**3GPP TSG-CT WG1 Meeting #138-eC1-22XXXX**

**E-Meeting, 10th – 14th October 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **27.007** | **CR** | **0793** | **rev** | **1** | **Current version:** | **17.7.0** |  |
|  | | | | | | | | |
| *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 |  | Core Network |  |

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| ***Title:*** | Corrections to NR QoE AT commands | | | | | | | | | |
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| ***Source to WG:*** | Lenovo, Ericsson, Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17, NR\_QoE-Core | | | | |  | ***Date:*** | | | 2022-10-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1. +CAPPLEVMCNR: The definition of the codepoint <ran\_visible\_release\_only> is not aligned with the RAN3 agreements made wrt the release of encapsulated QoE and RVQoE measurement configurations. RAN3 agreed the following cases:   **Case 1:** If the gNB releases an encapsulated QoE measurement configuration, the associated RVQoE measurement configuration is released as well.  **Case 2:** The gNB can release a list of RVQoE measurement configurations while not releasing the corresponding encapsulated QoE measurement configurations.  Case 1 can be supported by +CAPPLEVMCNR by setting the codepoint <meas\_config\_app\_layer\_id> and the codepoint <start-stop\_measurement> to value “1”. Furthermore, by setting the codepoint <start-stop\_measurement> to value “1” and omitting the codepoint <meas\_config\_app\_layer\_id> all measurement configurations (incl. encapsulated QoE and RVQoE configurations) can be released at once.  The codepoint <ran\_visible\_release\_only> is only applicable for Case 2. Therefore, the definition of this codepoint needs to corrected to make it clear that it is only used for releasing RAN visible application level measurements.   1. +CAPPLEVMCNR: To be aligned with latest NR RRC specification in TS 38.331 the codepoint <report\_initial\_playout\_delay> needs to be corrected to <report\_playout\_delay\_for\_media\_startup>. 2. +CAPPLEVMRNR: In the definition of the codepoint <meas\_config\_app\_layer\_id> the part “*associated with the report in the <app-meas\_report> parameter*” can be removed. Reason: an application level measurement report may contain only the QoE measurement status (session start/end indication) or the RAN-visible measurements due to the fact that reporting of RAN-visible measurements can be configured by network with a periodicity different from the encapsulated QoE measurements. Therefore, the QoE measurement configuration identity does not need to be linked with the <app-meas\_report> parameter. 3. +CAPPLEVMRNR: The definition of the codepoint <playout\_delay\_for\_media\_startup> is not aligned with the codepoint, i.e. the part “*initial playout delay*” needs to be replaced by “playout delay for media startup”. 4. +CAPPLEVMRNR: In Table 8.85-1 the suffix “NR” is missing for the AT command name +CAPPLEVMR. 5. +CAPPLEVMRNR: In Table 8.85-1 the codepoint <meas\_config\_app\_layer\_id> should be separated from the group [<app-meas\_report\_length>,<app-meas\_report>], since <meas\_config\_app\_layer\_id> identifies the QoE measurement configuration even if there is not any <app-meas\_report>. Furthermore, the codepoint <meas\_config\_app\_layer\_id> should be defined as mandatory present to be aligned with ASN.1 signalling. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. +CAPPLEVMCNR: The definition of the codepoint <ran\_visible\_release\_only> has been corrected to make it clear that it is only used for releasing RAN visible application level measurements indicated by the <meas\_config\_app\_layer\_id>. 2. +CAPPLEVMCNR: The codepoint <report\_initial\_playout\_delay> has been be corrected to <report\_playout\_delay\_for\_media\_startup>. 3. +CAPPLEVMRNR: In the definition of the codepoint <meas\_config\_app\_layer\_id> the part “*associated with the report in the <app-meas\_report> parameter*” has been removed. 4. +CAPPLEVMRNR: In the definition of the codepoint <playout\_delay\_for\_media\_startup> the part “*initial playout delay*” has been replaced by “*playout delay for media startup*”. 5. +CAPPLEVMRNR: In Table 8.85-1 the suffix “NR” has been added to the AT command name +CAPPLEVMR. 6. +CAPPLEVMRNR: In Table 8.85-1 the codepoint <meas\_config\_app\_layer\_id> has been separated from the group [<app-meas\_report\_length>,<app-meas\_report>] and defined as mandatory present.   **Backward compatibility analysis on the ME:**  This CR is not backward compatible to 3GPP TS 27.007 V17.7.0. An ME not having implemented this CR has behaviors which are not aligned with concepts and agreements in RAN2 and RAN3. If an ME does not implement this CR then NR QoE will not work as intended and there is high risk that NR QoE operation in ME may fail. | | | | | | | | |
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| ***Consequences if not approved:*** | | The use of the codepoint <ran\_visible\_release\_only> remains misaligned with its original purpose.  Inconsistences remain in the definition of the NR QoE AT commands. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.84, 8.85 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

## 8.84 Application level measurement configuration for NR +CAPPLEVMCNR

Table 8.84-1: +CAPPLEVMCNR parameter command syntax

|  |  |
| --- | --- |
| Command | Possible response(s) |
| +CAPPLEVMCNR=[<n>] | *+CME ERROR: <err>* |
| +CAPPLEVMCNR? | +CAPPLEVMCNR: <n> |
| +CAPPLEVMCNR=? | +CAPPLEVMCNR: (list of supported <n>s) |

