3GPP TSG-RAN WG2 Meeting #114-e R2-210xxxx

Electronic, 19th May – 27th May 2021

Source: Qualcomm Incorporated

Title: Configuration Reporting General

Agenda Item: 8.14 NR QoE

Document for: Discussion and Decision

# 1 Introduction

This document aims at gathering and summarizing companies views for the following offline discussion:

* [AT114-e][026][QoE] Configuration Reporting General (Qualcomm)

Scope: Start from the baseline, the tdoc under 8.14.2.1, identify easy agreements, potential agreements, discussion points, open ponts.

Intended outcome: Report.

Deadline: In time for CB online May 24

# 2 Company contact details

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| --- | --- | --- |
| Company | Name | Email Address |
| Qualcomm | Jianhua Liu | jianhua@qti.qualcomm.com |
| CMCC | Xingyu Han | hanxingyu@chinamobile.com |
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# 3 Discussion

### Issue 1: QoE measurement configuration-specific aspects

Issue 1-1: QoE measurement configuration release

Contributions [1][2][4][12] discuss QoE configuration release issue and contribution [1][2] propose to it is allowed for the gNB to release a list of QoE measurement configurations in one RRCReconfiguration message to provide gNB flexibility and save RRC signalling overhead.

Contributions [1] proposes if a QoE measurement configuration is released, RRC layer informs the concerned applications to release the QoE measurement configuration.

Contributions [1][4] propose if the UE enters IDLE state, UE should release all of the QoE measurement configurations.

Then the following questions 1-3 collect companies’ view on this issue.

**Question 1: Do companies agree that gNB can release a list of QoE measurement configurations in one RRCReconfiguration message?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC | Yes | gNB could have such flexibility. |
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**Question 2: Do companies agree if a QoE measurement configuration is released, RRC layer informs the concerned applications to release the QoE measurement configuration?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC | Depends | It depends on what is the implication of informing applications to release the QoE configuration from end-to-end perspective. Does it mean that APP layer needs to discard all QoE report which is the result of the forced deactivation initiated by OAM? If so, the QoE measurement configuration release over uu can only be initiated by Deactivation of QMC job from OAM. Then such behaviour makes sense to us.  However, if QoE measurement configuration release can also be triggered by RAN overload other than deactivation from OAM, it is not necessary to release the QoE measurement configuration at APP layer during such temporary situation.  Note that last meeting we’ve agreed that other WGs are responsible to define the normal system procedures for release and which nodes are responsible. If we need to follow this agreement, we would like to propose a working assumption in RAN2 that the legacy QoE configuration release shall only be triggered by the forced deactivation from OAM. |
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**Question 3: Do companies agree if the UE enters IDLE state, UE should release all of the QoE measurement configurations?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC | Depends | NR QoE has introduced more service types including MBS, for which UE can get served even in IDLE state. In addition, the SI has concluded that the discussion on services like MBS could be deprioritized, it is at least premature to answer this question from MBS service perspective.  For those services that can only be served in CONNECTED state, there’s no need to keep the configuration for UE in IDLE mode, so the release of configuration in such condition seems OK. |
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Issue 1-2: QoE measurement configuration modification

Contribution [2] proposes to discuss whether QoE measurement configuration modification should be supported from RAN2 signalling point of view, which is similar to what is already supported for RRM measurements (“AddModList”).

**Question 4: Do companies think QoE measurement configuration modification should be supported from RAN2 signalling point of view?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC |  | Our understanding is that the coordination with SA5 is needed if we would like to support modification. |
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### Issue 2: QoE measurement configuration and reporting common aspects

Issue 2-1: QoE configuration and report form and content

Contribution [6][11] discusses which form QoE configuration/report should be applied in RRC layer and proposes QoE configuration and report are encapsulated in a transparent container in the RRC messages.

Contributions [1][6][12] discuss what parameters should be included in *RRCReconfiguration* for each QoE configuration and what parameters should be included in*MeasReportAppLayer* message for each QoE report.

Companies please provide views on the following questions.

