3GPP TSG RAN WG1 #106-e R1-210XXXX

e-Meeting, August 16th – 27th, 2021

**Agenda item: 7.2.5**

**Source: Moderator (Nokia)**

**Title:** **Summary of [106-e-NR-L1enh-URLLC-04]**

**Document for: Discussion and Decision**

# Introduction

This document is created to facilitate the email discussion of

* [106-e-NR-L1enh-URLLC-04] Issue#8: Conflict between the first PUCCH repetition and semi-static configuration in Rel-15/16 - Klaus (Nokia)

Although not mentioned for this email thread by Mr. chairman, the intention is to have this completed by Aug 20th.

This email thread is triggered by the following discussion document.

[R1-2107555](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_106-e/Docs/R1-2107555.zip) UCI enhancements maintenance: Conflict between the first PUCCH repetition and semi-static configuration in Rel-15/16 Nokia/Nokia Shanghai Bell

The issue of the conflict of the first PUCCH repetition and semi-static configuration in Rel-15/16 had been discussed now for three meetings in a row, without conclusion. Reference is hereby made to the following documents from previous RAN1 meetings:

* [104-e-NR-L1enh-URLLC-02] in R1-2101841, see Sec. 2.3
* [104b-e-NR-L1enh-URLLC-02] in R1-2103867, see Sec. 2.2
* [105-e-NR-L1enh-URLLC-02] in R1-2106050, see Sec. 2.2

# Email discussions

**The following is discussed by Nokia/NSB in R1-210755:**

The group discussed during RAN1#105-e postponing of a PUCCH repetition that collides with SSB symbols or symbols indicated as DL. A consensus was reached how this should be handled in Rel-16, but it was noted that the same question was discussed for Rel-15 and then different implementation choices were allowed. A proposal was to include in the meeting minutes a note that concerns only Rel-16. Because the problem was discussed for Rel-15 and one approach was agreed then, it seems not possible to change that decision if there are objections. Therefore, we support adding the note in the form proposed in RAN1 #105-e. An objection was based on thinking that, as specifications are identical for Rel-15 and Rel-16, we should not make a note only for Rel-16. However, without a note, ambiguity would remain also with Rel-16 which seems unfortunate.”

**Proposal: Include in the Chairman’s Notes the clarification  
“It is clarified that, according to the running R16 specification, a PUCCH repetition in case  (including the first PUCCH repetition) is postponed to the next available slot if the PUCCH repetition collides with SSB symbols or symbols indicated as DL by*tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated*.”**

In addition, CATT proposed to specifically mentioning that different interpretations are allowed in Rel-15:

“ **There may be different understandings/implementations for Rel-15 if the first PUCCH repetition collides with SSB symbols or symbols indicated as DL by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated.”***

## 2.1 Round 1

As this had been discussed earlier, the moderator brings forward directly the proposals based on the latest status from RAN1#105-e. **Please add your companies name directly to the line below the proposals and further comments in the table below.**

**Proposal 1: Include in the Chairman’s Notes the clarification  
“It is clarified that, according to the running R16 specification, a PUCCH repetition in case  (including the first PUCCH repetition) is postponed to the next available slot if the PUCCH repetition collides with SSB symbols or symbols indicated as DL by*tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated*.”**

* + **Support:** Nokia/NSB, CATT, vivo
  + **Object:** …

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| *Company* | *Further comments* |
| Apple | We are fine with Proposal 1 in general, but we think the interpretation of R15 (either following Proposal 1 or leave it to UE implementation) should also be clarified to achieve common understanding. Therefore, we do not think Proposal 1 should be agreed without any clarification for R15. |
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**Proposal 2: Include in the Chairman’s Notes the additional further clarification as a sub-bullet to Proposal 1:**“ **There may be different understandings/implementations for Rel-15 if the first PUCCH repetition collides with SSB symbols or symbols indicated as DL by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated.”***

* + **Support:** Nokia/NSB, CATT,
  + **Object:** …

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| *Company* | *Further comments* |
| CATT | The sub-bullet was proposed to address Apple’s concern. We are also fine with Proposal 1 only without the sub-bullet. |
| vivo | We are also fine with Proposal 1 only without the sub-bullet. |
| Apple | We support Proposal 2, i.e., further clarification on R15 behavior.  The concern we have is that we do not know how to interpret R15 without any notes. As mentioned above, we are fine with either leaving to UE implementation or adopting the same understanding as R16, as long as it is clarified.  A question for CATT/vivo: without the sub-bullet, what is your understanding of R15? If the common understanding is to leave it to UE implementation, we could also be fine. But then I do not quite understand why we cannot explicitly have the notes to clarify it. |
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