**3GPP TSG-SA5 Meeting #130eS5-203259**

**e-meeting, 25 May – 3 June 2020**

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| *CR-Form-v11.4* |
| **CHANGE REQUEST** |
|  |
|  | **28.541** | **CR** | **0310** | **rev** | **-** | **Current version:** | **16.4.1** |  |
|  |
| *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:***  | Add RIM RS attributes stage 2 |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, China Mobile |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** | eNRM |  | ***Date:*** | 2020-05-14 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | Remote Interference Management (RIM) WI was agreed and developed in RAN. RAN 1 and RAN 3 sent LS to SA5 to specify the OAM configurations for RIM Reference Signal (RS) and Victim/Aggressor Set to support RIM operation |
|  |  |
| ***Summary of change:*** | Add NRM fragment to support RIM RS and Sets and related configurations  |
|  |  |
| ***Consequences if not approved:*** | RIM operation is not supported. |
|  |  |
| ***Clauses affected:*** | 4.3.1, 4.3.5, 4.3.x (new clause), 4.3.y (new clause), 4.3.z (new clause), 4.3.a (new clause), 4.3.b (new clause), 4.3.c (new clause), 4.4.1 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** | Refer to S5-202370 |

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| **Start of 1st modification** |

## 4.3 Class definitions

### 4.3.1 GNBDUFunction

#### 4.3.1.1 Definition

For non-split NG-RAN deployment scenario, this IOC together with GNBCUCPFunction IOC and GNBCUUPFunction IOC provide the management of gNB defined in clause 6.1.1 in 3GPP TS 38.401 [4].

For 2-split and 3-split NG-RAN architecture, this IOC provides the management representation of tgNB-DU defined in clause 6.1.1 in 3GPP TS 38.401 [4].

The following table identifies the necessary end points required for the representation of gNB and en-gNB, of all deployment scenarios.

|  |  |  |  |
| --- | --- | --- | --- |
| ReqRole | End point requirement for 3-split deployment scenario | End point requirement for 2-split deployment scenario | End point requirement for Non-split deployment scenario |
| gNB | <<IOC>>EP\_F1C, <<IOC>>EP\_F1U | <<IOC>>EP\_F1C, <<IOC>>EP\_F1U | None. |
| en-gNB | <<IOC>>EP\_F1C, <<IOC>>EP\_F1U | <<IOC>>EP\_F1C, <<IOC>>EP\_F1U | None. |

#### 4.3.1.2 Attributes

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| gNB­DUId | M | T | T | F | T |
| gNBDUName | O | T | T | F | T |
| gNBId | M | T | F | F | T |
| gNBIdLength  | M | T | T | F | T |
| aggressorSetID | CM | T | F | T | T |
| victimSetID | CM | T | F | T | T |
| rimRSReportConf | O | T | F | T | T |

#### 4.3.1.3 Attribute constraints

|  |  |
| --- | --- |
| Name | Definition |
| aggressorSetID | Condition: Remote Interference Management function is supported. |
| victimSetID | Condition: Remote Interference Management function is supported. |

#### 4.3.1.4 Notifications

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

4.3.5 NRCellDU

4.3.5.1 Definition

This IOC represents the part of NR cell information that describes s the specific resources instances.

An NR cell transmits SS/PBCH block and always requires downlink transmission at a certain carrier frequency with a certain channel bandwidth. Transmission may be performed from multiple sector-carriers using different transmission points, and these may be configured with different carrier frequencies and channel bandwidths, as long as they are aligned to the cell's downlink resource grids as defined in subclause 4.4 in TS 38.211 [32]. The values of arfcnDL and bSChannelBwDL attributes define the resource grids which each sector-carrier needs to be aligned to. See subclauses 5.3 and 5.4.2 of TS 38.104 for definitions of BS channel bandwidth and NR-ARFCN, respectively.

An NR cell requires an uplink in order to provide initial access. In case of TDD, the values of arfcnUL and bSChannelBwUL have to always be set to the same values as for the corresponding DL attributes. For both FDD and TDD, the arfcnUL and bSChannelBwUL define uplink resource grids to which each sector-carrier needs to align to.

An NR cell can in addition be configured with a supplementary uplink, which has its own arfcnSUL and bSChannelBwSUL, which define resource grids for supplementary uplink sector-carriers.

Each of downlink, uplink and supplementary uplink (if configured) need an initial bandwidth part (BWP), which defines resources to be used by UEs during and immediately after initial access. Additional BWPs can be either configured or calculated by gNB internally and be applied to UEs dynamically by gNB based on e.g. UE capability and bandwidth need of each UE.

