**3GPP TSG-SA5 Meeting #137eS5-213378**

**e-meeting, 10 - 19 May 2021**

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| *CR-Form-v11.4* |
| **CHANGE REQUEST** |
|  |
|  | **28.541** | **CR** | **0499** | **rev** | **-** | **Current version:** | **17.2.0** |  |
|  |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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|  |
| ***Title:***  | Inclusive language review |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2021-04-29 |
|  |  |  |  |  |
| ***Category:*** | **D** |  | ***Release:*** | Rel-17 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | There're Non-inclusive terms in the spec |
|  |  |
| ***Summary of change:*** | replace WhiteList with AllowList, BlackList with BlockList |
|  |  |
| ***Consequences if not approved:*** | The spec includes non-inclusive terminology |
|  |  |
| ***Clauses affected:*** | 4.3.2.2, 4.3.2.3, 4.3.33.2, 4.4.1, D.4.3, E.5.5, E.5.16, E.5.22 |
|  |  |
|  | **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:*** |  |

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| **Start of 1st modification** |

#### 4.3.2.2 Attributes

The GNBCUCPFunction IOC includes attributes inherited from ManagedFunction IOC (defined in TS 28.622[30]) and the following attributes:

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| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| gNBId | M | T | T | F | T |
| gNBIdLength  | M  | T | T | F | T |
| gNBCUName | O | T | T | F | T |
| pLMNId | M | T | T | T | T |
| x2BlockList | CM | T | T | F | T |
| x2AllowList | CM | T | T | F | T |
| xnBlockList | M | T | T | F | T |
| xnAllowList | M | T | T | F | T |
| x2XnHOBlockList | CM | T | T | F | T |
| mappingSetIDBackhaulAddressList | CM | T | T | F | T |
| tceIDMappingInfoList | CM | T | T | F | T |
| **Attribute related to role** |  |  |  |  |  |
| configurable5QISetRef | O | T | T | F | T |
| dynamic5QISetRef | O | T | F | F | T |

#### 4.3.2.3 Attribute constraints

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| --- | --- |
| Name | Definition |
| x2BlockList | Condition: Multi-Radio Dual Connectivity with the EPC (see TS 37.340 [9] clause 4.1.2) is supported. |
| x2AllowList | Condition: Multi-Radio Dual Connectivity with the EPC (see TS 37.340 [9] clause 4.1.2) is supported. |
| mappingSetIDBackhaulAddressList  | Condition: Remote Interference Management function is supported. |
| tceIDMappingInfolist | Condition: MDT Function is supported. |

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| **End of modification** |

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| **Start of 2nd modification** |

#### 4.3.33.2 Attributes

The NRFreqRelation IOC includes attributes inherited from Top IOC (defined in TS 28.622[30]) and the following attributes:

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| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| offsetMO | O | T | T | F | F |
| blockListEntry | O | T | T | F | F |
| blockListEntryIdleMode | O | T | T | F | F |
| cellReselectionPriority | O | T | T | F | F |
| cellReselectionSubPriority | O | T | T | F | F |
| pMax | O | T | T | F | F |
| qOffsetFreq | O | T | T | F | F |
| qQualMin | O | T | T | F | F |
| qRxLevMin | M | T | T | F | F |
| threshXHighP | M | T | T | F | F |
| threshXHighQ | CM | T | T | F | F |
| threshXLowP | M | T | T | F | F |
| threshXLowQ | CM | T | T | F | F |
| tReselectionNr | M | T | T | F | F |
| tReselectionNRSfHigh | O | T | T | F | F |
| tReselectionNRSfMedium  | O | T | T | F | F |
| **attribute related to role** |  |  |  |  |  |
| nRFrequencyRef | M | T | T | F | F |

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| **End of modification** |

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| **Start of 3rd modification** |

### 4.4.1 Attribute properties

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| administrativeState | It indicates the administrative state of the NRCellDU. It describes the permission to use or prohibition against using the cell, imposed through the OAM services.allowedValues: LOCKED, SHUTTING DOWN, UNLOCKED. The meaning of these values is as defined in ITU‑T Recommendation X.731 [18].See Annex A for Relation between the "Pre-operation state of the gNB-DU Cell" and administrative state relevant in case of 2-split and 3-split deployment scenarios. | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: LOCKEDisNullable: False |
| operationalState | It indicates the operational state of the NRCellDU instance. It describes whether the resource is installed and partially or fully operable (Enabled) or the resource is not installed or not operable (Disabled).allowedValues: ENABLED, DISABLED. | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: None isNullable: False |
| cellState | It indicates the usage state of the NRCellDU instance. It describes whether the cell is not currently in use (Idle), or currently in use but not configured to carry traffic (Inactive) or is currently in use and is configured to carry traffic (Active).The Inactive and Active definitions are in accordance with TS 38.401 [4]:"Inactive: the cell is known by both the gNB-DU and the gNB-CU. The cell shall not serve UEs;Active: the cell is known by both the gNB-DU and the gNB-CU. The cell should be able to serve UEs.""allowedValues: IDLE, INACTIVE, ACTIVE. | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| arfcnDL | NR Absolute Radio Frequency Channel Number (NR-ARFCN) for downlinkallowedValues: See TS 38.104 [12] subclause 5.4.2. Note that allowed values of NR-ARFCN are specified for each band in subclause 5.4.2.3. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| arfcnUL | NR Absolute Radio Frequency Channel Number (NR-ARFCN) for uplinkallowedValues: See TS 38.104 [12] subclause 5.4.2. Note that allowed values of NR-ARFCN are specified for each band in subclause 5.4.2.3. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| arfcnSUL | NR Absolute Radio Frequency Channel Number (NR-ARFCN) for supplementary uplinkallowedValues: See TS 38.104 [12] subclause 5.4.2. Note that allowed values of NR-ARFCN are specified for each band in subclause 5.4.2.3. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| beamAzimuth  | The azimuth of a beam transmission, which means the horizontal beamforming pointing angle (beam peak direction) in the (Phi) φ-axis in 1/10th degree resolution. See subclauses 3.2 in TS 38.104 [12] and 7.3 in TS 38.901 [53] as well as TS 28.662 [11]. The pointing angle is the direction equal to the geometric centre of the half-power contour of the beam relative to the reference plane. Zero degree implies explicit antenna bearing (boresight). Positive angle implies clockwise from the antenna bearing. allowedValues: [-1800 ..1800] 0.1 degree | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NullisNullable: True |
| beamHorizWidth | The Horizontal beamWidth of a beam transmission, which means the horizontal beamforming half-power (3dB down) beamwidth in the (Phi) φ-axis in 1/10th degree resolution. See subclauses 3.2 in TS 38.104 [12] and 7.3 in TS 38.901 [53]. allowedValues: [0..3599] 0.1 degree | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NullisNullable: True |
| beamIndex | Index of the beam.For example, please see subclause 6.6.2 of TS 38.331 [54] where the ssb-Index in the rsIndexResults element of MeasResultNR is defined. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NullisNullable: True |
| beamTilt  | The tilt of a beam transmission, which means the vertical beamforming pointing angle (beam peak direction) in the (Theta) θ-axis in 1/10th degree resolution. See subclauses 3.2 in TS 38.104 [12] and 7.3 in TS 38.901 [53] as well as TS 28.662 [11]. The pointing angle is the direction equal to the geometric centre of the half-power contour of the beam relative to the reference plane. Positive value implies downtilt.allowedValues: [-900..900] 0.1 degree | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NullisNullable: True |
| beamType | The type of the beam. allowedValues: "SSB-BEAM" | type: stringmultiplicity: 0..1isOrdered: N/AisUnique: N/AdefaultValue: NullisNullable: True |
| beamVertWidth | The Vertical beamWidth of a beam transmission, which means the vertical beamforming half-power (3dB down) beamwidth in the (Theta) θ-axis in 1/10th degree resolution. See subclauses 3.2 in TS 38.104 [12] and 7.3 in TS 38.901 [53]. allowedValues: [0...1800] 0.1 degree | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NullisNullable: True |
| bSChannelBwDL  | BS Channel BW in MHz. for downlinkallowedValues: See BS Channel BW in TS 38.104 [12], subclause 5.3.​ | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| bSChannelBwUL  | BS Channel BW in MHz.for uplinkallowedValues:See BS Channel BW in TS 38.104 [12], subclause 5.3.​ | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| bSChannelBwSUL  | BS Channel BW in MHz.for supplementary uplinkallowedValues:See BS Channel BW in TS 38.104 [12], subclause 5.3.​ | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| configuredMaxTxPower | This is the maximum transmission power in milliwatts (mW) at the antenna port for all downlink channels, used simultaneously in a cell, added together.allowedValues: N/A | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| configuredMaxTxEIRP | This is the maximum emitted isotroptic radiated power (EIRP) in dBm for all downlink channels, used simultaneously in a cell, added together [12].allowedValues: N/A | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| coverageShape | Identifies the sector carrier coverage shape described by the envelope of the contained SSB beams. The coverage shape is implementation dependent.allowedValues: 0 : 65535 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| digitalTilt | Digitally-controlled tilt through beamforming. It represents the vertical pointing direction of the antenna relative to the antenna bore sight, representing the total non-mechanical vertical tilt of the selected coverageShape. Positive value gives downwards tilt and negative value gives upwards tilt.allowedValues: [-900..900] 0.1 degree | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| digitalAzimuth | Digitally-controlled azimuth through beamforming. It represents the horizontal pointing direction of the antenna relative to the antenna bore sight, representing the total non-mechanical horizontal pan of the selected coverageShape. Positive value gives azimuth to the right and negative value gives an azimuth to the left.allowedValues: [-1800 ..1800] 0.1 degree | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| cyclicPrefix | Cyclic prefix as defined in TS 38.211 [32], subclause 4.2.allowedValues: NORMAL, EXTENDED. | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| localAddress  | This parameter specifies the localAddress used for initialization of the underlying transport.The AddressWithVlan <dataType> is defined in clause 4.3.64. | type: AddressWithVlanmultiplicity: 1isOrdered: FalseisUnique: N/AdefaultValue: NoneisNullable: False |
| AddressWithVlan.iPaddress | This parameter specifies the IP address used for initialization of the underlying transport.IP address can be an IPv4 address (See RFC 791 [37]) or an IPv6 address (See RFC 2373 [38]). | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| AddressWithVlan. vlanId | This parameter specifies the local VLAN Id (See IEEE 802.1Q [39]) used for initialization of the underlying transport. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| remoteAddress | Remote address including IP address used for initialization of the underlying transport.IP address can be an IPv4 address (See RFC 791 [37]) or an IPv6 address (See RFC 2373 [38]). | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| gNBId | It identifies a gNB within a PLMN. The gNB ID is part of the NR Cell Identifier (NCI) of the gNB cells.See "gNB Identifier (gNB ID)" of subclause 8.2 of TS 38.300 [3]. See "Global gNB ID" in subclause 9.3.1.6 of TS 38.413 [5]. allowedValues: 0..4294967295 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| gNBIdLength | This indicates the number of bits for encoding the gNB ID. See "Global gNB ID" in subclause 9.3.1.6 of TS 38.413 [5].allowedValues: 22 .. 32. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| gNB­DUId | It uniquely identifies the DU at least within a gNB-CU. See 'gNB-DU ID' in subclause 9.3.1.9 of 3GPP TS 38.473 [8].allowedValues: 0..236-1 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| gNB­CUUPId | It uniquely identifies the gNB-CU-UP at least within a gNB-CU-CP. See 'gNB-CU-UP ID' in subclause 9.3.1.15 of 3GPP TS 38.463 [48].allowedValues: 0..236-1 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| gNBCUName | It identifies the Central Entity of a NR node, see subclause 9.2.1.4 of 3GPP TS 38.473 [8].allowedValues: Not applicable | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| gNBDUName | It identifies the Distributed Entity of a NR node, see subclause 9.2.1.5 of 3GPP TS 38.473 [8].allowedValues: Not applicable | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| cellLocalId | It identifies a NR cell of a gNB. It, together with the gNB Identifier (using gNBId of the parent GNBCUCPFunction or GNBDUFunction or ExternalCUCPFunction), identifies a NR cell within a PLMN. This is the NR Cell Identity (NCI). See subclause 8.2 of TS 38.300 [3]. The NCI can be constructed by encoding the gNB Identifier using gNBId (of the parent GNBCUCPFunction or GNBDUFunction or ExternalCUCPFunction) and cellLocalId where the gNB Identifier field is of length specified by gNBIdLength (of the parent GNBCUCPFunction or GNBDUFunction or ExternalCUCPFunction). See "Global gNB ID" in subclause 9.3.1.6 of TS 38.413 [5].The NR Cell Global identifier (NCGI) is constructed from the PLMN identity the cell belongs to and the NR Cell Identifier (NCI) of the cell.See relation between NCI and NCGI subclause 8.2 of TS 38.300 [3].allowedValues: Not applicable | type: Integermultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| nRPCI | This holds the Physical Cell Identity (PCI) of the NR cell.allowedValues: See 3GPP TS 36.211 subclause 6.11 for legal values of pci. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nRTAC | This holds the identity of the common Tracking Area Code for the PLMNs. allowedValues:a) It is the TAC or Extended-TAC. b) A cell can only broadcast one TAC or Extended-TAC. See TS 36.300, subclause 10.1.7 (PLMNID and TAC relation).c) TAC is defined in subclause 19.4.2.3 of 3GPP TS 23.003[13] and Extended-TAC is defined in subclause 9.3.1.29 of 3GPP TS 38.473 [8].d) For a 5G SA (Stand Alone), it has a non-null value. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NULLisNullable: True |