**Question 5: Do companies agree QoE configuration and report are encapsulated in a transparent container in the RRC messages?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC | Yes | Same as LTE. |
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**Question 6: Do companies think what parameters should be included in RRCReconfiguration for each QoE configuration?**

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| **Company** | **Parameters** | **Additional explanations** |
| CMCC | At least service type, QoE ref/RRC level ID, QMC configuration container | FFS on slice ID (signalling explicitly or by other means) to support per-slice QoE measurement. It is still unclear now whether and how UE APP can be informed of slice information. |
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**Question 7: Do companies think what parameters should be included in MeasReportAppLayer message for each QoE report?**

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| **Company** | **Parameters** | **Additional explanations** |
| CMCC | At least QoE ref/RRC level ID |  |
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Issue 2-2: RRC level ID format

In last RAN2 meeting, it has been agreed an RRC level ID should be introduced, but FFS for the ID format.

* R2 assumes that for RRC an ID is required to identify a measurement, FFS whether this is the QoE reference ID or something else.

Contribution[4] [11] discusses whether multiple QoE measurement configurations can be configured for a certain service type, if yes, then need to introduce one RRC ID to identify one contribution; otherwise, using service type is enough.

Companies please provide views on this issue.

**Question 8: Do companies think it is possible multiple QoE measurement configurations can be configured for a certain service type?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC | Yes | It is possible that different slices are configured with the same service type. So using service type alone is not enough. |
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It is understood that the purposes of RRC level ID is for gNB to manage QoE configurations and forward the QoE data to the right OAM server. Some contributions [1][3][5][7][9][12] discuss this issue and propose two alternative types of RRC level ID should be included in *RRCReconfiguration* message to identify one QoE measurement configuration and the corresponding measurement report.

Type 1: Re-use Reference ID included in application layer configuration and reporting container. Reference ID is 6-bytes length and globally unique, companies has concerns on the RRC signalling overhead.

Type 2: Use a shorten ID in RRC layer to link with one Reference ID in application layer. There are two types shorten ID are proposed: 1) use QMC ID (3 bytes) 2) RRC defined ID (4 or 5 bits). This method needs some standardization work for UE and gNB to link a shorten ID to a reference ID.

Companies please provide views on the following two questions.

**Question 9: Should Reference ID or shorten ID be used in RRC layer to identify one QoE measurement configuration? Should it be included in *RRCReconfiguration* or *MeasReportAppLayer* or both message?**

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| **Company** | **Reference ID or shorten ID** | **Additional explanations** |
| CMCC | Slightly prefer shorten ID | We would like a unified method that can meet requirements for both legacy QoE case, and RAN visible QoE case. |
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**Question 10: If a shorten ID should be used in RRC layer, which type (QMC ID or RRC defined ID) of shorten ID should be used?**

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| **Company** | **QMC ID or RRC defined ID** | **Additional explanations** |
| CMCC | RRC defined ID | We would like a unified method that can meet requirements for both legacy QoE case, and RAN visible QoE case. |
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Issue 2-3: Container size for QoE measurements configuration and reporting

Contribution [2] discuss the maximum container size for QoE measurements configuration and reporting, and proposes to re-use the maximum container size of 1000 bytes for QoE measurements configuration and discuss whether to increase the maximum container size for QoE measurements reporting up to the maximum supported PDCP SDU size. Companies please to provide view on the following two questions.

Contribution [6] proposes to check with SA4 the maximum length of the container after compression.

**Question 11: Do companies agree to re-use the maximum container size of 1000 bytes for QoE measurements configuration?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC |  | Check with SA4 (maybe internally with SA4 colleagues). |
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**Question 12: Do companies think the maximum container size for QoE measurements reporting up to the maximum supported PDCP SDU size should be increased?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC |  | Check with SA4 (maybe internally with SA4 colleagues). |
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**Question 13: Do companies think it is needed to check with SA4 the maximum length of the container after compression will exceed 8000 bytes?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC | Yes | Maybe check internally with SA4 colleagues. LS may not be needed. |
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### Issue 3: QoE measurement report-specific aspects

Issue 2-1: Multiple QoE measurements in one *MeasReportAppLayer* message.

Contributions [1][4][6][9] discuss this issue and contributions [1][4] propose to support multiple QoE measurements in one *MeasReportAppLayer* message to save RRC header, while contribution [6] proposes only one multiple QoE measurement is included in one *MeasReportAppLayer* message and multiple QoE measurements should be included in multiple *MeasReportAppLayer* messages.

