**3GPP TSG-SA5 Meeting #140-e *S5-216211***

**e-meeting, 15 - 24 November 2021**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **28.658** | **CR** | **0058** | **rev** | **1** | **Current version:** | **15.6.0**  |  |
|  |
| *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-15 CR TS 28.658 Update EUTRAN NRM to be applicable for SBMA |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | NETSLICE-5GNRM |  | ***Date:*** | 2021-11-4 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-15 |
|  | *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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | The current description in scope and several contents limit the EUTRAN NRM,making it only applicable for the deployments using IRP framework. However, the EUTRAN NRM should also be applicable for deployments using SBMA to support the NSA management.  |
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| ***Summary of change:*** | Update the scope and several content to be applicable for deployments using SBMA. |
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| ***Consequences if not approved:*** | The specification is not applicable for deployments using SBMA |
|  |  |
| ***Clauses affected:*** | 1, 2, 4.2.1, 4.3.4.1, 4.3.13.4, 4.3.17.1, 4.3.20.4, 4.4.1,4.5.1,4.5.2 |
|  |  |
|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **1st Change** |

# 1 Scope

The present document specifies the E-UTRAN network resource information that can be communicated between an IRPAgent and an IRPManager in the deployment scenarios using IRP framework as defined in TS 32.102 [3], or between an MnS producer and MnS consumer in deployment scenarios using the Service Based Management Architecture (SBMA) as defined in TS 28.533 [X], for telecommunication network management purposes, including management of converged networks.

This document specifies the semantics and behaviour of information object class attributes and relations visible across the reference point in a protocol and technology neutral way. It does not define their syntax and encoding.

The E-UTRAN NRM IRP comprises a set of specifications defining Requirements, a protocol neutral Information Service and one or more Solution Set(s).

The present document specifies the protocol neutral E-UTRAN NRM IRP: Information Service (IS). It reuses relevant parts of the Generic NRM IRP: IS in 3GPP TS 28.622 [6], either by direct reuse or sub-classing, and in addition to that defines E-UTRAN specific Information Object Classes.

In order to access the information defined by this NRM, an Interface IRP such as the "Basic CM IRP" is needed (3GPP TS 32.602 [7] and TS 32.606 [Z]) or an MnS such as “Generic Provisioning MnS” is needed (3GPP TS 28.532[Y]). However, which Interface IRP or MnS is applicable is outside the scope of the present document.

The present document also specifies the ng-eNB network resource information that can be communicated among NG-RAN management system, including management of MR-DC operations which ng-eNB is involved in.

# 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 TS 32.101: "Telecommunication management; Principles and high level requirements".

[2] 3GPP TS 32.102: "Telecommunication management; Architecture".

[3] 3GPP TS 23.003: "Numbering, addressing and identification".

[4] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".

[5] 3GPP TS 28.628: "Self-Organizing Networks (SON) Policy Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS) ".

[6] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[7] 3GPP TS 32.602: "Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP) Information Service (IS)".

[8] 3GPP TS 36.321: "Universal Terrestrial Access Network (UTRAN); Medium Access Control (MAC) protocol specification".

[9] 3GPP TS 23.401: "General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access".

[10] 3GPP TS 36.331: "Evolved Universal Terrestrial Radio Access (E-UTRA) Radio Resource Control (RRC); Protocol specification".

[11] 3GPP TS 36.300: "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2".

[12] 3GPP TS 36.211: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Channels and Modulation"

[13] 3GPP TS 36.101: "Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception"

[14] 3GPP TS 36.104: "Evolved Universal Terrestrial Radio Access (E\_UTRA); Base Station (BS) radio transmission and reception"

[15] 3GPP TS 32.500: "Telecommunication Management; Self-Organizing Networks (SON); Concepts and requirements"

[16] 3GPP TS 32.150: "Telecommunication management; Integration Reference Point (IRP) Concept and definitions"

[17] 3GPP TS 21.905: "Vocabulary for 3GPP Specifications"

[18] 3GPP TS 32.111-2: "Telecommunication management; Fault Management; Part 2: Alarm Integration Reference Point (IRP): Information Service (IS)"

[19] 3GPP TS 23.002: "Network Architecture"

[20] 3GPP TS 32.652: "Telecommunication management; Configuration Management (CM); GERAN network resources Integration Reference Point (IRP); Network Resource Model (NRM)"

[21] 3GPP TS 28.652: "Telecommunication management; Universal Terrestrial Radio Access Network (UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)"

[22] 3GPP2 S.S0028-D "OAM&P for cdma2000 (Overview, 3GPP R7 Delta Specification, 3GPP2 Network Resource Model IRP)"

[23] 3GPP TS 28.708: "Telecommunication management; Evolved Packet Core (EPC) Network Resource Model (NRM) Integration Reference Point (IRP): Information Service (IS)"

[24] 3GPP TS 36.423: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); X2 application protocol (X2AP)".

[25] 3GPP TS 36.213: "Evolved Universal Terrestrial Radio Access (E-UTRA); Physical layer procedures".

[26] 3GPP TS 28.625: "Telecommunication management; State Management Data Definition Integration Reference Point (IRP); Information Service (IS)".

[27] 3GPP TS 36.413: "Evolved Universal Terrestrial Access Network (E-UTRAN); S1 Application Protocol (S1AP)".

[28] 3GPP TS 36.443: "Evolved Universal Terrestrial Access Network (E-UTRAN); M2 Application Protocol (M2AP)".

[29] 3GPP TS 22.011: "Service accessibility".

[30] 3GPP TS 32.422: "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management".

[31] 3GPP TS 28.662: "Telecommunication management; Generic Radio Access Network (RAN) Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[32] 3GPP TS 32.662: "Telecommunication management; Configuration Management (CM); Kernel CM; Information service (IS)".

[33] 3GPP TS 23.203: "Policy and charging control architecture".

[34] 3GPP TS 23.207: "End-to-end Quality of Service (QoS) concept and architecture".

[35] RFC 2474: "Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers".

[36] 3GPP TS 45.008: "Technical Specification Group GSM/EDGE Radio Access Network; Radio subsystem link control".

[37] 3GPP TS 32.302: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Information Service (IS)".

[38] 3GPP TS 36.133: "Universal Terrestrial Access Network (UTRAN); Requirements for support of radio resource management".

[39] 3GPP TS 28.657: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN) Network Resource Model (NRM) Integration Reference Point (IRP); Requirements".

[40] 3GPP TS 28.541: "Management and orchestration of 5G networks Network Resource Model (NRM); Stage 2 and stage 3".

[41] 3GPP TS 38.300: "NR; Overall description; Stage-2".

[42] 3GPP TS 23.501: "System Architecture for the 5G System".

 [X] 3GPP TS 28.533: "Management and orchestration; Architecture framework".

