**3GPP TSG-SA5 Meeting #130e *S5-202271***

**e-meeting 20-28 April 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v11.4* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.541** | **CR** | **0281** | **rev** | **1** | **Current version:** | **16.4.1** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
|  | | | | | | | | |

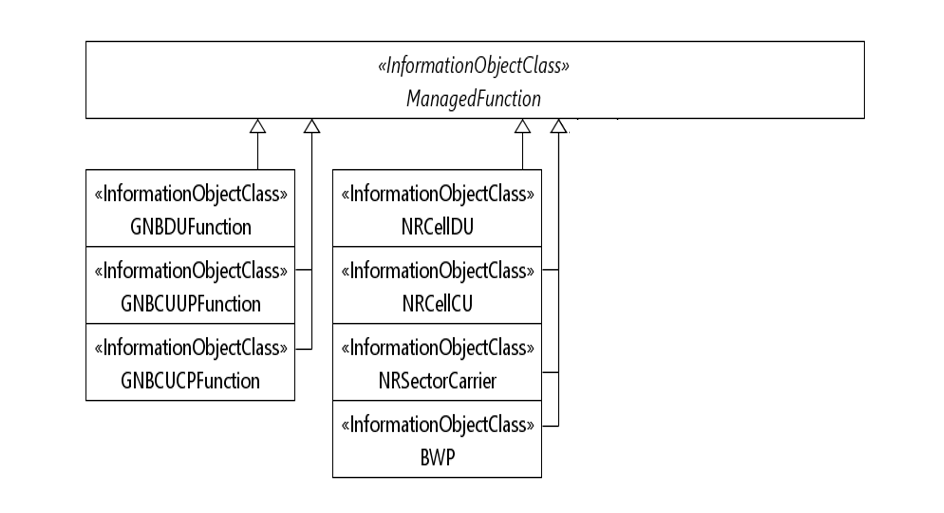
|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

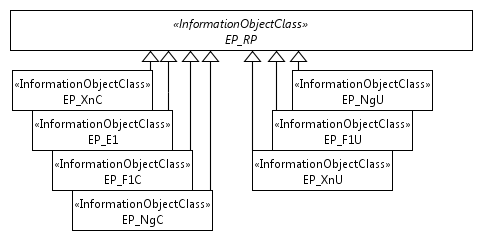
|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Update Clause 4.2.1.2 Inheritance UML diagram | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NETSLICE-5GNRM | | | | |  | ***Date:*** | | | 2020-04-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***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 can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Following issues are observed for the first inheritance UML diagram in clause 4.2.1.2:   1. <<ProxyClass>> inherited from concrete <<IOC>>, e.g. CellRelation<<ProxyClass>> inherit from ManagedFunction<<IOC>>; 2. As defined in TS 28.622, ManagedFunction represent a telecommunication function, it is confuse that CellRelation and FrequencyRelation inherited from ManagedFunction. Also in TS 28.658, the EutranRelation is inherited from TOP IOC. 3. There is no definition for CellRelation<<ProxyClass>> and FrequencyRelation<<ProxyClass>> | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Update the inheritance UML diagram in Class 4.2.1.2 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The inheritance UML diagram is wrong | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2.1.2, C.4.3, D.4.3,E.5.2.21,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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |

