**3GPP TSG-SA5 Meeting #133e *S5-205093***

**e-meeting 12th - 21st October 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **32.422** | **CR** | 0349 | **rev** | 2 | **Current version:** | **16.3.0** |  |
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| *For* [***HELP***](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 |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:***  | Add additional information for MDT specific parameters in NR aligning with RAN TSs |
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| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | 5GMDT |  | ***Date:*** | 2020-10-17 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-16 |
|  | *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 canbe 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-12 (Release 12)Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | Add additional information for MDT specific parameters |
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| ***Summary of change:*** | * Update list of measurements for MDT to be aligned with RAN2/RAN3 (TS 37.320 clause 5.4, TS 38.413 clause 9.3.1)
* Add reporting trigger for NR
* Add new interval value that is missing
* Add collection period for NR to be aligned with RAN3 (TS 38.413, clause 9.3.1)
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| ***Consequences if not approved:*** | The MDT specific paramters for NR would not be correct and would missmatch with RAN specification |
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| ***Clauses affected:*** | 5.10.3, 5.10.4, 5.10.5, 5.10.X |
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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 changes***

### 5.10.3 List of measurements

This parameter is mandatory if the Job type is configured for Immediate MDT or combined Immediate MDT and Trace. This parameter defines the measurements that shall be collected. For further details see also TS 37.320 [30]. The parameter is 4 octet long bitmap with the following values in UMTS:

- M1: CPICH RSCP and CPICH Ec/No measurement by UE with Periodic or event 1F as reporting triggers.

- M2: For 1.28 Mcps TDD, P-CCPCH RSCP and Timeslot ISCP measurement by UE with event 1I as reporting triggers.

- M3: SIR and SIR error (FDD) by NodeB

- M4: UE power headroom (UPH) by the UE, applicable for E-DCH transport channels.

- M5: Received total wideband power (RTWP) by Node B

- M6: Data Volume measurement, separately for DL and UL, by RNC.

- M7: Throughput measurement, separately for DL and UL, per RAB and per UE, by RNC.

- Any combination of the above

The parameter can have the following values in LTE:

- M1: RSRP, RSRQ and SINR measurement by UE with Periodic, event A2 as reporting triggers

- M2: Power Headroom (PH) measurement by UE
NOTE: Available from MAC layer

- M3: Received Interference Power measurement by eNB

- M4: Data Volume measurement separately for DL and UL by eNB

- M5: Scheduled IP Throughput measurement separately for DL and UL, per RAB per UE and per UE for the DL, per UE for the UL, by eNB

- M6: Packet Delay measurement, separately for DL and UL, per QCI per UE, UL PDCP Delay, by the UE, and Packet Delay in the DL per QCI, by the eNB

- M7: Packet Loss rate measurement, separately for DL and UL per QCI per UE, by the eNB

- M8: RSSI measurement by UE for WLAN and Bluetooth®

- M9: RTT measurement by UE only for WLAN

- And any combination of above

The parameter can have the following values in NR:

 - M1: DL signal quantities measurement results for the serving cell and for intra-frequency/Inter-frequency/inter-RAT neighbour cells, including cell/beam level measurement.

- M2: Power headroom (PH) measurement by UE

- M3 is not supported by this release

- M4: Data volume measurement separately for DL and UL, per DRB per UE

- M5: Average UE throughput measurement separately for DL and UL, per DRB per UE and per UE for the DL, per DRB per UE and per UE for the UL

- M6: Packet delay measurement, separately for DL and UL, per DRB per UE

- M7: Packet loss rate measurement, separately for DL and UL, per DRB per UE

- M8: RSSI measurement by UE for WLAN and Bluetooth®

- M9: RTT measurement by UE for WLAN

Detailed information for M4, M5, M6, M7 is defined 3GPP TS 36.314 [35], for M1, M8, M9 in 3GPP TS 38.331[43], for M2 in TS 38.321[51].

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| UMTS |
| Bit 8 | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 |
| M7 for DL  | M6 for UL | M6 for DL | M5 | M4 | M3 | M2 | M1 |
| spare | M7 for UL |
| spare |
| spare |

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| LTE |
| Bit 8 | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 |
| M7 | M6 | logging of M1 from event triggered measurement reports according to existing RRM configuration | M5  | M4 | M3 | M2 | M1 |

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| NR |
| Bit 8 | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 |
| spare | logging of M1 from event triggered measurement reports according to existing RRM configuration.Value “1” indicates “activate” and value “0” indicates “do not activate”. | M7 | M6  | M5 | M4 | M2 | M1 |

***Next changes***

### 5.10.4 Reporting Trigger

This parameter is mandatory if the list of measurements parameter is configured for UE side measurement (such as M1 measurement in LTE and NR, and M1/M2 measurement in UMTS) and the jobtype is configured for Immediate MDT or combined Immediate MDT and Trace.

