**3GPP TSG-RAN WG2 Meeting #128 *R2-24xxxxx***

**Orlando, USA, 18 - 22 November, 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.300** | **CR** | **0919** | **rev** | **3** | **Current version:** | **18.3.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Correction on priority-based QoE measurements in TS 38.300 | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon, China Unicom, Nokia, Ericsson, ZTE, Apple | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_QoE\_enh-Core | | | | |  | ***Date:*** | | | 2024-11-18 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | In Rel-18, RAN2 agreed on QoE configuration priorities for QoE measurements in RRC\_IDLE, RRC\_INACTIVE and RRC\_CONNECTED, and solutions have been captured in stage-3 specifications. However, the stage-2 description of the QoE configuration priorities is missing in TS 38.300.  In addition, there is an editorial issue in clause 21.3, i.e. QoE measurement status should be QoE measurement session status. | | | | | | | | |
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| ***Summary of change:*** | | In TS 38.300, add stage-2 description of QoE configuration priorities for QoE measurements in RRC\_IDLE, RRC\_INACTIVE and RRC\_CONNECTED. In clause 21.3, QoE measurement status is changed into QoE measurement session status.  **Impact Analysis**  Impacted 5G architecture options: NR SA, NE-DC, NR-DC  Impacted functionality: QoE configuration priorities for QoE measurements in RRC\_IDLE, RRC\_INACTIVE and RRC\_CONNECTED  Inter-operability:  If the network is implemented according to the CR and the UE is not, there is no inter-operability issue.  If the UE is implemented according to the CR and the network is not, there is no inter-operability issue. | | | | | | | | |
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| ***Consequences if not approved:*** | | For the feature QoE configuration priorities for QoE measurements in RRC\_IDLE, RRC\_INACTIVE and RRC\_CONNECTED, stage-2 description is missing in TS 38.300. | | | | | | | | |
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| ***Clauses affected:*** | | 21.2.1, 21.3 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | |  | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

# 21 Application Layer Measurement Collection

## 21.1 Overview

The QoE Measurement Collection function enables collection of application layer measurements from the UE. QoE measurement collection is supported for the following service types in NR cells:

- QoE Measurement Collection for DASH streaming services;

- QoE Measurement Collection for MTSI services;

- QoE Measurement Collection for VR services.

The QoE Measurement Collection function also supports collection of QoE measurements for any of the supported service types carried by the MBS communication service. The QoE Measurement Collection is supported for the following two communication service types:

- MBS broadcast;

- MBS multicast.

For DASH streaming, MTSI and VR, QMC is supported in RRC\_CONNECTED state only, unless the application data is delivered via the MBS broadcast communication service.

For application sessions delivered via MBS broadcast, QMC is supported in RRC\_CONNECTED, RRC\_INACTIVE, and RRC\_IDLE states. QMC for the application sessions delivered via MBS multicast is supported in RRC\_CONNECTED state only. Both signalling based and management based QoE measurement collection are supported in NR SA and NR-DC. Further details of NR-DC operation can be found in TS 37.340 [21].

NOTE: The naming "QoE Measurement" is used in NG, Xn, and interfaces between the OAM and the gNB. In the Uu interface, the naming "application layer measurement" is used and it is equivalent to" QoE Measurement".

## 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 configurations can be activated at a UE per service type, and each QoE measurement configuration is uniquely identified by a QoE reference.

For signalling-based QoE measurements, the OAM initiates the QMC 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 QMC 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, the indication of available RAN visible QoE metrics and assistance information.

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

An application layer measurement configuration received by the gNB from the OAM or from the 5GC is encapsulated in a transparent container, which is forwarded to a UE as *measConfigAppLayerContainer* 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. A measurement configuration application layer ID conveyed in the RRC signalling is used to identify the application layer measurement configuration and report between the gNB and the UE. The measurement configuration application layer ID 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 indicate to the gNB when a QoE measurement session starts or stops for a certain application layer measurement configuration.

For a QoE measurement configuration, assistance information provided by OAM can be considered by the gNB for configuring a UE with a priority value. The priority value can be used by the UE to discard QoE measurement reports, as specified in TS 38.331 [12].

*<Partially omitted>*

## 21.3 QoE Measurement Continuity for Mobility

QoE measurement collection continuity for intra-system intra-RAT/inter-RAT handover is supported, with the Area Scope parameters configured by the OAM, where the network is responsible for keeping track of whether the UE is inside or outside the area scope. A UE continues an ongoing QoE measurement even if it leaves the area scope, unless the network indicates to the UE to release the application layer measurement configuration.

For handover, the source gNB may transmit the information related to one or more application layer measurement configurations of the UE to the target gNB via XnAP or NGAP. For signalling-based QoE, the service type indication, the QoE reference, and, optionally, the container for application layer measurement configuration, MCE IP address, measurement configuration application layer ID, MDT alignment information, area scope, slice support list for QMC, available RAN visible QoE metrics, QoE measurement session status, MBS communication service type, and assistance information for QoE measurement are passed to the target gNB. For management-based QoE, the QoE reference, service type indication, and, optionally, the measurement configuration application layer ID, the MCE IP address, area scope, slice support list for QMC, MBS communication service type, assistance information for QoE measurement and QoE measurement session status are passed to the target gNB. For RRC\_INACTIVE state mobility, QoE measurement configuration(s) of a specific UE can be retrieved from the gNB hosting the UE context when the UE resumes to the RRC\_CONNECTED state.

For signalling-based QoE, at handover to a target gNB that supports QoE measurement collection, the target gNB decides which of the application layer measurement configurations should be kept and which should be released, e.g., based on application layer measurement configuration information received from the source gNB in Xn/NG signalling.

When the UE is handed over to a target that does not support QMC, the UE releases all configured application layer measurement configurations.

The continuity of QoE measurement configuration and reporting in NR-DC scenario is supported as specified in TS 37.340 [21].

QoE measurement collection continuity for intra-system inter-RAT handover is supported. For a handover from a source gNB to a target ng-eNB, measurements continuity for only one QoE measurement configuration can be supported when the UE connects to the target ng-eNB. The source gNB decides which QoE measurement to keep and sends the information about this QoE measurement to the target ng-eNB.

For intra-5GC handover from a source ng-eNB to a target gNB, the UE releases all LTE QoE configurations and it applies the NR QoE configuration(s), if received from the target RAT.

For intra-5GC handover from a source gNB to a target ng-eNB, the UE releases all NR QoE configuration(s) and it applies the LTE QoE configuration if received.