3GPP TSG-RAN WG3 Meeting #129 R3-255895

**Bengaluru, India, 25 - 29 August 2025**

Agenda Item: 10.3.1

Source: ZTE Corporation

Title: (TP to BL CR for 38.423) MDT Enhancement for NTN

Document for: Discussion

# 1 Introduction

This TP is to introduce the geographical area scope of MDT for NTN.

# 2 TP to BL CR for 38.423 on MDT enhancement for NTN

<<<<<<<<<<<<<<<<<<<< Start of Changes >>>>>>>>>>>>>>>>>>>>

# 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*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.401: "NG-RAN; Architecture Description".

[3] 3GPP TS 38.420: "NG-RAN; Xn General Aspects and Principles".

[4] 3GPP TS 38.422: "NG-RAN; Xn Signalling Transport".

[5] 3GPP TS 38.413: "NG-RAN; NG Application Protocol (NGAP) ".

[6] 3GPP TS 25.921: "Guidelines and principles for protocol description and error handling".

[7] 3GPP TS 23.501: "System Architecture for the 5G System".

[8] 3GPP TS 37.340: "Evolved Universal Terrestrial Radio Access (E-UTRA) and NR; Multi-connectivity; Stage 2".

[9] 3GPP TS 38.300: "NR; NR and NG-RAN Overall Description; Stage 2".

[10] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) Protocol specification".

[11] 3GPP TS 38.323: "NR; Packet Data Convergence Protocol (PDCP) specification".

[12] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[13] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[14] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC) protocol specification".

[15] ITU-T Recommendation X.691 (2002-07): "Information technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER) ".

[16] ITU-T Recommendation X.680 (2002-07): "Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[17] ITU-T Recommendation X.681 (2002-07): "Information technology – Abstract Syntax Notation One (ASN.1): Information object specification".

[18] 3GPP TS 29.281: "General Packet Radio Service (GPRS); Tunnelling Protocol User Plane (GTPv1-U)".

[19] 3GPP TS 38.424: "NG-RAN; Xn data transport".

[20] 3GPP TS 38.414: "NG-RAN; NG data transport".

[21] 3GPP TS 38.412: "NG-RAN; NG Signalling Transport".

[22] 3GPP TS 23.003: "Numbering, Addressing and Identification".

[23] 3GPP TS 32.422: "Trace control and configuration management".

[24] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception".

[25] 3GPP TS 36.104: "Base Station (BS) radio transmission and reception ".

[26] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation".

[27] 3GPP TS 36.101: "User Equipment (UE) radio transmission and reception".

[28] 3GPP TS 33.501: "Security architecture and procedures for 5G System".

[29] 3GPP TS 33.401: "3GPP System Architecture Evolution (SAE); Security architecture".

[30] 3GPP TS 24.501: "Non-Access-Stratum (NAS) protocol for 5G System (5GS); Stage 3".

[31] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[32] 3GPP TS 25.413: "UTRAN Iu interface RANAP signalling".

[33] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state".

[34] 3GPP TS 36.304: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode".

[35] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

[36] 3GPP TS 36.321: "Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification".

[37] IETF RFC 5905: "Network Time Protocol Version 4: Protocol and Algorithms Specification".

[38] 3GPP TS 23.287: "Architecture enhancements for 5G System (5GS) to support Vehicle-to-Everything (V2X) services".

[39] 3GPP TS 38.211: "NR; Physical channels and modulation".

[40] 3GPP TS 38.213: "NR; Physical layer procedures for control".

[41] 3GPP TS 38.473: "NG-RAN; F1 application protocol (F1AP)".

[42] 3GPP TS 38.314: "NR; Layer 2 measurements".

[43] 3GPP TS 37.320: " Radio measurement collection for Minimization of Drive Tests (MDT),"

[44] 3GPP TS 36.423: " Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 application protocol (X2AP)".

[45] 3GPP TS 29.244: "Interface between the Control Plane and the User Plane Nodes; Stage 3".

[46] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services; Stage 2".

[47] 3GPP TS 26.247: “Transparent end-to-end Packet-switched Streaming Service (PSS); Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH)”.

[48] 3GPP TS 23.304: "Proximity based Services (ProSe) in the 5G System (5GS)".

