**3GPP TSG-RAN3 Meeting #115-e R3-22xxx was R3-222280**

**Electronic meeting, 21 Feb – 3 Mar 2022**

**Agenda item:** 15.3

**Source:** Samsung

**Title:** (TP for BL CR to TS 38.473) RAN visible QoE

**Document for:** Discussion & Agreement

# Introduction

The TP is to capture the discussion in CB#QoE1 and CB#QoE5

# Annex 1 (TP for BL CR to TS 38.473)

*<Start of change>*

8.1 List of F1AP Elementary procedures

In the following tables, all EPs are divided into Class 1 and Class 2 EPs (see subclause 3.1 for explanation of the different classes):

**Table 1: Class 1 procedures**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Elementary Procedure** | **Initiating Message** | | **Successful Outcome** | | **Unsuccessful Outcome** | |
| **Response message** | | **Response message** | |
| Reset | RESET | | RESET ACKNOWLEDGE | |  | |
| F1 Setup | F1 SETUP REQUEST | | F1 SETUP RESPONSE | | F1 SETUP FAILURE | |
| gNB-DU Configuration Update | GNB-DU CONFIGURATION UPDATE | | GNB-DU CONFIGURATION UPDATE ACKNOWLEDGE | | GNB-DU CONFIGURATION UPDATE FAILURE | |
| gNB-CU Configuration Update | GNB-CU CONFIGURATION UPDATE | | GNB-CU CONFIGURATION UPDATE ACKNOWLEDGE | | GNB-CU CONFIGURATION UPDATE FAILURE | |
| UE Context Setup | UE CONTEXT SETUP REQUEST | | UE CONTEXT SETUP RESPONSE | | UE CONTEXT SETUP FAILURE | |
| UE Context Release (gNB-CU initiated) | UE CONTEXT RELEASE COMMAND | | UE CONTEXT RELEASE COMPLETE | |  | |
| UE Context Modification (gNB-CU initiated) | UE CONTEXT MODIFICATION REQUEST | | UE CONTEXT MODIFICATION RESPONSE | | UE CONTEXT MODIFICATION FAILURE | |
| UE Context Modification Required (gNB-DU initiated) | UE CONTEXT MODIFICATION REQUIRED | | UE CONTEXT MODIFICATION CONFIRM | | UE CONTEXT MODIFICATION REFUSE | |
| Write-Replace Warning | WRITE-REPLACE WARNING REQUEST | | WRITE-REPLACE WARNING RESPONSE | |  | |
| PWS Cancel | PWS CANCEL REQUEST | | PWS CANCEL RESPONSE | |  | |
| gNB-DU Resource Coordination | GNB-DU RESOURCE COORDINATION REQUEST | | GNB-DU RESOURCE COORDINATION RESPONSE | |  | |
| F1 Removal | F1 REMOVAL REQUEST | | F1 REMOVAL RESPONSE | | F1 REMOVAL FAILURE | |
| BAP Mapping Configuration | | BAP MAPPING CONFIGURATION | | BAP MAPPING CONFIGURATION ACKNOWLEDGE | | BAP MAPPING CONFIGURATION FAILURE |
| GNB-DU Resource Configuration | | GNB-DU RESOURCE CONFIGURATION | | GNB-DU RESOURCE CONFIGURATION ACKNOWLEDGE | | GNB-DU RESOURCE CONFIGURATION FAILURE |
| IAB TNL Address Allocation | | IAB TNL ADDRESS REQUEST | | IAB TNL ADDRESS RESPONSE | | IAB TNL ADDRESS FAILURE |
| IAB UP Configuration Update | | IAB UP CONFIGURATION UPDATE REQUEST | | IAB UP CONFIGURATION UPDATE RESPONSE | | IAB UP CONFIGURATION UPDATE FAILURE |
| Resource Status Reporting Initiation | | RESOURCE STATUS REQUEST | | RESOURCE STATUS RESPONSE | | RESOURCE STATUS FAILURE |
| Positioning Measurement | | POSITIONING MEASUREMENT REQUEST | | POSITIONING MEASUREMENT RESPONSE | | POSITIONING MEASUREMENT FAILURE |
| Positioning Information Exchange | | POSITIONING INFORMATION REQUEST | | POSITIONING INFORMATION RESPONSE | | POSITIONING INFORMATION FAILURE |
| TRP Information Exchange | | TRP INFORMATION REQUEST | | TRP INFORMATION RESPONSE | | TRP INFORMATION FAILURE |
| Positioning Activation | | POSITIONING ACTIVATION REQUEST | | POSITIONING ACTIVATION RESPONSE | | POSITIONING ACTIVATION FAILURE |
| E-CID Measurement Initiation | | E-CID MEASUREMENT INITIATION REQUEST | | E-CID MEASUREMENT INITIATION RESPONSE | | E-CID MEASUREMENT INITIATION FAILURE |