NOTE: Void

4.3.5.2 Attributes

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| cellLocalId | M | T | T | F | T |
| operationalState  | M | T | F | F | T (see Note 2) |
| administrativeState  | M | T | T | F | T (see Note 2) |
| cellState  | M | T | F | F | T (see Note 2) |
| pLMNInfoList | M | T | T | F | T |
| nRPCI | M | T | T | F | T |
| nRTAC | CM | T | T | F | T |
| arfcnDL | M | T | T | F | T |
| arfcnUL | CM | T | T | F | T |
| arfcnSUL | CM | T | T | F | T |
| bSChannelBwDL  | M | T | T | F | T |
| ssbFrequency | M | T | T | F | T |
| ssbPeriodicity | M | T | T | F | T |
| ssbSubCarrierSpacing | M | T | T | F | T |
| ssbOffset | M | T | T | F | T |
| ssbDuration | M | T | T | F | T |
| bSChannelBwUL | CM | T | T | F | T |
| bSChannelBwSUL | CM | T | T | F | T |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| **Attribute related to role** |  |  |  |  |  |
| nRSectorCarrierRef | M | T | T | F | T |
| bWPRef | M | T | T | F | T |
| nRFrequencyRef | CO | T | T | F | T |
| Note 1: No state propagation is implied.Note 2: The attribute value change is conveyed by the notifyStateChange notification. |

### 4.3.x FrequencyDomainPara <<dataType>>

#### 4.3.x.1 Definition

This data type defines configuration parameters of frequency domain resource to support RIM RS.

#### 4.3.x.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| rimRSSubcarrierSpacing | M | T | T | F | T |
| rIMRSBandwidth | M | T | T | F | T |
| nrofGlobalRIMRSFrequencyCandidates | M | T | T | F | T |
| rimRSCommonCarrierReferencePoint | M | T | T | F | T |
| rimRSStartingFrequencyOffsetIdList | M | T | T | F | T |
|  |  |  |  |  |  |

#### 4.3.x.3 Attribute constraints

None.

#### 4.3.x.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 4.3.y SequenceDomainPara <<dataType>>

#### 4.3.y.1 Definition

This data type defines configuration parameters of sequence domain resource to support RIM RS.

#### 4.3.y.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| nrofRIMRSSequenceCandidatesofRS1 | M | T | T | F | T |
| rimRSScrambleIdListofRS1 | M | T | T | F | T |
| nrofRIMRSSequenceCandidatesofRS2 | O | T | T | F | T |
| rimRSScrambleIdListofRS2 | O | T | T | F | T |
| enableEnoughNotEnoughIndication | M | T | T | F | T |
| RIMRSScrambleTimerMultiplier | M | T | T | F | T |
| RIMRSScrambleTimerOffset | M | T | T | F | T |

#### 4.3.y.3 Attribute constraints

None.

#### 4.3.u.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 4.3.z TimeDomainPara <<dataType>>

#### 4.3.z.1 Definition

This data type defines configuration parameters of time domain resource to support RIM RS.

#### 4.3.z.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| dlULSwitchingPeriod1 | M | T | T | F | T |
| symbolOffsetOfReferencePoint1 | M | T | T | F | T |
| dlULSwitchingPeriod2 | O | T | T | F | T |
| symbolOffsetOfReferencePoint2 | O | T | T | F | T |
| totalnrofSetIdofRS1 | M | T | T | F | T |
| totalnrofSetIdofRS2 | O | T | T | F | T |
| nrofConsecutiveRIMRS1 | M | T | T | F | T |
| nrofConsecutiveRIMRS2 | O | T | T | F | T |
| consecutiveRIMRS1List | M | T | T | F | T |
| consecutiveRIMRS2List | M | T | T | F | T |
| enablenearfarIndicationRS1 | O | T | T | F | T |
| enablenearfarIndicationRS2 | O | T | T | F | T |

#### 4.3.z.3 Attribute constraints

None.

#### 4.3.z.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 4.3.a RimRSReportConf <<dataType>>

#### 4.3.a.1 Definition

This data type defines RIM-RS reporting configuration.

#### 4.3.a.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| reportIndicator | M | T | T | F | T |
| reportInterval | M | T | T | F | T |
| nrofRIMRSReportInfo | M | T | T | F | T |
| maxPropagationDelay | O | T | T | F | T |
| RimRSReportInfoList | M | T | T | F | T |

#### 4.3.a.3 Attribute constraints

None.

