**3GPP TSG-SA5 Meeting #162 *S5-253905***

Stor-Göteborg, Sweden, 25th August 2025 - 29th August 2025

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **32.421** | **CR** | **0148** | **rev** | **1** | **Current version:** | **19.2.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network | **x** | Core Network |  |

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| ***Title:*** | Rel-19 CR TS 32.421 Continuous MDT | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, Deutsche Telekom, CATT, ZTE, Huawei | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TraceQoE\_OAM | | | | |  | ***Date:*** | | | 2025-08-15 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19) Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In consideration of the incoming LS R3‑253958 and SA5 discussion in DP (S5‑251222), this change request proposes the specification of Continuous Management-Based MDT based on the following principles:   * Reuse of the existing Management-Based MDT framework, with minimal impact on the current architecture and procedures. * Introduction of an OAM-triggered activation mechanism toward participating NG-RAN nodes, enabling identification of a continuous MDT job through specific Trace Reference(s). * No impact to 5GC functionality. * No impact to the UE, ensuring that UE behaviour remains unchanged. * Use of Trace Reference (TR) and Trace Recording Session Reference (TRSR) to support correlation of MDT measurements collected across nodes, including UE transitions between RRC states and UE mobility.   This CR proposes the stage 2 specification text for the Continuous Management-Based MDT procedure. | | | | | | | | |
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| ***Summary of change:*** | | Defining the stage 1 text for Continuous MDT procedure | | | | | | | | |
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| ***Consequences if not approved:*** | | Unable to support Continuous MDT procedure as requested by RAN3 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.1, 6.2.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 | | | | TS32.422 CR 0528 | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\* START OF NEXT CHANGE \*\*\*

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 21.905 [8], TS 32.130 [13], TS 23.501 [15], TS 38.300 [16] and the following apply:

**Cell Traffic Trace:** The ability to trace one or more active calls in one or more cells.

**Collection period:** Period that indicates the measurement results collection interval.

NOTE: The measurement results can refer to the *MeasResults* IE defined in clause 6.3.5, 3GPP TS 36.331 [18] for LTE or *MeasuredResults* IE defined in clause 11.3, 3GPP TS 25.331[19] for UMTS.

**End user visible events:** Refer to OMA Service Provider Requirements [9].

**Immediate MDT:** See 3GPP TS 37.320 [11].

**Logged MDT:** See 3GPP TS 37.320 [11].

**Management based activation/deactivation:** Trace Session is activated/deactivated in different NEs directly from the management system.

**MDT measurements**: See 3GPP TS 37.320 [11].

**MBSFN Area**: See 3GPP TS 36.300 [14].

**MBSFN Area Reserved Cell**: See 3GPP TS 36.300 [14].

**Signalling based activation/deactivation:** Trace Session is activated/deactivated in different NEs using the signalling interfaces between those elements so that the NEs may forward the activation/deactivation originating from the management system.

**Measurement period:**  Period that indicates the performance measurement reporting interval.

**Trace:** general term used for Subscriber, Equipment and Service Trace.

**Trace record:** in the NE a Trace record is a set of Traceable data collected as determined by the Trace control and configuration parameters.

**Trace Recording Session:** time interval within a Trace session while trace records are generated for the subscriber, UE or service being traced. The triggering events starting and stopping a Trace recording Session are defined in 3GPP TS 32.422 [2] (see figure 1).

**Trace Recording Session Reference:** identifies a Trace Recording Session within a Trace Session (see figure 1)



Figure 1-1: Trace Recording Session

Note that overlapping calls/sessions are possible for e.g. Cell Traffic Trace.

When collecting UE measurements continuously using management-based MDT, the Trace Recording Session Reference for each calls/sessions is the same or correlated.

