**3GPP TSG- Meeting # *rev2***

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **32.422** | **CR** | **0318** | **rev** | **-** | **Current version:** | **16.0.0** |  |
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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 |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:***  | Add MDT specific configuration parameters for 5G  |
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| ***Source to WG:*** | Oy LM Ericsson AB |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | 5GMDT |  | ***Date:*** | 2020-02-14 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***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 MDT specific configuration parameters for 5G  |
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| ***Summary of change:*** | Add MDT specific configuration parameters for 5G to be aligned with corresponding work in RAN2 (Running CR R2-2001364 on TS 38.331).  |
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| ***Consequences if not approved:*** | MDT specific configuration parameters for 5G will not be supported in release 16  |
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| ***Clauses affected:*** | 2, 5.10.2, 5.10.a, 5.10.b, 5.10.c, 5.10.d, 5.10.3  |
|  |  |
|  | **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:*** |  |

***First change***

# 2 References

The following documents contain provisions, which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

NOTE: Overall management principles are defined in 3GPP TS 32.101 [1].

[1] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".

[2] 3GPP TS 32.421: "Telecommunication management; Subscriber and equipment trace: Trace concepts and requirements".

[3] 3GPP TS 32.423: "Telecommunication management; Subscriber and equipment trace: Trace data definition and management".

[4] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[5] 3GPP TS 52.008: "Telecommunication management; GSM subscriber and equipment trace".

[6] 3GPP TS 23.060: "General Packet Radio Service (GPRS) Service description; Stage 2".

[7] 3GPP TS 23.205: "Bearer-independent circuit-switched core network; Stage 2".

[8] 3GPP TS 23.108: "Mobile radio interface layer 3 specification, core network protocols; Stage 2 (structured procedures)".

[9] 3GPP TS 23.246: "Multimedia Broadcast/Multicast Service (MBMS); Architecture and functional description".

[10] 3GPP TS 29.232: "Media Gateway Controller (MGC) - Media Gateway (MGW); interface; Stage 3".

[11] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[12] 3GPP TS 29.060: "General Packet Radio Service (GPRS); GPRS Tunnelling Protocol (GTP) across the Gn and Gp interface".

[13] 3GPP TS 25.413: "UTRAN Iu interface Radio Access Network Application Part (RANAP) signalling".

[14] 3GPP TS 23.218: "IP Multimedia (IM) session handling; IM call model; Stage 2".

[15] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[16] 3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents".

[17] 3GPP TS 29.328: "IP Multimedia Subsystem (IMS) Sh interface; Signalling flows and message contents".

[18] Enabler Release Definition for OMA Device Management Specifications, version 1.2, The Open Mobile Alliance™ (URL:http://www.openmobilealliance.org/).

[19] 3GPP TS 32.240: "Telecommunication management; Charging management; Charging architecture and principles".

[20] 3GPP TS 32.260: "Telecommunication management; Charging management; IP Multimedia Subsystem (IMS) charging".

[21] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[22] 3GPP TS 23.402: "Architecture enhancements for non-3GPP accesses".

[23] 3GPP TS 36.401: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Architecture description".

[24] 3GPP TS 32.442: "Telecommunication management; Trace management Integration Reference Point (IRP); Information Service (IS)".

[25] 3GPP TS 29.273: "Evolved Packet System (EPS); 3GPP EPS AAA interfaces".

[26] 3GPP TS 29.272: "Evolved Packet System (EPS); Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) related interfaces based on Diameter protocol".

[27] 3GPP TS 32.615: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP): eXtensible Markup Language (XML) definitions".

[28] 3GPP TS 32.342: "Telecommunication management; File Transfer (FT) Integration Reference Point (IRP): Information Service (IS)".

[29] 3GPP TS 29.212: " Policy and Charging Control (PCC);Reference points".

[30] 3GPP TS 37.320: "Universal Terrestrial Radio Access (UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRA); Radio measurement collection for Minimization of Drive Tests (MDT);Overall description; Stage 2".