#### 4.3.a.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

### 4.3.b RimRSReportInfo <<dataType>>

#### 4.3.b.1 Definition

This data type defines necessary reporting information derived from the detected RIM-RS, including

1) The detected set ID;

2) Propagation delay in number of OFDM symbols

3) Functionality of the RS (RS-1 or RS-2, Enough or Not enough mitigation for RS-1).

#### 4.3.b.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| detectedSetID | M | T | T | F | T |
| propagationDelay | O | T | T | F | T |
| functionalityOfRIMRS | M | T | T | F | T |

#### 4.3.b.3 Attribute constraints

None.

#### 4.3.b.4 Notifications

The subclause 4.5 of the <<IOC>> using this <<dataType>> as one of its attributes, shall be applicable.

4.3.c RimRSSet

4.3.c.1 Definition

This data type defines configuration parameters required for periodic RIM-RS monitoring.

4.3.c.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| rimRSMonitoringWindowDuration | O | T | T | F | T |
| rimRSMonitoringWindowStartingOffset | O | T | T | F | T |
| rimRSMonitoringWindowPeriodicity | O | T | T | F | T |
| rimRSMonitoringOccasionInterval | O | T | T | F | T |
| rimRSMonitoringOccasionStartingOffset | O | T | T | F | T |

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| **End of 1st modification** |

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| **Start of 2nd modification** |

## 4.4 Attribute definitions

### 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 possible for all downlink channels, used simultaneously in a cell, added together.allowedValues:TBD | 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 including IP address and VLAN ID used for initialization of the underlying transport.First string is IP address, IP address can be an IPv4 address (See RFC 791 [37]) or an IPv6 address (See RFC 2373 [38]).Second string is VLAN Id. (See IEEE 802.1Q [39]), | type: Stringmultiplicity: 2isOrdered: TrueisUnique: 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: N/AisUnique: 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)RRC connected users (for NRCellCU)DRB (for GNBCUUPFunction)See NOTE 2, NOTE 3 and 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: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| quotaType | The attribute indicates the type of the quota which allows to allocate resource as strictly usable for defined rRMPolicyMemberList (“strict quota”) or allows that resource to be used by other rRMPolicyMemberList(s) when defined rRMPolicyMemberList do not need them ( “float quota”).allowedValues: STRICT, FLOAT. | type: ENUMmultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rRMPolicyMaxRatio | The RRM policy setting the maximum percentage of radio resources to be allocated to the corresponding rRMPolicyMemberList.This quota can be strict or float quota : - Strict quota means the defined rRMPolicyMemberList cannot be allocated resource if its used resource reached maxRatio. - Float quota means the defined rRMPolicyMemberList can use quota from other rRMPolicyMemberList(s) even if its resource has reached maxRatio, if there’s free quota from other rRMPolicyMemberList. In addition, resource of the defined rRMPolicyMemberList can be used by other rRMPolicyMemberList(s) when the defined rRMPolicyMemberList do not need them.Value 0 indicates that there is no maximum limit.allowedValues:0 : 100 | type: Integermultiplicity: 0..1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| rRMPolicyMarginMaxRatio | Maximum quota margin ratio is applicable when maximum quota policy ratio is of type “float quota”. It defines the resource quota within maximum quota to reserve buffers for new resource requirements for the defined rRMPolicyMemberList. With the margin ratio, unused resources of the maximum resource quota can be allocated to other rRMPolicyMemberList(s) when the free resources are more than resource amount indicated by the margin. The margin resource quota can only be used for the defined rRMPolicyMemberList.. Value 0 indicates that no margin is used.allowedValues:0 : 100 | type: Integermultiplicity: 0..1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| rRMPolicyMinRatio | The RRM policy setting the minimum percentage of radio resources to be allocated to the corresponding rRMPolicyMemberList, especially in congestion situation. This quota can be strict or float quota: - Strict quota means resources are not allowed for other rRMPolicyMemberList(s) even when they are not used by the defined rRMPolicyMemberList. -Float quota resources can be used by other rRMPolicyMemberList(s) when the defined rRMPolicyMemberList do not need them.Value 0 indicates that there is no minimum limit.allowedValues: 0 : 100NOTE: The averaging time interval is implementation dependent. | type: Integermultiplicity: 0..1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: N/AisNullable: False |
| rRMPolicyMarginMinRatio | Minimum quota margin ratio is applicable when minimum quota policy ratio is of type “float quota”. It defines the resource quota within minimum quota to reserve buffers for new resource requirements for the defined rRMPolicyMemberList. With the margin ratio, unused resources of the minimum resource quota can be allocated to other rRMPolicyMemberList(s) when the free resources are more than resource amount indicated by the margin. The margin resource quota can only be used for the defined rRMPolicyMemberList. Value 0 indicates that no margin is used.allowedValues:0 : 100  | type: Integermultiplicity: 0..1isOrdered: N/AisUnique: N/AdefaultValue: NoneallowedValues: 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 [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 [31].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 [31].  allowedValues: Not applicable. | type: Integermultiplicity: 6isOrdered: TrueisUnique: N/AdefaultValue: 0isNullable: False |
| blackListEntry | It specifies a list of PCI (physical cell identity) that are blacklisted in EUTRAN measurements as described in 3GPP TS 38.331 [31].allowedValues: { 0…1007 } | type: Integermultiplicity: \*isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| blackListEntryIdleMode | It specifies a list of PCI (physical cell identity) that are blacklisted 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 [31].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 [31].allowedValues: { 0.2, 0.4, 0.6, 0.8 }. | type: Shortmultiplicity: 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 [??]. 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: Realmultiplicity: 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 38.311 [31].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: Realmultiplicity: 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 [4]. 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 |
| aggressorSetID | This attributer indicates the associated aggressor gNB Set ID of the cell. (See subclause 7.4.1.6 in TS 38.211 [32]). Editor's Note: The definition of aggressorSetID needs further clarification with RAN1.allowedValues:The bit length of the set ID is maximum 22bit. | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| victimSetID | This attributer indicates the associated Victim gNB Set ID of the cell. (See subclause 7.4.1.6 in TS 38.211 [32]). Editor's Note: The definition of victimSetID needs further clarification with RAN1.allowedValues:The bit length of the set ID is maximum 22bit. | type: Integermultiplicity: 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. (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 PpLMNId ID and nRTAC. allowedValues: Not applicable  | type: TAImultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| 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 |
| nRCellDURef | This attribute contains the DN of a NR Cell (NRCellDU) allowedValues: Not applicable. | type: DNmultiplicity: \*isOrdered: N/AisUnique: TruedefaultValue: NoneisNullable: False |
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| rimRSSubcarrierSpacing | It is the subcarrier spacing configuration () for the RIM-RS. Subcarrier spacing (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 be* 96 if subcarrier spacing is15kHz;
* 48 or 96 if subcarrier spacing is 30kHz;