[Y] 3GPP TS 28.532: "Management and orchestration; Generic management services".

[Z] 3GPP TS 32.606: "Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP); Solution Set (SS) definitions".

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| **2nd Change** |

## 4.2 Class diagram

### 4.2.1 Relationships

This clause depicts the set of classes (e.g. IOCs) that encapsulates the information relevant for this IRP. This clause provides the overview of the relationships of relevant classes in UML. Subsequent clauses provide more detailed specification of various aspects of these classes.



Figure 4.2.1-1: Cell relation view



Figure 4.2.1.1-1a: Cell and frequency relation view

NOTE A: The above NRM fragment uses SubNetwork to hold both NR and LTE external entities and frequencies.



Figure 4.2.1.1-1b: Cell and frequency relation view

NOTE B: The above NRM fragment uses NRNetwork to hold NR external entities and frequency and using EUtraNetwork to hold LTE external entities and frequency. The NRNetwork and EUtraNetwork are subclasses of SubNetwork (defined in TS 28.622[6]) with no additional attributes. The reason using NRNetwork and EUtraNetwork is for a clean separation of NR external entities and frequency and LTE external entities and frequency.



NOTE 1: If an instance of the *ServesRN* association is present, then a corresponding instance of *ServedByEGC* must be present. In this case, the ENBFunction and RNFunction instances are under the management scope of the same IRPAgent or MnS producer.
If an instance of the *ServesExtRN* association is present, then a corresponding instance of *ServedByExtEGC* must be present. In this case, the ENBFunction and RNFunction instances are under the management scope of two different IRPAgents or MnS producers.

NOTE 2: The modelling of the DeNB capability as a separate IOC or as attributes of ENBFunction is FFS

Figure 4.2.1-2: E-UTRAN relaying view of E-UTRAN and ng-eNB NRM

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| **3rd Change** |

### 4.3.4 ExternalEUtranGenericCell

#### 4.3.4.1 Definition

This abstract IOC represents the properties of an E-UTRAN generic cell controlled by another IRPAgent or MnS producer. This IOC contains necessary attributes for inter-system and intra-system handover. It also contains a subset of the attributes of related IOCs controlled by another IRPAgent or MnS producer. The way to maintain consistency between the attribute values of these IOCs is outside the scope of the present document.

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| **4th Change** |

### 4.3.13 MBSFNArea

#### 4.3.13.1 Definition

This IOC represents MBSFN Area. For more information about MBSFN Area, see 3GPP TS 36.300 [11].

#### 4.3.13.2 Attributes

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| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| id | M | M | - | M | - |
| mbsfnAreaId | M | M | M | - | M |
| **Attribute related to role** |  |  |  |  |  |
| cellIdList | M | M | M | - | M |

#### 4.3.13.3 Attribute constraints

None.

#### 4.3.13.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

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| **5th Change** |

### 4.3.17 ExternalRNFunction

#### 4.3.17.1 Definition

This IOC represents the properties of a Relay Node (RN) controlled by another IRPAgent or MnS producer. For more information about RN, see 3GPP TS 36.300 [11].

#### 4.3.17.2 Attributes

None.

#### 4.3.17.3 Attribute constraints

None.

#### 4.3.17.4 Notifications

The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

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| **6th Change** |

### 4.3.20 QciDscpMapping

#### 4.3.20.1 Definition

This IOC represents a set of mapping between QCI and DSCP.

#### 4.3.20.2 Attributes

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| --- | --- | --- | --- | --- | --- |
| Attribute Name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| qciDscpMappingList | M | M | M | - | M |

#### 4.3.20.3 Attribute constraints

N one.

#### 4.3.20.4 Notifications

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The common notifications defined in subclause 4.5 are valid for this IOC, without exceptions or additions.

