**3GPP TSG RAN WG1 #113 R1-2306233**

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

Title: LS on XR capacity enhancements

Response to: -

Release: Rel-18

Work Item: NR\_XR\_enh-Core

Source: 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 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*
    - X= the number of configured PUSCHs in the CG period
* The HARQ process ID of the remaining configured and 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.
* 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