[49] 3GPP TS 38.455: "NG-RAN; NR Positioning Protocol A (NRPPa)".

[50] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[51] 3GPP TS 37.213: "NR; Physical layer procedures for shared spectrum channel access".

[52] 3GPP TS 38.101-1: "NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone".

[53] 3GPP TS 26.114: "IP Multimedia Subsystem (IMS); Multimedia Telephony; Media handling and interaction".

[54] 3GPP TS 26.118: "Virtual Reality (VR) profiles for streaming applications".

[55] 3GPP TS 28.405: "Telecommunication management; Quality of Experience (QoE) measurement collection; Control and configuration".

[56] 3GPP TS 23.256: "Support of Uncrewed Aerial Systems (UAS) connectivity, identification and tracking; Stage 2".

[57] 3GPP TS 23.527: "5G System; Restoration procedures".

[xx] 3GPP TS 37.355: "LTE Positioning Protocol (LPP)".

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### 8.2.1 Handover Preparation

#### 8.2.1.1 General

This procedure is used to establish necessary resources in an NG-RAN node for an incoming handover. If the procedure concerns a conditional handover, parallel transactions are allowed. Possible parallel requests are identified by the target cell ID when the source UE AP IDs are the same.

The procedure uses UE-associated signalling.

#### 8.2.1.2 Successful Operation



Figure 8.2.1.2-1: Handover Preparation, successful operation

The source NG-RAN node initiates the procedure by sending the HANDOVER REQUEST message to the target NG-RAN node. When the source NG-RAN node sends the HANDOVER REQUEST message, it shall start the timer TXnRELOCprep.

Unchanged part is omitted

If the *DL LBT Failure Information Request* IE is included in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, consider that the source NG-RAN node has requested the DL LBT failure information of the UE in the target cell during handover.

If the *Network Slice Area Scope of MDT* IE is included in the *MDT Configuration-NR* IE included in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, use it to derive the MDT area scope for MDT measurement collection. Upon reception of the *Network Slice Area Scope of MDT* IE, the target NG-RAN node shall consider that the area scope for MDT measurement collection is defined only by the *Network Slice Area Scope of MDT* IE and *Area Scope of MDT* IE.

If the *Geographical Area* IE is included in the *MDT Configuration-NR* IE included in the HANDOVER REQUEST message, and the *Geographical Area* IE contains the *MDT PLMN List* IE, the target NG-RAN node shall, if supported, apply the geographical area scope only for UEs served in the listed PLMNs.

**Interaction with SN Status Transfer procedure:**

If the *UE Context Kept Indicator* IE set to "True" and the *DRBs transferred to MN* IE are included in the HANDOVER REQUEST ACKNOWLEDGE message, the source NG-RAN node shall, if supported, include the uplink/downlink PDCP SN and HFN status received from the S-NG-RAN node in the SN Status Transfer procedure towards the target NG-RAN node, as specified in TS 37.340 [8].

**Interaction with the Data Collection Reporting and the Data Collection Reporting Initiation procedures:**

If the *Data Collection ID* IE is contained in the HANDOVER REQUEST message, the target NG-RAN node shall, if supported, report to the source NG-RAN node after successful handover, via the Data Collection Reporting procedure, the requested information configured via the previous Data Collection Reporting Initiation procedure corresponding to the *NG-RAN node1 Measurement ID* IE, allocated by the source NG-RAN node, and the *NG-RAN node2 Measurement ID* IE, allocated by the target NG-RAN node.

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### 8.2.4 Retrieve UE Context

#### 8.2.4.1 General

The purpose of the Retrieve UE Context procedure is to either retrieve the UE context from the old NG-RAN node and transfer it to the NG-RAN node where the UE RRC Connection has been requested to be established, or to enable the old NG-RAN node to forward an RRC message to the UE via the new NG-RAN node without context transfer, or to request for small data transmission. The procedure can also be used to transfer the authorization status information of the mobile IAB-node.

The procedure uses UE-associated signalling.

#### 8.2.4.2 Successful Operation



Figure 8.2.4.2-1: Retrieve UE Context, successful operation

The new NG-RAN node initiates the procedure by sending the RETRIEVE UE CONTEXT REQUEST message to the old NG-RAN node.