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| **7th Change** |

### 4.4.1 Attribute properties

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| a1ThresholdRsrp | RSRP Threshold to be used in evaluation of EUTRA measurement report triggering condition for event a1. Actual value is IE value -140 dBm. Corresponds to parameter a1-Threshold.Threshold-RSRP specified in ReportConfigEUTRA IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 97 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| a1ThresholdRsrq | RSRP Threshold to be used in evaluation of EUTRA measurement report triggering condition for event a1. Actual value is (IE value -40)/2 dB. Corresponds to parameter a1-Threshold.Threshold-RSRQ specified in ReportConfigEUTRA IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 34 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| a2ThresholdRsrp | RSRP Threshold to be used in evaluation of EUTRA measurement report triggering condition for event a2. Actual value is IE value -140 dBm. Corresponds to parameter a2-Threshold.Threshold-RSRP specified in ReportConfigEUTRA IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 97 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| a2ThresholdRsrq | RSRP Threshold to be used in evaluation of EUTRA measurement report triggering condition for event a2. Actual value is (IE value -40)/2 dB. Corresponds to parameter a2-Threshold.Threshold-RSRQ specified in ReportConfigEUTRA IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 34 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| a3Offset | Offset to be used in evaluation of EUTRA measurement report triggering condition for event a3. Mapping to values in dB is specified in [38]. Corresponds to parameter a3-Offset specified in ReportConfigEUTRA IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: -30 : 30 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| a4ThresholdRsrp | RSRP Threshold to be used in evaluation of EUTRA measurement report triggering condition for event a4. Actual value is IE value -140 dBm. Corresponds to parameter a4-Threshold.Threshold-RSRP specified in ReportConfigEUTRA IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 97 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| a4ThresholdRsrq | RSRP Threshold to be used in evaluation of EUTRA measurement report triggering condition for event a4. Actual value is (IE value -40)/2 dB. Corresponds to parameter a4-Threshold.Threshold-RSRQ specified in ReportConfigEUTRA IE in [10]. This attribute may be used for Robustness Optimization.allowedValues: 0 : 34 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| a5Threshold1Rsrp | RSRP Threshold1 to be used in evaluation of EUTRA measurement report triggering condition for event a5. Actual value is IE value -140 dBm. Corresponds to parameter a5-Threshold1.Threshold-RSRP specified in ReportConfigEUTRA IE in [10]. This attribute may be used for Robustness Optimization.allowedValues: 0 : 97 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
|  | RSRP Threshold to be used in evaluation of EUTRA measurement report triggering condition for event a5. Actual value is (IE value -40)/2 dB. Corresponds to parameter a5-Threshold1.Threshold-RSRQ specified in ReportConfigEUTRA IE in [10]. This attribute may be used for Robustness Optimization.allowedValues: 0 : 34. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False  |
| adjacentCell | This attribute contains the DN of a EUtranGenericCell or ExternalEUtranGenericCell. allowedValues: N/A. | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| adjacentSector | This attribute contains the DN of an ExternalSector.allowedValues: N/A. | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| allowedAccessClasses | This holds information for access classes (10-15) – [3GPP TS 22.011] that are allowed for the eUTRANCell .The access classes are: Class 10 – emergency call Class 11 - For PLMN Use.Class 12 - Security Services;Class 13 - Public Utilities (e.g. water/gas suppliers);Class 14 - Emergency Services;Class 15 - PLMN Staff;allowedValues: See TS 22.011 [29] and 36.331 [10] for more details on the definition and SIB2 broadcast message definition. | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: TruedefaultValue:  “all access classes are allowed”isNullable: False |
| b1ThresholdCdma2000 | Threshold to be used in CDMA2000 triggering condition for event b1. Mapping to actual dBm values is specified in 3GPP TS 45.008. Corresponds to parameter b1-ThresholdCDMA2000 specified in ReportConfigInterRAT IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0:63. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| b1ThresholdGeran | Threshold to be used in GERAN triggering condition for event b1. Mapping to actual dBm values is specified in 3GPP TS 45.008. Corresponds to parameter b1-ThresholdGERAN specified in ReportConfigInterRAT IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0:63. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| b1ThresholdUtraEcN0 | EcN0 threshold to be used in UTRA triggering condition for event b1. Mapping to actual dBm values is specified in 3GPP TS 25.133. Corresponds to parameter b1-ThresholdULTA:utra-EcN0 specified in ReportConfigInterRAT IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0:49. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| b1ThresholdUtraRscp | RSCP threshold to be used in UTRA triggering condition for event b1. Mapping to actual dBm values is specified in 3GPP TS 25.133. Corresponds to parameter b1-ThresholdULTA:utra-RSCP specified in ReportConfigInterRAT IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: -5:91 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| b2Threshold1Rsrp | RSRP Threshold to be used in evaluation of EUTRA measurement report triggering condition for event b2. Actual value is IE value -140 dBm. Corresponds to parameter b2-Threshold1.Threshold-RSRP specified in ReportConfigInterRAT IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 97 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| b2Threshold1Rsrq | RSRP Threshold to be used in evaluation of EUTRA measurement report triggering condition for event b2. Actual value is (IE value -40)/2 dB. Corresponds to parameter b2-Threshold1.Threshold-RSRQ specified in ReportConfigInterRAT IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 34 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| b2Threshold2Cdma2000 | Threshold to be used in CDMA2000 measurement report triggering condition for event b2. Mapping to actual dBm values is specified in [36]. Corresponds to parameter b2-Threshold2CDMA2000 specified in ReportConfigInterRAT IE in [10].This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 63 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| b2Threshold2Geran | Threshold to be used in GERAN measurement report triggering condition for event b2. Mapping to actual dBm values is specified in [36]. Corresponds to parameter b2-Threshold2GERAN specified in ReportConfigInterRAT IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 63 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| b2Threshold2UtraEcN0 | EcN0 threshold to be used in UTRA measurement report triggering condition for event b2. Mapping to actual dBm values is specified in 3GPP TS 25.133. Corresponds to parameter b2-Threshold2ULTRA:utra-EcN0 specified in ReportConfigInterRAT IE in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 : 49 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| b2Threshold2UtraRscp | RSCP threshold to be used in UTRA measurement report triggering condition for event b2. Mapping to actual dBm values is specified in 3GPP TS 25.133. Corresponds to parameter b2-Threshold2ULTRA:utra-RSCP specified in ReportConfigInterRAT IE in [10].This attribute may be used for Mobility Robustness Optimization.allowedValues: -5 : 91 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| candidateDeNBCells | A list of ECGIs of the candidates DeNB cells for the subject Relay Node in Attach for RN operation (phase 2), see 36.300[4].allowedValues: See 3GPP TS 36.413[27], 36.300[4] | type: <<dataType>>multiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
|  | This holds a list of DN ofEUtranGenericCell. These cells all belong to one MBSFN Area. allowedValues: N/A | type: DNmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| cellAccessInfoList | A list of entries where an entry identifies a PLMN sharing the cell resources.The presence of this attribute indicates that the EUTRAN cell is supporting RAN sharing for PLMN(s) using different TAC and Cell-ID for the cell. An entry has four attributes: plmnId, tac, cellId, managementServiceExposed.The plmnId identifies the PLMN sharing the cell resources.The tac and the cellId are used by the PLMN (identified by plmnId) sharing the cell resources.The managementServiceExposed indicates the management services (e.g. FM) exposed to the PLMN (identified by plmnId). The precise semantics of this attribute is not specified.One plmnId (value) can be included at most once in this list. The PLMN identified cannot be the primary PLMN. Its identifier cannot be included in the plmnIdList. | type: <<dataType>>multiplicity: 1..5isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| cellIndividualOffset | Offset applicable to a neighbouring cell. It is used for evaluating the neighbouring cell for handover in connected mode. This attribute corresponds to parameter cellIndividualOffset in MeasObjectEUTRA IE in [10]. This attribute is used by the HandOver parameter Optimization (HOO) function or Load Balancing Optimization (LBO) function.allowedValues:dB-24, dB-22, dB-20, dB-18, dB-16, dB-14, dB-12, dB-10, dB-08, dB-06, dB-05, dB-04, dB-03, dB-02, dB-01, dB+00, dB+01, dB+02, dB+03, dB+04, dB+05, dB+06, dB+08, dB+10, dB+12, dB+14, dB+16, dB+18, dB+20, dB+22, dB+24 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| cellLocalId | Unambiguously identify a cell within an eNodeB.allowedValues: 0 : 255. | type: Integermultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| cellLocalIdList | This holds a list of cell local identities that can be assigned to the cellLocalId attribute of the new split or merged cells by the Active Antenna System operations. The assignment algorithm is not specified.allowedValues of each entry: 0 : 255 | type: Integermultiplicity: 1..\*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: True |