|  |  |
| --- | --- |
| ***This CR's revision history:*** |  |

|  |
| --- |
| **1st Change** |

#### 4.2.1.2 Inheritance









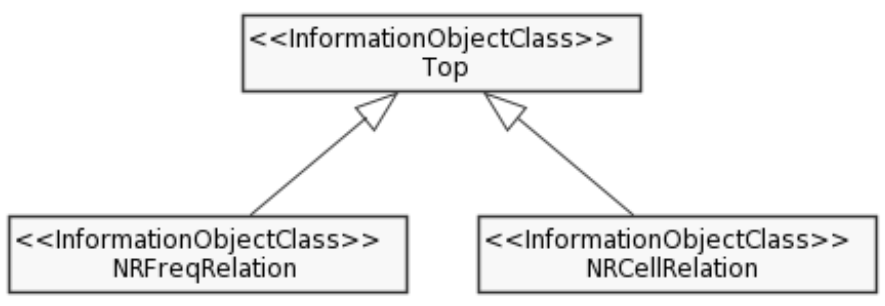


Figure 4.2.1.2-1: Inheritance Hierarchy

|  |
| --- |
| **2nd Change** |

## C.4.3 XML schema "nRNrm.xsd"

<?xml version="1.0" encoding="UTF-8"?>

<!--

3GPP TS 28.541 NR Network Resource Model

XML schema definition

nrNrm.xsd

-->

<schema xmlns="http://www.w3.org/2001/XMLSchema"

xmlns:xn="http://www.3gpp.org/ftp/specs/archive/28\_series/28.623#genericNrm"

xmlns:nn="http://www.3gpp.org/ftp/specs/archive/28\_series/28.541#nrNrm"

xmlns:en="http://www.3gpp.org/ftp/specs/archive/28\_series/28.659#eutranNrm"

xmlns:epc="http://www.3gpp.org/ftp/specs/archive/28\_series/28.709#epcNrm"

xmlns:sm="http://www.3gpp.org/ftp/specs/archive/28\_series/28.626#stateManagementIRP"

xmlns:ngc="http://www.3gpp.org/ftp/specs/archive/28\_series/28.541#ngcNrm"

xmlns:sp="http://www.3gpp.org/ftp/specs/archive/28\_series/28.629#sonPolicyNrm"

targetNamespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.541#nrNrm" elementFormDefault="qualified">

<import namespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.623#genericNrm"/>

<import namespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.709#epcNrm"/>

<import namespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.626#stateManagementIRP"/>

<import namespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.541#ngcNrm"/>

<import namespace="http://www.3gpp.org/ftp/specs/archive/28\_series/28.629#sonPolicyNrm"/>

<simpleType name="GnbId">

<restriction base="unsignedLong">

<maxInclusive value="4294967295"/>

</restriction>

</simpleType>

<simpleType name="GnbIdLength">

<restriction base="integer">

<minLength value="22"/>

<maxLength value="32"/>

</restriction>

</simpleType>

<simpleType name="Nci">

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<maxInclusive value="68719476735"/>

</restriction>

</simpleType>

<simpleType name="Pci">

<restriction base="unsignedShort">

<maxInclusive value="503"/>

<!-- Minimum value is 0, maximum value is 3x167+2=503 -->

</restriction>

</simpleType>

<simpleType name="NrTac">

<restriction base="unsignedLong">

<maxInclusive value="16777215"/>

<!--5G TAC is 3-octets length -->

</restriction>

</simpleType>

<simpleType name="GnbDuId">

<restriction base="unsignedLong">

<maxInclusive value="68719476735"/>

<!-- Minimum value is 0, maximum value is 2^36-1=68719476735 -->

</restriction>

</simpleType>

<simpleType name="GnbCuupId">

<restriction base="unsignedLong">

<maxInclusive value="68719476735"/>

<!-- Minimum value is 0, maximum value is 2^36-1=68719476735 -->

</restriction>

</simpleType>

<simpleType name="GnbName">

<restriction base="string">

<minLength value="1"/>

<maxLength value="150"/>

</restriction>

</simpleType>

<simpleType name="CyclicPrefix">

<restriction base="integer">

<enumeration value="15"/>

<enumeration value="30"/>

<enumeration value="60"/>

<enumeration value="120"/>

</restriction>

</simpleType>

<simpleType name="QuotaType">

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<enumeration value="STRICT"/>