| GNBCUCPFunction.pLMNId | It specifies the PLMN identifier to be used as part of the global RAN node identity.allowedValues: Not applicable. | Type: PLMNId multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| GNBCUUPFunction.pLMNIdList | This is a list of PLMN identifiers. It defines from which set of PLMNs an UE must have as its serving PLMN to be allowed to use the GNB-CU-UP.allowedValues: Not applicable. | type: PLMNId multiplicity: 1..12isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| NRCellCU.pLMNInfoList | It defines which PLMNs that can be served by the NR cell, and which S-NSSAIs can be supported by the NR cell for corresponding PLMN in case of network slicing feature is supportedallowedValues: Not applicable. | type: PLMNInfomultiplicity: 1..\*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| NRCellDU.pLMNInfoList | It defines which PLMNs that can be served by the NR cell, and which S-NSSAs can be supported by the NR cell for corresponding PLMN in case of network slicing feature is supported. The pLMNId of the first entry of the list is the PLMNId used to construct the nCGI for the NR cell.allowedValues: Not applicable. | type: PLMNInfomultiplicity: 1..\*isOrdered: TrueisUnique: TruedefaultValue: NoneisNullable: False |
| ExternalNRCellCU.pLMNIdList | It defines which PLMNs that are assumed to be served by the NR Cell in another gNB-CU-CP. This list is either updated by the managed element itself (e.g. due to ANR, signalling over Xn etc) or by consumer over the standard interface.allowedValues: Not applicable. | Type: PLMNIdmultiplicity: 1..12isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| rRMPolicyMemberList | It represents the list of RRMPolicyMember (s) that the managed object is supporting. A RRMPolicyMember <<dataType>> include the PLMNId <<dataType>> and S-NSSAI <<dataType>>.allowedValues: N/A | type: RRMPolicyMembermultiplicity: 1..\*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| resourceType | The resource type of interest for an RRM Policy. allowedValues:PRB (for NRCellDU, GNBDUFunction)RRC connected users (for NRCellCU, GNBCUCPFunction)DRB (for GNBCUUPFunction)See NOTE 2and NOTE 4 | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| sNSSAIList | It represents the list of S-NSSAI the managed object is supporting. The S-NSSAI is defined in 3GPP TS 23.003 [13].allowedValues: See 3GPP TS 23.003 [13] | type: S-NSSAImultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| sST | This attribute specifies the Slice/Service type (SST) of the network slice.See clause 5.15.2 of 3GPP TS 23.501 [2]. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| sD | This attribute specifies the Slice Differentiator (SD), which is optional information that complements the slice/service type(s) to differentiate amongst multiple Network Slices.See clause 5.15.2 of 3GPP TS 23.501 [2]. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| rRMPolicyMaxRatio | This attribute specifies the maximum percentage of radio resources that can be used by the associated rRMPolicyMemberList. The maximum percentage of radio resources include at least one of the shared resources, prioritized resources and dedicated resources.The sum of the ‘rRMPolicyMaxRatio’ values assigned to all RRMPolicyRatio(s) name-contained by same MangedEntity can be greater than 100.Default value: 100allowedValues:0 : 100 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: TrueallowedValues: N/AisNullable: False |
| rRMPolicyMinRatio | This attribute specifies the minimum percentage of radio resources that can be used by the associated rRMPolicyMemberList. The minimum percentage of radio resources including at least one of prioritized resources and dedicated resources.The sum of the ‘rRMPolicyMinRatio’ values assigned to all RRMPolicyRatio(s) name-contained by same MangedEntity shall be less or equal 100. Default value: 0allowedValues: 0 : 100NOTE: Void. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: TrueallowedValues: N/AisNullable: False |
| rRMPolicyDedicatedRatio | This attribute specifies the percentage of radio resource that dedicatedly used by the associated rRMPolicyMemberList. The sum of the ‘rRMPolicyDedicatedRatio’ values assigned to all RRMPolicyRatio(s) name-contained by same MangedEntity shall be less or equal 100.Default value: 0allowedValues:0 : 100  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: TRUEallowedValues: N/AisNullable: False |
| subCarrierSpacing | Subcarrier spacing configuration for a BWP. See subclause 5 in TS 38.104 [12].AllowedValues: [15, 30, 60, 120] depending on the frequency range FR1 or FR2. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| txDirection | Indicates if the transmission direction is downlink (DL), uplink (UL) or both downlink and uplink (DL and UL).allowedValues:  DL, UL, DL and UL | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| bwpContext | It identifies whether the object is used for downlink, uplink or supplementary uplink.allowedValues: DL, UL, SUL | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| isInitialBwp | It identifies whether the object is used for initial or other BWP.allowedValues: INITIAL, OTHER | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| startRB | Offset in common resource blocks to common resource block 0 for the applicable subcarrier spacing for a BWP. This corresponds to N\_BWP\_start, see subclause 4.4.5 in TS 38.211 [32]. allowedValues:0 to N\_grid\_size – 1, where N\_grid\_size equals the number of resource blocks for the BS channel bandwidth, given the subcarrier spacing of the BWP. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| numberOfRBs | Number of physical resource blocks for a BWP. This corresponds to N\_BWP\_size, see subclause 4.4.5 in TS 38.211 [32].allowedValues:1 to N\_grid\_size – startRB of the BWP. Se startRB for definition of N\_grid\_size. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nRTCI | This is the Target NR Cell Identifier. It consists of NR Cell Identifier (NCI) and Physical Cell Identifier of the target NR cell (nRPCI).The NRRelation.nRTCI identifies the target cell from the perspective of the NRCell, the name-containing instance of the subject NRCellCU instance.allowedValues: Not applicable. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| adjacentCellRef | This attribute contains the DN of an adjacentNRCell (NRCellCU or ExternalNRCellCU) allowedValues: Not applicable. | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| ssbFrequency | Indicates cell defining SSB frequency domain positionFrequency of the cell defining SSB transmission. The frequency provided in this attribute identifies the position of resource element RE=#0 (subcarrier #0) of resource block RB#10 of the SS block. The frequency must be positioned on the NR global frequency raster, as defined in TS 38.101-1 [42] subclause 5.4.2. and within bSChannelBwDL.allowedValues: 0..3279165 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nRFrequencyRef | This attribute contains the DN of the referenced NRFrequency.allowedValues: Not applicable. | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| nRSectorCarrierRef | This attribute contains the DN of the referenced NRSectorCarrier.allowedValues: Not applicable. | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| bWPRef | This attribute contains the DN of the referenced BWP.allowedValues: Not applicable. | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| sectorEquipmentFunctionRef | This attribute contains the DN of the referenced NSectorEquipmentFunction.allowedValues: Not applicable. | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| offsetMO | It is a list of offset values applicable to all measured cells with reference signal(s) indicated in this *MeasObjectNR*. See offsetMO of subclause 5.5.4 of TS 38.331 [54].allowedValues: Not applicable. | type: QOffsetRangeListmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: N/AisNullable: False |
| cellIndividualOffset | It is a list of offset values for the neighbour cell. Used when UE is in connected mode. The unit is 1dB. It is defined for rsrpOffsetSSB, rsrqOffsetSSB, sinrOffsetSSB, rsrpOffsetCSI-RS, rsrqOffsetCSI-RS and sinrOffsetCSI-RS. See TS 38.331 [54].  allowedValues: Not applicable. | type: Integermultiplicity: 6isOrdered: TrueisUnique: N/AdefaultValue: 0isNullable: False |
| blockListEntry | It specifies a list of PCI (physical cell identity) that are blocklisted in EUTRAN measurements as described in 3GPP TS 38.331 [54].allowedValues: { 0…1007 } | type: Integermultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| blockListEntryIdleMode | It specifies a list of PCI (physical cell identity) that are blocklisted in SIB4 and SIB5.allowedValues: { 0…1007 } | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| cellReselectionPriority | It is the absolute priority of the carrier frequency used by the cell reselection procedure. See *CellReselectionPriority* IE in TS 38.331 [54].It corresponds to the parameter priority in 3GPP TS 38.304 [49].Value 0 means lowest priority. The UE behaviour when no value is entered is specified in subclause 5.2.4.1 of 3GPP TS 38.304 [49]. The value must not already used by other RAT, i.e. equal priorities between RATs are not supported.allowedValues: N/A | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: 0NoneisNullable: False |
| cellReselectionSubPriority | It indicates a fractional value to be added to the value of cellReselectionPriority to obtain the absolute priority of the concerned carrier frequency for E-UTRA and NR. See *CellReselectionSubPriority* IE in TS 38.331 [54].allowedValues: { 0.2, 0.4, 0.6, 0.8 }. | type: Realmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| pMax | It calculates the parameter Pcompensation (defined in 3GPP TS 38.304 [49]), at cell reselection to an Cell. Its unit is 1 dBm. It corresponds to parameter PEMAX in 3GPP TS 38.101-1 [42]. allowedValues: { -30..33 }.  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qOffsetFreq | It is the frequency specific offset applied when evaluating candidates for cell reselection. See TS 38.331 [49]. Its unit is 1 dB.allowedValues:{ -24, -22, -20, -18, -16, -14, -12, -10, -8, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 20, 22, 24 } | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: 0isNullable: False |
| qOffsetRangeList | It is used to indicate a cell, beam or measurement object specific offset to be applied when evaluating candidates for cell re-selection or when evaluating triggering conditions for measurement reporting. The value in dB. Value dB-24 corresponds to -24 dB, dB-22 corresponds to -22 dB and so on.This is a list of enum values representing, in sequence: rsrpOffsetSSB, rsrqOffsetSSB, sinrOffsetSSB, rsrpOffsetCSI-RS, srqOffsetCSI-RS, sinrOffsetCSI-RS. See Q-OffsetRangeList in subclause of subclause 6.3.1 of TS 38.331 [54].allowedValues: { -24, -22, -20, -18, -16, -14, -12, -10, -8, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 }  | type: ENUMmultiplicity: 6isOrdered: TrueisUnique: N/AdefaultValue: 0isNullable: False |
| qQualMin | It indicates the minimum required quality level in the cell (dB). See qQualMin in TS 38.304 [49]. Unit is 1 dB.Value 0 means that it is not sent and UE applies in such case the (default) value of negative infinity for Qqualmin. Sent in SIB3 or SIB5.allowedValues: { -34..-3, 0 }  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| qRxLevMin | It indicates the required minimum received Reference Symbol Received Power (RSRP) level in the (E-UTRA) frequency for cell reselection. It corresponds to Qrxlevmin defined in 3GPP TS 38.304 [49]. It is broadcast in SIB3 or SIB5, depending on whether the related frequency is intra- or inter-frequency. Its unit is 1 dBm and resolution is 2.allowedValues: { -140..-44 }. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| threshXHighP | This specifies the Srxlev threshold (in dB) used by the UE when reselecting towards a higher priority RAT/ frequency than the current serving frequency. Each frequency of NR and E-UTRAN might have a specific threshold. It corresponds to the ThreshX, HighPin 3GPP TS 38.304 [49]. Its unit is 1 dB and resolution is 2**.**allowedValues: { 0..62 }  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| threshXHighQ | This specifies the Squal threshold (in dB) used by the UE when reselecting towards a higher priority RAT/ frequency than the current serving frequency. Each frequency of NR and E-UTRAN might have a specific threshold. It corresponds to the ThreshX, HighQ in TS 38.304 [49]. Its unit is 1 dB.allowedValues: { 0..31 } | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| threshXLowP | This specifies the Srxlev threshold (in dB) used by the UE when reselecting towards a lower priority RAT/ frequency than the current serving frequency. Each frequency of NR might have a specific threshold. It corresponds to ThreshX,LowP in 3GPP TS 38.304 [49]. Its unit is 1 dB. Its resolution is 2.allowedValues: { 0..62 }  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| threshXLowQ | This specifies the Squal threshold (in dB) used by the UE when reselecting towards a lower priority RAT/ frequency than the current serving frequency. Each frequency of NR might have a specific threshold. It corresponds to ThreshX,Low in TS 38.304 [49]. Its unit is 1 dB.allowedValues: {0..31}. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tReselectionNr | It is the cell reselection timer and corresponds to parameter TreselectionRAT for NR defined in 38.331 [54]. Its unit is in seconds. allowedValues: {0..7}. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tReselectionNRSfHigh | The attribute t-ReselectionNr (a parameter TreselectionNR in TS 38.304 [49]) is multiplied with this factor if the UE is in high mobility state. It corresponds to the parameter Speed dependent ScalingFactor for TreselectionNr for medium high state in 3GPP TS 38.304 [49]. The unit is one %.Value mapping:25 = 0.2550 = 0.575 = 0.75100 = 1.0 allowedValues: {25, 50, 75, 100}.  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tReselectionNRSfMedium | The attribute t-ReselectionNR (a parameter "TreselectionNR in TS 38.304 [49]”) is multiplied with this factor if the UE is in medium mobility state. It corresponds to the parameter Speed dependent ScalingFactor for TreselectionNr for medium mobility state in 3GPP TS 38.304 [49]. Its unit is one %.Value mapping:25 = 0.2550 = 0.575 = 0.75100 = 1.0 allowedValues: {25, 50, 75, 100}.  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| absoluteFrequencySSB | The absolute frequency applicable for a downlink NR carrier frequency associated with the SSB.allowedValues: {0.. 3279165}. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| sSBSubCarrierSpacing | This SSB is used for for synchronization. See subclause 5 in TS 38.104 [12]. Its units are in kHz.allowedValues: {15, 30, 120, 240}.Note that the allowed values of SSB used for representing data, by e.g. a BWP, are: 15, 30, 60 and 120 in units of kHz. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| multiFrequencyBandListNR | It is a list of additional frequency bands the frequency belongs to. The list is automatically set by the gNB.allowedValues: {1..256 }  | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| ssbPeriodicity | Indicates cell defined SSB periodicity in number of subframes (ms).The SSB periodicity in msec is used for the rate matching purpose. allowedValues: 5, 10, 20, 40, 80, 160. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| ssbOffset