| cellResvInfo | This attribute represents whether the cell is MBSFN Area Reserved Cell or not. See TS 36.300[11] for MBSFN Area Reserved Cell.allowedValues: See 3GPP TS 36.443 [28] for Cell Reservation Info. | type:<<enumeration>>multiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| cellSize | See cell-Size in TS 36.423 [24].allowedValues: See cell-Size in TS 36.423 [24]. | type:<<enumeration>>multiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| cOCStatus | This attribute holds the information about cell outage compensation (COC) activities for the cell which name contains the CellOutageCompensationInformation IOC instance. The initial state is cOCDeactive.When a cell outage is detected and its compensation starts, then the state is cOCActivating.When COC function decides that all activities to acitvate the compensation are done, the state changes to cOCActive.When outage of cell is ended and activities to remove the compensation are ongoing, the state changes to cOCDeactivating. When outage of cell ends and all activities to remove the compensation are done, the state changes back to cOCDeactive. In case of errors during activation or deactivation, this attribute also contains a list of elements which could not been reconfigured by the COC function.If there are no errors during activation or deactivation, the list of elements shall be empty.For an example how notifyAttributeValueChange notifications related to this attribute are used to inform an IRPManager or MnS consumer about COC activities see Annex A.allowedValues: This element contains 2 parts, state and errorListstate = enumerated {cOCActivating, cOCActive, cOCDeactivating, cOCDeactive}errorList = list of DNs | type: <<dataType>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| commonChannelPowerOffset | Power offset of the Primary Synchronization Channel, Secondary Synchronization Channel and Physical Broadcast Channel with respect to the referenceSignalPower. Value in dB is the actual value divided by 10. For example, value -30 represents -3dB; value 120 represent 12dB etc.This attribute may be used for Coverage and Capacity Optimization and ICIC.allowedValues: -350:150. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| configurationIndex | Provides index into the table defining PRACH resources within the frame. Corresponds to PRACH-Configuration-Index parameter defined in [10] and [12]. This attribute may be used for RACH Optimization.allowedValues: 0:63. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| contentionResolutionTimer | Contention resolution timer. Corresponds to parameter mac-ContentionResolutionTimer specified in [10] and in [8]. Value sfn corresponds to n subframes. This attribute may be used for RACH Optimization.allowedValues:{sf8, sf16, sf24, sf32, sf40, sf48,sf56, sf64} | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| earfcn | It is the frequency number for the central frequency. See 3GPP TS 36.104[14]. allowedValues: See 3GPP TS 36.104[14].  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| earfcnDl | Specifies the channel number for the central DL frequency. The mapping from channel number to physical frequency is described in 3GPP specification TS 36.101 [13] subclause 5.7.3.allowedValues: See EARFCN in TS 36.101 [13] subclause 5.7.3 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| earfcnUl | Specifies the channel number for the central UL frequency. The mapping from channel number to physical frequency is described in 3GPP specification TS 36.101 [13] subclause 5.7.3.allowedValues: See EARFCN in TS 36.101 [13] subclause 5.7.3 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| eNBId | Unambiguously identifies an eNodeB within a PLMNallowedValues: See 3GPP TS 36.413[27], 36.300[4] | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| hysteresisEutraA1 | Hysteresis applied to entry and leave condition of a report triggering event A1. Maps to the instance of the *hysteresis* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A1. This attribute may be used for Mobility Robustness  Optimization.allowedValues: 0:30. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| hysteresisEutraA2 | Hysteresis applied to entry and leave condition of a report triggering event A2. Maps to the instance of the *hysteresis* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A2. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0:30. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| hysteresisEutraA3 | Hysteresis applied to entry and leave condition of a report triggering event A3. Maps to the instance of the *hysteresis* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A3. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0:30. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| hysteresisEutraA4 | Hysteresis applied to entry and leave condition of a report triggering event A4. Maps to the instance of the *hysteresis* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A4. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0:30. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| hysteresisEutraA5 | Hysteresis applied to entry and leave condition of a report triggering event A5. Maps to the instance of the *hysteresis* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A5. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0:30. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| hysteresisIratB1 | Hysteresis applied to entry and leave condition of the IRAT report triggering event B1. Maps to *hysteresis* IE specified in *ReportConfigInterRAT* IE in [10] corresponding to event B1. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0:30. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| hysteresisIratB2 | Hysteresis applied to entry and leave condition of the IRAT report triggering event B2. Maps to *hysteresis* IE specified in *ReportConfigInterRAT* IE in [10] corresponding to event B2. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0:30. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| id | An attribute whose "name+value" can be used as an RDN when naming an instance of the object class. This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance. | type: DNmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| intraANRSwitch | This attribute determines whether the intra E-UTRAN ANR function is activated or deactivated.If “on”, the intra E-UTRAN ANR function may add or remove intra E-UTRAN Neighbour Relations, i.e. add or remove EUtranRelation instances fromEUtranGenericCells of this ENBFunction.If “off”, the intra E-UTRAN ANR Function must not add or remove Neighbour Relations, i.e. add or remove EUtranRelation instances fromEUtranGenericCells of thisENBFunction.allowedValues: on, off | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: onisNullable: False |
| iRATANRSwitch | This attribute determines whether the IRAT ANR function is activated or deactivated.If “on”, the IRAT ANR function may add or remove IRAT Neighbour Relations, i.e. add or remove UtranRelation or GsmRelation instances from EUtranGenericCells of this ENBFunction.If “off”, the IRAT ANR Function must not add or remove IRAT Neighbour Relations, i.e. add or remove UtranRelation or GsmRelation instances from EUtranGenericCells of this ENBFunction.allowedValues: on, off | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: onisNullable: False |