The parameter shall not have the combination of periodical, event based and event based periodic reporting at the same time, i.e. :

* For LTE and NR, only one of the bits 1, 2, and 5 can be set.
* For UMTS, bit 1 cannot be set at the same time with either bit 3 or bit 4.
* The parameter is one octet long bitmap and can have the following values in LTE, UMTS, NR (detailed definition of the parameter is in 3GPP TS 37.320 [30]):Periodical,
* Event A2 for LTE and NR:
* Event 1F for UMTS,
* Event 1I for UMTS 1.28 Mcps TDD,
* A2 event triggered periodic for LTE and NR.
* All configured RRM event triggers for M1 measurement. See also TS 37.320 section 5.2.1.1 [30]

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| Bit 8 | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 |
| Reserved | All configured RRM event triggers for UMTS | All configured RRM event triggers for LTE | A2 event triggered periodic for LTE and NR | Event 1I for UMTS 1.28 MCPS TDD |  Event 1F for UMTS  | Event A2 for LTE and NR | Periodical |

***Next changes***

### 5.10.5 Report Interval

This parameter is mandatory if the Reporting trigger is configured for Periodic UE side measurements (such as M1 measurement in LTE or NR and M1/M2 measurements in UMTS) and the jobtype is configured for Immediate MDT or combined Immediate MDT and Trace. The parameter indicates the interval between the periodical measurements to be taken when UE is in connected mode.

The parameter is enumerated type with the following values in milliseconds in case of UMTS (detailed definition is in 3GPP TS 25.331 [31]:

- 250 ms (0),

- 500 ms (1),

- 1000 ms (2),

- 2000 ms (3),

- 3000 ms (4),

- 4000 ms (5),

- 6000 ms (6),

- 8000 ms (7),

- 12000 ms (8),

- 16000 ms (9),

- 20000 ms (10),

- 24000 ms (11),

- 28000 ms (12),

- 32000 ms (13),

- 64000 ms (14)

The parameter can have the following values in LTE (detailed definition is in 3GPP TS 36.331 [32]):

- 120 ms (15),

- 240 ms (16),

- 480 ms (17),

- 640 ms (18),

- 1024 ms (19),

- 2048 ms (20),

- 5120 ms (21),

- 10240ms (22),

- 1 min=60000 ms (23),

- 6 min=360000 ms (24),

- 12 min=720000 ms (25),

- 30 min=1800000 ms (26),

- 60 min=3600000 ms (27)

The parameter can have the following values in NR (detailed definition is in 3GPP TS 38.331 [43]):

- 120 ms (28),

- 240 ms (29),

- 480 ms (30),

- 640 ms (31),

- 1024 ms (32),

- 2048 ms (33),

- 5120 ms (34),

- 10240 ms (35),

- 20480 ms (36),

- 40960 ms (37)

- 1 min=60000 ms (38),

- 6 min=360000 ms (39),

- 12 min=720000 ms (40),

- 30 min=1800000 ms (41),

- 60 min=3600000 ms (42)

***Next changes***

### 5.10.X Collection period for RRM measurements NR

This parameter is mandatory if the job type is set to Immediate MDT or Immediate MDT and Trace and any of the bits 3 (M4) or 4 (M5) of the list of measurements parameter (defined in Section 5.10.3) in NR is set to 1. The parameter is used only in case of RAN side measurements whose configuration is determined by RRM.

This measurement parameter defines the collection period that should be used to collect available measurement samples in case of RRM configured measurements. The same collection period should be used for all such measurements that are requested in the same MDT or combined Trace and MDT job.

The parameter is an enumerated type with the following values (detailed definition is in 3GPP TS 38.413 [49]:

- 1024 ms (0),

- 2048 ms (1),

- 5120 ms (2),

- 10240 ms (3),

- 60000 ms (4).

Some values may not be always available e.g., due to the large amount of logging they would generate in a highly loaded network. The selection of a specific subset of supported values at the gNB is vendor-specific.

***End of changes***