Time

Trace recording Session Reference #1

Or correlated Trace recording Session Reference #2

Trace Session on a UE

Imm. MDT

Imm. MDT

Log. MDT

Log. MDT

Call/Session #1

Call/Session #2

Call/Session #3

Call/Session #4

Call/Session #5

Figure 1-2: Trace Recording Session when collecting UE measurements continuously using management-based MDT

**Trace Reference:** identifies a Trace Session and is globally unique (see figure 2)

**Trace Session:** time interval started with a Trace Session Activation and lasts until the Deactivation of that specific Trace Session (see figure 2)



Figure 2: Trace Session

**Trace Parameter Configuration:** a technique whereby a request for tracing a certain Subscriber, UE or Service is sent by the management system to the NE for execution.

**Trace Parameter Propagation:** a technique by which the NE processes the trace configuration (received from the management system or another NE) and sends it to the relevant Network Element(s) via signalling interface(s).

**Service Level Tracing:** Refer to OMA Service Provider Requirements [9].

\*\*\* START OF NEXT CHANGE \*\*\*

### 6.2.1 Logged MDT and Immediate MDT requirements

All requirements are valid for Logged MDT and Immediate MDT functionality if not mentioned otherwise:

REQ-MDT-FUN-01 It shall be possible to collect UE measurements based on one or more IMEI(SV) number.

REQ-MDT-FUN-02 It shall be possible to collect UE measurements based on one or more IMSI number.

REQ-MDT-FUN-03 It shall be possible to collect UE measurement logs preceding and following a particular event (e.g. radio link failure).

REQ-MDT-FUN-04 Each UE measurement result shall be linked to a time stamp. Accuracy of time information including absolute time and relative time. The absolute time can refer to the *absoluteTimeStamp* IE defined in clause 6.2.2, 3GPP TS 36.331[18] for LTE or the *absoluteTimeInfo* IE in clause 11.3, 3GPP TS 25.331[19] for UMTS. The relative time can refer to the *relativeTimeStamp* IE defined in clause 6.2.2, 3GPP TS 36.331[18] for LTE or the *relativeTimeStamp* IE in clause 11.3, 3GPP TS 25.331[19] for UMTS.

REQ-MDT-FUN-05 The solutions for collecting UE measurements for the purpose of minimization of drive tests shall be able to work independently from SON support in the network.

REQ-MDT-FUN-06 It shall be possible to collect UE measurements in one or more cells or TA/RA/LA.

REQ-MDT-FUN-07 It shall be possible to collect UE measurements based on one or more IMSI in one or more cells or TA/RA/LA.

REQ-MDT-FUN-08 It shall be possible to collect UE measurements based on one or more IMEI(SV) in one or more cells or TA/RA/LA.

REQ-MDT-FUN-09 It shall be possible to configure UE measurement types and triggering conditions under which UE measurements would be collected for MDT.

REQ-MDT-FUN-10 Void.

REQ-MDT-FUN-11 It shall be possible to configure the condition of MDT data collection based on certain device capability information in one or more cells or in TA/RA/LA.

REQ-MDT-FUN-12 It shall be possible to configure MDT data collection based on one or more IMSI/SUPI in one or more cells or TA/RA/TA with a set of device capability information.

REQ-MDT-FUN-13 It shall be possible to configure MDT data collection based on one or more IMEI(SV) in one or more cells or TA/RA/TA with a set of device capability information.

REQ-MDT-FUN-14 It shall be possible to configure MDT data collection based on one or more IMEI(SV) with a set of device capability information.

REQ-MDT-FUN-15 It shall be possible to configure MDT data collection based on one or more IMSI/SUPI with a set of device capability information.

REQ-MDT-FUN-16 It shall be possible to activate a Trace Session for MDT data collection (or UE measurement collection for MDT purpose) independently from other mobility related performance measurements and call trace collection.

REQ-MDT-FUN-17 It shall be possible to deactivate MDT data collection by using Trace Reference.

REQ-MDT-FUN-18 It shall be possible to create a combine Trace Session for UE measurement collection and for subscriber and equipment/cell trace.

REQ-MDT-FUN-19 Void.

REQ-MDT-FUN-20 MDT activation shall be supported for a UE belonging to any PLMN within the same MDT PLMN list.

REQ-MDT-FUN-21 MDT data collection shall continue if a user is changing PLMN and the target PLMN within the same MDT PLMN list.