Unchanged part is omitted

If the *PNI-NPN Area Scope of MDT* IE is included in the *MDT Configuration-NR* IE included in the RETRIEVE UE CONTEXT RESPONSE message, the new NG-RAN node shall, if supported, use it to derive the MDT area scope for MDT measurement collection in PNI-NPN. Upon reception of the *PNI-NPN Area Scope of MDT* IE, the new NG-RAN node shall consider that the area scope for MDT measurement collections of PNI-NPN areas is defined only by the areas included in the *PNI-NPN Area Scope of MDT* IE.

If the UE is a mobile IAB-node, the old NG-RAN node shall include the *Mobile* *IAB Authorization Status* IE in the RETRIEVE UE CONTEXT RESPONSE message. If the *Mobile* *IAB Authorization Status* IE is included in the RETRIEVE UE CONTEXT RESPONSE message, the new NG-RAN node shall, if supported, consider that the UE is a mobile IAB-node, then store it and use it accordingly as defined in TS 38.401 [2].

If the *Network Slice Area Scope of MDT* IE is included in the *MDT Configuration-NR* IE included in the RETRIEVE UE CONTEXT RESPONSE message, the new NG-RAN node shall, if supported, use it to derive the MDT area scope for MDT measurement collection. Upon reception of the *Network Slice Area Scope of MDT* IE, the new NG-RAN node shall consider that the area scope for MDT measurement collection is defined only by the *Network Slice Area Scope of MDT* IE and *Area Scope of MDT* IE.

If the *Geographical Area* IE is included in the *MDT Configuration-NR* IE included in the RETRIEVE UE CONTEXT RESPONSE message, and the *Geographical Area* IE contains the *MDT PLMN List* IE, the new NG-RAN node shall, if supported, apply the geographical area scope only for UEs served in the listed PLMNs.

**Interaction with the Retrieve UE Context Confirm procedure**

If the *UE Context Reference at the S-NG-RAN node* IE is contained in the RETRIEVE UE CONTEXT RESPONSE message, the new NG-RAN node may use it to establish dual connectivity with the S-NG-RAN node and shall trigger the Retrieve UE Context Confirm procedure to the old NG-RAN node when the UE successfully resumes on the new NG-RAN node.

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8.3.14 Trace Start

8.3.14.1 General

The purpose of the Trace Start procedure is to allow the M-NG-RAN node to request the S-NG-RAN node to initiate a trace session for a UE. The procedure uses UE-associated signalling.

8.3.14.2 Successful Operation

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**Figure 8.3.14.2-1: Trace Start, successful operation**

The Trace Start procedure is initiated by the M-NG-RAN sending the TRACE START message to the S-NG-RAN for that specific UE. Upon reception of the TRACE START message, the S-NG-RAN node shall initiate the requested trace session as described in TS 32.422 [23].

Unchanged part is omitted

If the *PNI-NPN Area Scope of MDT* IE is included in the *MDT Configuration-NR* IE included in the TRACE START message, the S-NG-RAN node shall, if supported, use it to derive the MDT area scope for MDT measurement collection in PNI-NPN. Upon reception of the *PNI-NPN Area Scope of MDT* IE, the S-NG-RAN node shall consider that the area scope for MDT measurement collection of PNI-NPN areas is defined only by the areas included in the *PNI-NPN Area Scope of MDT* IE.

If the *Network Slice Area Scope of MDT* IE is included in the *MDT Configuration-NR* IE included in the TRACE START message, the S-NG-RAN node shall, if supported, use it to derive the MDT area scope for MDT measurement collection. Upon reception of the *Network Slice Area Scope of MDT* IE, the S-NG-RAN node shall consider that the area scope for MDT measurement collection is defined only by the *Network Slice Area Scope of MDT* IE and *Area Scope of MDT* IE.

If the *Geographical Area* IE is included in the *MDT Configuration-NR* IE included in the TRACE START message, and the *Geographical Area* IE contains the *MDT PLMN List* IE, the S-NG-RAN node shall, if supported, apply the geographical area scope only for UEs served in the listed PLMNs.