| isChangeForEnergySavingAllowed | This attribute allows to IRPManager or MnS consumer to prohibit or allow configuration changes of the cell for ESM purposes by the IRPAgent or MnS producer. This restriction also applies to instances name contained in such cells. Their attribute values can not be changed by the IRPAgent.allowedValues: yes,no | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| isCOCAllowed | This attribute allows to IRPManager or MnS consumer to prohibit or allow configuration changes of the cell for cell outage compensation purposes by the IRPAgent or MnS producer. This restriction also applies to instances name contained in such cells. Their attribute values can not be changed by the IRPAgent.allowedValues: yes,no | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| isESCoveredBy | The value of the attribute is configured by the IRPmanager or MnS consumer and is not changed by the IRPAgent or MnS producer. It indicates whether the adjacentCell according to this planning provides no, partial or full coverage for the cell which name-contains the EUtranRelation instance. Adjacent cells with this attribute equal to “yes” are recommended to be considered as candidate cells to take over the coverage when the original cell is about to be transferred to energySaving state.The entirety of adjacent cells with this property equal to “partial” are recommended to be considered as entirety of candidate cells to take over the coverage when the original cell is about to be transferred to energySaving state.allowedValues: no, partial, yes | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| isHOAllowed  | This indicates if HO is allowed or prohibited.If TRUE, handover is allowed from source cell to target cell. The source cell is identified by the name-containing EUtranGenericCell or UtranGenericCell of the EUtranRelation that has the isHOAllowed. The target cell is referenced by the EUtranRelation that has this isHOAllowed. If FALSE, handover shall not be allowed.allowedValues: TRUE, FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| isICICInformationSendAllowed | This indicates if ICIC (Inter Cell Interference Coordination) load information message (see TS 36.423 [24] Section 9.1.2.1 LOAD INFORMATION) sending is allowed or prohibited.If ‘yes’, ICIC load information message sending is allowed from source cell to target cell. The source cell is identified by the name-containing EUtranGenericCell of the EUtranRelation that has the isICICInformationSendAllowed. The target cell is referenced by the EUtranRelation that has this isICICInformationSendAllowed. If ‘no’, ICIC load information message sending shall not be allowed.allowedValues: yes,no | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| isLBAllowed | This indicates if load balancing is allowed or prohibited from source cell to target cell.If ‘yes’, load balancing is allowed from source cell to target cell. The source cell is identified by the name-containing EUtranGenericCell of the EUtranRelation that has the isLBAllowed. The target cell is referenced by the EUtranRelation that has this isLBAllowed. If ‘no’, load balancing shall be prohibited from source cell to target cell.allowedValues: yes,no | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| isLWASupported |  This element indicates whether LWA is supported between the eNB and this WLAN.allowed values: yes, no | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: yesisNullable: False |
| isLWIPSupported | This attribute indicates whether LWIP is supported between the eNB and this WLAN.allowed values: yes, no | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: yesisNullable: False |
| isRemoveAllowed | This indicates if the subject EUtranRelation can be removed (deleted) or not. If TRUE, the subject EUtranRelation instance can be removed (deleted). If FALSE, the subject EUtranRelation instance shall not be removed (deleted) by any entity but an IRPManager or MnS consumer.allowedValues: TRUE, FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| lWIPSeGWList | This attribute contains a list of lWIPSeGWInfo, and each lWIPSeGWInfo includes the following elements:- LWIPSeGWId This element identifies the LWIP SeGW. - LWIPSeGWIpAddressList This element provides the IP addresses of the LWIP SeGW. | type: <<dataType>>multiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| maximumTransmissionPower | This is the maximum possible for all downlink channels, used simultaneously in a cell, added together. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| maxNbrRNAllowed | This is an integer indicating the maximum number of RNs allowed to be connected. It is a number which can be configured by the operator to control the node/network load. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| mbsfnAreaId | This is the identifier of MBSFN Area.See TS 36.300[11] for MBSFN Area.allowedValues: See 3GPP TS 36.443 [28] for mbsfnAreaId | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| mCC | This is the Mobile Country Code (MCC) of the PLMN identifier. See TS 23.003 [3] subclause 2.2 and 12.1.allowedValues: a bounded string of 3 characters representing 3 digits. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| mNC | This is the Mobile Network Code (MNC) of the PLMN identifier. See TS 23.003 [3] subclause 2.2 and 12.1.allowedValues: A bounded string of 2 or 3 characters representing 2 or 3 digits. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nbIoTcellFlag | This attribute represents whether the cell is supporting NB-IoT or not. See TS 36.300 [11] for NB-IoT cell.allowedValues: yes, no. | type:<<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| ngranCellFlag | This attribute represents whether the cell is provided by ng-eNB or not. See TS 38.300 [y] for ng-eNB cell.allowedValues: yes, no. | type:<<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| netListeningRSForRIBS | This specifies the configuration of RS (reference signals) for RIBS (radio interface based synchronization) by means of network listening, see Radio Interface based Synchronization in TS 36.300 [11].It is a list of structures where each structure contains the following elements:- RS\_pattern- Number of CRS ports- Periodicity- OffsetallowedValues:RS\_pattern: CRS only; or CRS and PRS;CRS (Cell-specific Reference Signal) see clause 6.10.1.1 and 6.10.1.2 in TS 36.211 [12].PRS (Positioning Reference Signal) see clause 6.10.4.1 and 6.10.4.2 in TS 36.211 [12].Number of CRS ports: 1 or 2;Periodicity: 1280ms, 2560ms, 5120ms, or 10240ms;Offset: range from "0" to (Periodicity-1) wherein the reference signal offset is in number of subframes starting from SFN 0 and subframe 0.More than one network listening reference signal configuration may be configured with a maximum of 4 configurations per eNB. | type: <<dataType>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| numberOfRaPreambles | Number of non-dedicated random access preambles. Corresponds to parameter numberOfRA-Preambles specified in [10] and in [8]. Value n4 corresponds to 4, n8 corresponds to 8 and so on.This attribute may be used for RACH Optimization.allowedValues: n4,n8,n12,n16,n20,n24,n28,n32,n36,n40,n44,n48,n52,n56,n60,n64 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| partOfSectorPower | This is the requested part (i.e. %) of the total radio power available to the SectorEquipmentFunction. The requested % power should be allocated to the cell.allowedValues: 1 : 100 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| pb | , which is described in Section 5.2 of TS 36.213 [25]allowedValues: See 3GPP TS 36.213[25] | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| pci | This holds the Physical Cell Identity (PCI) of the cell (for NM-Centralized, EM-Centralized and Distributed PCI assignment cases).In the case of NM-Centralized PCI assignment, see TS 36.300, [11] subclause 22.3.5, IRPManager or MnS consumer signals a specific value by writing this attribute.allowedValues: See TS 36.211 [12] subclause 6.11 for legal values of pci. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| pciList  | This holds a list of physical cell identities that can be assigned to the pci attribute by eNB. The assignment algorithm is not specified.This attribute shall be supported if and only if the EM-Centralized or Distributed PCI Assignment is supported. See TS 32.500, ref [15] subclause 6.1.6.allowedValues: See TS 36.211 [12] subclause 6.11 for legal values of pci. The number of pci in the list is 1 to 504. | type: Integermultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| plmnIdList | List of unique identities for PLMN.Note: A cell can broadcast up to 6 PLMN-id's. This is to support the case that one cell can be used by up to 6 operators’ core networks. The PLMN(s) included in this list will use the same single tracking area code (tac) and the same Cell Identity (cellLocalId) for sharing the radio access network resources. See TS 36.300 [11] subclause 10.1.7.One member of plmnIdList is the primary PLMN Id.See TS 36.331 [10] subclause 6.2.2: SystemInformationBlockType1/cellAccessRelatedInformation/plmn-IdentityList is a SEQUENCE (SIZE (1..6)).A PLMN Id included in this list cannot be included in the cellAccessInfoList.allowedValues: A list of at most six entries of PLMN Identifiers, but at least one (the primary PLMN Id). The PLMN Identifier is composed of a Mobile Country Code (MCC) and a Mobile Network Code (MNC). MCC and MNC are of type string.See TS 23.003 [3] subclause 2.2 and 12.1. | type: PLMNIDmultiplicity: 1..6isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| pMax | This parameter is used to limit the allowed UE uplink transmission power on the serving EUTRA frequency. Value in dBm. Corresponds to parameter p-Max specified in SIB1 and SIB3 in [10]. This attribute may be used for RACH Optimization.allowedValues: -30 : 33 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| powerRampingStep | Power increase factor between subsequent random access preamble transmissions. Value in dB. Value dB2 corresponds to 2 dB and so on. Corresponds to parameter powerRampingStep specified in [10] and in [8]. This attribute may be used for RACH Optimization.allowedValues: dB0, dB2,dB4, dB6 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| preambleInitialReceivedTargetPower | This parameter denotes the baseline for computation of the transmit power for random access power transmission. Corresponds to parameter preambleInitialReceivedTargetPower specified in [10] and