**3GPP TSG-RAN WG2 Meeting #121 *R2- 230xxxx***

**Athens, GR, 27 Feb - 3 Mar 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **37.320** | **CR** | xxxx | **rev** | **-** | **Current version:** | **17.2.0** |  |
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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:*** | Miscellaneous corrections on TS 37.320 for MDT | | | | | | | | | |
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| ***Source to WG:*** | CATT | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ENDC\_SON\_MDT\_enh-Core | | | | |  | ***Date:*** | | | 2023-03-02 |
|  |  | | | |  | |  | | |  |
| ***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)* | |
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| ***Reason for change:*** | | 1. Measurements included in the logged MDT report can include also the measurements from early measurement results if configured, which could be clarified in 5.1.1 section. 2. For the description of multiple CEF in section 5.1.6, it is unclear how to record multiple CEF reports in the CEF report list when the failures happening consecutively, the clarification could be needed. 3. It needs to be clarified that the assistance information is also used to indicate the signaling based logged MDT measurement results presence in the UE in 5.4.0 section. | | | | | | | | |
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| ***Summary of change:*** | | 1. Clarify that measurements included in the logged MDT report can include also the measurements from early measurement results if configured in 5.1.1 section. 2. Clarify on multiple CEF reports logging in the CEF report list when the failures happening consecutively. 3. Clarify that the assistance information also is used to indicate the signaling based logged MDT measurement results presence in the UE in 5.4.0 section.   **Impact analysis**  Architecture options  NR SA  Impacted functionality:  Logged MDT, Multiple CEF  Inter-operability:  If only the network is implemented according to the CR and the UE is not, no interoperability problems are foreseen.  If only the UE is implemented according to the CR and the network is not, no interoperability problems are foreseen. | | | | | | | | |
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| ***Consequences if not approved:*** | | Some misunderstandings will exist in the 37.320 R17 spec. | | | | | | | | |
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| ***Clauses affected:*** | | 5.1.1, 5.1.6, 5.4.0 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

*First of change*

### 5.1.1 Logged MDT procedures

Support of Logged MDT complies with the principles for IDLE and INACTIVE state measurements in the UE specified in TS 25.133[2], TS 36.133 [3] and TS 38.133 [16] and principles for IDLE and CONNECTED mode MBSFN measurements in the UE specified in TS 36.133 [3].

NOTE: It should be noted the established principles may result in different logged information in different UEs.

Furthermore, measurement logging is differentiated based on UE states in idle mode i.e. camped normally, any cell selection or camped on any cell. The UE shall perform measurement logging in "camped normally" state and "any cell selection" state. In "camped on any cell" state the UE is not required to perform MDT measurement logging (including time and location information).

For Logged MDT, the configuration will always be done in cells of the same RAT type. However, measurements included in the logged MDT report comprises of measurements from the same RAT type (serving cell measurements, intra-frequency and inter-frequency neighbor cell measurements) and different RAT types (inter-RAT neighbor cell measurements). Measurements included in the logged MDT report can also include measurements from early measurement (measurement results related to early measurement frequencies) if configured.

Logging of MBSFN measurements is only applicable to E-UTRA.

*Next of change*

### 5.1.6 Accessibility measurements

The UE logs failed RRC connection establishments for LTE, UMTS and NR, i.e. a log is created when the RRC connection establishment procedure fails. For NR, UE logs any failed connection establishment attempt, i.e. a log is created when the RRC setup or resume procedure fails. The UE logs failed RRC connection establishments without the need for prior configuration by the network.

The UE stores the Selected PLMN on the RRC connection establishment failure or RRC resume procedure failure. Only if that PLMN is the same as the RPLMN, the UE may report the log.

NOTE: There is no expected performance degradation for networks using EPLMNs.

The trigger for creating a log related to a failed RRC connection establishment is for NR when timer T300 expires, for LTE when timer T300 expires and for UMTS when V300 is greater than N300. The trigger for creating log related to a failed RRC resume procedure is for NR when timer T319 expires.

The UE can store the following information related to the failed RRC connection establishment or failed RRC resume procedure:

- Time stamp, which is the elapsed time between logging and reporting the log.

- The global cell identity of the serving cell when the RRC connection establishment or resume fails, i.e. the cell which the UE attempted to access.

- The latest available radio measurements for any frequency or RAT

- The latest detailed location information, if available.

- For LTE:

- Number of Random Access Preambles transmitted;

- Indication whether the maximum transmission power was used;

- Contention detected;

- The latest WLAN measurement results, if available;

- The latest Bluetooth measurement results, if available.

- For UMTS FDD:

- Number of RRC Connection Request attempts (e.g. T300 expiry after receiving ACK and AICH)

- For UMTS 1.28 Mcps TDD:

- Number of RRC Connection Request attempts.

- Whether the FPACH is received or whether the maximum number Mmax of synchronisation attempts is reached.

- Failure indication of the E-RUCCH transmission. It is only applied when common E-DCH is supported by UE and network.

- For NR:

- SSB index of the downlink beams of serving cell;

- The latest number of consecutive connection failures in the last failed cell the UE has experienced independent of RRC state transitions;

- RACH failure report:

- Tried SSB index and number of Random Access Preambles transmitted for each tried SSB in chronological order of attempts;

- Contention detected as per RACH attempt;

- Indication whether the selected SSB is above or below the rsrp-ThresholdSSB threshold, as per RACH attempt;

- TAC of the cell in which the UE performs the RA procedure;

- For 2-step RACH, the following information can be additionally included:

- Indication that fallback from 2-step RA to 4-step RA was performed by the UE, as per RACH attempt.

- The latest WLAN measurement results, if available;

- The latest Bluetooth measurement results, if available;

- The latest sensor information, if available.

In addition, the CEF report may include additional information required for RACH Optimization solutions, as specified in TS 38.300 [22].

For NR, the UE can store multiple CEF (upto 4) reports to solve the problem about UL/DL coverage imbalance. For the failures happening consecutively in different cells, the UE stores a CEF report entry for the last CEF in each cell in the CEF report list, as specified in TS 38.331 [15]. For the failures happening consecutively in the same cell, the UE stores only one CEF report entry in the CEF report list, and replaces the last information related to the failed RRC connection establishment or failed RRC resume procedure with the new one, while the number of consecutive connection failures is increased. All the entries in the multiple CEF report list correspond to one PLMN. Upon detecting a cell with a different RPLMN, the UE clears stored CEF report entries.

*Next of change*

### 5.4.0 General

The management-based MDT configuration should not overwrite signalling based MDT configuration.

To assist the network in preventing management based logged MDT overwriting signaling based logged MDT, if the UE is configured with logged MDT type, the UE provides an assistance information during connection establishment, re-establishment, resume and intra-NR handover. The information indicates the signaling based logged MDT configuration or unretrieved signaling based logged MDT measurement report presence in the UE.

*End of change*