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 | Indicates cell defining SSB time domain position. Defined as the offset of the measurement window, in number of subframes (ms), in which to receive SS/PBCH blocks, where allowed values depend on the ssbPeriodicity.allowedValues: ssbPeriodicity5 ms 0..4,ssbPeriodicity10 ms 0..9,ssbPeriodicity20 ms 0..19,ssbPeriodicity40 ms 0..39,ssbPeriodicity80 ms 0..79,ssbPeriodicity160 ms 0..159. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| ssbDuration

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 | Duration of the measurement window in which to receive SS/PBCH blocks. It is given in number of subframes (ms) (see 38.213 [41], subclause 4.1.allowedValues: 1, 2, 3, 4, 5. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSMonitoringStartTime | This field configures the UTC time when the gNB attempts to start RIM-RS monitoring.allowedValues: containing the information same with xsd: dateTime. | type: String multiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSMonitoringStopTime | This field configures the UTC time when the gNB stops RIM-RS monitoring.allowedValues: containing the information same with xsd: dateTime. | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| mappingSetIDBackhaulAddressList | The attribute specifies a list of mappingSetIDBackhaulAddress which is defined as a datatype (see clause 4.3.47). Which is used to retrieve the backhaul address of the victim set.allowedValues: Not applicable | type: MappingSetIDBackhaulAddressmultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| backhaulAddress | The attribute specifies backhaulAddress which is defined as a datatype (see clause 4.3.48). allowedValues: Not applicable | type: BackhaulAddressmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| setID | This specifies the set ID of a victim Set (RIM-RS1 Set) or aggressor Set (RIM-RS2 set). (See subclause 7.4.1.6 in TS 38.211 [32]). allowedValues:The bit length of the set ID is maximum 22bit. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tAI | Indicates the TAI (see subclause 9.3.3.11 in TS 38.413[5]), including pLMNId ID and nRTAC. allowedValues: Not applicable  | type: TAImultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| isRemoveAllowed | This indicates if the subject NRCellRelation can be removed (deleted) or not. If TRUE, the subject NRCellRelation instance can be removed (deleted). If FALSE, the subject NRCellRelation instance shall not be removed (deleted) by any entity but an MnS consumer.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 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 NRCellCU of the NRCellRelation that contains the isHOAllowed. The target cell is referenced by the NRCellRelation that contains this isHOAllowed. If FALSE, handover shall not be allowed.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| intrasystemANRManagementSwitch | This attribute determines whether the intra-system ANR function is activated or deactivated.If “TRUE”, the intra-system ANR function may add or remove intra NG-RAN Neighbour Relations, i.e. add or remove NRCellRelation instances from NRCellCU of this GNBCUCPFunction.If “FALSE”, the intra-system ANR Function must not add or remove Neighbour Relations, i.e. add or remove NRCellRelation instances from NRCellCU of this GNBCUCPFunction.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| intersystemANRManagementSwitch | This attribute determines whether the inter-system ANR function is activated or deactivated.If “TRUE”, the inter-system ANR function may add or remove inter-system Neighbour Relations, i.e. add or remove EUtranRelation instances from NRCellCU of this GNBCUCPFunction.If “FALSE”, the inter-system ANR Function must not add or remove inter-system Neighbour Relations, i.e. add or remove EUtranRelation instances from NRCellCU of this GNBCUCPFunction.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| desSwitch | This attribute determines whether the Distributed SON or Domain-Centralized SON energy saving function is enabled or disabled.allowedValues: TRUE,FALSE |  type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| cesSwitch | This attribute determines whether the Cross Domain-Centralized SON energy saving function is enabled or disabled.allowedValues: TRUE,FALSE |  type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| energySavingControl | This attribute allows the Cross Domain-Centralized SON energy saving function to initiate energy saving activation or deactivation.allowedValues: toBeEnergySaving, toBeNotEnergySaving |  type: enumerationmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| energySavingState | Specifies the status regarding the energy saving in the cell. If the value of energySavingControl is toBeEnergySaving, then it shall be tried to achieve the value isEnergySaving for the energySavingState. If the value of energySavingControl is toBeNotEnergySaving, then it shall be tried to achieve the value isNotEnergySaving for the energySavingState. allowedValues: isNotEnergySaving, isEnergySaving. |  type: enumerationmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| intraRatEsActivationOriginalCellLoadParameters | This attributes is relevant, if the cell acts as an original cell.This attribute indicates the traffic load threshold and the time duration, which are used by distributed ES algorithms to allow a cell to enter the energySaving state. The time duration indicates how long the load needs to have been below the threshold.allowedValues: Threshold: Integer 0..100 (Percentage of PRB usage, see 3GPP TS 36.314 [13])TimeDuration: Integer (in unit of seconds) | type: data typemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| intraRatEsActivationCandidateCellsLoadParameters | This attributes is relevant, if the cell acts as a candidate cell.This attribute indicates the traffic load threshold and the time duration, which are used by distributed ES algorithms level to allow a n ‘original’ cell to enter the energySaving state. Threshold and duration are applied to the candidate cell(s) which will provides coverage backup of an original cell when it is in the energySaving state. The threshold applies in the same way for a candidate cell, no matter for which original cell it will provide backup coverage.The time duration indicates how long the traffic in the candidate cell needs to have been below the threshold before any original cells which will be provided backup coverage by the candidate cell enters energy saving state.allowedValues: Threshold: Integer 0..100 (Percentage of PRB usage (see 3GPP TS 36.314 [13]) )TimeDuration: Integer (in unit of seconds) | type: data typemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| intraRatEsDeactivationCandidateCellsLoadParameters | This attributes is relevant, if the cell acts as a candidate cell.This attribute indicates the traffic load threshold and the time duration which is used by distributed ES algorithms to allow a cell to leave the energySaving state. Threshold and time duration are applied to the candidate cell when it which provides coverage backup for the cell in energySaving state. The threshold applies in the same way for a candidate cell, no matter for which original cell it provides backup coverage.The time duration indicates how long the traffic in the candidate cell needs to have been above the threshold to wake up one or more original cells which have been provided backup coverage by the candidate cell.allowedValues: Threshold: Integer 0..100 (Percentage of PRB usage (see 3GPP TS 36.314 [13]) )TimeDuration: Integer (in unit of seconds) | type: data typemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| esNotAllowedTimePeriod | This attribute can be used to prevent a cell entering energySaving state.This attribute indicates a list of time periods during which inter-RAT energy saving is not allowed. Time period is valid on the specified day and time of every week.allowedValues: The legal values are as follows:startTime and endTime:All values that indicate valid UTC time. endTime should be later than startTime.periodOfDay: structure of startTime and endTime.daysOfWeekList: list of weekday. weekday: Monday, Tuesday, … Sunday.List of time periods: {{ daysOfWeek daysOfWeekList,periodOfDay dailyPeriod}} |  type: data typemultiplicity: 0..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| interRatEsActivationOriginalCellParameters | This attribute is relevant, if the cell acts as an original cell.This attribute indicates the traffic load threshold and the time duration, which are used by distributed inter-RAT ES algorithms to allow an original cell to enter the energySaving state. The time duration indicates how long the traffic load (both for UL and DL) needs to have been below the threshold.In case the original cell is an EUTRAN cell, the load information refers to Composite Available Capacity Group IE (see 3GPP TS 36.413 [12] Annex B.1.5) and the following applies:Load = (100 - ‘Capacity Value’ ) \* ‘Cell Capacity Class Value’, where ‘Capacity Value’ and ‘Cell Capacity Class Value’ are defined in 3GPP TS 36.423 [7].In case the original cell is a UTRAN cell, the load information refers to Cell Load Information Group IE (see 3GPP TS 36.413 [12] Annex B.1.5) and the following applies:Load= ‘Load Value’ \* ‘Cell Capacity Class Value’, where ‘Load Value’ and ‘Cell Capacity Class Value’ are defined in 3GPP TS 25.413 [19].If the ‘Cell Capacity Class Value’ is not known, then ‘Cell Capacity Class Value’ should be set to 1 when calculating the load, and the load threshold should be set in range of 0..100.allowedValues:LoadThreshold: Integer 0..10000 TimeDuration: Integer 0..900 (in unit of seconds) | type: data typemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| interRatEsActivationCandidateCellParameters | This attribute is relevant, if the cell acts as a candidate cell.This attribute indicates the traffic load threshold and the time duration, which are used by distributed inter-RAT ES algorithms to allow an original cell to enter the energySaving state. Threshold and time duration are applied to the candidate cell(s) which will provides coverage backup of an original cell when it is in the energySaving state. The time duration indicates how long the traffic load (both for UL and DL) in the candidate cell needs to have been below the threshold before any original cells which will be provided backup coverage by the candidate cell enters energySaving state.In case the candidate cell is a UTRAN or GERAN cell, the load information refers to Cell Load Information Group IE(see 3GPP TS 36.413 [12] Annex B.1.5) and the following applies:Load= ‘Load Value’ \* ‘Cell Capacity Class Value’, where ‘Load Value’ and ‘Cell Capacity Class Value’ are defined in 3GPP TS 25.413 [19] (for UTRAN) / TS 48.008 [20] (for GERAN).If the ‘Cell Capacity Class Value’ is not known, then ‘Cell Capacity Class Value’ should be set to 1 when calculating the load, and the load threshold should be set in range of 0..100.allowedValues:LoadThreshold: Integer 0..10000 TimeDuration: Integer 0..900 (in unit of seconds) | type: data typemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| interRatEsDeactivationCandidateCellParameters | This attribute is relevant, if the cell acts as a candidate cell.This attribute indicates the traffic load threshold and the time duration which is used by distributed inter-RAT ES algorithms to allow an original cell to leave the energySaving state. Threshold and time duration are applied to the candidate cell which provides coverage backup for the cell in energySaving state. The time duration indicates how long the traffic load (either for UL or DL) in the candidate cell needs to have been above the threshold to wake up one or more original cells which have been provided backup coverage by the candidate cell.For the load see the definition of interRatEsActivationCandidateCellParameters.allowedValues:LoadThreshold: Integer 0..10000 TimeDuration: Integer 0..900 (in unit of seconds) | type: data typemultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| isProbingCapable | This attribute indicates whether this cell is capable of performing the ES probing procedure. During this procedure the eNB owning the cell indicates its presence to UEs for measurement purposes, but prevents idle mode UEs from camping on the cell and prevents incoming handovers to the same cell.If this parameter is absent, then probing is not done.allowedValues: yes, no | type: enumerationmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| dmroControl | This attribute determines whether the MRO function is enabled or disabled.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| cSonPciList  | This holds a list of physical cell identities that can be assigned to the pci attribute by gNB. The assignment algorithm is not specified.This attribute shall be supported if and only if the C-SON PCI configuration is supported. See TS 28.313, ref [57] subclause 7.1.3.allowedValues: See TS 38.211 [32] subclause 7.4.2.1 for legal values of pci. The number of pci in the list is 1 to 100X. | type: Integermultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| ueAccProbilityDist | This is a list of target Access Probability (*APn*) for the RACH optimization function.Each instance *APn* of the list is the probability that the UE gets access on the RACH channel per cell within *n* number of preambles sent over an unspecified sampling period.This target is suitable for RACH optimization.allowedValues: Each element of the list, ***APn,*** is a pair (*a*, *n*) where *a* is the targetProbability (in %) and *n* is the number of preambles sent.The legal values for *a* are 25, 50, 75, 90.The legal values for *n* are 1 to 200.The number of elements specified is 4. The number of elements supported is vendor specific. The choice of supported values for *a* and *n* is vendor-specific. | type: data typemultiplicity: 0..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| ueAccDelayProbilityDist | This is a list of target Access Delay probability (*ADP*) for the RACH optimization function.Each instance *ADP* of the list is the target time before the UE gets access on the RACH channel per cell, for the *P* percent of the successful RACH Access attempts with lowest access delay, over an unspecified sampling period.This target is suitable for RACH optimization.allowedValues: Each element of the list, ***ADp,*** is a pair (*p, d*) where *p* is the targetProbability (in %) and *d* is the access delay (in milliseconds).The legal values for *p* are 25, 50, 75, 90.The legal values for *d* are 10 to 560.The number of elements specified is 4. The number of elements supported is vendor specific. The choice of supported values for *a* and *b* is vendor-specific. | type: data typemultiplicity: 0..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| drachOptimizationControl | This attribute determines whether the RACH Optimization function is enabled or disabled.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nRPciList  | This holds a list of physical cell identities that can be assigned to the NR cells.This attribute shall be supported if D-SON PCI configuration or domain Centralized SON PCI configuration function is supported. See subclause 8.2.3, 8.3.1 in TS 28.313 [57].allowedValues: See TS 38.211 [32] subclause 7.4.2 for legal values of pci. The number of pci in the list is 0 to 1007. | type: Integermultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| dPciConfigurationControl | This attribute determines whether the Distributed SON or Domain-Centralized SON PCI configuration Function is enabled or disabled.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| cPciConfigurationControl | This attribute determines whether the Cross Domain-Centralized SON PCI configuration function is enabled or disabled.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| maximumDeviationHoTrigger | This parameter defines the maximum allowed absolute deviation of the Handover Trigger, from the default point of operation (see clause 15.5.2.5 in TS 38.300 [3] and clause 9.2.2.61 in TS 38.423 [58]). allowedValues: -20..20Unit: 0.5 dB | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| minimumTimeBetweenHoTriggerChange | This parameter defines the minimum allowed time interval between two Handover Trigger change performed by MRO. This is used to control the stability and convergence of the algorithm (see clause 15.5.2.5 in TS 38.300 [3]). allowedValues: 0..604800Unit: Seconds | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| tstoreUEcntxt | The timer used for detection of too early HO, too late HO and HO to wrong cell. Corresponds to Tstore\_UE\_cntxt timer described in clause 15.5.2.5 in TS 38.300 [3]. This attribute is used for Mobility Robustness Optimization.allowedValues: 0..1023Unit: 100 milliseconds | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: True |
| configurable5QISetRef | This is the DN of Configurable5QISet. The detailed definition for Configurable5QISet see clause 5.3.75.allowedValues: DN of the Configurable5QISet MOI. | type: Stringmultiplicity: 0..1isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: True |
| dynamic5QISetRef | This is the DN of Dynamic5QISet. The detailed definition for Dynamic5QISet see clause 5.3.94.allowedValues: DN of the Dynamic5QISet MOI. | type: Stringmultiplicity: 0..1isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: True |
| frequencyDomainPara | This attribute defines configuration parameters of frequency domain resource to support RIM RS. allowedValues: Not applicable. | type: FrequencyDomainParamultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| sequenceDomainPara | This attribute defines configuration parameters of sequence domain resource to support RIM RS. allowedValues: Not applicable. | type: SequenceDomainParamultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| timeDomainPara | This attribute defines configuration parameters of time domain resource to support RIM RS. allowedValues: Not applicable. | type: TimeDomainParamultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSSubcarrierSpacing | It is the subcarrier spacing configuration ($μ$) for the RIM-RS. Subcarrier spacing $Δf=2^{μ}∙15 kHz.$ (see 38.211 [32], subclause 5.3.3).allowedValues: 0, 1 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rIMRSBandwidth | It is RIM RS bandwidth configuration in number of PRBs (see 38.211 [32], subclause 5.3.3).For carrier bandwidth larger than 20MHz, this attributer should be96 if subcarrier spacing is15kHz;48 or 96 if subcarrier spacing is 30kHz;For carrier bandwidth smaller than or equal to 20MHz, this attributer should beMinimum of {96 , bandwidth of downlink carrier in number of PRBs} if subcarrier spacing is15kHz;Minimum of {48, bandwidth of downlink carrier in number of PRBs } if subcarrier spacing is 30kHz;allowedValues: 1,2..96 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nrofGlobalRIMRSFrequencyCandidates | It is the number of candidate frequency resources in the whole network ($N\_{f}^{RIM}$) (see 38.211 [32], subclause 7.4.1.6). allowedValues: 1,2,4 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSStartingFrequencyOffsetIdList | It is a list of configured frequency offsets in units of resource blocks, where each element is the frequency offset relative to a configured reference point for RIM-RS. The size of the list is nrofGlobalRIMRSFrequencyCandidates and the resulting frequency resource blocks of RIM-RS corresponding to different configured frequency offset have no overlapping bandwidth. (see 38.211 [32], subclause 7.4.1.6)..allowedValues: 0..maxNrofPhysicalResourceBlocks-1 where maxNrofPhysicalResourceBlocks = 550  | type: Integermultiplicity: 1, 2, 4isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nrofRIMRSSequenceCandidatesofRS1 | It is the number of candidate sequences assigned for RIM RS-1 ($N\_{s}^{RIM,1}$) (see 38.211 [32], subclause 7.4.1.6). It should be even when enableEnoughNotEnoughIndication for RS-1 is ONallowedValues: 1,2..8 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSScrambleIdListofRS1 | It is list of configured scrambling identities for RIM RS-1 (see 38.211 [32], subclause 7.4.1.6). The size of the list is nrofRIMRSSequenceCandidatesofRS1.allowedValues: 0..2^10-1  | type: Integermultiplicity: 1, 2..8isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nrofRIMRSSequenceCandidatesofRS2 |  It is the number of candidate sequences assigned for RIM RS-2 (see 38.211 [32], subclause 7.4.1.6).allowedValues: 1,2..8 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSScrambleIdListofRS2 | It is list of configured scrambling identities for RIM RS-2 (see 38.211 [32], subclause 7.4.1.6).. The size of the list is nrofRIMRSSequenceCandidatesofRS2.allowedValues: 0..2^10-1  | type: Integermultiplicity: 1, 2..8isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| enableEnoughNotEnoughIndication | It is indication of whether “Enough” / “Not enough” indication functionality is enabled for RIM RS-1 (see 38.211 [32], subclause 7.4.1.6).If the indication is "enable",the first half of nrofRIMRSSequenceCandidatesofRS1 sequences indicates "Not enough mitigation", and the second half indicates "Enough mitigation", where,"Enough mitigation" indicates that IoT going back to certain level at victim side and/or no further interference mitigation actions are needed at aggressor side"Not enough mitigation" indicates that IoT exceeding certain level at victim side and/or further interference mitigation actions are needed at aggressor sideallowedValues: "ENABLE", "DISABLE"see NOTE 8 | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: DISABLE isNullable: False |
