overriding”. This email thread is triggered by draft CR in [1]. The draft CR discussed two issues and companies are invited to provide views in section 2.

**Issue 1:**

If a PUCCH resource for HARQ-ACK overlaps with another PUCCH/PUSCH without associated DCI (e.g. PUCCH resource for CSI/SR, PUSCH for SP-CSI transmission or CG PUSCH), the PUCCH resource for HARQ-ACK may be overridden to a PUCCH resource which **does not** overlap with the PUCCH/PUSCH without associated DCI after UE determines to multiplex CSI/SR or CG PUSCH with HARQ-ACK. The UE behavior is not clear in this case. Detailed examples are provided in the cover page.

**Issue 2:**

PUCCH overriding timeline was defined to ensure that UE has enough time to know whether a PUCCH resource for HARQ-ACK is overridden, but the timeline does not include the case when the overridden PUCCH resource is for SPS HARQ-ACK.

# Company views

**Q1: Do you agree with issue 1 as introduced in section 1? If not, why?**

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| --- | --- | --- |
| **Company** | **Agree or not** | **Comment** |
| QC | Partially agree | We acknowledge this is an issue and the timeline was not defined when consider the interaction between UCI multiplexing and HARQ-ACK resource overriding. But we think the issue is not critical and does not qualify a Rel-15 CR at this stage. gNB can do scheduling properly to make sure the second DCI arrives early enough (to meet the timeline by consider all the three PUCCHs are “virtually” overlapping with each other) to avoid this issue. |
| NTT DOCOMO | Agree | As QC mentioned, NW side should do scheduling so that this situation does not occur. |
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**Q2: Do you agree with the text proposal for TS 38.213 clause 9 in the draft CR [1]? If not, why?**

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| **Company** | **Agree or not** | **Comment** |
| QC | No | As mentioned in answer to Q1, no TP is needed for this issue |
| NTT DOCOMO | No for Rel-15  OK for Rel-16 | NW side guarantees sufficient time, so system works. TP for Rel-15 is unnecessary.  TP for Rel-16 is OK for us. |
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**Q3: Do you agree with issue 2 as introduced in section 1? If not, why?**

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| --- | --- | --- |
| **Company** | **Agree or not** | **Comment** |
| QC | Agree | Yes, N3 should cover HARQ-ACK for SPS as well. |
| NTT DOCOMO | Agree | As Q1, NW side should do scheduling so that this situation does not occur. |
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**Q4: Do you agree with the text proposal for TS 38.213 clause 9.2.3 in the draft CR [1]? If not, why?**

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| --- | --- | --- |
| **Company** | **Agree or not** | **Comment** |
| QC | Agree | We are OK with the TP for the second issue |
| NTT DOCOMO | No for Rel-15  OK for Rel-16 | Same comment as Q2 |
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# Conclusion

To be added after the discussion.

# Reference

1. [R1-2100326](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_104-e/Docs/R1-2100326.zip) Correction on UCI multiplexing with PUCCH overriding CATT