**Table 2: Class 2 procedures**

|  |  |  |
| --- | --- | --- |
| **Elementary Procedure** | **Message** | |
| Error Indication | ERROR INDICATION | |
| UE Context Release Request (gNB-DU initiated) | UE CONTEXT RELEASE REQUEST | |
| Initial UL RRC Message Transfer | INITIAL UL RRC MESSAGE TRANSFER | |
| DL RRC Message Transfer | DL RRC MESSAGE TRANSFER | |
| UL RRC Message Transfer | UL RRC MESSAGE TRANSFER | |
| UE Inactivity Notification | UE INACTIVITY NOTIFICATION | |
| System Information Delivery | SYSTEM INFORMATION DELIVERY COMMAND | |
| Paging | PAGING | |
| Notify | NOTIFY | |
| PWS Restart Indication | PWS RESTART INDICATION | |
| PWS Failure Indication | PWS FAILURE INDICATION | |
| gNB-DU Status Indication | GNB-DU STATUS INDICATION | |
| RRC Delivery Report | RRC DELIVERY REPORT | |
| Network Access Rate Reduction | NETWORK ACCESS RATE REDUCTION | |
| Trace Start | | TRACE START |
| Deactivate Trace | | DEACTIVATE TRACE |
| DU-CU Radio Information Transfer | DU-CU RADIO INFORMATION TRANSFER | |
| CU-DU Radio Information Transfer | CU-DU RADIO INFORMATION TRANSFER | |
| Resource Status Reporting | RESOURCE STATUS UPDATE | |
| Access And Mobility Indication | ACCESS AND MOBILITY INDICATION | |
| Reference Time Information Reporting Control | | REFERENCE TIME INFORMATION REPORTING CONTROL |
| Reference Time Information Report | | REFERENCE TIME INFORMATION REPORT |
| Access Success | | ACCESS SUCCESS |
| Cell Traffic Trace | CELL TRAFFIC TRACE | |
| Positioning Assistance Information Control | POSITIONING ASSISTANCE INFORMATION CONTROL | |
| Positioning Assistance Information Feedback | POSITIONING ASSISTANCE INFORMATION FEEDBACK | |
| Positioning Measurement Report | POSITIONING MEASUREMENT REPORT | |
| Positioning Measurement Abort | POSITIONING MEASUREMENT ABORT | |
| Positioning Measurement Failure Indication | POSITIONING MEASUREMENT FAILURE INDICATION | |
| Positioning Measurement Update | POSITIONING MEASUREMENT UPDATE | |
| Positioning Deactivation | POSITIONING DEACTIVATION | |
| E-CID Measurement Failure Indication | E-CID MEASUREMENT FAILURE INDICATION | |
| E-CID Measurement Report | E-CID MEASUREMENT REPORT | |
| E-CID Measurement Termination | E-CID MEASUREMENT TERMINATION COMMAND | |
| Positioning Information Update | POSITIONING INFORMATION UPDATE | |
| QoE Information Transfer | QOE INFORMATION TRANSFER | |

*<Next change>*

8.X QoE Information Transfer procedures

8.X.1 QoE Information Transfer

8.X.1.1 General

The purpose of the QoE Information Transfer procedure is to transfer RAN visible QoE information from the gNB-CU to the gNB-DU. The procedure uses UE-associated signalling.

8.X.1.2 Successful operation



**Figure 8.X.1.2-1: QoE Information Transfer procedures.**

The gNB-CU initiates the procedure by sending the QOE INFORMATION TRANSFER message to the gNB-DU.

If the *QoE Information List* IE is included in QOE INFORMATION TRANSFER message, the gNB-DU may take it into account for network optimization, e.g. scheduling optimization.

8.X.1.3 Abnormal Conditions

Not applicable.

*<Next change>*

9.2.X QoE Information Transfer messages

9.2.X.1 QOE INFORMATION TRANSFER

This message is sent by a gNB-CU to a gNB-DU, to indicate RAN visible QoE information.

Direction: gNB-CU → gNB-DU.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| gNB-CU UE F1AP ID | M |  | 9.3.1.4 |  | YES | reject |
| gNB-DU UE F1AP ID | M |  | 9.3.1.5 |  | YES | reject |
| **QoE Information List** |  |  |  |  |  |  |
| **>QoE Information Item** |  |  | *1..<maxnoofQoEInformation>* |  |  |  |
| >>QoE Metric List | O |  | FFS |  | - | - |
| >>>Buffer level | O |  | FFS |  |  |  |
| >>>Playout delay | O |  | FFS |  |  |  |
| **>DRBID List** |  |  | 9.3.1.x |  |  |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofQoEInformation | Maximum no. of QoE information for one UE, the maximum value is FFS. |

*<Next change>*

9.3.1.x DRB ID List

This IE provides DRB information for the alignment of MDT and QoE.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| **DRB ID List** |  |  | *1 .. <maxnoofDRBs>* |  | – |  |
| >DRB ID | M |  | 9.3.1.8 |  | – |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofDRBs | Maximum no. of DRB allowed towards one UE, the maximum value is 64. |