**3GPP TSG-RAN WG3 Meeting #119-bis-eR3-231919**

**Online, April 17th – 26th 2023**











**Agenda item:** xxxx

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# Introduction

xxxx

# Reference

# TP to BL CR of 38.300

-------------------------------------------Start of changes-------------------------------------------

21.2 QoE Measurement Configuration

21.2.1 QoE Measurement Collection Activation and Reporting

The feature is activated in the gNB either by direct configuration from the OAM system (management-based activation), or by signalling from the OAM via the 5GC (signalling-based activation), containing UE-associated QoE configuration. One or more QoE measurement collection jobs can be activated at a UE per service type, and each QoE measurement configuration is uniquely identified by a QoE reference. When the UE is configured with MR-DC except NR-DC, only the MN can configure the QoE configuration.(The details of support for QoE in NR-DC can be found in X.x of 38.300/37.340[x]).

For signalling-based QoE measurements, the OAM initiates the QoE measurement activation for a specific UE via the 5GC, and the gNB receives one or more QoE measurement configurations by means of UE-associated signalling. The QoE measurement configuration for signalling-based activation includes an application layer measurement configuration list and the corresponding information for QoE measurement collection, e.g., QoE reference, service type, MCE IP address, slice scope, area scope, MDT alignment information and the indication of available RAN visible QoE metrics.

For management-based QoE measurement activation, the OAM sends one or more QoE measurement configurations directly to the gNB. The QoE measurement configuration for management-based activation also includes an application layer measurement configuration list and the corresponding information for QoE measurement collection. The gNB selects UE(s) that meet the required QoE measurement capability, area scope and slice scope.

Application layer measurement configuration received by the gNB from OAM or CN is encapsulated in a transparent container, which is forwarded to a UE as Application layer configuration in the *RRCReconfiguration* message (there can be multiple configurations in the same message). Application layer measurement reports received from UE's application layer are encapsulated in a transparent container and sent to the network in the *MeasurementReportAppLayer* message, as specified in TS 38.331 [12]. The UE can send multiple application layer measurement reports to the gNB in one *MeasurementReportAppLayer* message. In order to allow the transmission of application layer measurement reports which exceed the maximum PDCP SDU size, segmentation of the *MeasurementReportAppLayer* message may be enabled by the gNB. An RRC identifier conveyed in the RRC signalling is used to identify the application layer measurement configuration and report between the gNB and the UE. The RRC identifier is mapped to the QoE reference in the gNB, and the gNB forwards the application layer measurement report to MCE together with the QoE reference. The gNB can release one or multiple application layer measurement configurations from the UE in one *RRCReconfiguration* message at any time. The UE may additionally be configured by the gNB to report when a QoE measurement session starts or stops for a certain application layer measurement configuration.

-------------------------------------------Next change-------------------------------------------

## X.x Support for QoE in NR-DC

**Editor’s Note: Whether NR-DC related description should be captured in 38.300 or 37.340 is FFS.**

### X.x.1 The MN-SN coordination for QoE measurements and reporting

For a UE in NR-DC, the MN and the SN can coordinate for configuring the UE with QoE and RAN visible QoE measurements and reporting. The coordination procedure pertains to both signalling-based and management-based QoE/RAN visible QoE measurements and reporting. The MN-SN coordination procedure supports:

* Coordination for configuring the UE with QoE and RAN visible QoE measurements.
* Coordination for determining and establishing the SRB(s) used for receiving QoE/RAN visible QoE reports.
* Coordination about switching the reporting leg.
* Coordination of RAN visible QoE measurement configuration parameters.
* Coordination for sending the RAN visible QoE measurement configuration to the UE.
* Coordination of the *measConfigAppLayerId* for the measurements.

If the SN is interested in configuring a UE with a management-based QoE measurement configuration, it should send the coordination request to the MN. The MN should inform the SN that a UE is configured with a management-based QoE/RAN visible QoE measurement.

In case of management-based QoE, the MN decides which node to perform the QoE measurement configuration. For a management-based QoE/RAN visible QoE configuration in case the SN is interested in configuring a UE with a management-based QoE/RAN visible QoE measurement configuration, the MN can decide and notify the SN whether:

* The MN sends the configuration information to the UE (and not the SN), or
* The SN should send the configuration to the UE directly, or
* The SN should send the configuration information to the UE via the MN (inside a container on SRB1).

The MN is responsible for *measConfigAppLayerId* allocation for management-based sessions configured by the MN or by the SN, and the MN indicates the allocated *measConfigAppLayerId*(s) to the SN, on a per-configuration basis.

If the MN or the SN has configured the UE with QoE measurements, and the UE is configured to send the QoE reports to the peer node (the SN or the MN), which forwards the reports directly to the MCE, then the node that has configured the UE with QoE measurements should indicate the QoE reference, the MCE IP address and the *measConfigAppLayerId* to the node that receives the reports and forwards them directly to the MCE.

QoE reports can be transmitted to either the MN or the SN, and the reporting leg (MCG or SCG) can be changed during the application session.

### X.x.2 Support for RAN visible QoE measurements and reporting in NR-DC

Subject to MN-SN coordination, either the MN or the SN can generate and send a RAN visible QoE configuration to the UE and receive the RAN visible QoE reports directly from the UE. In addition, the UE can send a RAN visible QoE report to the MN or the SN, and the MN or the SN can forward it to the peer node (the SN or the MN).

The MN or the SN can configure RAN visible QoE measurements at a UE, without a priori knowledge about which node(s) provide the bearer(s) for the application session. To ensure that the RAN visible QoE reports are sent to the node(s) that provide the bearer(s) associated to the corresponding RAN visible QoE measurement result in the RAN visible QoE report, the RAN needs to determine which node(s) provides these bearer(s). From the PDU session ID and the QFI indicated in the received RAN visible QoE report the node determines which node(s) provide the bearer(s) associated to the corresponding application session. If a node receives an RAN visible QoE report from a UE in NR-DC and determines that the bearers for the application session are also or only provided by the peer node, this node can send the received RAN visible QoE report to the peer node. In this case, the RAN visible QoE configuration can be modified. The above is applied both at the beginning of RAN visible QoE measurement session, and at every bearer type change.

X.x.3 Alignment between MDT and QoE

Editor’s note: Details can be further discussed.

X.x.4 QoE measurement continuity for mobility

Editor’s note: This part can be FFS.

-------------------------------------------End of changes-------------------------------------------