**3GPP TSG-RAN WG2 Meeting #131 *R2-250xxxx***

**Bangalore, India, 25 – 29 Augugst 2025**

**Agenda item: 8.7.1**

**Source: Xiaomi**

**Title: Open issues of Rel-19 XR UE capabilities**

**Document for: Discussion and Decision**

# Introduction

As part of email discussion “[POST130][509][XR] UE capabilities CRs (Xiaomi)”, this document is to collect list of open issues on Rel-19 XR UE capabilities for discussion at RAN2#131 meeting. Companies are invited to provide input no later than August 1st Friday 10:00 UTC.

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# Discussion

## Closed Open issues

The following open issues in R2-2503438 were closed based on RAN2#130 meeting agreements:

* Open issue 2: whether to have separate or joint UE capability for UE Tx and Rx operations for unnecessary retransmission avoidance.
* Open issue 3: whether RAN2 to define the UE capability for UAI for a ratio of gap occasions.

## Open issue list

(UE capability-01): Whether a UE supporting *multipleEntryDelayStatusReport-r19* shall also indicate support of *delayStatusReport-r18.*

This was discussed in RAN2#129bis meeting (as shown below) and an FFS was captured: “*FFS A UE supporting this feature shall also indicate support of delayStatusReport-r18.*” Contributions submitted to RAN2#130 meeting on this topic were not treated due to lack of time.

* LGE, QCM thinks we do not need to couple R18 and R19 DSR. Vivo thinks reasonable UE will implement R18 if implements R19, but does not want to couple in specs.
* Huawei does not think it is possible to support R19 without R18

(UE capability-04): Whether a UE supporting *txRLC-StopReTxDiscardedSDU-r19* shall also indicate support of *rxRLC-Discard-r19*.

This was discussed in RAN2#130 meeting (as shown below) and an FFS was captured: “*Define an (optional) per-UE capability with signalling for the Tx-side aspect, where the Tx side stops transmissions for an outdated SDU based on an indication from the PDCP. FFS A UE supporting this feature shall also indicate the support of Rx-side aspect.*”

* OPPO thinks we do not have mandate UE supporting Tx side to also support Rx side. Vivo agrees.
* LGE thinks Tx side requires Rx side, otherwise we can have window stalling issue we just discussed. LGE supports the proposals.
* OPPO indicates that this is for UL so SR is triggered by the network.

(UE capability-05): Whether maximum number of QoS flows subject to rate control should be defined as UE AS capability and the value range of the capability (if to be defined).

## Other open issues

Companies are invited to describe any other identified open issues not included in clause 2.2 above.

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| **Company** | **Description of open issues** |
| Ericsson | It was agreed in RAN2 that the CN will provide the information to the RAN on rate adaptability of the QoS flows and SA2 also confirmed in their LS reply (S2-2504252). Then, it was also agreed that a new radio access UE capability is introduced to indicate support for XR rate control MAC CE.  But the CN is unaware of the contents of UE’s radio access capabilities and would perform the determination of rate adaptability even if the UE does not support the corresponding capability. This results in this information being provided to the RAN, only to be ignored.    Further, the rate adaptability can also be used to setup a dedicated QoS flow to prevent multiplexing of non-rate adaptable flows, which could be unnecessary if the UE does not support the capability.  Thus, RAN2 should discuss a solution to overcome this issue.  **[Rapp]** It seems that there are two issues:   1. The assistance information by CN on rate adaptability of the QoS flows is not useful if UE does not support rate control. To rapporteur, it is not clear whether the issue is critical. As from SA2 and RAN3 discussion, such information is provided in existing procedure of QoS information provisioning (i.e. no new procedures are defined), and only one indication is provided per QoS flow. Therefore even if UE does not support rate control, there seems to be no critical issue when such information is provided to RAN. 2. Establishing a dedicated QoS flow to prevent multiplexing of non-rate adaptable flows is unnecessary if UE does not support rate control. To rapporteur, QoS flow only groups IP flows of similar QoS requirements. Therefore whether to setup QoS flows for rate adaptability is up to core network implementation and there is no impact even if UE does not support rate control.   From above discussion, it is not clear whether this issue needs to be addressed, therefore open issue is not added. Company contribution can be brought to next meeting to discuss this aspect. |
| Qualcomm | In R2-2503368, we (Qualcomm) and Mediatek proposed that the maximum number of QoS flows subject to rate control is a UE capability (NAS). The justification is as follows.  In theory, there can be up to 15x64=960 QoS flows in a UE. This number obviously is way more than the typical number of QoS flows that need rate control. To simplify UE implementation, it is therefore desirable to define a maximum for this number.  The value of this maximum clearly depends on a UE’s capabilities. For example, a premium tier UE with more processing power and more memory can support more QoS flows than a low-tier UE (e.g. XR eyeglass equipped with RedCap UE). Therefore, it makes sense to define this maximum as a UE capability instead of a constant in the spec for all types of UEs.  **[Rapp]** An open issue “UE capability-05” is added. Proponent considers this as NAS capability. It should be noted that NAS capability is defined by CT1, not by RAN2. Therefore LS to CT1 is needed if NAS capability should be defined. If AS capability is defined, it is expected that existing UE capability will be reused to indicate the maximum number of QoS flows subject to rate control, e.g. indicated as part of capability *ul-RateControl-r19* (with example ASN.1 below):  ul-RateControl-r19 INTEGER (1..64) OPTIONAL, |
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# Conclusion

In this contribution, we collect open issues of Rel-19 XR UE capabilities. Based on above discussion, following open issues are recommended for discussion at RAN2#131 meeting:

(UE capability-01): Whether a UE supporting *multipleEntryDelayStatusReport-r19* shall also indicate support of *delayStatusReport-r18.*

(UE capability-04): Whether a UE supporting *txRLC-StopReTxDiscardedSDU-r19* shall also indicate support of *rxRLC-Discard-r19*.

(UE capability-05): Whether maximum number of QoS flows subject to rate control should be defined as UE AS capability and the value range of the capability (if to be defined).