in [8]. Value dBm-120 corresponds to -120 dBm and so on. This attribute may be used for RACH Optimization.allowedValues: dBm-120, dBm-118, dBm-116, dBm-114, dBm-112,dBm-110,dBm-108,dBm-106,dBm-104,dBm-102,dBm-100,dBm-98,dBm-96,dBm-94, dBm-92,dBm-90 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| preambleTransMax | Maximum number of random access preamble transmissions. Corresponds to parameter preambleTransMax specified in [10] and in [8].This attribute may be used for RACH Optimization.allowedValues: n3, n4, n5, n6, n7, n8, n10, n20, n50, n100, n200 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qciDscpMappingList | It is a list of mapping between QCI and DSCP, each mapping is a structure including the element QCI and DSCP;Wherein- QCI represents the number of the QCI (Ref. 3GPP TS 23.203[33]);- DSCP represents the DiffServ codepoint (Ref. 3GPP TS 23.207[34] and RFC 2474[35]).allowedValues: For QCI, Ref. 3GPP TS 23.203[33];For DSCP, Ref. RFC 2474[35] | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qHyst | Hysteresis value applied to serving cell for evaluating cell ranking criteria. Value in dB. Corresponds to parameter q-Hyst specified in SIB3 in [10] and in [34]. This attribute may be used for Mobility Robustness Optimization.allowedValues: dB0, dB1, dB2, dB3, dB4, dB5, dB6, dB8, dB10, dB12, dB14, dB16, dB18, dB20, dB22, dB24 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qOffset | Offset applicable to a specific neighbouring cell used for evaluating the cell as a candidate for cell re-selection. Corresponds to parameter q-OffsetCell broadcast in SIB4 for intra-frequency cells and in SIB5 for inter-frequency cells, specified in [10]. This attribute may be used for Mobility Robustness Optimization.allowedValues: dB-24, dB-22, dB-20, dB-18, dB-16, dB-14, dB-12, dB-10, dB-8, dB-6, dB-5, dB-4, dB-3, dB-2, dB-1, dB0, dB1, dB2, dB3, dB4, dB5, dB6, dB8, dB10, dB12, dB14, dB16, dB18, dB20, dB22, dB24 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qOffsetCdma2000 | Indicates a CDMA2000-specific offset to be applied when evaluating triggering conditions for measurement reporting in connected mode. Corresponds to parameter offsetFreq included in the IE MeasObjectCDMA2000 specified in 3GPP TS 36.331. This value will apply to all CDMA2000 frequencies. This attribute may be used for Mobility Robustness Optimization.allowedValues: -15..15 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qOffsetGeran | Indicates a GERAN-specific offset to be applied when evaluating triggering conditions for measurement reporting in connected mode. Corresponds to parameter offsetFreq included in the IE MeasObjectGERAN specified in 3GPP TS 36.331. . This value will apply to all GERAN frequencies. This attribute may be used for Mobility Robustness Optimization.allowedValues: -15..15 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qOffsetUtra | Indicates a UTRA-specific offset to be applied when evaluating triggering conditions for measurement reporting in connected mode. Corresponds to parameter offsetFreq included in the IE MeasObjectUTRA specified in 3GPP TS 36.331. This value will apply to all UTRA frequencies. This attribute may be used for Mobility Robustness Optimization.allowedValues: -15..15 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qQualMinUtra | Minimum required received EcIo level on this UTRA FDD carrier. Value in dB. Corresponds to parameter q-QualMin in SIB6 in [10] and in [30]. This attribute applies to all UTRA frequencies. This attribute may be used for Coverage and Capacity Optimization and ICIC.allowedValues: -24 :0 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qRxLevMinEUtraSib1 | Minimum required received RSRP level of a E-UTRA cell for cell selection. Actual value in dBm is obtained by multiplying by 2. Corresponds to parameter q-rxLevMin in SIB1 in [10] and in [34]. This attribute may be used for Coverage and Capacity Optimization and ICIC.allowedValues: -70 :-22 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qRxLevMinEUtraSib3 | Minimum required received RSRP level for intra-frequency E-UTRA cell re-selection. Actual value in dBm is obtained by multiplying by 2. Corresponds to parameter q-rxLevMin in SIB3 in [10] and in [34].This attribute may be used for Coverage and Capacity Optimization and ICIC.allowedValues: -70 :-22 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| qRxLevMinGeran | Minimum required received RSSI level on a GERAN frequency carrier for re-selection to a GERAN carrier. Actual value in dBm is value \* 2 - 115. Corresponds to parameter q-rxLevMin in SIB7 in [10] and to RXLEV\_ACCESS\_MIN in [31]. This attribute applies to all GERAN frequencies. This attribute may be used for Coverage and Capacity Optimization and ICIC.allowedValues: 0 : 63 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qRxLevMinUtra | Minimum required received RSCP level on a UTRA frequency carrier. Actual value in dBm is obtained by multiplying by 2 plus 1. Corresponds to parameter q-rxLevMin in SIB6 in [10] and in [30]. This attribute applies to all UTRA frequencies. This attribute may be used for Coverage and Capacity Optimization and ICIC.allowedValues: -60 :-13 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| referenceSignalPower | This defines the cell specific downlink reference signal transmit power, which is described in 3GPP TS 36.213[25]allowedValues: See 3GPP TS 36.331[10] |  type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| relatedAntennaList | This is an attribute to list the DNs of AntennaFunction(s)(see TS 28.662[31]) that support the EUtranGenericCell.allowedValues: See ‘relatedAntennaList’ in Ref. 3GPP TS 28.662 [31] | type: DNmultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| relatedSector | This is an attribute to the DN of SectorEquipmentFunction (see TS 28.662[31]) that support the EUtranGenericCell.allowedValues: See ‘SectorEquipmentFunction’ in Ref. 3GPP TS 28.662 [31]. | type: DNmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| relatedTmaList | This is an attribute to list the DNs of TmaFunction(s) (see TS 28.662[31]) that support the EUtranGenericCell.allowedValues: See ’relatedTmaList’ in Ref. 3GPP TS 28.662 [31]. | type: DNmultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| responseWindowSize | Denotes the duration of the random access response window. Corresponds to parameter ra-ResponseWindowSize specified in 3GPP TS 36.331 section 6.3.2 and in 3GPP TS 36.321 section 5.1.4. Value sfn corresponds to n subframes. This attribute may be used for RACH Optimization.allowedValues: sf2, sf3, sf4, sf5, sf6, sf7, sf8,sf10 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rootSequenceIndex | Logical root sequence index used to determine 64 physical RACH preamble sequences available in the cell. Corresponds to RACH\_ROOT\_SEQUENCE parameter defined in [10] and [12]. This attribute may be used for RACH Optimization.allowedValues: 0 : 837 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| servedRN | This attribute contains the DNs of one or more associated instances of RNFunction and ExternalRNFunction. | type: DNmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| servingCell | This attribute contains the DN of one associated instance of EutranGenericCell or ExternalEutranGenericCell. | type: DNmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| sfAssignment | This is the uplink-downlink subframe configuration number of a TDD E-UTRAN cell. allowedValues: See 3GPP TS 36.211[12]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| sharNetTceMappingInfoList | This attribute includes a list of elements. Each element is a tuple of shared PLMN Id (called "PLMN Target"), TCE ID and the corresponding TCE IP address. In case when several PLMNs and Logged MDT are supported, this attribute is used to translate from the TCE IP Address to TCE ID when a Logged MDT is ordered to the UE and to translate the TCE ID to TCE IP address when the UE has sent the log to the network.allowedValues: See "Trace Collection Entity Address" and "Trace Collection Entity Id" in 3GPP TS 32.422 [25]. The "PLMN Target" shall be one of the PLMNs listed in plmnIdList. | type: <<dataType>>multiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| sIntraSearch | Threshold for intra-frequency measurements. Actual value in dB is obtained by multiplying by 2. Corresponds to parameter s-IntraSearch specified in SIB3 in [10] and in [34]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0: 31 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| sizeOfRAPreamblesGroupA | Size of the random access preamble group A. Corresponds to parameter sizeOfRA-PreamblesGroup specified in [10] and [8]. This attribute may be used for RACH Optimization.allowedValues: n4, n8, n12, n16 ,n20, n24, n28, n32, n36, n40, n44, n48, n52, n56, n60 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| specialSfPatterns | This is the special subframe configuration number of a TDD E-UTRAN cell. allowedValues: See 3GPP TS 36.211[12]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tac | Common Tracking Area Code for the PLMNs. The identity used to identify tracking areas. allowedValues:a) It is the Tracking Area Code (TAC). b) A cell can only broadcast one TAC. See TS 36.300 [11], section 10.1.7 (PLMNID and TAC relation).c) TAC is defined in TS 23.003 [3], section 19.4.2.3. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tceIDMappingInfoList | This attribute includes a list of TCE ID and the corresponding TCE IP address. It is used in Logged MDT case to provide the information to the eNodeB to get the corresponding TCE IP address when there is an MDT log received from the UE. This attribute is used if only one PLMN is supported.allowedValues: See “Trace Collection Entity Address” and “Trace Collection Entity Id” in 3GPP TS 32.422 [30]. | type: <<dataType>>multiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tCI | This is the Target Cell Identifier. It consists of E-UTRAN Cell Global Identifier (ECGI) and Physical Cell Identifier (PCI) of the target cell.The EUtranRelation.tCI identifies the target cell from the perspective of the EUtranGenericCell, the name-containing instance of the subject EUtranRelation instance.allowedValues: The Target Cell Identifier is defined in TS 36.300 [11]. See TS 36.211 [12] subclause 6.11 for legal values of the PCI. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| timeToTriggerEutraA1 | Time during which measurement report triggering condition needs to be met in order to trigger a measurement report for event A1. Maps to the *timeToTrigger* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A1. Value ms0 corresponds to 0 miliseconds etc. This attribute may be used for Mobility Robustness Optimization.allowedValues: ms0, ms40, ms64, ms80, ms100, ms128, ms160, ms256, ms320, ms480, ms512, ms640, ms1024, ms1280, ms2560, ms5120 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| timeToTriggerEutraA2 | Time during which measurement report triggering condition needs to be met in order to trigger a measurement report for event A2. Maps to the *timeToTrigger* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A2. Value ms0 corresponds to 0 miliseconds etc. This attribute may be used for Mobility Robustness Optimization.allowedValues: ms0, ms40, ms64, ms80, ms100, ms128, ms160, ms256, ms320, ms480, ms512, ms640, ms1024, ms1280, ms2560, ms5120 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| timeToTriggerEutraA3 | Time during which measurement report triggering condition needs to be met in order to trigger a measurement report for event A3. Maps to the *timeToTrigger* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A3. Value ms0 corresponds to 0 miliseconds etc. This attribute may be used for Mobility Robustness Optimization.allowedValues: ms0, ms40, ms64, ms80, ms100, ms128, ms160, ms256, ms320, ms480, ms512, ms640, ms1024, ms1280, ms2560, ms5120 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| timeToTriggerEutraA4 | Time during which measurement report triggering condition needs to be met in order to trigger a measurement report for event A4. Maps to the *timeToTrigger* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A4. Value ms0 corresponds to 0 miliseconds etc. This attribute may be used for Mobility Robustness Optimization.allowedValues: ms0, ms40, ms64, ms80, ms100, ms128, ms160, ms256, ms320, ms480, ms512, ms640, ms1024, ms1280, ms2560, ms5120 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| timeToTriggerEutraA5 | Time during which measurement report triggering condition needs to be met in order to trigger a measurement report for event A5. Maps to the *timeToTrigger* IE specified in *ReportConfigEUTRA* IE in [10] corresponding to event A5. Value ms0 corresponds to 0 miliseconds etc. This attribute may be used for Mobility Robustness Optimization.allowedValues: ms0, ms40, ms64, ms80, ms100, ms128, ms160, ms256, ms320, ms480, ms512, ms640, ms1024, ms1280, ms2560, ms5120 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| timeToTriggerIratB1 | Time during which IRAT measurement report triggering condition needs to be met in order to trigger IRAT measurement report for event B1. Maps to *timeToTrigger* IE specified in *ReportConfigInterRAT* IE in [10] corresponding to event B1. Value ms0 corresponds to 0 milliseconds etc. This attribute may be used for Mobility Robustness Optimization.allowedValues: ms0, ms40, ms64, ms80, ms100, ms128, ms160, ms256, ms320, ms480, ms512, ms640, ms1024, ms1280, ms2560, ms5120 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| timeToTriggerIratB2 | Time during which IRAT measurement report triggering condition needs to be met in order to trigger IRAT measurement report for event B2. Maps to *timeToTrigger* IE specified in *ReportConfigInterRAT* IE in [10] corresponding to event B2. Value ms0 corresponds to 0 milliseconds etc. This attribute may be used for Mobility Robustness Optimization.allowedValues: ms0, ms40, ms64, ms80, ms100, ms128, ms160, ms256, ms320, ms480, ms512, ms640, ms1024, ms1280, ms2560, ms5120 | type: <<enumeration>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tReselectionCdma2000 | Cell reselection timer for reselection to a CDMA2000 band. Value in seconds. Corresponds to parameter t-ReselectionCDMA2000 specified in SIB8 in [10] and to TreselectionCDMA\_HRPD or TreselectionCDMA\_1xRTT in [34] This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 :7 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tReselectionEUtra | Cell reselection timer for intra frequency E-UTRA cell reselection. Value in seconds. Corresponds to parameter t-ReselectionEUTRA specified in SIB3 in [10] and in [34]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 :7 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tReselectionGeran | Cell reselection timer for reselection to a GERAN frequency carrier. Value in seconds. Corresponds to parameter t-ReselectionGERAN specified in SIB7 in [10] and to TreselectionGERA in [34]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 :7 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tReselectionUtra | Cell reselection timer for reselection to a UTRA frequency carrier. Value in seconds. Corresponds to parameter t-ReselectionUTRA specified in SIB6 in [10] and in [34]. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 :7 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tStoreUeContext | The timer used for detection of too early HO. Corresponds to Tstore\_UE\_cntxt timer described in [11]. Value in 100 milliseconds. This attribute may be used for Mobility Robustness Optimization.allowedValues: 0 :1023 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| wLANGeoLocation | This attribute provides the latitude and longitude of the location of the WLAN.allowed values: for latitude: - 90 to 90for longitude: - 180 to 180 | type: <<dataType>>multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| wLANId | This attribute identifies the WLAN by the BSSID, the SSID, and/or the HESSID (see clause 9.2.7 of TS 36.463 [43]). allowedValues: see the BSSID, SSID, and/or the HESSID in clause 9.2.7 of TS 36.463 [43]. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: YesdefaultValue: NoneisNullable: False |
| wLANInfoList | This attribute contains a list of WLANInfo, and each WLANInfo includes the following elements:- WLANId This element identifies the WLAN by the BSSID, the SSID, and/or the HESSID (see TS 36.463 [43]). - WLANOperationalState This element indicates whether the WLAN is in operation normally or abnormally.- EnbWithLWARelation This element identifies the eNB, by the DN, with which the subject WLAN has LWA relation.allowedValues: N/A | type: Stringmultiplicity: 0..\*isOrdered: N/AisUnique: N/AdefaultValue: No default valueisNullable: True |
| x2BlackList | This is a list of DNs of ENBFunction and ExternalENBFunction. If the target node DN is a member of the source node’s ENBFunction.x2BlackList, the source node is: 1) Prohibited from sending X2 connection request to target node;2) Forced to tear down established X2 connection to target node 3) Not allowed to accept incoming X2 connection request from target node.The same DN may appear here and in ENBFunction.x2WhiteList. In such case, the DN in x2WhiteList shall be treated as if it is absent. | type: DNmultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| x2HOBlackList | This is a list of DNs of ENBFunction and ExternalENBFunction. The ENBFunction.x2HOBlackList identifies a list of neighbour ENBFunction and ExternalENBFunction with whom the subject ENBFunction is prohibited to use X2 interface for HOs even if the X2 interface exists between them. | type: DNmultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| x2IpAddressList | Represents one or more IP addresses used by ENBFunction for this ENBFunction’s X2 InterfaceallowedValues: One or more IPv4 or IPv6 addresses | type: Stringmultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| x2WhiteList | This is a list of DNs of ENBFunction and ExternalENBFunction. If the target node DN is a member of the source node’s ENBFunction.x2WhiteList, the source node :- Is allowed to request the establishment of X2 connection with the target node;- Is not allowed to initiate the tear down of established X2 connection to target nodeThe same DN may appear here and in ENBFunction.x2BlackList. In such case, the DN here shall be treated as if it is absent. | type: Stringmultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| eutranFrequency | This attribute contains the DN of the referenced EUtraFrequency.allowedValues: N/A | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| multiBandInfoListEutra | It is a list of additional frequency bands the frequency belongs to. allowedValues: { 1..256 }  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| **8th Change** |