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#### 9.2.3.126 MDT Configuration-NR

The IE defines the MDT configuration parameters of NR.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| MDT Activation | M |  | ENUMERATED(Immediate MDT only, Immediate MDT and Trace, Logged MDT only, ...) |  | – |  |
| CHOICE *Area Scope of MDT-NR* | O |  |  |  | – |  |
| >*Cell based* |  |  |  | If *PNI-NPN Area Scope of MDT* IE is present, this IE covers non-CAG cells only, where non-CAG cells refer to cells that only provide public access. |  |  |
| >>**Cell ID List for MDT-NR** |  | *1 .. <maxnoofCellIDforMDT>* |  |  | – |  |
| >>>NR CGI | M |  | 9.2.2.7 |  | – |  |
| >*TA based* |  |  |  | If *PNI-NPN Area Scope of MDT* IE is present, this IE covers non-CAG cells only, where non-CAG cells refer to cells that only provide public access. |  |  |
| >>**TA List for MDT** |  | *1 .. <maxnoofTAforMDT>* |  |  | – |  |
| >>>TAC | M |  | 9.2.2.5 | The TAI is derived using the current serving PLMN. | – |  |
| >*TAI based* |  |  |  | If *PNI-NPN Area Scope of MDT* IE is present, it covers non-CAG cells only, where non-CAG cells refer to cells that only provide public access. |  |  |
| >>**TAI List for MDT** |  | *1* |  |  | – |  |
| >>>**TAI List for MDT Item** |  | *1 .. <maxnoofTAforMDT>* |  |  | – |  |
| >>>>PLMN Identity | M |  | 9.2.2.4 |  | – |  |
| >>>>TAC | M |  | 9.2.2.5 |  | – |  |
| *>PNI-NPN Based MDT* |  |  |  |  | YES | ignore |
| >>CAG List for MDT |  |  | 9.2.3.191 |  | – |  |
| *>SNPN Cell Based MDT* |  |  |  |  | YES | ignore |
| >>**SNPN *Cell ID List for MDT*** |  | *1..<maxnoofCellIDforMDT>* |  |  | – |  |
| >>>NR CGI | M |  | 9.2.2.7 |  | – | - |
| >>>NID | M |  | 9.2.2.65 | Identifies an SNPN together with the PLMN Identity in the *NR CGI* IE. | – | - |
| *>SNPN TAI Based MDT* |  |  |  |  | YES | ignore |
| **>>SNPN TAI List for MDT** |  | *1..<maxnoofTAforMDT>* |  |  | – | - |
| >>>PLMN Identity | M |  | 9.2.2.4 |  | – | - |
| >>>TAC | M |  | 9.2.2.5 |  | – | - |
| >>>NID | M |  | 9.2.2.65 | Identifies an SNPN together with the *PLMN Identity* IE. | – | - |
| *>SNPN Based MDT* |  |  |  |  | YES | ignore |
| **>>SNPNList for MDT** |  | *1..<maxnoofMDTSNPNs>* |  |  | – | - |
| >>>PLMN Identity | M |  | 9.2.2.4 |  | – | - |
| >>>NID | M |  | 9.2.2.65 | Identifies an SNPN together with the *PLMN Identity* IE. | – | - |
| *>Geography Based MDT* |  |  |  | The geographical area scope can be used with NTN deployment. |  |  |
| *>>Geographical Area* |  |  | 9.2.3.y |  |  |  |
| CHOICE *MDT Mode* | M |  |  |  | – |  |
| >*Immediate MDT-NR* |  |  |  |  |  |  |
