3GPP TSG-RAN WG3 #114bis-e [R3-22xxxx](https://ericsson-my.sharepoint.com/personal/filip_barac_ericsson_com/Documents/WORK/3GPP.exe/Meetings/RAN3%23113-e.exe/Meetings/RAN3%23113/chairnotes/Inbox/R3-214141.zip)

Online, 17 – 26 Jan, 2022

Agenda Item: 15.3

Source: China Unicom (moderator)

Title: Summary of Offline Discussion on CB: # QoE5\_RANVisible

Document for: Approval

# Introduction

**CB: # QoE5\_RANVisible**

**- Check LS from RAN2 and reply if needed.**

**- Whether and how to support RVQoE values? Which node to calculate the values and how to calculate the values? Coordination with SA4?**

**- RVQoE capability indication from UE?**

**- The reporting periodicity of RVQoE, same or different with legacy QoE? Using same or different RRC messages? RVQoE should always be reported together with legacy QoE?**

**- PDU/DRB/QoS information inside RVQoE report? Check whether Application layer is aware of the DRB/PDU/QoS information and the service type. LS to SA4?**

**- Pause/resume of RVQoE**

**- Co-ordinate with other groups if needed**

**- Focus on key issues, capture agreements and provide TPs if agreeable.**

(CU - moderator)

Summary of offline disc [R3-221039](file:///E:\4_标准\3GPP\2022年\2_RAN3工作\RAN3%23114e-bis\QoE\CB%231\Inbox\R3-221039.zip)

# For the Chairman’s Notes

# Discussion

The discussion will try to discuss the further details on the following topics: RAN visible QoE values, RAN visible QoE UE capability, RAN visible QoE report, RAN visible QoE when RAN overload and other miscellaneous points, the discussion will take the papers from [1] to [9] into account.

Please note that, for other topics which might impact NG, e.g. MDT alignment, we also have dedicated CB, for which moderator would leave the discussion there.

## Check LS from RAN2 on High Priority SRB

In RAN3#113e meeting, a LS for whether to use high-priority SRB for RAN visible QoE is send to RAN2, in RAN2#116e meeting, RAN2 send the LS [1] and would like RAN3 to provide more justifications on RAN visible QoE measurements usage to assist RAN2 in determination. Here is the issue in the LS.

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| ***Issue 1:*** *RAN2 discussed which SRB should be used to transmit RAN visible QoE measurements. RAN2 discussed whether SRB1 can be used to transmit RAN visible QoE report, and understands SRB1 is to react to radio conditions in time, so it is not preferred to transmit RAN visible QoE report. RAN2 discussed two additional options-SRB2 or SRB4 (which is agreed for reporting application layer QoE container), and many companies were not clear about why to put higher priority on RAN visible QoE measurements. RAN2 would like RAN3 to provide more explanations about RAN visible QoE measurements usage to assist RAN2 in determination.* |

**Q1: Comments on answer the issue1 in the LS. Whether RAN visible QoE should use SRB2 or use SRB4 like legacy QoE report? Please provide you reason as well.**

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| Company | Comment |
| China Unicom | SRB2  RAN visible QoE is used for RAN optimization, it should have higher priority than legacy QoE report. For some high priority users, RAN visible QoE report will help operator to improve the user experience immediately even when the network resource usage is very high, and it is the original design for RAN visible QoE. Legacy QoE report is used in the OAM for post process, it has relatively low priority, and it can still use SRB4. If RAN visible QoE is also use SRB4, the RAN optimization based on RAN visible QoE report can't be guaranteed. |
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## RAN visible QoE value

The question is derived based on proposals in papers [4, 7, 8].

**Q2: Which node should responsible for generate the QoE values, UE APP, or gNB?**

**a. if UE APP is agreed to generate RVQoE value, how to calculate the QoE value, and how about the value range? [7][8]**

**b. if gNB is agreed to generate RVQoE value, what additional RVQoE metrics(i.e. PlayList) are needed to be introduced? How to calculate the QoE value, and how about the value range? [4][8]**

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| Company | UE APP/gNB | Comment |
| China Unicom | UE APP | UE APP need to generate RAN visible QoE value, but if how to calculate the QoE value will not have consensus, it can be discussed in R18. |
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## RAN visible QoE capability

It was agreed in previous RAN3 meeting:

*“The UE is assumed to indicate to the RAN its capability with respect to providing RVQOE metrics (LS to RAN2 seems needed).”*

An LS had already send to RAN2(R3-214477):

*“RAN3 respectfully asks RAN2 to define UE capability to support RAN visible QoE measurement.”*

**How to define RAN visible QoE capability needs to be further discussed in RAN3 and RAN2 meeting, there are two options:**

**Option1: Define a RAN visible QoE capability parameter for all service type, there’s no need to define separate parameters as per service type for RAN visible QoE;**

**Option2: Define RAN visible QoE capability for some specific service type, e.g. DASH streaming and VR services;**

**Q3: Which option do you support, and why?**

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| Company | Which Option? | Comment |
| China Unicom | Option1 | Legacy QoE can be configured for different service type, it is no need to define RAN visible QoE for each service type. |
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## RAN Visible QoE Report Periodicity

The question is derived based on proposals in papers [2, 3, 4, 6, 7, 8, 9].

