



RP-230608

3GPP TSG RAN #99

Rotterdam, Mar 20 - Mar 23, 2023

# Views on WID updates for Rel-18 XR enhancements

Apple Inc.

- At the RAN plenary in Dec 2022, the Rel-18 SI on XR enhancements was not yet concluded in RAN2
  - Consequently, RAN#98e agreed and documented the following as a way forward (RP-223504):

## Way Forward for SID and WID

1. Copy-paste the TR conclusion as is into the WID Objectives (see Annex), and in addition add the following placeholder objective on XR Awareness:  
“For XR-awareness in RAN (RAN2, further clarified at and started only after RAN#99): TBD”
1. Keep the SI open, only for XR awareness, until March.  
~~The sole remaining goal of the SI is to refine the WI objective on XR awareness.~~  
No need to update the SID, the open items on XR awareness are well understood (as also shown in the several different FFS Editor’s Notes in the TR)
2. Update the WID in March: for XR Awareness, as needed.
3. Impacts to RAN3 will be assessed in March
4. Clarify in the RAN#98e meeting minutes that  
*“The delay of the start of the normative work on XR awareness is not foreseen to have an impact on the Release 18 completion schedule”*

- RAN#98e approved a new WID for Rel-18 XR enhancements for NR (RP-223502)

# Rel-18 XR | Proposed Actions

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- Current Status
  - RAN2 completed the Rel-18 study on XR enhancements in RAN2#121
  - An updated set of TR conclusions is available in TR 38.835
- Following the completion of the RAN2 SI, the WID should be updated to incorporate necessary updates for XR Awareness and the RAN3 impact according to agreements from RAN#98e. Furthermore, RAN2 made some structural changes to the earlier TR conclusions (i.e. for capacity), while capturing conclusions on XR Awareness.
- RAN2 also identified an option to allow Retransmission-Less CG for UL pose transmission. Given the latency requirement for transmission of pose information is rather tight (~4ms), we consider CG operation without retransmissions a useful feature to facilitate UE power savings for XR.
- **Proposal 1: Update the Rel-18 XR WID based on RAN2 conclusions in the TR**
- **Proposal 2: Extend the power saving objective to specify enhancements for CG without retransmissions**
- In accordance with the above proposals we have updated the WI objectives on the next page, which can be taken as a baseline for further discussions.



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

Specify the enhancements related to XR Awareness:

- Provisioning by CN of semi-static information per QoS flow (e.g. PDU Set QoS parameters), dynamic information per PDU Set (PDU Set Information and identification) and End of Data Burst indication (as per TR 23.700-60 and SA2 normative specs) (RAN3);
- Identifying by UE of PDU Sets, Data bursts and PDU Set Importance (RAN2);
- Provisioning by UE of XR traffic assistance information e.g. periodicity, UL traffic arrival information (RAN2).

Specify the enhancements related to power saving:

- DRX support of XR frame rates corresponding to non-integer periodicities (through at least semi-static mechanisms e.g. RRC signalling) (RAN2);
- CG without retransmissions for uplink XR traffic (RAN2).

Specify the enhancements related to capacity:

- Multiple CG PUSCH transmission occasions in a period of a single CG PUSCH configuration (RAN1, RAN2);
- Dynamic indication of unused CG PUSCH occasion(s) based on UCI by the UE (RAN1);
- BSR enhancements including at least new BS Table(s); (RAN2);
- Delay reporting of buffered data in uplink; (RAN2);
- ~~Provision of XR traffic assistance information for DL and UL (e.g. periodicity); (RAN2);~~
- Discard operation of PDU Sets (RAN2).

~~Specify the enhancements for XR Awareness (RAN2, RAN3): TBD (detailed objectives will be further clarified at RAN#99 based on the conclusions of TR38.835, and work to be started only after RAN#99)~~

~~Note: Impacts to RAN3 will be assessed at RAN#99~~