| >>Measurements to Activate | M |  | BITSTRING(SIZE(8)) | Each position in the bitmap indicates a MDT measurement, as defined in TS 37.320 [43].First Bit = M1,Second Bit= M2,Fourth Bit = M4,Fifth Bit = M5,Sixth Bit = logging of M1 from event triggered measurement reports according to existing RRM configuration,Seventh Bit = M6,Eighth Bit = M7.Value "1" indicates "activate" and value "0" indicates "do not activate".This version of the specification does not use bits 3. | – |  |
| >>M1 Configuration | C-ifM1 |  | 9.2.3.128 |  | – |  |
| >>M4 Configuration | C-ifM4 |  | 9.2.3.129 |  | – |  |
| >>M5 Configuration | C-ifM5 |  | 9.2.3.130 |  | – |  |
| >>MDT Location Information | O |  | BITSTRING(SIZE(8)) | Each position in the bitmap represents requested location information as defined in TS 37.320 [43].First Bit = GNSSOther bits are reserved for future use and are ignored if received.Value "1" indicates "activate" and value "0" indicates "do not activate".The eNB shall ignore the first bit unless the *Measurements to Activate* IE has the first bit or the sixth bit set to "1". | – |  |
| >>M6 Configuration | C-ifM6 |  | 9.2.3.131 |  | – |  |
| >>M7 Configuration | C-ifM7 |  | 9.2.3.132 |  | – |  |
| >>Bluetooth Measurement Configuration | O |  | 9.2.3.134 |  | – |  |
| >>WLAN Measurement Configuration | O |  | 9.2.3.135 |  | – |  |
| >>Sensor Measurement Configuration | O |  | 9.2.3.136 |  | – |  |
| >*Logged MDT-NR* |  |  |  |  |  |  |
| >>Logging interval | M |  | ENUMERATED (ms320, ms640, ms1280, ms2560, ms5120, ms10240, ms20480, ms30720, ms40960 , ms61440, infinity, ...) | Corresponds to information provided in the *LoggingInterval* IE as defined in TS 38.331 [10]. The value "infinity" represents one shot logging, i.e., only one log per event in the logged MDT report. | – |  |
| >>Logging duration | M |  | ENUMERATED (10, 20, 40, 60, 90, 120) | Corresponds to information provided in the *LoggingDuration* IE as defined in TS 38.331 [10]. Unit: [minute]. | – |  |
| >>CHOICE *Report Type* | M |  |  |  | – |  |
| >>>*Periodical* |  |  |  |  |  |  |
| >>>*Event Triggered* |  |  |  |  |  |  |
| >>>>Logged Event Trigger Config | M |  | 9.2.3.137 |  | – |  |
| >>Bluetooth Measurement Configuration | O |  | 9.2.3.134 |  | – |  |
| >>WLAN Measurement Configuration | O |  | 9.2.3.135 |  | – |  |
| >>Sensor Measurement Configuration | O |  | 9.2.3.136 |  | – |  |
| >>Area Scope of Neighbour Cells | O |  | 9.2.3.140 |  | – |  |
| >>Early Measurement  | O |  | ENUMERATED(true, ...) | This IE indicates whether the UE is allowed to log measurements on early measurement related frequencies in logged MDT as specified in TS 38.331 [10]. | – |  |
| Signalling based MDT PLMN List | O |  | MDT PLMN List9.2.3.133 |  | – |  |
| **PNI-NPN Area Scope of MDT** |  | *0..1* |  |  | YES | Ignore |
| >CAG List for MDT | M |  | 9.2.3.191 |  | – |  |
| Network Slice Area Scope of MDT | O |  | 9.2.3.x |  | YES | ignore |