| RIMRSScrambleTimerMultiplier | It is parameter multiplier factor Z for initialization seed (see 38.211 [32], subclause 7.4.1.6).allowedValues: 0,1,….2^31-1 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| RIMRSScrambleTimerOffset | It is parameter offset for initialization seed (see 38.211 [32], subclause 7.4.1.6).allowedValues: 0,1,….2^31-1 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| dlULSwitchingPeriod1 | This attribute is used to configure the first uplink-downlink switching period (P1) for RIM RS transmission in the network, where one RIM RS is configured in one uplink-downlink switching period. (see 38.211 [32], subclause 7.4.1.6). When only one TDD-UL-DL-Pattern is configured, only dl-UL-SwitchingPeriod1 is configured, where P1 equals to the transmission periodicity of the TDD-UL-DL-Pattern.When two concatenated TDD-UL-DL-Patterns are configured, and RIM-RS resources is configured only in one of the TDD patterns, only dl-UL-SwitchingPeriod1 is configured, where P1 equals to the addition of the concatenated transmission periodicity of the two TDD-UL-DL-Patterns.When two concatenated TDD-UL-DL-Patterns are configured, and RIM-RS resources are configured in both TDD patterns, both dl-UL-SwitchingPeriod1 and dl-UL-SwitchingPeriod2 are configured, where P1 equals to the transmission periodicity of the first TDD-UL-DL-Pattern.See NOTE 6allowedValues: MS0P5, MS0P625, MS1, MS1P25, MS2, MS2P5, MS4, MS5, MS10, MS20, if a single uplink-downlink period is configured for RIM-RS purposes;MS0P5, MS0P625, MS1, MS1P25, MS2, MS2P5, MS3, MS4, MS5, MS10, MS20, if two uplink-downlink periods are configured for RIM-RS purposes.see NOTE 9 | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| symbolOffsetOfReferencePoint1 | This attribute is used to configure the reference point in the first uplink-downlink switching period, which is the symbols offset of the reference point after the starting boundary of the first uplink-downlink switching period. It’s Configured together with dl-UL-SwitchingPeriod1 (see 38.211 [32], subclause 7.4.1.6).When only one TDD-UL-DL-Pattern is configured, the reference point configured for the first uplink-downlink switching period is the DL transmission boundary of the TDD-UL-DL-Pattern.When two concatenated TDD-UL-DL-Patterns are configured, and RIM-RS resources is configured only in one of the TDD patterns, the reference point configured for the first uplink-downlink switching period is the DL transmission boundary of the TDD-UL-DL-Pattern where the RIM-RS resource is configured.When two concatenated TDD-UL-DL-Patterns are configured, and RIM-RS resources are configured in both TDD patterns, the reference points configured for first uplink-downlink switching period is the DL transmission boundary of the first TDD-UL-DL-Pattern.allowedValues: 2, 3..20\*2\*maxNrofSymbols-1, where maxNrofSymbols=14 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| dlULSwitchingPeriod2 | This attribute is used to configure the second uplink-downlink switching period (P2) for RIM RS transmission in the network, where one RIM RS is configured in one uplink-downlink switching period (see 38.211 [32], subclause 7.4.1.6).When two concatenated TDD-UL-DL-Patterns are configured, and RIM-RS resources are configured in both TDD patterns, both dl-UL-SwitchingPeriod1 and dl-UL-SwitchingPeriod2 are configured, where P2 equals to the transmission periodicity of the second TDD-UL-DL-Pattern, and where (P1 + P2) divides 20 ms.allowedValues: MS0P5, MS0P625, MS1, MS1P25, MS2, MS2P5, MS3, MS4, MS5, MS10, MS20See NOTE 9 | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| symbolOffsetOfReferencePoint2 | This attribute is used to configure the reference point in the second uplink-downlink switching period, which is the symbol offset of the reference point after starting boundary of the second uplink-downlink switching period. Configured together with dl-UL-SwitchingPeriod2 (see 38.211 [32], subclause 7.4.1.6).When two concatenated TDD-UL-DL-Patterns are configured, and RIM-RS resources are configured in both TDD patterns, the reference points configured for second uplink-downlink switching period is the DL transmission boundary of the second TDD-UL-DL-Pattern.allowedValues: 2, 3..20\*2\*maxNrofSymbols-1, where maxNrofSymbols=14 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| totalnrofSetIdofRS1 | It is the total number of set IDs for RIM RS-1 ($N\_{setID}^{RIM,1}$) (see 38.211 [32], subclause 7.4.1.6).allowedValues: 0,1...2^22-1 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| totalnrofSetIdofRS2 | It is the total number of set IDs for RIM RS-2 (see 38.211 [32], subclause 7.4.1.6).allowedValues: 0,1...2^22-1 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nrofConsecutiveRIMRS1 | It is number of consecutive uplink-downlink switching periods for RS-1 (R1) for repetition/near-far indication:. (see 38.211 [32], subclause 7.4.1.6).allowedValues: 1,2,4,8see NOTE 7 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nrofConsecutiveRIMRS2 | It is number of consecutive uplink-downlink switching periods for RS-2 (R2) for repetition/near-far indication. (see 38.211 [32], subclause 7.4.1.6).allowedValues: 1,2,4,8see NOTE 7 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| consecutiveRIMRS1List | It is used to configure the OFDM symbol position(s) of RIM RS-1 within the uplink-downlink switching period. It is a list of symbol offset of RIM RS-1 before the reference point. The size of the list is nrofConsecutiveRIMRS1 (see 38.211 [32], subclause 7.4.1.6).The resulting RIM RS-1 symbols and its reference point shall belong to the same 10ms frame..allowedValues: 2,3..20\*2\*maxNrofSymbols-1, where maxNrofSymbols=14 | type: Integermultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| consecutiveRIMRS2List | It is used to configure the OFDM symbol position(s) of RIM RS-2 within the uplink-downlink switching period. It is a list of symbol offset of RIM RS-2 before the reference point. The size of the list is nrofConsecutiveRIMRS2 (see 38.211 [32], subclause 7.4.1.6).The resulting RIM RS-2 symbols and its reference point shall belong to the same 10ms frame..allowedValues: 2,3..20\*2\*maxNrofSymbols-1, where maxNrofSymbols=14 | type: Integermultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| enablenearfarIndicationRS1 | It is indication of whether near-far functionality is enabled for RIM RS1.If the indication is “enable”, the first half of nrofConsecutiveRIMRS1 (R1) consecutive uplink-downlink switching period is for "Near" indication with R1/2 repetitions,the second half of R1 consecutive uplink-downlink switching period is for "Far" indication with R1/2 repetitions.allowedValues: "ENABLE", "DISABLE"  | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: DISABLEisNullable: False |
| enablenearfarIndicationRS2 | It is indication of whether near-far functionality is enabled for RIM RS2.If the indication is “enable”, the first half of nrofConsecutiveRIMRS2 (R2) consecutive uplink-downlink switching period is for "Near" indication with R2/2 repetitions,the second half of R2 consecutive uplink-downlink switching period is for "Far" indication with R2/2 repetitions.allowedValues: "ENABLE", "DISABLE"  | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: DISABLEisNullable: False |
| rimRSReportConf | It is used to configure gNBs to report the all necessary information derived from the detected RIM-RS to OAM.allowedValues: Not applicable | type: RimRSReportConfmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: N/AisNullable: False |
| reportIndicator | It is used to enable or disable the RS report on a gNB.If the indication is “enable”, the gNB starts to periodically report necessary information derived from the detected RIM-RS to OAM. If the indication is “disable”, the gNB stops reporting.allowedValues: ENABLE, DISABLE  | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: DISABLE isNullable: False |
| reportInterval | It is used to define reporting interval of a gNB in ms.allowedValues: Not applicable | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nrofRIMRSReportInfo | It is used to define the maximum number of RIMRSReportInfo in a single report.allowedValues: Not applicable | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| maxPropagationDelay | It is used to define the maximum reported OFDM symbol number for the propagation delay of the detected RIM-RS in each RIMRSReportInfo.allowedValues: 0, 1..20\*2\*maxNrofSymbols-1, where maxNrofSymbols=14. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSReportInfoList | It represents a list (the length of the list is nrofRIMRSReportInfo) of necessary information derived from the detected RIM-RS. allowedValues: Not applicable | type: RimRSReportInfomultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: N/AisNullable: False |
| detectedSetID | This attributer indicates the Set ID of the detected RIM-RS. allowedValues: 0,1...max{totalnrofSetIdofRS1, totalnrofSetIdofRS2}. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| propagationDelay | This attributer indicates the propagation delay of the detected RIM-RS, in number of OFDM symbol.allowedValues: 0, 1.. maxPropagationDelay. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| functionalityOfRIMRS | This attributer indicates the functionality of the detected RIM-RS.If the indication of enableEnoughNotEnoughIndication is “enable”, valid values are {RS2, RS1forEnoughMitigation, RS1forNotEnoughMitigation};If the indication of enableEnoughNotEnoughIndication is “disable”, valid values are {RS1, RS2}.allowedValues: RS1, RS2, RS1forEnoughMitigation, RS1forNotEnoughMitigation  | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSMonitoringWindowDuration | This attributer configures a duration of the monitoring window in which gNB monitors the RIM-RS, in unit of $P\_{t}$, where $P\_{t}$ is the RIM-RS transmission periodicity in units of uplink-downlink switching period (see 38.211 [32], subclause 7.4.1.6).This field is configured together with rimRSMonitoringInterval, rimRSMonitoringWindowStartingOffset, rimRSMonitoringOccasionInterval and rimRSMonitoringOccasionStartingOffset.The duration of the monitoring window is expected to be larger than or equal to $M\*P\_{t}$, where $M$ is the interval between adjacent monitoring occasions within the monitoring window (configured by rimRSMonitoringInterval).The absolute duration of the monitoring window is not expected to be larger than the periodicity of the monitoring window (configured by rimRSMonitoringWindowPeriodicity).Only the earliest $N\_{T}$ consecutive detection durations in each RIM-RS transmission periodicity ($P\_{t}$) in the monitoring window are taken as valid time for monitoring potential interference, and they are consecutively monitored in the monitoring window, while the residual part of each RIM-RS transmission periodicity is not used for discovering potential interference, where, a consecutive detection duration spans $P1\*R1$ (if only $P1$ is configured) or ${\left(P1+P2\right)}/{2}\*R1$ (if both$ P1$ and $P2$ are configured), where,$R1$ is the number of consecutive uplink-downlinkswitching periods for RS-1 (configured by nrofConsecutiveRIMRS1),$P1$ is the first uplink-downlinkswitching period (configured by dlULSwitchingPeriod1), $P2$ is the second uplink-downlink switching period (configured by dlULSwitchingPeriod2), and$$N\_{T}=\left\{\begin{matrix}\left⌈\frac{N\_{setID}^{RIM,1}}{N\_{f}^{RIM}N\_{s}^{RIM,1}}\right⌉&if enableEnoughNotEnoughIndication is "disable"\\\left⌈\frac{2N\_{setID}^{RIM,1}}{N\_{f}^{RIM}N\_{s}^{RIM,1}}\right⌉&if enableEnoughNotEnoughIndication is "enable"\end{matrix}\right.$$$N\_{setID}^{RIM,1}$ is the total number of set IDs for RIM RS-1 (configured by totalnrofSetIdofRS1),$N\_{f}^{RIM}$ is the number of candidate frequency resources in the whole network (configured by nrofGlobalRIMRSFrequencyCandidates), and $N\_{s}^{RIM,1}$ is the number of candidate sequences assigned for RIM RS-1 (configured by nrofRIMRSSequenceCandidatesofRS1).allowedValues: 1,2,..2^14 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSMonitoringWindowPeriodicity | This attributer configures the periodicity of the monitoring window, in unit of hours.allowedValues: 1, 2, 3, 4, 6, 8, 12, 24 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSMonitoringWindowStartingOffset | This attributer configures the start offset of the first monitoring window within one day, in unit of hours.allowedValues: 0,1,2..23 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSMonitoringOccasionInterval | This attributer configures the interval between adjacent monitoring occasions (*M*) within the monitoring window, in unit of consecutive detection duration.*M* is expected to be prime to $N\_{T}$, where $N\_{T}$ is given in above attribute rimRSMonitoringWindowDuration.allowedValues: 1,2..$N\_{T}$-1. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSMonitoringOccasionStartingOffset | This attributer configures the start offset of the first monitoring occasions within the monitoring window ($S\_{M}$), in unit of consecutive detection duration.gNB starts monitoring potential interference from the $S\_{M}$-th consecutive detection duration in the first complete RIM-RS transmission periodicity ($P\_{t}$) within the monitoring window.allowedValues: 0,1,2..M-1where M is the the interval between adjacent monitoring occasions within the monitoring window (configured by rimRSMonitoringOccasionInterval) | Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| victimSetRef | This attribute contains the DN of a victim Set (RimRSSet) allowedValues: Not applicable. | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| aggressorSetRef | This attribute contains the DN of an aggressor Set (RimRSSet) allowedValues: Not applicable. | type: DNmultiplicity: 1isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| setType | The attribute specifies type of a RIM-RS Set . RIM RS1 is transmitted by victim to indicate its suffering remote interference, and RIM RS2 is transmitted by aggressor to measure if Remote Interference still existallowedValues:RS1, RS2. | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| nRCellDURef | This attribute contains the DN of a NR Cell (NRCellDU) allowedValues: Not applicable. | type: DNmultiplicity: \*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
| isENDCAllowed | This indicates if EN-DC is allowed or prohibited.If TRUE, the target cell is allowed to be used for EN-DC. The target cell is referenced by the NRCellRelation that contains this isENDCAllowed. If FALSE, EN-DC shall not be allowed.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| x2BlockList | This is a list of GeNBIds. If the target node GeNBId is a member of the source node’s NRCellCU.x2BlockList, the source node is: 1) prohibited from sending X2 connection requests to the target node;2) forced to tear down an established X2 connection to the target node;3) not allowed to accept incoming X2 connection requests from the target node.The same GeNBId may appear here and in NRCellCU.x2AllowList. In such case, the GeNBId in x2AllowList shall be treated as if it is absent.allowedValues: See NOTE 5. | type: Stringmultiplicity: 0..\*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| xnBlockList | This is a list of GgNBIds. If the target node GgNBId is a member of the source node’s NRCellCU.xnBlockList, the source node is: 1) prohibited from sending Xn connection requests to the target node;2) forced to tear down an established Xn connection to the target node;3) not allowed to accept incoming Xn connection requests from the target node.The same GgNBId may appear here and in NRCellCU.xnAllowList. In such case, the GgNBId in xnAllowList shall be treated as if it is absent.allowedValues: See NOTE 5. | type: Stringmultiplicity: 0..\*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| x2AllowList | This is a list of GeNBIds. If the target node GeNBId is a member of the source node’s NRCellCU.x2AllowList, the source node is:1) allowed to request the establishment of an X2 connection to the target node;2) not allowed to initiate the tear down of an established X2 connection to the target nodeThe same GeNBId may appear here and in NRCellCU.x2BlockList. In such case, the GeNBId here shall be treated as if it is absent.allowedValues: See NOTE 5. | type: Stringmultiplicity: 0..\*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| xnAllowList | This is a list of GgNBIds. If the target node GgNBId is a member of the source node’s NRCellCU.xnAllowList, the source node is:1) allowed to request the establishment of Xn connection with the target node;2) not allowed to initiate the tear down of an established Xn connection to the target nodeThe same GgNBId may appear here and in NRCellCU.xnBlockList. In such case, the GgNBId here shall be treated as if it is absent.allowedValues: See NOTE 5. | type: Stringmultiplicity: 0..\*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| xnHOBlockList | This is a list of GgNBIds. For all the entries in NRCellCU.xnHOBlockList, the subject NRCellCU is prohibited to use the Xn interface for HOs even if an Xn interface exists to the target cell.allowedValues: See NOTE 5. | type: Stringmultiplicity: 0..\*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| x2HOBlockList | This is a list of GeNBIds. For all the entries in NRCellCU.x2HOBlockList, the subject NRCellCU is prohibited to use the X2 interface for HOs even if an X2 interface exists to the target cell.allowedValues: See NOTE 5. | type: Stringmultiplicity: 0..\*isOrdered: FalseisUnique: TruedefaultValue: NoneisNullable: False |
| tceIDMappingInfoList | This attribute includes a list of TCE ID, PLMN where TCE resides and the corresponding TCE IP address. It is used in Logged MDT case to provide the information to the gNodeB or GNBCUCPFunction to get the corresponding TCE IP address when there is an MDT log received from the UE.allowedValues: Not applicable | type: tceIDMappingInfomultiplicity: 1..\*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tceIPAddress | This attribute indicates IP address of TCE. (See subclause 4.1.1.9.2 in TS 32.422[68]) | type: Stringmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| tceID | This attribute indicates TCE Id. (See subclause 4.1.1.9.2 in TS 32.422[68]) | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| pLMNTarget | This attribute indicates PLMN where TCE resides. (See subclauses 4.1.1.9.2 and 4.9.2 in TS 32.422 [68]) | Type: PLMNIdmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| isMLBAllowed | This indicates if mobility load balancing is allowed or prohibited from source cell to target cell.If TRUE, load balancing is allowed from source cell to target cell. The source cell is identified by the name-containing NRCellCU of the NRCellRelation that contains the isMLBAllowed. The target cell is referenced by the NRCellRelation that contains this isLBAllowed. In case of isHOAllowed is FALSE, mobility load balancing is prohibited by handover from source cell to target cell. If FALSE, load balancing shall be prohibited from source cell to target cell.allowedValues: TRUE,FALSE | type: Booleanmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| NOTE 1: VoidNOTE 2: The radio resource can be signaling resources (e.g. RRC connected users) or user plane resources (e.g. PRB, DRB). Different RRM Policy maybe applied for different types of radio resource. E.g. RRMPolicyRatio is used for PRB resource.NOTE 3: VoidNOTE 4: A RRM Policy can make use of the defined policy (e.g. RRMPolicyRatio) or a vendor specific RRM Policy.NOTE 5: For Global gNB Identifiers, the entries are formatted according to the pattern <mcc><mnc>-<gNBIdLength>-<gNBId>, where <mcc> is three digits, <mnc> two or three digits, <gNBIdLength> is a string containing a number n as digits, in the range 22 to 32, and <gNBId> is a string containing digits for the number 0 to 2n-1. For Global eNB Identifiers, the entries are formatted according to the pattern <mcc><mnc>-<eNBIdLength>-<eNBId>, where <mcc> is three digits, <mnc> two or three digits, <gNBIdLength> is a string containing a number m as digits, m being one of 18, 20, 21 or 22, and <eNBId> is a string containing digits for the number 0 to 2m-1.NOTE 6: The maximum number of total RIM RS sequence within 10ms is 32 regardless single or two uplink-downlink period are configured in the 10ms..NOTE 7: 1. The maximum number of consecutive uplink-downlink switching periods for repetition/near-far-functionality is 8 (the number can be either 2, 4, or 8) with near-far functionality and with repetition.2. The maximum number of consecutive uplink-downlink switching periods for repetition is 4 (the number can be either 1, 2, or 4) without near-far functionality and with repetition only.3. The maximum number of consecutive uplink-downlink switching periods is 2 with near-far functionality only and without repetition.NOTE 8 (for information): “Not enough mitigation” means aggressor gNB needs to increase the interference mitigation level (i.e., further interference mitigation actions) (e.g., further reducing the DL transmission power on DL symbols at aggressor side), while “Enough mitigation” means aggressor gNB keeping the current interference mitigation level unchanged (i.e., no further interference mitigation actions) (e.g., remaining the DL transmission power on DL symbols unchanged at aggressor side).NOTE 9: Value MS0P5 corresponds to 0.5 ms, MS0P625 corresponds to 0.625 ms, MS1 corresponds to 1 ms, MS1P25 corresponds to 1.25 ms, and so on. |