Companies please provide views on whether multiple QoE measurements or only one QoE measurement can be included in one *MeasReportAppLayer* message.

**Question 14: Do companies think whether multiple QoE measurements or only one QoE measurement can be included in one MeasReportAppLayer message?**

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| **Company** | **Multiple or only one QoE measurements** | **Additional explanations** |
| CMCC | Slightly prefer multiple | UE could be provided with such flexibility. |
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Issue 2-2: Unknown Report from Application Layer

Contribution [4] discusses what AS layer should do if receiving unknow QoE report from application layer. The scenario is that UE access layer receives from Application layer a QoE report that does not correspond to any of the QoE configuration in AS. It is proposed that UE forwards to Network the QoE report for which it has valid configuration.

Companies please provide views on this issue.

**Question 15: Do companies agree that UE forwards to Network the QoE report for which it has valid configuration?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC |  | It seems like a corner case in our understanding; but if it happens, the UE behaviour needs to be defined anyway. |
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### Issue 4: Others (framework, RAN3 led issues. Capability, out of scope issues)

Contribution [5][8] propose to reuse logged MDT framework for QoE measurement reporting. Rapporteur understands RAN2 has already agreed to reuse LTE QoE framework and has achieved some agreements in the last meeting based on this framework. Companies please provide views whether logged MDT framework is already ruled out based on the progress.

**Question 16: Do companies agree that logged MDT framework is already ruled out based on the current progress?**

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| **Company** | **Yes/No** | **Additional explanations** |
| CMCC | Yes in this release | Logged MDT could be useful for alignment with QoE reports for MBS services, which can be discussed in future releases. |
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Contribution[4][5][8][9] discuss some RAN3-led issues (e.g. RAN visible QoE, MDT and QoE correlation, Mobility area, UE context propagation between gNBs). According to the chairman agenda, RAN3-led issues will NOT be treated in this RAN2 meeting, therefore, these aspects are not listed in this email discussion.

Contribution [12] discusses QoE measurement in INACTIVE state for MBS service. It is understood QoE measurement in INACTIVE state is out of QoE WID scope, therefore, it is not listed in this email discussion.

Contribution [9] discusses UE capability for QoE, it is too premature to talk about UE capability at this stage.

# 4 Conclusion

The following is proposed based on the discussion in section 2 of the document:

# 5 References

[1] [R2-2104994](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2104994.zip) QoE confiugration and reporting Qualcomm Incorporated discussion NR\_QoE-Core

[2] [R2-2105214](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2105214.zip) Further discussion on QoE measurement collection in NR standalone Lenovo, Motorola Mobility discussion Rel-17 NR\_QoE-Core

[3] [R2-2105336](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2105336.zip) Discussion on QoE measurement configuration vivo discussion Rel-17

[4] [R2-2105479](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2105479.zip) QoE configuration and general ascpects Nokia, Nokia Shanghai Bell discussion Rel-17

[5] [R2-2105526](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2105526.zip) Discussion on QoE measurement collection in NR OPPO discussion Rel-17 FS\_NR\_QoE

[6] [R2-2105580](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2105580.zip) Discussion on QoE measurement configuration and reporting Huawei, HiSilicon discussion Rel-17 NR\_QoE-Core

[7] [R2-2105893](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2105893.zip) Configuration and reporting of QoE measurements Ericsson discussion

[8] [R2-2106061](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2106061.zip) Harmonised general framework for QoE measurements Samsung Telecommunications discussion Rel-17

[9] [R2-2106167](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2106167.zip) Discussion on NR QoE configuration CATT discussion NR\_QoE-Core

[10] [R2-2106220](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2106220.zip) Further discussion on configuration and reporting CMCC discussion Rel-17

[11] [R2-2106348](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2106348.zip) QoE measurement configuration LG Electronics Inc. discussion Rel-17

[12] [R2-2106402](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2106402.zip) Issues for NR QoE measurement Samsung discussion Rel-17

[13] [R2-2106432](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_114-e\Docs\R2-2106432.zip) Discussion on NR QoE configuration ZTE Corporation, Sanechips discussion Rel-17