| Range bound | Explanation |
| --- | --- |
| maxnoofCellIDforMDT | Maximum no. of Cell ID subject for MDT scope. Value is 32. |
| maxnoofTAforMDT | Maximum no. of TA subject for MDT scope. Value is 8. |
| maxnoofMDTSNPNs | Maximum no. of SNPNs in the MDT SNPN list. Value is 16. |

| Condition | Explanation |
| --- | --- |
| ifM1 | This IE shall be present if the *Measurements to Activate* IE has the first bit set to "1". |
| ifM4 | This IE shall be present if the *Measurements to Activate* IE has the fourth bit set to "1". |
| ifM5 | This IE shall be present if the *Measurements to Activate* IE has the fifth bit set to "1". |
| ifM6 | This IE shall be present if the *Measurements to Activate* IE has the seventh bit set to "1". |
| ifM7 | This IE shall be present if the *Measurements to Activate* IE has the eighth bit set to "1". |

9.2.3.x Network Slice Area Scope of MDT

This IE is used to identify the list of network slices for MDT.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| **Network Slice List for MDT** |  | *1* |  |  |
| **>Network Slice Item for MDT** |  | *1..<maxnoofMDTPLMNs>* |  |  |
| >PLMN Identity | M |  | 9.2.2.4 |  |
| **>Slice MDT List** |  | *1* |  |  |
| **>>Slice MDT Item** |  | *1..<maxnoofSliceItemsforMDT >* |  |  |
| >>>S-NSSAI | M |  | 9.2.3.21 |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofMDTPLMNs | Maximum no. of PLMNs in the MDT PLMN list. Value is 16. |
| maxnoofSliceItemsforMDT | Maximum no. of S-NSSAIs for MDT area scope. Value is 1024. |

9.2.3.y Geographical Area

This IE is used to indicate area scope for NTN MDT.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| **NTN Geographical Area** |  | *1* |  |  |
| **>NTN Geographical Area Item**  |  | *1..<maxnoofAreaNTNforMDT>* |  |  |
| >>CHOICE *Area Type* | M |  |  |  |
| *>>>Circle* |  |  |  |  |
| >>>>Reference Location | M |  | OCTET STRING | *ReferenceLocation-r17* as defined in TS 38.331[10]. |
| >>>>Distance Radius | M |  | INTEGER(1..65535) | Each step represents 50m distance. |
| *>>>* *Polygon* |  |  |  |  |
| >>>> **Polygon**  |  |  | OCTET STRING | The first/leftmost bit of the first octet contains the most significant bit, as defined in TS 37.355 [xx]. |
| >MDT PLMN List | O |  | 9.2.3.133 |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofAreaNTNforMDT | Maximum no. of the geographical area configurations. Value is 8. |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 9.3.4 PDU Definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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-- PDU definitions for XnAP.

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-PDU-Contents {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) xnap (2) version1 (1) xnap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

<<<unchanged is omitted>>>

 id-MN-only-MDT-collection,

 id-BarringExemptionforEmerCallInfo,

 id-Transmission-Bandwidth-asymmetric,

 id-NRPPaPositioningInformation,

 id-NetworkSliceAreaScopeofMDT,

 id-GeographicalArea,

 id-GeographyBasedMDT

 maxEARFCN,

 maxnoofAllowedAreas,

 <<<unchanged is omitted>>>

 maxnoofMDTSNPNs,

 maxnoofSecurityConfigurations,

 maxnoofRSPPQoSFlows,

 maxnoofSliceItemsforMDT,

maxnoofNTNAreasforMDT,

 <<<unchanged is omitted>>>

AreaScopeOfMDT-NR ::= CHOICE {

 cellBased CellBasedMDT-NR,

 tABased TABasedMDT,

 tAIBased TAIBasedMDT,

 ...,

 choice-extension ProtocolIE-Single-Container { {AreaScopeOfMDT-NR-ExtIEs} }

}

AreaScopeOfMDT-NR-ExtIEs XNAP-PROTOCOL-IES ::= {

 { ID id-PNI-NPNBasedMDT CRITICALITY ignore TYPE PNI-NPNBasedMDT PRESENCE mandatory}|

 { ID id-SNPN-CellBasedMDT CRITICALITY ignore TYPE SNPN-CellBasedMDT PRESENCE mandatory}|

 { ID id-SNPN-TAIBasedMDT CRITICALITY ignore TYPE SNPN-TAIBasedMDT PRESENCE mandatory}|

 { ID id-SNPN-BasedMDT CRITICALITY ignore TYPE SNPN-BasedMDT PRESENCE mandatory}|

{ID id-GeographyBasedMDT CRITICALITY ignore TYPE GeographyBasedMDT PRESENCE mandatory},

 ...

}

 <<<unchanged is omitted>>>

CHO-Candidate-PSCells-list ::= SEQUENCE (SIZE(1..maxnoofPSCellCandidates)) OF CHO-Candidate-PSCells-Item

CHO-Candidate-PSCells-Item ::= SEQUENCE {

 pscell-id NR-CGI,

 target2source-NG-RANNode-Container OCTET STRING,

 iE-Extensions ProtocolExtensionContainer { {CHO-Candidate-PSCells-Item-ExtIEs}} OPTIONAL,

 ...

}

CHO-Candidate-PSCells-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::={

 ...

