**3GPP TSG RAN WG1 #113 R1-23xxxxx**

Incheon, Korea, May 22nd – May 26th, 2023

Title: [Draft] LS on XR capacity enhancements

Response to: -

Release: Rel-18

Work Item: NR\_XR\_enh

Source: Ericsson [RAN1]

To: RAN2

Cc: -

**Contact Person:**

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Attachments: none

# 1. Overall Description:

With respect to the following objective of the Rel-18 WI on XR:

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| - Multiple CG PUSCH transmission occasions in a period of a single CG PUSCH configuration (RAN1, RAN2); |

RAN1 would respectfully inform RAN2 about the following developments regarding the normative work in RAN1:

With respect to design aspect of HARQ process ID determination of multi-PUSCH configured grant, in RAN1#112 the following was concluded:

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| **Conclusion**  RAN1 discusses to decide how to determine the HARQ process ID of CG PUSCHs of a multi-PUSCHs CG. |

The outcome of discussions in RAN1 since RAN1#112, is finally concluded in RAN1#113 and captured in the agreement below.

**Agreement**

From RAN1 perspective, for determination of HARQ process Ids associated to PUSCHs in multi-PUSCHs CG assuming one TB per PUSCH:

* The HARQ process ID for the first configured/valid PUSCH in a period is determined based on the legacy CG procedure when cg-RetransmissionTimer is not configured, and applying the following formula, whichever is applicable
  + - * HARQ Process ID = [X\*floor( (CURRENT\_symbol ) / *periodicity*)] modulo *nrofHARQ-Processes*
      * HARQ Process ID = [X\*floor((CURRENT\_symbol ) / *periodicity*)] modulo *nrofHARQ-Processes* + *harq-ProcID-Offset2*
  + The HARQ process ID of the remaining configured/valid CG PUSCHs in the period is determined by incrementing the HARQ process ID of the preceding PUSCH in the period by one with module operation with *nrofHARQ-Processes* or module operation with (*nrofHARQ-Processes* + *harq-ProcID-Offset2*), whichever applicable.
    - X= the number of configured PUSCHs in the CG period
* Note: A configured CG PUSCH is invalid if the CG PUSCH is dropped due to collision with DL symbol(s) indicated by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated or SSB*.

# 2. Actions:

**To RAN2 group:**

**ACTION:** RAN1 respectfully asks RAN2 to take the above information into account.

# 3. Date of Next RAN1 Meetings:

TSG WG RAN1 #114 August 21st – 25th, 2023 Toulouse, France

TSG WG RAN1 #114-bis October 9th – 13th, 2023 Xiamen, China