

3GPP TSG RAN #98-e

E-meeting, December 12th - 16th, 2022

Agenda Item: 9.2.10
Document for: Decision

Discussion on WID for XR enhancements

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■ WID description (RP-213587)

4 Objective

4.1 Objective of SI or Core part WI or Testing part WI

The study is to be based on Release 17 TR 38.838, on corresponding Release 17 work from SA4 (as per SP-210043) and on Release 18 work from SA2 (as per SP-211166).

Objectives on XR-awareness in RAN (RAN2):

- Study and identify the XR traffic (both UL and DL) characteristics, QoS metrics, and application layer attributes beneficial for the gNB to be aware of.
- Study how the above information aids XR-specific traffic handling.

Objectives on XR-specific Power Saving (RAN1, RAN2):

- Study XR specific power saving techniques to accommodate XR service characteristics (periodicity, multiple flows, jitter, latency, reliability, etc...). Focus is on the following techniques:
 - C-DRX enhancement.
 - PDCCH monitoring enhancement.

Objectives on XR-specific capacity improvements (RAN1, RAN2):

- Study mechanisms that provide more efficient resource allocation and scheduling for XR service characteristics (periodicity, multiple flows, jitter, latency, reliability, etc...). Focus is on the following mechanisms:
 - SPS and CG enhancements;
 - Dynamic scheduling/grant enhancements.

■ RAN2 SI status

- Objectives on XR-awareness in RAN is incomplete
- Objectives on XR-specific power saving and capacity improvements are complete

■ RAN 1 SI status

- Objectives on XR-specific power saving and capacity improvements are complete
- The following recommendation for XR-specific capacity improvements is captured in section 5.3.1 of TR 38.835:

The following enhancements for configured grant based transmission are recommended:

- Multiple CG PUSCH transmission occasions in a period of a single CG PUSCH configuration;
- Dynamic indication of unused CG PUSCH occasion(s) based on UCI (e.g., CG-UCI or a new UCI) by the UE.

The corresponding capacity performance evaluation results are available in Annex B.1.6.

The evaluation results for other proposed and studied capacity enhancement schemes are available in Annex B.1.

■ Procedure of continued study on XR enhancements

- Analysis:
 - » As summarized in the background, only the objectives on XR-specific power saving and capacity improvements are complete, while the objective on XR-awareness still needs further study as SI.
 - » Considering that there are several recommendation for the objective on capacity improvements in the corresponding TR, the recommended techniques can be further studied as WI.
- ***Proposal: Discuss how to proceed with continued study on XR enhancements***
 - » ***Continue the SI phase for further study on the XR-awareness objective.***
 - » ***Launch a WI for the XR-specific capacity improvements objective to specify the recommended techniques in the TR.***

■ Detailed WI scope of XR-specific capacity improvements

- Analysis:
 - » As captured in the TR 38.835, the two recommended enhanced CG transmission schemes should be included in the Rel-18 XR RAN1 WID scope for Rel-18 XR capacity improvement.
 - » According to discussions in the SI phase, other enhancements than the two recommended enhanced CG transmission schemes should not be included in the Rel-18 XR RAN1 WID scope.
- ***Proposal: following should be considered as objectives of WID on XR-specific capacity improvements***
 - » ***multiple CG PUSCH occasions in one CG period;***
 - » ***dynamic indication of unused CG resources by UCI.***

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