For carrier bandwidth smaller than or equal to 20MHz, this attributer should be* Minimum 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 () (see 38.211 [32], subclause 7.4.1.6). allowedValues: 1,2,4 | type: Integermultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: NoneisNullable: False |
| rimRSCommonCarrierReferencePoint | It is a configured reference point for RIM RS in NR-ARFCN (see 38.211 [32], subclause 5.4).allowedValues: 0..maxNARFCN where maxNARFCN = 3279165  | 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 |
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| nrofRIMRSSequenceCandidatesofRS1 | It is the number of candidate sequences assigned for RIM RS-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 side

allowedValues: "ENABLE", "DISABLE"see NOTE z | type: Enummultiplicity: 1isOrdered: N/AisUnique: N/AdefaultValue: DISABLE isNullable: False |
| RIMRSScrambleTimerMultiplier | It is parameter multiplier factor 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 xallowedValues: * 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 a | 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 a | 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 () (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 y | 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 y | 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 |
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| rimRSMonitoringWindowDuration | This attributer configures a duration of the monitoring window in which gNB monitors the RIM-RS, in unit of , where 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 , where 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 consecutive detection durations in each RIM-RS transmission periodicity () 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 (if only is configured) or (if both and are configured), where,
	+ is the number of consecutive uplink-downlinkswitching periods for RS-1 (configured by nrofConsecutiveRIMRS1),
	+ is the first uplink-downlinkswitching period (configured by dlULSwitchingPeriod1),
	+ is the second uplink-downlink switching period (configured by dlULSwitchingPeriod2), and
	+ is the total number of set IDs for RIM RS-1 (configured by totalnrofSetIdofRS1),
	+ is the number of candidate frequency resources in the whole network (configured by nrofGlobalRIMRSFrequencyCandidates), and
	+ 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 , where is given in above attribute rimRSMonitoringWindowDuration.allowedValues: 1,2..-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 (), in unit of consecutive detection duration.gNB starts monitoring potential interference from the -th consecutive detection duration in the first complete RIM-RS transmission periodicity () 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 |
|  |  |  |
| NOTE 1: VoidNOTE 2: The radio resource can be signaling resources (e.g. RRC connected users) or user plane resources (e.g. PRB, DRB). NOTE 3: The averaging time interval is implementation dependent.NOTE 4: A RRM Policy can make use of the defined policy RRMPolicyRatio or a vendor specific RRM Policy.NOTE x: 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 y: 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 z (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 a: 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 2nd modification** |