REQ-MDT-FUN-22 It shall be possible to collect positioning data related to UE measurements, which can be either geographical coordinates or raw positioning measurements sufficient to be input for a post processing positioning algorithm.

REQ-MDT-CON-23 It shall be possible for management system to correlate MDT UE measurements with location information.

NOTE: There may be regulatory obligation to delete MDT data after processing.

REQ-MDT-FUN-24 The PLMN where TCE collecting MDT data resides shall match the RPLMN of the UE providing the MDT data.

REQ-MDT-FUN-25 In the case of Management based MDT the MOP shall be able to select UEs according to the POP intention.

REQ-MDT-FUN-26 The recorded Subscriber and Equipment Trace data related to a particular POP shall contain information so that if can be sent to that POP.

REQ-MDT-FUN-27 In case of non-file-based trace reporting, binary encoding shall be used for the transfer of all MDT data from data producer to the data consumer.

REQ-MDT-FUN-28 It shall be possible to configure MDT report type to be used for logged MDT for NR.

REQ-MDT-FUN-29 Management based MDT configuration and signalling based MDT configuration shall be able to coexist in parallel for NR.

REQ-MDT-FUN-30 In case of logged MDT, it shall be possible to collect specific NR neighbour cell measurements on cell level.

REQ-MDT-FUN-31 It shall be possible to continue the actual ongoing process of logging for the UE in RRC INACTIVE state when the logging process for the UE starts in RRC IDLE state in NR.

REQ-MDT-FUN-32 In the case of immediate MDT, the measurement quantities shall be able to handle cell level RSRP/RSRQ/SINR in LTE and NR and beam level BRSRP/BRSRQ/BSINR in NR.

REQ-MDT-FUN-33 In the case of signalling based immediate MDT, configuration shall be able to propagate across RATs for the case of Xn inter-RAT intra-system handover to/from NR.

REQ-MDT-FUN-34 In the case of EN-DC scenario, for immediate MDT, configuration shall be able to be provided for both primary node and secondary node independently.

REQ-MDT-FUN-35 In the case of MR-DC, there is a split DRB in which data shall be sent over both MN and SN. In such a case, the PDCP data volume shall include the data sent over both MN and SN for that DRB.

REQ-MDT-FUN-36 In the case of immediate MDT, it shall be possible to collect the measurement pollution indication so that TCE is able to correlate and filter polluted measurements in NR.

REQ-MDT-FUN-37 In the case of immediate MDT, it shall be possible to configure beam level BRSRP/BRSRQ/BSINR in NR.

REQ-MDT-FUN-38 It shall be possible to collect UE measurements in one or more CAG in case of PNI-NPN networks.

REQ-MDT-FUN-39 It shall be possible to collect UE measurements based on one or more IMSI in one or more CAG in case of PNI-NPN networks.

REQ-MDT-FUN-40 It shall be possible to collect UE measurements based on one or more IMEI(SV) in one or more CAG in case of PNI-NPN networks.

REQ-MDT-FUN-41 It shall be possible to configure the condition of MDT data collection based on device capability information in one or more CAG in case of PNI-NPN networks.

REQ-MDT-FUN-42 It shall be possible to configure MDT data collection based on one or more IMSI/SUPI in one or more CAG in case of PNI-NPN networks with a set of device capability information.

REQ-MDT-FUN-43 It shall be possible to configure MDT data collection based on one or more IMEI(SV) in one or more CAG in case of PNI-NPN networks with a set of device capability information.

REQ-MDT-FUN-x1 It shall be possible to use management-based MDT in NR to collect UE measurements continuously during UE transitions between RRC states.

REQ-MDT-FUN-x2 It shall be possible to use management-based MDT in NR to collect UE measurements continuously after UE mobility.

REQ-MDT-FUN-x3 For collecting UE measurements continuously in NR, it shall be possible to use the combination of the Trace Reference and correlated Trace Recording Session Reference(s) to uniquely identify the collected MDT data from the same UE.\*\*\* END OF CHANGE \*\*\*