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| --- |
| **End of modification** |

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| **Start of 4th modification** |

## D.4.3 OpenAPI document "nrNrm.yaml"

openapi: 3.0.1

info:

 title: NR NRM

 version: 17.2.0

 description: >-

 OAS 3.0.1 specification of the NR NRM

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externalDocs:

 description: 3GPP TS 28.541 V17.2.0; 5G NRM, NR NRM

 url: http://www.3gpp.org/ftp/Specs/archive/28\_series/28.541/

paths: {}

components:

 schemas:

#-------- Definition of types-----------------------------------------------------

 GnbId:

 type: string

 GnbIdLength:

 type: integer

 minimum: 22

 maximum: 32

 GnbName:

 type: string

 maxLength: 150

 GnbDuId:

 type: number

 minimum: 0

 maximum: 68719476735

 GnbCuUpId:

 type: number

 minimum: 0

 maximum: 68719476735

 Sst:

 type: integer

 maximum: 255

 Snssai:

 type: object

 properties:

 sst:

 $ref: '#/components/schemas/Sst'

 sd:

 type: string

 SnssaiList:

 type: array

 items:

 $ref: '#/components/schemas/Snssai'

 Mnc:

 type: string

 pattern: '[0-9]{3}|[0-9]{2}'

 PlmnId:

 type: object

 properties:

 mcc:

 $ref: 'genericNrm.yaml#/components/schemas/Mcc'

 mnc:

 $ref: '#/components/schemas/Mnc'

 PlmnIdList:

 type: array

 items:

 $ref: '#/components/schemas/PlmnId'

 PlmnInfo:

 type: object

 properties:

 plmnId":

 $ref: '#/components/schemas/PlmnId'

 snssai:

 $ref: '#/components/schemas/Snssai'

 PlmnInfoList:

 type: array

 items:

 $ref: '#/components/schemas/PlmnInfo'

 GGnbId:

 type: string

 pattern: '^[0-9]{3}[0-9]{2,3}-(22|23|24|25|26|27|28|29|30|31|32)-[0-9]{1,10}'

 GEnbId:

 type: string

 pattern: '^[0-9]{3}[0-9]{2,3}-(18|20|21|22)-[0-9]{1,7}'

 GGnbIdList:

 type: array

 items:

 $ref: '#/components/schemas/GGnbId'

 GEnbIdList:

 type: array

 items:

 $ref: '#/components/schemas/GEnbId'

 NrPci:

 type: integer

 maximum: 503

 NrTac:

 type: integer

 maximum: 16777215

 Tai:

 type: object

 properties:

 plmnId:

 $ref: '#/components/schemas/PlmnId'

 nrTac:

 $ref: '#/components/schemas/NrTac'

 BackhaulAddress:

 type: object

 properties:

 gnbId:

 $ref: '#/components/schemas/GnbId'

 tai:

 $ref: "#/components/schemas/Tai"

 MappingSetIDBackhaulAddress:

 type: object

 properties:

 setID:

 type: integer

 backhaulAddress:

 $ref: '#/components/schemas/BackhaulAddress'

 IntraRatEsActivationOriginalCellLoadParameters:

 type: object

 properties:

 loadThreshold:

 type: integer

 timeDuration:

 type: integer

 IntraRatEsActivationCandidateCellsLoadParameters:

 type: object

 properties:

 loadThreshold:

 type: integer

 timeDuration:

 type: integer

 IntraRatEsDeactivationCandidateCellsLoadParameters:

 type: object

 properties:

 loadThreshold:

 type: integer

 timeDuration:

 type: integer

 EsNotAllowedTimePeriod:

 type: object

 properties:

 startTimeandendTime:

 type: string

 periodOfDay:

 type: string

 daysOfWeekList:

 type: string

 listoftimeperiods:

 type: string

 InterRatEsActivationOriginalCellParameters:

 type: object

 properties:

 loadThreshold:

 type: integer

 timeDuration:

 type: integer

 InterRatEsActivationCandidateCellParameters:

 type: object

 properties:

 loadThreshold:

 type: integer

 timeDuration:

 type: integer

 InterRatEsDeactivationCandidateCellParameters:

 type: object

 properties:

 loadThreshold:

 type: integer

 timeDuration:

 type: integer

 UeAccProbilityDist:

 type: object

 properties:

 targetProbability:

 type: integer

 numberofpreamblessent:

 type: integer

 UeAccDelayProbilityDist:

 type: object

 properties:

 targetProbability:

 type: integer

 accessdelay:

 type: integer

 NRPciList:

 type: object

 properties:

 NRPci:

 type: integer

 CSonPciList:

 type: object

 properties:

 NRPci:

 type: integer

 MaximumDeviationHoTrigger:

 type: integer

 minimum: -20

 maximum: 20

 MinimumTimeBetweenHoTriggerChange:

 type: integer

 minimum: 0

 maximum: 604800

 TstoreUEcntxt:

 type: integer

 minimum: 0

 maximum: 1023

 CellState:

 type: string

 enum:

 - IDLE

 - INACTIVE

 - ACTIVE

 CyclicPrefix:

 type: string

 enum:

 - '15'

 - '30'

 - '60'

 - '120'

 TxDirection:

 type: string

 enum:

 - DL

 - UL

 - DL and UL

 BwpContext:

 type: string

 enum:

 - DL

 - UL

 - SUL

 IsInitialBwp:

 type: string

 enum:

 - INITIAL

 - OTHER

 - SUL

 QuotaType:

 type: string

 enum:

 - STRICT

 - FLOAT

 IsESCoveredBy:

 type: string

 enum:

 - NO

 - PARTIAL

 - FULL

 RrmPolicyMember:

 type: object

 properties:

 plmnId:

 $ref: '#/components/schemas/PlmnId'

 snssai:

 $ref: '#/components/schemas/Snssai'

 RrmPolicyMemberList:

 type: array

 items:

 $ref: '#/components/schemas/RrmPolicyMember'

 AddressWithVlan:

 type: object

 properties:

 ipv4Address:

 $ref: 'genericNrm.yaml#/components/schemas/Ipv4Addr'

 ipv6Address:

 $ref: 'genericNrm.yaml#/components/schemas/Ipv6Addr'

 vlanId:

 type: integer

 minimum: 0

 maximum: 4096

 LocalAddress:

 type: object

 properties:

 addressWithVlan:

 $ref: '#/components/schemas/AddressWithVlan'

 port:

 type: integer

 minimum: 0

 maximum: 65535

 RemoteAddress:

 type: object

 properties:

 ipv4Address:

 $ref: 'genericNrm.yaml#/components/schemas/Ipv4Addr'

 ipv6Address:

 $ref: 'genericNrm.yaml#/components/schemas/Ipv6Addr'

 CellIndividualOffset:

 type: object

 properties:

 rsrpOffsetSSB:

 type: integer

 rsrqOffsetSSB:

 type: integer

 sinrOffsetSSB:

 type: integer

 rsrpOffsetCSI-RS:

 type: integer

 rsrqOffsetCSI-RS:

 type: integer

 sinrOffsetCSI-RS:

 type: integer

 QOffsetRange:

 type: integer

 enum:

 - -24

 - -22

 - -20

 - -18

 - -16

 - -14

 - -12

 - -10

 - -8

 - -6

 - -5

 - -4

 - -3

 - -2

 - -1

 - 0

 - 24

 - 22

 - 20

 - 18

 - 16

 - 14

 - 12

 - 10

 - 8

 - 6

 - 5

 - 4

 - 3

 - 2

 - 1

 QOffsetRangeList:

 type: object

 properties:

 rsrpOffsetSSB:

 $ref: '#/components/schemas/QOffsetRange'

 rsrqOffsetSSB:

 $ref: '#/components/schemas/QOffsetRange'

 sinrOffsetSSB:

 $ref: '#/components/schemas/QOffsetRange'

 rsrpOffsetCSI-RS:

 $ref: '#/components/schemas/QOffsetRange'

 rsrqOffsetCSI-RS:

 $ref: '#/components/schemas/QOffsetRange'

 sinrOffsetCSI-RS:

 $ref: '#/components/schemas/QOffsetRange'

 QOffsetFreq:

 type: number

 TReselectionNRSf:

 type: integer

 enum:

 - 25

 - 50

 - 75

 - 100

 SsbPeriodicity:

 type: integer

 enum:

 - 5

 - 10

 - 20

 - 40

 - 80

 - 160

 SsbDuration:

 type: integer

 enum:

 - 1

 - 2

 - 3

 - 4

 - 5

 SsbSubCarrierSpacing:

 type: integer

 enum:

 - 15

 - 30

 - 120

 - 240

 CoverageShape:

 type: integer

 maximum: 65535

 DigitalTilt:

 type: integer

 minimum: -900

 maximum: 900

 DigitalAzimuth:

 type: integer

 minimum: -1800

 maximum: 1800

 RSSetId:

 type: integer

 maximum: 4194303

 RSSetType:

 type: string

 enum:

 - RS1

 - RS2

 FrequencyDomainPara:

 type: object

 properties:

 rimRSSubcarrierSpacing:

 type: integer

 rIMRSBandwidth:

 type: integer

 nrofGlobalRIMRSFrequencyCandidates:

 type: integer

 rimRSCommonCarrierReferencePoint:

 type: integer

 rimRSStartingFrequencyOffsetIdList:

 type: array

 items:

 type: integer

 SequenceDomainPara:

 type: object

 properties:

 nrofRIMRSSequenceCandidatesofRS1:

 type: integer

 rimRSScrambleIdListofRS1:

 type: array

 items:

 type: integer

 nrofRIMRSSequenceCandidatesofRS2:

 type: integer

 rimRSScrambleIdListofRS2:

 type: array

 items:

 type: integer

 enableEnoughNotEnoughIndication:

 type: string

 enum:

 - ENABLE

 - DISABLE

 RIMRSScrambleTimerMultiplier:

 type: integer

 RIMRSScrambleTimerOffset:

 type: integer

 TimeDomainPara:

 type: object

 properties:

 dlULSwitchingPeriod1:

 type: string

 enum:

 - MS0P5

 - MS0P625

 - MS1

 - MS1P25

 - MS2

 - MS2P5

 - MS3

 - MS4

 - MS5

 - MS10

 - MS20

 symbolOffsetOfReferencePoint1:

 type: integer

 dlULSwitchingPeriod2:

 type: string

 enum:

 - MS0P5

 - MS0P625

 - MS1

 - MS1P25

 - MS2

 - MS2P5

 - MS3

 - MS4

 - MS5

 - MS10

 - MS20

 symbolOffsetOfReferencePoint2:

 type: integer

 totalnrofSetIdofRS1:

 type: integer

 totalnrofSetIdofRS2:

 type: integer

 nrofConsecutiveRIMRS1:

 type: integer

 nrofConsecutiveRIMRS2:

 type: integer

 consecutiveRIMRS1List:

 type: array

 items:

 type: integer

 consecutiveRIMRS2List:

 type: array

 items:

 type: integer

 enablenearfarIndicationRS1:

 type: string

 enum:

 - ENABLE

 - DISABLE

 enablenearfarIndicationRS2:

 type: string

 enum:

 - ENABLE

 - DISABLE

 RimRSReportInfo:

 type: object

 properties:

 detectedSetID:

 type: integer

 propagationDelay:

 type: integer

 functionalityOfRIMRS:

 type: string

 enum:

 - RS1

 - RS2

 - RS1forEnoughMitigation

 - RS1forNotEnoughMitigation

 RimRSReportConf:

 type: object

 properties:

 reportIndicator:

 type: string

 enum:

 - ENABLE

 - DISABLE

 reportInterval:

 type: integer

 nrofRIMRSReportInfo:

 type: integer

 maxPropagationDelay:

 type: integer

 rimRSReportInfoList:

 type: array

 items:

 $ref: '#/components/schemas/RimRSReportInfo'

 TceMappingInfo:

 type: object

 properties:

 TceIPAddress:

 oneOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Ipv4Addr'

 - $ref: 'genericNrm.yaml#/components/schemas/Ipv6Addr'

 TceID:

 type: integer

 PlmnTarget:

 $ref: '#/components/schemas/PlmnId'

 TceMappingInfoList:

 type: array

 items:

 $ref: '#/components/schemas/TceMappingInfo'

#-------- Definition of abstract IOCs --------------------------------------------

 RrmPolicy\_-Attr:

 type: object

 properties:

 resourceType:

 type: string

 rRMPolicyMemberList:

 $ref: '#/components/schemas/RrmPolicyMemberList'

#-------- Definition of concrete IOCs --------------------------------------------

 SubNetwork-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 $ref: 'genericNrm.yaml#/components/schemas/SubNetwork-Attr'

 - $ref: 'genericNrm.yaml#/components/schemas/SubNetwork-ncO'

 - type: object

 properties:

 SubNetwork:

 $ref: '#/components/schemas/SubNetwork-Multiple'

 ManagedElement:

 $ref: '#/components/schemas/ManagedElement-Multiple'

 NRFrequency:

 $ref: '#/components/schemas/NRFrequency-Multiple'

 ExternalGnbCuCpFunction:

 $ref: '#/components/schemas/ExternalGnbCuCpFunction-Multiple'

 ExternalENBFunction:

 $ref: '#/components/schemas/ExternalENBFunction-Multiple'

 EUtranFrequency:

 $ref: '#/components/schemas/EUtranFrequency-Multiple'

 DESManagementFunction:

 $ref: '#/components/schemas/DESManagementFunction-Single'

 DRACHOptimizationFunction:

 $ref: '#/components/schemas/DRACHOptimizationFunction-Single'

 DMROFunction:

 $ref: '#/components/schemas/DMROFunction-Single'

 DPCIConfigurationFunction:

 $ref: '#/components/schemas/DPCIConfigurationFunction-Single'

