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

**Toulouse, France, August 22nd – 26th, 2022**

**Source: Moderator (CATT)**

**Title:** **FL summary of Rel-17 URLLC/IIoT intra-UE MUX A**

**Agenda Item:** **8.3**

**Document for:** **Discussion and Decision**

# Introduction

This document summarizes the inputs and discussions on Rel-17 URLLC/IIoT intra-UE MUX A in RAN1#110.

# Issue 1: Joint operation of R17 URLLC/IIoT and sidelink

In RAN1#109-e, ETRI had the following proposals on joint operation with sidelink.

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| **Proposal 1: Simultaneous transmission of both PUSCH and PUCCH can be supported in the joint operation of sidelink and IIoT.**  **Proposal 2**:**The previous conclusion is still valid in Rel-17 in the same priority: No support of multiplexing of SL HARQ and Uu UCI on PUCCH or PUSCH in Rel-16.**  **Proposal 3: It is allowed that the joint configuration between two features and the serving gNB guarantee to no multiplex sidelink HARQ and Uu UCI.** |

During preparation phase discussion, almost all companies did not agree to discuss the issue (Issue 9 in [4]). Companies commented that it is not an essential issue. Some companies commented that there is no need for joint operation and can be discussed in R17 sidelink if needed.

ETRI discussed the issue in this meeting based on the previous comments in R1-2206948 [1] section 2.1 with the following observations/proposals. Draft CR is provided in [2].

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| **Observation 1: A UE can operate both sidelink and IIoT having any priority index.**  **Observation 2: The previous conclusion is still valid in Rel-17 in the same priority: *No support of multiplexing of SL HARQ and Uu UCI on PUCCH or PUSCH in Rel-16.***  **Proposal 1**: **Simultaneous transmission of both PUSCH with UCI and PUCCH with SL HARQ-ACK can be supported if PUCCH and PUSCH have different priority indices.**  **Proposal 2**: **It is clarified that the joint configuration between two features and the serving gNB guarantee to no multiplex sidelink HARQ and Uu UCI** |

Companies are encouraged to share your views below.

Do you agree to discuss the issue in R1-2206948 section 2.1 in RAN1#110?

|  |  |
| --- | --- |
|  | **Company** |
| **Yes** |  |
| **No** | Samsung, New H3C |

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| --- | --- |
| **Company** | **Comments** |
| Samsung | We don’t think the issue is essential.  Proposal 1 is already supported.  Proposal 2 is N/A as the specs do not mandate the gNB behavior |
| New H3C | We don’t think the issue is essential |
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# Issue 2: Number of PUCCH resources after UCI multiplexing

In RAN1#109-e, Apple raised an issue that it is not clear when PUCCHs should be trimmed to ensure up to 2 PUCCHs per PHY priority in a slot/sub-slot. Apple discusses the same issue in [3].

During the preparation phase discussion in last meeting, no company supported to discuss the issue (Issue 7 in [4]). Companies commented that the same issue exists in Rel-15 and it is expected to be guaranteed by gNB implementation.

Moderator’s understanding is that there is no trimming procedure at UE side and gNB would ensure that the number of PUCCHs after prioritization/multiplexing would not exceed the number of PUCCHs supported by UE.

Companies are welcome to share your views below.

Do you agree to discuss the issue in R1-2207310 section 2 in RAN1#110?

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| --- | --- |
|  | **Company** |
| **Yes** |  |
| **No** | Samsung, New h3C |

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| **Company** | **Comments** |
| Samsung | We don’t think the issue is essential.  We agree with FL that issue should be avoided by gNB implementation. |
| New H3C | We don’t think the issue is essential and this issue can be avoided by gNB implementation |
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# Reference

1. R1-2206948 Remaining issues on Enhanced IIoT and URLLC ETRI
2. R1-2206949 Draft CR on Enhanced IIoT and URLLC ETRI
3. R1-2207310 Maintenance on Enhanced Industrial Internet of Things (IoT) and URLLC Apple
4. R1-2205146 Preparation phase FL summary for Rel-17 URLLC/IIoT intra-UE MUX A Moderator (CATT)