## 4.5 Common notifications

### 4.5.1 Alarm notifications

#### 4.5.1.1 Alarm notifications used in deployments using IRP framework

This subclause presents a list of notifications, defined in [18], that IRPManager can receive. The notification header attribute objectClass/objectInstance, defined in [37], would capture the DN of an instance of an IOC defined in this IRP specification.

| Name | Qualifier | Notes |
| --- | --- | --- |
| notifyAckStateChanged | See Alarm IRP (3GPP TS 32.111-2 [18]) |  |
| notifyChangedAlarm | See Alarm IRP (3GPP TS 32.111-2 [18]) |  |
| notifyClearedAlarm | See Alarm IRP (3GPP TS 32.111-2 [18]) |  |
| notifyNewAlarm | See Alarm IRP (3GPP TS 32.111-2 [18]) |  |
| notifyComments | See Alarm IRP (3GPP TS 32.111-2 [18]) |  |
| notifyAlarmListRebuilt | See Alarm IRP (3GPP TS 32.111-2 [18]) |  |
| notifyPotentialFaultyAlarmList | See Alarm IRP (3GPP TS 32.111-2 [18]) |  |

#### 4.5.1.2 Alarm notifications used in deployments using SBMA

This clause presents a list of notifications, defined in TS 28.532 [Y], that an MnS consumer may receive. The notification header attribute objectClass/objectInstance shall capture the DN of an instance of a class defined in the present document.

| Name | Qualifier | Notes |
| --- | --- | --- |
| notifyNewAlarm | M | -- |
| notifyClearedAlarm | M | -- |
| notifyAckStateChanged | M | -- |
| notifyAlarmListRebuilt | M | -- |
| notifyChangedAlarm | O | -- |
| notifyCorrelatedNotificationChanged | O | -- |
| notifyChangedAlarmGeneral | O | -- |
| notifyComments | O | -- |
| notifyPotentialFaultyAlarmList | O | -- |

### 4.5.2 Configuration notifications

#### 4.5.2.1 Configuration notifications used in deployments using IRP framework

This subclause presents a list of notifications, defined in [32], that IRPManager can receive. The notification header attribute objectClass/objectInstance, defined in [37], would capture the DN of an instance of an IOC defined in this IRP specification.

| Name | Qualifier | Notes |
| --- | --- | --- |
| notifyAttributeValueChange | O |  |
| notifyObjectCreation | O |  |
| notifyObjectDeletion | O |  |

#### 4.5.2.2 Configuration notifications used in deployments using SBMA

This clause presents a list of notifications, defined in TS 28.532 [Y], that an MnS consumer may receive. The notification header attribute objectClass/objectInstance shall capture the DN of an instance of a class defined in the present document.

| Name | Qualifier | Notes |
| --- | --- | --- |
| notifyMOICreation | O | -- |
| notifyMOIDeletion | O | -- |
| notifyMOIAttributeValueChanges | O | -- |
| notifyEvent | O | -- |

|  |
| --- |
| **End of Change** |