 CPCIConfigurationFunction:

 $ref: '#/components/schemas/CPCIConfigurationFunction-Single'

 CESManagementFunction:

 $ref: '#/components/schemas/CESManagementFunction-Single'

 Configurable5QISet:

 $ref: '5gcNrm.yaml#/components/schemas/Configurable5QISet-Multiple'

 RimRSGlobal:

 $ref: '#/components/schemas/RimRSGlobal-Single'

 Dynamic5QISet:

 $ref: '5gcNrm.yaml#/components/schemas/Dynamic5QISet-Multiple'

 ManagedElement-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 $ref: 'genericNrm.yaml#/components/schemas/ManagedElement-Attr'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedElement-ncO'

 - type: object

 properties:

 GnbDuFunction:

 $ref: '#/components/schemas/GnbDuFunction-Multiple'

 GnbCuUpFunction:

 $ref: '#/components/schemas/GnbCuUpFunction-Multiple'

 GnbCuCpFunction:

 $ref: '#/components/schemas/GnbCuCpFunction-Multiple'

 DESManagementFunction:

 $ref: '#/components/schemas/DESManagementFunction-Single'

 DRACHOptimizationFunction:

 $ref: '#/components/schemas/DRACHOptimizationFunction-Single'

 DMROFunction:

 $ref: '#/components/schemas/DMROFunction-Single'

 DPCIConfigurationFunction:

 $ref: '#/components/schemas/DPCIConfigurationFunction-Single'

 CPCIConfigurationFunction:

 $ref: '#/components/schemas/CPCIConfigurationFunction-Single'

 CESManagementFunction:

 $ref: '#/components/schemas/CESManagementFunction-Single'

 Configurable5QISet:

 $ref: '5gcNrm.yaml#/components/schemas/Configurable5QISet-Multiple'

 Dynamic5QISet:

 $ref: '5gcNrm.yaml#/components/schemas/Dynamic5QISet-Multiple'

 GnbDuFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 gnbDuId:

 $ref: '#/components/schemas/GnbDuId'

 gnbDuName:

 $ref: '#/components/schemas/GnbName'

 gnbId:

 $ref: '#/components/schemas/GnbId'

 gnbIdLength:

 $ref: '#/components/schemas/GnbIdLength'

 rimRSReportConf:

 $ref: '#/components/schemas/RimRSReportConf'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 RRMPolicyRatio:

 $ref: '#/components/schemas/RRMPolicyRatio-Multiple'

 NrCellDu:

 $ref: '#/components/schemas/NrCellDu-Multiple'

 Bwp-Multiple:

 $ref: '#/components/schemas/Bwp-Multiple'

 NrSectorCarrier-Multiple:

 $ref: '#/components/schemas/NrSectorCarrier-Multiple'

 EP\_F1C:

 $ref: '#/components/schemas/EP\_F1C-Single'

 EP\_F1U:

 $ref: '#/components/schemas/EP\_F1U-Multiple'

 DRACHOptimizationFunction:

 $ref: '#/components/schemas/DRACHOptimizationFunction-Single'

 GnbCuUpFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 gnbId:

 $ref: '#/components/schemas/GnbId'

 gnbIdLength:

 $ref: '#/components/schemas/GnbIdLength'

 gnbCuUpId:

 $ref: '#/components/schemas/GnbCuUpId'

 plmnInfoList:

 $ref: '#/components/schemas/PlmnInfoList'

 configurable5QISetRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 dynamic5QISetRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 RRMPolicyRatio:

 $ref: '#/components/schemas/RRMPolicyRatio-Multiple'

 EP\_E1:

 $ref: '#/components/schemas/EP\_E1-Single'

 EP\_XnU:

 $ref: '#/components/schemas/EP\_XnU-Multiple'

 EP\_F1U:

 $ref: '#/components/schemas/EP\_F1U-Multiple'

 EP\_NgU:

 $ref: '#/components/schemas/EP\_NgU-Multiple'

 EP\_X2U:

 $ref: '#/components/schemas/EP\_X2U-Multiple'

 EP\_S1U:

 $ref: '#/components/schemas/EP\_S1U-Multiple'

 GnbCuCpFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 gnbId:

 $ref: '#/components/schemas/GnbId'

 gnbIdLength:

 $ref: '#/components/schemas/GnbIdLength'

 gnbCuName:

 $ref: '#/components/schemas/GnbName'

 plmnId:

 $ref: '#/components/schemas/PlmnId'

 x2BlockList:

 $ref: '#/components/schemas/GGnbIdList'

 xnBlockList:

 $ref: '#/components/schemas/GGnbIdList'

 x2AllowList:

 $ref: '#/components/schemas/GGnbIdList'

 xnAllowList:

 $ref: '#/components/schemas/GGnbIdList'

 x2XnHOBlockList:

 $ref: '#/components/schemas/GEnbIdList'

 mappingSetIDBackhaulAddress:

 $ref: '#/components/schemas/MappingSetIDBackhaulAddress'

 tceMappingInfoList:

 $ref: '#/components/schemas/TceMappingInfoList'

 configurable5QISetRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 dynamic5QISetRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 RRMPolicyRatio:

 $ref: '#/components/schemas/RRMPolicyRatio-Multiple'

 NrCellCu:

 $ref: '#/components/schemas/NrCellCu-Multiple'

 EP\_XnC:

 $ref: '#/components/schemas/EP\_XnC-Multiple'

 EP\_E1:

 $ref: '#/components/schemas/EP\_E1-Multiple'

 EP\_F1C:

 $ref: '#/components/schemas/EP\_F1C-Multiple'

 EP\_NgC:

 $ref: '#/components/schemas/EP\_NgC-Multiple'

 EP\_X2C:

 $ref: '#/components/schemas/EP\_X2C-Multiple'

 DANRManagementFunction:

 $ref: '#/components/schemas/DANRManagementFunction-Single'

 DESManagementFunction:

 $ref: '#/components/schemas/DESManagementFunction-Single'

 DMROFunction:

 $ref: '#/components/schemas/DMROFunction-Single'

 NrCellCu-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 cellLocalId:

 type: integer

 plmnInfoList:

 $ref: '#/components/schemas/PlmnInfoList'

 nRFrequencyRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 RRMPolicyRatio:

 $ref: '#/components/schemas/RRMPolicyRatio-Multiple'

 NRCellRelation:

 $ref: '#/components/schemas/NRCellRelation-Multiple'

 EUtranCellRelation:

 $ref: '#/components/schemas/EUtranCellRelation-Multiple'

 NRFreqRelation:

 $ref: '#/components/schemas/NRFreqRelation-Multiple'

 EUtranFreqRelation:

 $ref: '#/components/schemas/EUtranFreqRelation-Multiple'

 DESManagementFunction:

 $ref: '#/components/schemas/DESManagementFunction-Single'

 DMROFunction:

 $ref: '#/components/schemas/DMROFunction-Single'

 CESManagementFunction:

 $ref: '#/components/schemas/CESManagementFunction-Single'

 DPCIConfigurationFunction:

 $ref: '#/components/schemas/DPCIConfigurationFunction-Single'

 NrCellDu-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 administrativeState:

 $ref: 'genericNrm.yaml#/components/schemas/AdministrativeState'

 operationalState:

 $ref: 'genericNrm.yaml#/components/schemas/OperationalState'

 cellLocalId:

 type: integer

 cellState:

 $ref: '#/components/schemas/CellState'

 plmnInfoList:

 $ref: '#/components/schemas/PlmnInfoList'

 nrPci:

 $ref: '#/components/schemas/NrPci'

 nrTac:

 $ref: '#/components/schemas/NrTac'

 arfcnDL:

 type: integer

 arfcnUL:

 type: integer

 arfcnSUL:

 type: integer

 bSChannelBwDL:

 type: integer

 bSChannelBwUL:

 type: integer

 bSChannelBwSUL:

 type: integer

 ssbFrequency:

 type: integer

 minimum: 0

 maximum: 3279165

 ssbPeriodicity:

 $ref: '#/components/schemas/SsbPeriodicity'

 ssbSubCarrierSpacing:

 $ref: '#/components/schemas/SsbSubCarrierSpacing'

 ssbOffset:

 type: integer

 minimum: 0

 maximum: 159

 ssbDuration:

 $ref: '#/components/schemas/SsbDuration'

 nrSectorCarrierRef:

 type: array

 items:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 bwpRef:

 type: array

 items:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 nRFrequencyRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 victimSetRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 aggressorSetRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 RRMPolicyRatio:

 $ref: '#/components/schemas/RRMPolicyRatio-Multiple'

 CPCIConfigurationFunction:

 $ref: '#/components/schemas/CPCIConfigurationFunction-Single'

 DRACHOptimizationFunction:

 $ref: '#/components/schemas/DRACHOptimizationFunction-Single'

 NRFrequency-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 absoluteFrequencySSB:

 type: integer

 minimum: 0

 maximum: 3279165

 ssbSubCarrierSpacing:

 $ref: '#/components/schemas/SsbSubCarrierSpacing'

 multiFrequencyBandListNR:

 type: integer

 minimum: 1

 maximum: 256

 EUtranFrequency-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 earfcnDL:

 type: integer

 minimum: 0

 maximum: 262143

 multiBandInfoListEutra:

 type: integer

 minimum: 1

 maximum: 256

 NrSectorCarrier-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 txDirection:

 $ref: '#/components/schemas/TxDirection'

 configuredMaxTxPower:

 type: integer

 arfcnDL:

 type: integer

 arfcnUL:

 type: integer

 bSChannelBwDL:

 type: integer

 bSChannelBwUL:

 type: integer

 sectorEquipmentFunctionRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 CommonBeamformingFunction:

 $ref: '#/components/schemas/CommonBeamformingFunction-Single'

 Bwp-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 bwpContext:

 $ref: '#/components/schemas/BwpContext'

 isInitialBwp:

 $ref: '#/components/schemas/IsInitialBwp'

 subCarrierSpacing:

 type: integer

 cyclicPrefix:

 $ref: '#/components/schemas/CyclicPrefix'

 startRB:

 type: integer

 numberOfRBs:

 type: integer

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 CommonBeamformingFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 coverageShape:

 $ref: '#/components/schemas/CoverageShape'

 digitalAzimuth:

 $ref: '#/components/schemas/DigitalAzimuth'

 digitalTilt:

 $ref: '#/components/schemas/DigitalTilt'

 - type: object

 properties:

 Beam:

 $ref: '#/components/schemas/Beam-Multiple'

 Beam-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - type: object

 properties:

 beamIndex:

 type: integer

 beamType:

 type: string

 enum:

 - SSB-BEAM

 beamAzimuth:

 type: integer

 minimum: -1800

 maximum: 1800

 beamTilt:

 type: integer

 minimum: -900

 maximum: 900

 beamHorizWidth:

 type: integer

 minimum: 0

 maximum: 3599

 beamVertWidth:

 type: integer

 minimum: 0

 maximum: 1800

 RRMPolicyRatio-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: '#/components/schemas/RrmPolicy\_-Attr'

 - type: object

 properties:

 rRMPolicyMaxRatio:

 type: integer

 rRMPolicyMinRatio:

 type: integer

 rRMPolicyDedicatedRatio:

 type: integer

 NRCellRelation-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 nRTCI:

 type: integer

 cellIndividualOffset:

 $ref: '#/components/schemas/CellIndividualOffset'

 adjacentNRCellRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 nRFrequencyRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 isRemoveAllowed:

 type: boolean

 isHOAllowed:

 type: boolean

 isESCoveredBy:

 $ref: '#/components/schemas/IsESCoveredBy'

 isENDCAllowed:

 type: boolean

 isMLBAllowed:

 type: boolean

 EUtranCellRelation-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 adjacentEUtranCellRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 NRFreqRelation-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 offsetMO:

 $ref: '#/components/schemas/QOffsetRangeList'

 blockListEntry:

 type: array

 items:

 type: integer

 minimum: 0

 maximum: 1007

 blockListEntryIdleMode:

 type: integer

 cellReselectionPriority:

 type: integer

 cellReselectionSubPriority:

 type: number

 minimum: 0.2

 maximum: 0.8

 multipleOf: 0.2

 pMax:

 type: integer

 minimum: -30

 maximum: 33

 qOffsetFreq:

 $ref: '#/components/schemas/QOffsetFreq'

 qQualMin:

 type: number

 qRxLevMin:

 type: integer

 minimum: -140

 maximum: -44

 threshXHighP:

 type: integer

 minimum: 0

 maximum: 62

 threshXHighQ:

 type: integer

 minimum: 0

 maximum: 31

 threshXLowP:

 type: integer

 minimum: 0

 maximum: 62

 threshXLowQ:

 type: integer

 minimum: 0

 maximum: 31

 tReselectionNr:

 type: integer

 minimum: 0

 maximum: 7

 tReselectionNRSfHigh:

 $ref: '#/components/schemas/TReselectionNRSf'

 tReselectionNRSfMedium:

 $ref: '#/components/schemas/TReselectionNRSf'

 nRFrequencyRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 EUtranFreqRelation-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 cellIndividualOffset:

 $ref: '#/components/schemas/CellIndividualOffset'

 blockListEntry:

 type: array

 items:

 type: integer

 minimum: 0

 maximum: 1007

 blockListEntryIdleMode:

 type: integer

 cellReselectionPriority:

 type: integer

 cellReselectionSubPriority:

 type: number

 minimum: 0.2

 maximum: 0.8

 multipleOf: 0.2

 pMax:

 type: integer

 minimum: -30

 maximum: 33

 qOffsetFreq:

 $ref: '#/components/schemas/QOffsetFreq'

 qQualMin:

 type: number

 qRxLevMin:

 type: integer

 minimum: -140

 maximum: -44

 threshXHighP:

 type: integer

 minimum: 0

 maximum: 62

 threshXHighQ:

 type: integer

 minimum: 0

 maximum: 31

 threshXLowP:

 type: integer

 minimum: 0

 maximum: 62

 threshXLowQ:

 type: integer

 minimum: 0

 maximum: 31

 tReselectionEutran:

 type: integer

 minimum: 0

 maximum: 7

 tReselectionNRSfHigh:

 $ref: '#/components/schemas/TReselectionNRSf'

 tReselectionNRSfMedium:

 $ref: '#/components/schemas/TReselectionNRSf'

 eUTranFrequencyRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 DANRManagementFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 intrasystemANRManagementSwitch:

 type: boolean

 intersystemANRManagementSwitch:

 type: boolean

 DESManagementFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 desSwitch:

 type: boolean

 intraRatEsActivationOriginalCellLoadParameters:

 $ref: "#/components/schemas/IntraRatEsActivationOriginalCellLoadParameters"

 intraRatEsActivationCandidateCellsLoadParameters:

 $ref: "#/components/schemas/IntraRatEsActivationCandidateCellsLoadParameters"

 intraRatEsDeactivationCandidateCellsLoadParameters:

 $ref: "#/components/schemas/IntraRatEsDeactivationCandidateCellsLoadParameters"

 esNotAllowedTimePeriod:

 $ref: "#/components/schemas/EsNotAllowedTimePeriod"

 interRatEsActivationOriginalCellParameters:

 $ref: "#/components/schemas/IntraRatEsActivationOriginalCellLoadParameters"

 interRatEsActivationCandidateCellParameters:

 $ref: "#/components/schemas/IntraRatEsActivationOriginalCellLoadParameters"

 interRatEsDeactivationCandidateCellParameters:

 $ref: "#/components/schemas/IntraRatEsActivationOriginalCellLoadParameters"

 isProbingCapable:

 type: string

 enum:

 - yes

 - no

 energySavingState:

 type: string

 enum:

 - isNotEnergySaving

 - isEnergySaving

 DRACHOptimizationFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 drachOptimizationControl:

 type: boolean

 ueAccProbilityDist:

 $ref: "#/components/schemas/UeAccProbilityDist"

 ueAccDelayProbilityDist:

 $ref: "#/components/schemas/UeAccDelayProbilityDist"

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 DMROFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 dmroControl:

 type: boolean

 maximumDeviationHoTrigger:

 $ref: '#/components/schemas/MaximumDeviationHoTrigger'

 minimumTimeBetweenHoTriggerChange:

 $ref: '#/components/schemas/MinimumTimeBetweenHoTriggerChange'

 tstoreUEcntxt:

 $ref: '#/components/schemas/TstoreUEcntxt'

 DPCIConfigurationFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 dPciConfigurationControl:

 type: boolean

 nRPciList:

 $ref: "#/components/schemas/NRPciList"

 CPCIConfigurationFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 cPciConfigurationControl:

 type: boolean

 cSonPciList:

 $ref: "#/components/schemas/CSonPciList"

 CESManagementFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 cesSwitch:

 type: boolean

 energySavingControl:

 type: string

 enum:

 - toBeEnergySaving

 - toBeNotEnergySaving

 energySavingState:

 type: string

 enum:

 - isNotEnergySaving

 - isEnergySaving

 RimRSGlobal-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 frequencyDomainPara:

 $ref: '#/components/schemas/FrequencyDomainPara'

 sequenceDomainPara:

 $ref: '#/components/schemas/SequenceDomainPara'

 timeDomainPara:

 $ref: '#/components/schemas/TimeDomainPara'

 RimRSSet:

 $ref: '#/components/schemas/RimRSSet-Multiple'

 RimRSSet-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 type: object

 properties:

 setId:

 $ref: '#/components/schemas/RSSetId'

 setType:

 $ref: '#/components/schemas/RSSetType'

 rimRSMonitoringStartTime:

 type: string

 rimRSMonitoringStopTime:

 type: string

 rimRSMonitoringWindowDuration:

 type: integer

 rimRSMonitoringWindowStartingOffset:

 type: integer

 rimRSMonitoringWindowPeriodicity:

 type: integer

 rimRSMonitoringOccasionInterval:

 type: integer

 rimRSMonitoringOccasionStartingOffset:

 type: integer

 nRCellDURefs:

 $ref: 'genericNrm.yaml#/components/schemas/DnList'

 ExternalGnbDuFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 gnbId:

 $ref: '#/components/schemas/GnbId'

 gnbIdLength:

 $ref: '#/components/schemas/GnbIdLength'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_F1C:

 $ref: '#/components/schemas/EP\_F1C-Multiple'

 EP\_F1U:

 $ref: '#/components/schemas/EP\_F1U-Multiple'

 ExternalGnbCuUpFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 gnbId:

 $ref: '#/components/schemas/GnbId'

 gnbIdLength:

 $ref: '#/components/schemas/GnbIdLength'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 EP\_E1:

 $ref: '#/components/schemas/EP\_E1-Multiple'

 EP\_F1U:

 $ref: '#/components/schemas/EP\_F1U-Multiple'

 EP\_XnU:

 $ref: '#/components/schemas/EP\_XnU-Multiple'

 ExternalGnbCuCpFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: >-

 genericNrm.yaml#/components/schemas/ManagedFunction-Attr

 - type: object

 properties:

 gnbId:

 $ref: '#/components/schemas/GnbId'

 gnbIdLength:

 $ref: '#/components/schemas/GnbIdLength'

 plmnId:

 $ref: '#/components/schemas/PlmnId'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 ExternalNrCellCu:

 $ref: '#/components/schemas/ExternalNrCellCu-Multiple'

 EP\_XnC:

 $ref: '#/components/schemas/EP\_XnC-Multiple'

 EP\_E1:

 $ref: '#/components/schemas/EP\_E1-Multiple'

 EP\_F1C:

 $ref: '#/components/schemas/EP\_F1C-Multiple'

 ExternalNrCellCu-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 cellLocalId:

 type: integer

 nrPci:

 $ref: '#/components/schemas/NrPci'

 plmnIdList:

 $ref: '#/components/schemas/PlmnIdList'

 nRFrequencyRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 ExternalENBFunction-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 eNBId:

 type: integer

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 - type: object

 properties:

 ExternalEUTranCell:

 $ref: '#/components/schemas/ExternalEUTranCell-Multiple'

 ExternalEUTranCell-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-Attr'

 - type: object

 properties:

 EUtranFrequencyRef:

 $ref: 'genericNrm.yaml#/components/schemas/Dn'

 - $ref: 'genericNrm.yaml#/components/schemas/ManagedFunction-ncO'

 EP\_XnC-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

 EP\_E1-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

 EP\_F1C-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

 EP\_NgC-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

 EP\_X2C-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

 EP\_XnU-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

 EP\_F1U-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

 EP\_NgU-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

 epTransportRefs:

 $ref: 'genericNrm.yaml#/components/schemas/DnList'

 EP\_X2U-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

 EP\_S1U-Single:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/Top-Attr'

 - type: object

 properties:

 attributes:

 allOf:

 - $ref: 'genericNrm.yaml#/components/schemas/EP\_RP-Attr'

 - type: object

 properties:

 localAddress:

 $ref: '#/components/schemas/LocalAddress'

 remoteAddress:

 $ref: '#/components/schemas/RemoteAddress'

#-------- Definition of JSON arrays for name-contained IOCs ----------------------

 SubNetwork-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/SubNetwork-Single'

 ManagedElement-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ManagedElement-Single'

 GnbDuFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/GnbDuFunction-Single'

 GnbCuUpFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/GnbCuUpFunction-Single'

 GnbCuCpFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/GnbCuCpFunction-Single'

 NrCellDu-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NrCellDu-Single'

 NrCellCu-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NrCellCu-Single'

 NRFrequency-Multiple:

 type: array

 minItems: 1

 items:

 $ref: '#/components/schemas/NRFrequency-Single'

 EUtranFrequency-Multiple:

 type: array

 minItems: 1

 items:

 $ref: '#/components/schemas/EUtranFrequency-Single'

 NrSectorCarrier-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NrSectorCarrier-Single'

 Bwp-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/Bwp-Single'

 Beam-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/Beam-Single'

 RRMPolicyRatio-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/RRMPolicyRatio-Single'

 NRCellRelation-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NRCellRelation-Single'

 EUtranCellRelation-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EUtranCellRelation-Single'

 NRFreqRelation-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/NRFreqRelation-Single'

 EUtranFreqRelation-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EUtranFreqRelation-Single'

 RimRSSet-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/RimRSSet-Single'

 ExternalGnbDuFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalGnbDuFunction-Single'

 ExternalGnbCuUpFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalGnbCuUpFunction-Single'

 ExternalGnbCuCpFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalGnbCuCpFunction-Single'

 ExternalNrCellCu-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalNrCellCu-Single'

 ExternalENBFunction-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalENBFunction-Single'

 ExternalEUTranCell-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/ExternalEUTranCell-Single'

 EP\_E1-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_E1-Single'

 EP\_XnC-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_XnC-Single'

 EP\_F1C-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_F1C-Single'

 EP\_NgC-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_NgC-Single'

 EP\_X2C-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_X2C-Single'

 EP\_XnU-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_XnU-Single'

 EP\_F1U-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_F1U-Single'

 EP\_NgU-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_NgU-Single'

 EP\_X2U-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_X2U-Single'

 EP\_S1U-Multiple:

 type: array

 items:

 $ref: '#/components/schemas/EP\_S1U-Single'

#-------- Definitions in TS 28.541 for TS 28.532 ---------------------------------

 resources-nrNrm:

 oneOf:

 - $ref: '#/components/schemas/SubNetwork-Single'

 - $ref: '#/components/schemas/ManagedElement-Single'

 - $ref: '#/components/schemas/GnbDuFunction-Single'

 - $ref: '#/components/schemas/GnbCuUpFunction-Single'

 - $ref: '#/components/schemas/GnbCuCpFunction-Single'

 - $ref: '#/components/schemas/NrCellCu-Single'

 - $ref: '#/components/schemas/NrCellDu-Single'

 - $ref: '#/components/schemas/NRFrequency-Single'

 - $ref: '#/components/schemas/EUtranFrequency-Single'

 - $ref: '#/components/schemas/NrSectorCarrier-Single'

 - $ref: '#/components/schemas/Bwp-Single'

 - $ref: '#/components/schemas/CommonBeamformingFunction-Single'

 - $ref: '#/components/schemas/Beam-Single'

 - $ref: '#/components/schemas/RRMPolicyRatio-Single'

 - $ref: '#/components/schemas/NRCellRelation-Single'

 - $ref: '#/components/schemas/EUtranCellRelation-Single'

 - $ref: '#/components/schemas/NRFreqRelation-Single'

 - $ref: '#/components/schemas/EUtranFreqRelation-Single'

 - $ref: '#/components/schemas/DANRManagementFunction-Single'

 - $ref: '#/components/schemas/DESManagementFunction-Single'

 - $ref: '#/components/schemas/DRACHOptimizationFunction-Single'

 - $ref: '#/components/schemas/DMROFunction-Single'

 - $ref: '#/components/schemas/DPCIConfigurationFunction-Single'

 - $ref: '#/components/schemas/CPCIConfigurationFunction-Single'

 - $ref: '#/components/schemas/CESManagementFunction-Single'

 - $ref: '#/components/schemas/RimRSGlobal-Single'

 - $ref: '#/components/schemas/RimRSSet-Single'

 - $ref: '#/components/schemas/ExternalGnbDuFunction-Single'

 - $ref: '#/components/schemas/ExternalGnbCuUpFunction-Single'

 - $ref: '#/components/schemas/ExternalGnbCuCpFunction-Single'

 - $ref: '#/components/schemas/ExternalNrCellCu-Single'

 - $ref: '#/components/schemas/ExternalENBFunction-Single'

 - $ref: '#/components/schemas/ExternalEUTranCell-Single'

 - $ref: '#/components/schemas/EP\_XnC-Single'

 - $ref: '#/components/schemas/EP\_E1-Single'

 - $ref: '#/components/schemas/EP\_F1C-Single'

 - $ref: '#/components/schemas/EP\_NgC-Single'

 - $ref: '#/components/schemas/EP\_X2C-Single'

 - $ref: '#/components/schemas/EP\_XnU-Single'

 - $ref: '#/components/schemas/EP\_F1U-Single'

 - $ref: '#/components/schemas/EP\_NgU-Single'

 - $ref: '#/components/schemas/EP\_X2U-Single'

|  |
| --- |
| **End of modification** |

|  |
| --- |
| **Start of 5th modification** |

## E.5.5 module \_3gpp-nr-nrm-eutranfreqrelation@2019-10-28.yang

module \_3gpp-nr-nrm-eutranfreqrelation {

 yang-version 1.1;

 namespace "urn:3gpp:sa5:\_3gpp-nr-nrm-eutranfreqrelation";

 prefix "eutranfreqrel3gpp";

 import \_3gpp-common-yang-types { prefix types3gpp; }

 import \_3gpp-common-managed-function { prefix mf3gpp; }

 import \_3gpp-common-managed-element { prefix me3gpp; }

 import \_3gpp-common-top { prefix top3gpp; }

 import \_3gpp-nr-nrm-gnbcucpfunction { prefix gnbcucp3gpp; }

 import \_3gpp-nr-nrm-nrcellcu { prefix nrcellcu3gpp; }

 organization "3GPP SA5";

 description "Defines the YANG mapping of the EUtranFreqRelation Information

 Object Class (IOC) that is part of the NR Network Resource Model (NRM).";

 reference "3GPP TS 28.541 5G Network Resource Model (NRM)";

 revision 2019-10-28 { reference S5-193518 ; }

 revision 2019-06-17 {

 description "Initial revision";

 }

 grouping EUtranFreqRelationGrp {

 description "Represents the EUtranFreqRelation IOC.";

 reference "3GPP TS 28.541";

 uses mf3gpp:ManagedFunctionGrp;

 leaf cellIndividualOffset {

 description "Offset applicable to a neighbouring cell. Used for

 evaluating the neighbouring cell for handover in connected mode.

 Used by the HandOver parameter Optimization (HOO) function or

 Load Balancing Optimization (LBO) function.";

 reference "cellIndividualOffset in MeasObjectEUTRA in 3GPP TS 38.331";

 default 0;

 type types3gpp:QOffsetRange;

 }

 leaf-list blockListEntry {

 description "A list of Physical Cell Identities (PCIs) that are

 blocklisted in E-UTRAN measurements.";

 reference "3GPP TS 38.331";

 min-elements 0;

 type uint16 { range "0..1007"; }

 }

 leaf-list blockListEntryIdleMode {

 description "A list of Physical Cell Identities (PCIs) that are

 blocklisted in SIB4 and SIB5.";

 min-elements 0;

 type uint16 { range "0..1007"; }

 }

 leaf cellReselectionPriority {

 description "The absolute priority of the carrier frequency used by the

 cell reselection procedure. Value 0 means lowest priority. The value

 must not already used by other RAT, i.e. equal priorities between RATs

 are not supported. The UE behaviour when no value is entered is

 specified in subclause 5.2.4.1 of 3GPP TS 38.304.";

 reference "CellReselectionPriority in 3GPP TS 38.331, priority in

 3GPP TS 38.304";

 mandatory true;

 type int32 { range "0..7"; }

 }

 leaf cellReselectionSubPriority {

 description "Indicates a fractional value to be added to the value of

 cellReselectionPriority to obtain the absolute priority of the

 concerned carrier frequency for E-UTRA and NR.";

 reference "3GPP TS 38.331";

 type uint8 { range "2 | 4 | 6 | 8"; }

 units "0.1";

 }

 leaf pMax {

 description "Used for calculation of the parameter Pcompensation

 (defined in 3GPP TS 38.304), at cell reselection to a cell.";

 reference "PEMAX in 3GPP TS 38.101-1";

 mandatory true;

 type int32 { range "-30..33"; }

 units dBm;

 }

 leaf qOffsetFreq {

 description "The frequency specific offset applied when evaluating

 candidates for cell reselection.";

 type int32;

 default 0;

 }

 leaf qQualMin {

 description "Indicates the minimum required quality level in the cell.