**Q4: Whether RAN visible QoE reports and legacy QoE reports should use different periodicity?**

**- If different periodicity is supported, what periodicity is suitable to be defined in the RAN visible QoE configuration, e.g. ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960, min1, min6, min12, min30, min60?**

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| --- | --- | --- |
| Company | Yes/No | Comment |
| China Unicom | Yes | Since RAN visible QoE report will be used for RAN optimization, separate periodicity can be configured. The following periodicity can be supported:  ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960, min1, min6, min12, min30, min60 |
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## PDU/DRB/QoS information inside RVQoE report

It is agreed to make a WA in the last RAN3 meeting:

“WA: Include PDU or QoS related information in RVQoE report”.

It is also discussed in papers [4, 8].

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| [2] Proposal 6: Postpone the discussion on inclusion of PDU or QoS related information in RVQoE report in Rel-18.  [4] Proposal 10: Include PDU session ID in RVQoE report  [5] Proposal 1: Request RAN2 to include either the DRB id, or alternatively PDU session ID and QoS flow ID, in the RVQOE report.  [6] Proposal 1: Include PDU session ID(s) information in RAN visible QoE, it is no need to also include QoS flow information in RAN visible QoE report.  [7] Proposal 2: For the RAN visible QoE, the slice id outside the reporting container is not needed.  [7] Proposal 3: The PDU session information and QoS flow information are reported together with the RAN visible QoE.  [8] Proposal 12, the DRB list should be included in the QoE report for QoS aware scheduling. |

**Q5: Whether to include PDU session information in RAN visible QoE report? Whether need to also include other information in RAN visible QoE report (e.g. QoS flow information, DRB list)?**

**Q6: Whether application layer is aware of the DRB/PDU/QoS information and the service type? Whether need to send LS to SA4?**

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| Company | Yes/No | Comment |
| China Unicom | Yes | PDU session should be included in RAN visible QoE report. Other information is not needed, since gNB can get the QoS flow and DRB information according to PDU session.  Since the LS reply from SA2 and SA4 is indicate that application layer is aware of the slice and PDU session, it is no need to send LS to SA4. |
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## RAN visible QoE Report in case of RAN overload situation

The question is derived based on proposals in papers [2, 4].

**Q7: If the legacy QoE reporting is paused/resumed, whether the corresponding RVQOE reporting should be paused/resumed as well?**

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| Company | Yes/No | Comment |
| China Unicom | No | RAN visible QoE is used for RAN optimization, if the RAN visible QoE report is paused, it will has no use for RAN optimization, and the payload of RAN visible QoE report is much smaller than legacy QoE report, so if the legacy QoE reporting is paused/resumed, the corresponding RVQOE reporting should continue to report. |
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## Mobility Support for RAN Visible QoE

The question is derived based on proposals in papers [2, 4, 6, 8, 9].

Moderator’s summary for the proposals:

**Proposal:**

**For s-based QoE, RAN visible QoE metrics send from OAM need to be propagate from source node to target node at mobility.**

**RAN visible QoE configuration can be propagated from the source to target node upon mobility and during context retrieval.**

**Target node shall generates new RAN visible QoE configuration and send to UE during handover or RRC resume procedure.**

**Q8: For the RAN visible QoE configuration delivery during mobility, do companies agree with the above proposal?**

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| Company | Yes/No | Comment |
| China Unicom | Yes | Since RAN visible QoE configuration is generate by each gNB, both source gNB and target gNB should know the RAN visible QoE metrics send from OAM, for m-based QoE, the target node can also get the configuration from OAM, but for s-based QoE, it should propagate from source gNB to target gNB during mobility.  Source node can propagate the RAN visible QoE configuration to target node, and target node can generate new RAN visible QoE configuration or still use the source node RAN visible QoE configuration, which is based on the target node decision, new RAN visible QoE configuration can be configured during handover or RRC resume procedure for connected and inactive UE. |
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## LS to other groups

The following LS to other groups have been proposed. The final LS send to other groups need to base on the agreements achieved this meeting.

**Q9: Take [2] as baseline to capture the above agreements to inform RAN2/SA4/CT1.**

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| **Company** | **Yes/No** | **Comment** |
| China Unicom | Yes | The LS to CT1, SA4 and RAN2 need to be send in this meeting. The detail should based on the agreements achieved in this meeting. |
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# Conclusion, Recommendations

If needed

# References

1. R3-220111 LS on RAN visible QoE (RAN2)
2. R3-220171 The Remaining Issues for RAN Visible QoE (Ericsson)
3. R3-220172 Reporting Periodicity of RAN Visible QoE (Ericsson, CMCC, China Unicom)
4. R3-220274 RAN visible QoE (Qualcomm Incorporated)
5. R3-220331 Use of RAN visible QoE in the NG-RAN node (Nokia, Nokia Shanghai Bell)
6. R3-220734 Configuration and Reporting of RAN Visible QoE (China Unicom)
7. R3-220912 Further discussions on RAN visible QoE metrics (Huawei)
8. R3-220923 Further discussion on RAN visible QoE (Samsung)
9. R3-220937 Discussion on RAN visible QoE configuration and reporting (CATT)
10. R3-220964 Further consideration on RVQoE configuration and reporting (ZTE, China Telecom)
11. R3-220965 [draft] LS on the support for RAN visible QoE (ZTE)