}

Circle ::= SEQUENCE {

 referenceLocation OCTECT STRING,

 distanceRadius INTEGER(1..65536, ...),

 iE-Extensions ProtocolExtensionContainer { { Circle-ExtIEs} } OPTIONAL,

 ...

}

Circle-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

 <<<unchanged is omitted>>>

GBRQoSFlowInfo ::= SEQUENCE {

 maxFlowBitRateDL BitRate,

 maxFlowBitRateUL BitRate,

 guaranteedFlowBitRateDL BitRate,

 guaranteedFlowBitRateUL BitRate,

 notificationControl ENUMERATED {notification-requested, ...} OPTIONAL,

 maxPacketLossRateDL PacketLossRate OPTIONAL,

 maxPacketLossRateUL PacketLossRate OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {GBRQoSFlowInfo-ExtIEs} } OPTIONAL,

 ...

}

GBRQoSFlowInfo-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

{ ID id-AlternativeQoSParaSetList CRITICALITY ignore EXTENSION AlternativeQoSParaSetList PRESENCE optional },

 ...

}

GeographyBasedMDT::= SEQUENCE {

 geographicalArea GeographicalArea,

 iE-Extensions ProtocolExtensionContainer { {GeographyBasedMDT-ExtIEs} } OPTIONAL,

 ...

}

GeographyBasedMDT-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

GeographicalArea ::= SEQUENCE {

 nTNGeographicalArea NTNGeographicalArea,

 nTNPLMNList MDTPLMNList OPTIONAL,

 iE-Extensions ProtocolExtensionContainer { {GeographicalArea-ExtIEs} } OPTIONAL,

 ...

}

GeographicalArea-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

 <<<unchanged is omitted>>>

NRUESidelinkAggregateMaximumBitRate ::= SEQUENCE {

 uESidelinkAggregateMaximumBitRate BitRate,

 iE-Extensions ProtocolExtensionContainer { {NRUESidelinkAggregateMaximumBitRate-ExtIEs} } OPTIONAL,

 ...

}

NRUESidelinkAggregateMaximumBitRate-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

NSAG-ID ::= INTEGER (0..255, ...)

NTNGeographicalArea ::= SEQUENCE (SIZE(1.. maxnoofAreaNTN)) OF NTNGeographicalAreaItem

NTNGeographicalAreaItem ::= CHOICE {

 circle Circle,

 polygon Polygon,

 cHOICE-Extensions ProtocolIE-SingleContainer { {NTNGeographicalAreaItem-ExtIEs} }

}

NTNGeographicalAreaItem-ExtIEs XNAP-PROTOCOL-EXTENSION ::={

 ...

}

 <<<unchanged is omitted>>>

-- P

Polygon ::= OCTET STRING

PositioningInformation ::= SEQUENCE {

 requestedSRSTransmissionCharacteristics RequestedSRSTransmissionCharacteristics,

 routingID RoutingID,

 nRPPaTransactionID INTEGER (0..32767),

 iE-Extension ProtocolExtensionContainer { { PositioningInformation-ExtIEs} } OPTIONAL,

 ...

}

PositioningInformation-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

 ...

}

<<<unchanged is omitted>>>

### 9.3.7 Constant definitions

-- ASN1START

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Constant definitions

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

XnAP-Constants {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-Access (22) modules (3) xnap (2) version1 (1) xnap-Constants (4) }

 <<<unchanged is omitted>>>

maxnoofSecurityConfigurations INTEGER ::= 8

maxnoofRSPPQoSFlows INTEGER ::= 2048

maxnoofSliceItemsforMDT INTEGER ::= 1024

maxnoofAreaNTNforMDT INTEGER ::= 32

 <<<unchanged is omitted>>>

id-SRSPositioningConfigOrActivationRequest ProtocolIE-ID ::= 473

id-NRPPaPositioningInformation ProtocolIE-ID ::= 474

id-NetworkSliceAreaScopeofMDT ProtocolIE-ID ::= XX1

id-GeographicalArea ProtocolIE-ID ::= XX2

id-GeographyBasedMDT ProtocolIE-ID ::= XX3

<<<<<<<<<<<<<<<<<<<< End of Changes >>>>>>>>>>>>>>>>>>>>