 Value 0 means that it is not sent and UE applies in such case the

 (default) value of negative infinity for Qqualmin. Sent in SIB3 or

 SIB5.";

 reference "qQualMin in TS 38.304";

 mandatory true;

 type int32 { range "-34..-3 | 0"; }

 units dB;

 }

 leaf qRxLevMin {

 description "Indicates the required minimum received Reference Symbol

 Received Power (RSRP) level in the (E-UTRA) frequency for cell

 reselection. Broadcast in SIB3 or SIB5, depending on whether the

 related frequency is intra- or inter-frequency. Resolution is 2.";

 reference "Qrxlevmin in 3GPP TS 38.304";

 mandatory true;

 type int32 { range "-140..-44"; }

 units dBm;

 }

 leaf threshXHighP {

 description "Specifies the Srxlev threshold used by the UE when

 reselecting towards a higher priority RAT/frequency than the current

 serving frequency. Each frequency of NR and E-UTRAN might have a

 specific threshold. Resolution is 2.";

 reference "ThreshX, HighP in 3GPP TS 38.304";

 mandatory true;

 type int32 { range "0..62"; }

 units dB;

 }

 leaf threshXHighQ {

 description "Specifies the Squal threshold used by the UE when

 reselecting towards a higher priority RAT/frequency than the current

 serving frequency. Each frequency of NR and E-UTRAN might have a

 specific threshold.";

 reference "ThreshX, HighQ in 3GPP TS 38.304";

 mandatory true;

 type int32 { range 0..31; }

 units dB;

 }

 leaf threshXLowP {

 description "Specifies the Srxlev threshold used by the UE when

 reselecting towards a lower priority RAT/frequency than the current

 serving frequency. Each frequency of NR and E-UTRAN might have a

 specific threshold. Resolution is 2.";

 reference "ThreshX, LowP in 3GPP TS 38.304";

 mandatory true;

 type int32 { range "0..62"; }

 units dB;

 }

 leaf threshXLowQ {

 description "Specifies the Squal threshold used by the UE when

 reselecting towards a lower priority RAT/frequency than the current

 serving frequency. Each frequency of NR and E-UTRAN might have a

 specific threshold.";

 reference "ThreshX, LowQ in 3GPP TS 38.304";

 mandatory false;

 type int32 { range "0..31"; }

 units dB;

 }

 leaf tReselectionEutra {

 description "Cell reselection timer for intra frequency E-UTRA cell

 reselection. May be used for Mobility Robustness Optimization.";

 reference "t-ReselectionEUTRA in 3GPP TS 36.331 and in 3GPP TS 23.207";

 mandatory true;

 type uint8 { range "0..7"; }

 units s;

 }

 leaf tReselectionEutraSfHigh {

 description "The attribute tReselectionEutra (parameter TreselectionEUTRA

 in 3GPP TS 38.304) multiplied with this scaling factor if the UE is in

 high mobility state.";

 reference "Speed dependent ScalingFactor for TreselectionEUTRA for high

 mobility state in 3GPP TS 38.304";

 mandatory true;

 type uint8 { range "25 | 50 | 75 | 100"; }

 units %;

 }

 leaf tReselectionEutraSfMedium {

 description "The attribute tReselectionEutra (parameter TreselectionEUTRA

 in 3GPP TS 38.304) multiplied with this scaling factor if the UE is in

 medium mobility state.";

 reference "Speed dependent ScalingFactor for TreselectionEUTRA for medium

 mobility state in 3GPP TS 38.304";

 mandatory true;

 type uint8 { range "25 | 50 | 75 | 100"; }

 units %;

 }

 leaf eUtranFrequencyRef {

 description "Reference to a corresponding EUtranFrequency instance.";

 mandatory true;

 type types3gpp:DistinguishedName;

 }

 }

 augment /me3gpp:ManagedElement/gnbcucp3gpp:GNBCUCPFunction/nrcellcu3gpp:NRCellCU {

 list EUtranFreqRelation {

 description "Represents a frequency relation between an NR cell and an

 E-UTRAN cell.";

 reference "3GPP TS 28.541";

 key id;

 uses top3gpp:Top\_Grp;

 container attributes {

 uses EUtranFreqRelationGrp;

 }

 uses mf3gpp:ManagedFunctionContainedClasses;

 }

 }

}

|  |
| --- |
| **End of modification** |

|  |
| --- |
| **Start of 6th modification** |

## E.5.16 module \_3gpp-nr-nrm-gnbcucpfunction.yang

module \_3gpp-nr-nrm-gnbcucpfunction {

 yang-version 1.1;

 namespace "urn:3gpp:sa5:\_3gpp-nr-nrm-gnbcucpfunction";

 prefix "gnbcucp3gpp";

 import \_3gpp-common-yang-types { prefix types3gpp; }

 import \_3gpp-common-managed-function { prefix mf3gpp; }

 import \_3gpp-common-managed-element { prefix me3gpp; }

 import \_3gpp-common-top { prefix top3gpp; }

 import \_3gpp-nr-nrm-rrmpolicy { prefix nrrrmpolicy3gpp; }

 organization "3GPP SA5";

 contact "https://www.3gpp.org/DynaReport/TSG-WG--S5--officials.htm?Itemid=464";

 description "Defines the YANG mapping of the GNBCUCPFunction Information

 Object Class (IOC) that is part of the NR Network Resource Model (NRM).";

 reference "3GPP TS 28.541 5G Network Resource Model (NRM)";

 revision 2020-10-02 { reference CR-0384 ; }

 revision 2020-08-06 { reference "CR-0333"; }

 revision 2020-08-03 { reference "CR-0321"; }

 revision 2020-06-03 { reference "CR-0286"; }

 revision 2020-05-08 { reference S5-203316 ; }

 revision 2020-04-28 { reference "0260"; }

 revision 2020-02-14 { reference S5-20XXXX ; }

 revision 2019-10-28 { reference S5-193518 ; }

 revision 2019-06-17 {

 description "Initial revision";

 }

 feature DESManagementFunction {

 description "Classs representing Distributed SON or Domain-Centralized SON Energy Saving feature";

 }

 feature DANRManagementFunction {

 description "Classs representing D-SON function of ANR Management feature";

 }

 feature DMROFunction {

 description "Classs representing D-SON function of MRO feature";

 }

 grouping GNBCUCPFunctionGrp {

 description "Represents the GNBCUCPFunction IOC.";

 reference "3GPP TS 28.541";

 uses mf3gpp:ManagedFunctionGrp;

 uses nrrrmpolicy3gpp:RRMPolicy\_Grp;

 leaf gNBId {

 description "Identifies a gNB within a PLMN. The gNB Identifier (gNB ID)

 is part of the NR Cell Identifier (NCI) of the gNB cells.";

 reference "gNB ID in 3GPP TS 38.300, Global gNB ID in 3GPP TS 38.413";

 mandatory true;

 type int64 { range "0..4294967295"; }

 }

 leaf gNBIdLength {

 description "Indicates the number of bits for encoding the gNB ID.";

 reference "gNB ID in 3GPP TS 38.300, Global gNB ID in 3GPP TS 38.413";

 mandatory true;

 type int32 { range "22..32"; }

 }

 leaf gNBCUName {

 description "Identifies the Central Unit of an gNB.";

 reference "3GPP TS 38.473";

 mandatory true;

 type string { length "1..150"; }

 }

 list pLMNId {

 description "The PLMN identifier to be used as part of the global RAN

 node identity.";

 key "mcc mnc";

 min-elements 1;

 max-elements 1;

 uses types3gpp:PLMNId;

 }

 leaf-list x2BlockList {

 type string;

 description "List of nodes to which X2 connections are prohibited.";

 }

 leaf-list x2AllowList {

 type string;

 description "List of nodes to which X2 connections are enforced.";

 }

 leaf-list xnBlockList {

 type string;

 description "List of nodes to which Xn connections are prohibited.";

 }

 leaf-list xnAllowList {

 type string;

 description "List of nodes to which X2 connections are enforced.";

 }

 leaf-list xnHOBlockList {

 type string;

 description "List of nodes to which handovers over Xn are prohibited.";

 }

 leaf configurable5QISetRef {

 type types3gpp:DistinguishedName;

 description "DN of the Configurable5QISet that the GNBCUCPFunction supports (is associated to).";

 }

 leaf-list x2HOBlockList {

 type string;

 description "List of nodes to which handovers over X2 are prohibited.";

 }

 leaf dynamic5QISetRef {

 type types3gpp:DistinguishedName;

 description "DN of the Dynamic5QISet that the GNBCUCPFunction supports (is associated to).";

 }

 }

 augment "/me3gpp:ManagedElement" {

 list GNBCUCPFunction {

 description "Represents the logical function CU-CP of gNB and en-gNB.";

 reference "3GPP TS 28.541";

 key id;

 uses top3gpp:Top\_Grp;

 container attributes {

 uses GNBCUCPFunctionGrp;

 }

 uses mf3gpp:ManagedFunctionContainedClasses;

 }

 }

}

|  |
| --- |
| **End of modification** |

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| --- |
| **Start of 7th modification** |

## E.5.22 module \_3gpp-nr-nrm-nrfreqrelation@2019-10-28.yang

module \_3gpp-nr-nrm-nrfreqrelation {

 yang-version 1.1;

 namespace "urn:3gpp:sa5:\_3gpp-nr-nrm-nrfreqrelation";

 prefix "nrfreqrel3gpp";

 import \_3gpp-common-yang-types { prefix types3gpp; }

 import \_3gpp-common-managed-function { prefix mf3gpp; }

 import \_3gpp-common-managed-element { prefix me3gpp; }

 import \_3gpp-common-top { prefix top3gpp; }

 import \_3gpp-nr-nrm-gnbcucpfunction { prefix gnbcucp3gpp; }

 import \_3gpp-nr-nrm-nrcellcu { prefix nrcellcu3gpp; }

 organization "3GPP SA5";

 description "Defines the YANG mapping of the NRFreqRelation Information

 Object Class (IOC) that is part of the NR Network Resource Model (NRM).";

 reference "3GPP TS 28.541 5G Network Resource Model (NRM)";

 revision 2020-04-23 { reference CR0281 ; }

 revision 2019-10-28 { reference S5-193518 ; }

 revision 2019-06-17 {

 description "Initial revision";

 }

 grouping NRFreqRelationGrp {

 description "Represents the NRFreqRelation IOC.";

 reference "3GPP TS 28.541";

 container offsetMO {

 description "A set of offset values applicable to all measured cells

 with reference signal(s) indicated in corresponding MeasObjectNR. It

 is used to indicate a cell, beam or measurement object specific offset

 to be applied when evaluating candidates for cell re-selection or when

 evaluating triggering conditions for measurement reporting. It is

 defined for rsrpOffsetSSB, rsrqOffsetSSB, sinrOffsetSSB,

 rsrpOffsetCSI-RS, rsrqOffsetCSI-RS and sinrOffsetCSI-RS.";

 reference "offsetMO in MeasObjectNR in 3GPP TS 38.331";

 leaf rsrpOffsetSsb {

 description "Offset value of rsrpOffsetSSB.";

 default 0;

 type types3gpp:QOffsetRange;

 }

 leaf rsrqOffsetSsb {

 description "Offset value of rsrqOffsetSSB.";

 default 0;

 type types3gpp:QOffsetRange;

 }

 leaf sinrOffsetSsb {

 description "Offset value of sinrOffsetSSB.";

 default 0;

 type types3gpp:QOffsetRange;

 }

 leaf rsrpOffsetCsiRs {

 description "Offset value of rsrpOffsetCSI-RS.";

 default 0;

 type types3gpp:QOffsetRange;

 }

 leaf rsrqOffsetCsiRs {

 description "Offset value of rsrqOffsetCSI-RS.";

 default 0;

 type types3gpp:QOffsetRange;

 }

 leaf sinrOffsetCsiRs {

 description "Offset value of sinrOffsetCSI-RS.";

 default 0;

 type types3gpp:QOffsetRange;

 }

 }

 leaf-list blockListEntry {

 description "A list of Physical Cell Identities (PCIs) that are

 blocklisted in NR measurements.";

 reference "3GPP TS 38.331";

 min-elements 0;

 type uint16 { range "0..1007"; }

 }

 leaf-list blockListEntryIdleMode {

 description "A list of Physical Cell Identities (PCIs) that are

 blocklisted in SIB4 and SIB5.";

 min-elements 0;

 type uint16 { range "0..1007"; }

 }

 leaf cellReselectionPriority {

 description "The absolute priority of the carrier frequency used by the

 cell reselection procedure. Value 0 means lowest priority. The value

 must not already used by other RAT, i.e. equal priorities between RATs

 are not supported. The UE behaviour when no value is entered is

 specified in subclause 5.2.4.1 of 3GPP TS 38.304.";

 reference "CellReselectionPriority in 3GPP TS 38.331, priority in

 3GPP TS 38.304";

 type uint32;

 default 0;

 }

 leaf cellReselectionSubPriority {

 description "Indicates a fractional value to be added to the value of

 cellReselectionPriority to obtain the absolute priority of the

 concerned carrier frequency for E-UTRA and NR.";

 reference "3GPP TS 38.331";

 type uint8 { range "2 | 4 | 6 | 8"; }

 units "0.1";

 }

 leaf pMax {

 description "Used for calculation of the parameter Pcompensation

 (defined in 3GPP TS 38.304), at cell reselection to a cell.";

 reference "PEMAX in 3GPP TS 38.101-1";

 mandatory false;

 type int32 { range "-30..33"; }

 units dBm;

 }

 leaf qOffsetFreq {

 description "The frequency specific offset applied when evaluating

 candidates for cell reselection.";

 mandatory false;

 type types3gpp:QOffsetRange;

 default 0;

 }

 leaf qQualMin {

 description "Indicates the minimum required quality level in the cell.

 Value 0 means that it is not sent and UE applies in such case the

 (default) value of negative infinity for Qqualmin. Sent in SIB3 or

 SIB5.";

 reference "3GPP TS 38.304";

 type int32 { range "-34..-3 | 0"; }

 units dB;

 default 0;

 }

 leaf qRxLevMin {

 description "Indicates the required minimum received Reference Symbol

 Received Power (RSRP) level in the NR frequency for cell reselection.

 Broadcast in SIB3 or SIB5, depending on whether the related frequency

 is intra- or inter-frequency. Resolution is 2.";

 reference "3GPP TS 38.304";

 mandatory true;

 type int32 { range "-140..-44"; }

 units dBm;

 }

 leaf threshXHighP {

 description "Specifies the Srxlev threshold used by the UE when

 reselecting towards a higher priority RAT/frequency than the current

 serving frequency. Each frequency of NR and E-UTRAN might have a

 specific threshold. Resolution is 2.";

 reference "ThreshX, HighP in 3GPP TS 38.304";

 mandatory true;

 type int32 { range "0..62"; }

 units dB;

 }

 leaf threshXHighQ {

 description "Specifies the Squal threshold used by the UE when

 reselecting towards a higher priority RAT/frequency than the current

 serving frequency. Each frequency of NR and E-UTRAN might have a

 specific threshold.";

 reference "ThreshX, HighQ in 3GPP TS 38.304";

 mandatory true;

 type int32 { range "0..31"; }

 units dB;

 }

 leaf threshXLowP {

 description "Specifies the Srxlev threshold used by the UE when

 reselecting towards a lower priority RAT/frequency than the current

 serving frequency. Each frequency of NR and E-UTRAN might have a

 specific threshold. Resolution is 2.";

 reference "ThreshX, LowP in 3GPP TS 38.304";

 mandatory true;

 type int32 { range "0..62"; }

 units dB;

 }

 leaf threshXLowQ {

 description "Specifies the Squal threshold used by the UE when

 reselecting towards a lower priority RAT/frequency than the current

 serving frequency. Each frequency of NR and E-UTRAN might have a

 specific threshold.";

 reference "ThreshX, LowQ in 3GPP TS 38.304";

 mandatory true;

 type int32 { range "0..31"; }

 units dB;

 }

 leaf tReselectionNR {

 description "Cell reselection timer for NR.";

 reference "TreselectionRAT for NR in 3GPP TS 38.331";

 mandatory true;

 type int32 { range "0..7"; }

 units s;

 }

 leaf tReselectionNRSfHigh {

 description "The attribute tReselectionNr (parameter TreselectionNR in

 3GPP TS 38.304) is multiplied with this scaling factor if the UE is

 in high mobility state.";

 reference "Speed dependent ScalingFactor for TreselectionNR for high

 mobility state in 3GPP TS 38.304";

 mandatory true;

 type uint8 { range "25 | 50 | 75 | 100"; }

 units %;

 }

 leaf tReselectionNRSfMedium {

 description "The attribute tReselectionNr (parameter TreselectionNR in

 3GPP TS 38.304) multiplied with this scaling factor if the UE is in

 medium mobility state.";

 reference "Speed dependent ScalingFactor for TreselectionNR for medium

 mobility state in 3GPP TS 38.304";

 mandatory true;

 type uint8 { range "25 | 50 | 75 | 100"; }

 units %;

 }

 leaf nRFrequencyRef {

 description "Reference to a corresponding NRFrequency instance.";

 mandatory true;

 type types3gpp:DistinguishedName;

 }

 }

 augment /me3gpp:ManagedElement/gnbcucp3gpp:GNBCUCPFunction/nrcellcu3gpp:NRCellCU {

 list NRFreqRelation {

 description "Together with the target NRFrequency, it represents the

 frequency properties applicable to the referencing NRFreqRelation.";

 reference "3GPP TS 28.541";

 key id;

 uses top3gpp:Top\_Grp;

 container attributes {

 uses NRFreqRelationGrp;

 }

 uses mf3gpp:ManagedFunctionContainedClasses;

 }

 }

}

|  |
| --- |
| **End of modification** |