[31] 3GPP TS 25.331: "Radio Resource Control (RRC); Protocol specification"

[32] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification".

[33] 3GPP TS 24.301: "Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3".

[34] 3GPP TS 29.274: "3GPP Evolved Packet System (EPS); Evolved General Packet Radio Service (GPRS) Tunnelling Protocol for Control plane (GTPv2-C); Stage 3".

[35] 3GPP TS 32.622: "Telecommunication management; Configuration Management (CM); Generic network resources Integration Reference Point (IRP): Network Resource Model (NRM)".

[36] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol".

[37] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN): Overall description stage 2".

[38] 3GPP TS 36.214: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer - Measurements".

[39] 3GPP TS 32.130: "Network sharing; Concepts and requirements".

[40] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[41] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2"

[42] 3GPP TS 38.300: "NR and NG-RAN Overall Description; Stage 2".

[43] 3GPP TS 38.331: "NR; Radio Resource Control (RRC); Protocol specification".

[44] 3GPP TS 38.401: "NG-RAN; Architecture Description".

[45] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[46] 3GPP TS 28.541: "Network Resource Model (NRM); Stage 2 and stage 3".

[X] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

***Next change***

### 5.10.2 Area Scope

The Area Scope optional parameter defines the area in terms or Cells or Tracking Area/Routing Area/Location Area where the MDT data collection shall take place. The area scope specified in an MDT session shall support the PLMNs of the MDT PLMN list (defined in clause 5.10.24). If the parameter is not present the MDT data collection shall be done throughout the PLMNs of the MDT PLMN list. For further details see also 3GPP TS 37.320 [30].

The Area Scope parameter in UMTS is either:

- list of Cells, identified by CGI. Maximum 32 CGI can be defined.

- List of Routing Area, identified by RAI. Maximum of 8 RAIs can be defined.

- List of Location Area, identified by LAI. Maximum of 8 LAIs can de defined.

The Area Scope parameter in LTE and NR is either:

- list of Cells, identified by E-UTRAN-CGI or NG-RAN CGI. Maximum 32 CGI can be defined.

- List of Tracking Area, identified by TAC. Maximum of 8 TAC can be defined.

- List of Tracking Area Identity, identified by TAC with associated plmn-Identity perTAC-List containing the PLMN identity for each TAC. Maximum of 8 TAI can be defined. For further details see also 3GPP TS 36.331[32].

***Next change***

### 5.10.a Area configuration for neighbouring cell

###  This NR parameter is optional parameter for logged MDT and defines the area for which UE is requested to perform measurement logging for neighbour cells which have list of frequencies. Each frequency will have one PCI that will list out the neighbouring cell. If it is not configured, the UE shall perform measurement logging for all the neighbour cells.

### 5.10.b Report type for logged MDT

This NR parameter is mandatory and defines report type for logged MDT as:

* periodical
* event triggered

### 5.10.c Event list for event triggered measurement

This NR parameter is mandatory for event triggered measurement in the case of logged MDT. Each trace session shall configure at most one event. The UE shall perform logging of measurements only upon certain condition being fulfilled:

* Out of coverage
* A2 event

Detailed definition of the parameter is in 3GPP TS 38.331 [43].

### 5.10.d Sensor information

This NR parameter is optional and defines which sensor information shall be included in logged MDT and immediate MDT measurement if they are available. The following sensor measurement can be included or excluded for the UE.

* Barometric pressure
* UE speed
* UE orientation

Detailed definition of the parameter is in 3GPP TS 38.331 [43].

***Next change***

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 and RSRQ 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 by eNB

- 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
* M5: Average UE throughput measurement separately for DL and UL
* M6: Packet delay measurement, separately for DL and UL
* M7: Packet loss rate measurement, separately for DL and UL
* M8: RSSI measurement by UE for WLAN and bluetooth
* M9: RTT measurement by UE for WLAN

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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 38.321[X].

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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 |
| spare |
| 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 |

***End of changes***