**Description**

This command allows control of the application level measurement configuration according to 3GPP TS 38.331 [160]. The set command controls the presentation of the unsolicited result code +CAPPLEVMCNR: (list of [<CR><LF>,<meas\_config\_app\_layer\_id>,[<start-stop\_measurement>,[<ran\_visible\_release\_only>]],[<app-meas\_config\_file\_length>,<app-meas\_config-file>],[<transmission\_of\_session\_start-end>],[<ran\_visible\_periodicity>],[<number\_of\_buffer\_level\_entries>],[<report\_playout\_delay\_for\_media\_startup>],[<app-meas\_service\_type>]]s) providing data for the configuration. Refer clause 9.2 for possible <err> values.

Read command returns the current value of <n>.

Test command returns values supported as a compound value.

**Defined values**

<n>: integer type. Disable and enable presentation of the unsolicited result code +CAPPLEVMCNR to the TE.

0 Disable presentation of the unsolicited result code

1 Enable presentation of the unsolicited result code

<app-meas\_service\_type>: integer type. Contains the indication of what application that is target for the application level measurement configuration.

1 QoE measurement collection for streaming services

2 QoE measurement collection for MTSI services

3 QoE measurement collection for VR services

<start-stop\_measurement>: integer type. Indicates the start and stop of the application level measurement reporting for the application indicated by the <app-meas\_service\_type>.

0 start the application level measurement

1 stop the application level measurement and release the application level measurement configuration

<app-meas\_config\_file\_length>: integer type. Indicates the number of octets of the <app-meas\_config-file> parameter.

<app-meas\_config-file>: string of octets. Contains the application level measurement configuration file for the application indicated by the <app-meas\_service\_type>. The parameter shall not be subject to conventional character conversion as per +CSCS.

<meas\_config\_app\_layer\_id>: integer type. At QoE measurement configuration the <meas\_config\_app\_layer\_id> indicates an identity for the QoE measurement configuration received in the <app-meas\_config-file>. At QoE measurement configuration release, the <meas\_config\_app\_layer\_id> indicates the measurement to be released. The absence of this parameter indicates that all measurement configurations are released.

<transmission\_of\_session\_start-end>: integer type. Contains an indication of whether session start-end is required.

0 Not required

1 Required

<ran\_visible\_periodicity>: integer type.

0 120 ms

1 240 ms

2 480 ms

3 640 ms

4 1024 ms

<number\_of\_buffer\_level\_entries>: integer type. Contains the number of buffer level entries.

1-8

<report\_playout\_delay\_for\_media\_startup>: integer type. Contains an indication of whether report of playout delay for media startup is required.

0 Report of playout delay for media startup is not required

1 Report of playout delay for media startup is required

<ran\_visible\_release\_only>: integer type. Indicates the RAN visible application level measurements to be released.

0 Release the RAN visible application level measurements for this <meas\_config\_app\_layer\_id>

**Implementation**

Optional.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

## 8.85 Application level measurement report for NR +CAPPLEVMRNR

Table 8.85-1: +CAPPLEVMRNR action command syntax

|  |  |
| --- | --- |
| Command | Possible response(s) |
| +CAPPLEVMRNR=(list of <CR><LF>,<meas\_config\_app\_layer\_id>,[<app-meas\_report\_length>,<app-meas\_report>],[<number-of-pdu-session\_id-entries>,(list of <pdu-session\_id>s)],[<number\_of\_buffer\_level\_entries>,(list of <application\_layer\_buffer-level>s)],[<qoe\_measurement\_status>],[<playout\_delay\_for\_media\_startup>]s) | *+CME ERROR: <err>* |
| +CAPPLEVMRNR=? |  |

**Description**

This command allows the MT to provide a list of application level measurement reports according to 3GPP TS 38.331 [160]. Refer clause 9.2 for possible <err> values.

**Defined values**

<qoe\_measurement\_status>: Indicates whether a session has started or ended.

0 started

1 ended

<app-meas\_report\_length>: integer type. Indicates the number of octets of the <app-meas\_report> parameter.

<app-meas\_report>: string of octets. Contains the application level measurement report for the application indicated by the <app-meas\_service\_type>. The parameter shall not be subject to conventional character conversion as per +CSCS.

<meas\_config\_app\_layer\_id>: integer type. Identifies the QoE measurement configuration.

<playout\_delay\_for\_media\_startup>: integer type. Indicates the application layer playout delay for media startup in ms.

0-30000

<number\_of\_buffer\_level\_entries>: integer type. Contains the number of <application\_layer\_buffer-level> entries.

1-8

<application\_layer\_buffer-level>: integer type. Indicates the application layer buffer level in ms in steps of 10 ms.

0-30000

<number-of-pdu-session\_id-entries>: integer type: Indicates the number of entries in the list of <pdu-session\_id>

<pdu-session\_id>: integer type. Identifies a PDU session ID.

0-255

**Implementation**

Optional.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* END OF CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***