<enumeration value="FLOAT"/>

</restriction>

</simpleType>

<simpleType name="CellState">

<restriction base="string">

<enumeration value="IDLE"/>

<enumeration value="INACTIVE"/>

<enumeration value="ACTIVE"/>

</restriction>

</simpleType>

<simpleType name="BwpContext">

<restriction base="string">

<enumeration value="DL"/>

<enumeration value="UL"/>

<enumeration value="SUL"/>

</restriction>

</simpleType>

<simpleType name="IsInitialBwp">

<restriction base="string">

<enumeration value="INITIAL"/>

<enumeration value="OTHER"/>

</restriction>

</simpleType>

<simpleType name="qOffsetRangeList">

<restriction base="string">

<enumeration value="dB-24"/>

<enumeration value="dB-22"/>

<enumeration value="dB-20"/>

<enumeration value="dB-18"/>

<enumeration value="dB-16"/>

<enumeration value="dB-14"/>

<enumeration value="dB-12"/>

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<enumeration value="dB18"/>

<enumeration value="dB20"/>

<enumeration value="dB22"/>

<enumeration value="dB24"/>

</restriction>

</simpleType>

<simpleType name="cellReselectionPriority">

<restriction base="unsignedLong">

<minInclusive value="0"/>

<maxInclusive value="16"/>

<!--Value 0 means lowest priority-->

</restriction>

</simpleType>

<simpleType name="cellReselectionSubPriority">

<restriction base="unsignedLong">

<minInclusive value="0"/>

<maxInclusive value="16"/>

<!--Value 0 means lowest priority-->

</restriction>

</simpleType>

<simpleType name="PMaxRangeType">

<restriction base="short">

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<maxInclusive value="33"/>

</restriction>

</simpleType>

<simpleType name="qOffsetFreq">

<restriction base="short">

<minInclusive value="-24"/>

<maxInclusive value="24"/>

</restriction>

</simpleType>

<simpleType name="qQualMin">

<restriction base="integer">

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</simpleType>

<simpleType name="qRxLevMin">

<restriction base="integer">

<minInclusive value="-140"/>

<maxInclusive value="-44"/>

</restriction>

</simpleType>

<simpleType name="Thresxhighp">

<restriction base="integer">

<minInclusive value="0"/>

<maxInclusive value="62"/>

</restriction>

</simpleType>

<simpleType name="Threshxhighq">

<restriction base="integer">

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<simpleType name="Threshxlowp">

<restriction base="integer">

<minInclusive value="0"/>

<maxInclusive value="62"/>

</restriction>

</simpleType>

<simpleType name="Threshxlowq">

<restriction base="integer">

<minInclusive value="0"/>

<maxInclusive value="62"/>

</restriction>

</simpleType>

<simpleType name="Treselectionnr">

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<maxInclusive value="7"/>

</restriction>

</simpleType>

<simpleType name="Treselectionnrsfhigh">

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<enumeration value="25"/>

<enumeration value="50"/>

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<enumeration value="100"/>

</restriction>

</simpleType>

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<enumeration value="50"/>

<enumeration value="75"/>

<enumeration value="100"/>

</restriction>

</simpleType>

<simpleType name="Absolutefrequencyssb">

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<restriction base="string">

<enumeration value="15"/>

<enumeration value="30"/>

<enumeration value="120"/>

<enumeration value="240"/>

</restriction>

</simpleType>

<simpleType name="Multifrequencybandlistnr">

<restriction base="integer">

<minInclusive value="1"/>

<maxInclusive value="256"/>

</restriction>

</simpleType>

<simpleType name="beamType">

<restriction base="string">

<enumeration value="SSB-BEAM"/>

</restriction>

</simpleType>

<simpleType name="beamAzimuth">

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<minInclusive value="-1800"/>

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</restriction>

</simpleType>

<simpleType name="beamTilt">

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</restriction>

</simpleType>

<simpleType name="beamHorizWidth">

<restriction base="integer">

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<minInclusive value="0"/>

<maxInclusive value="65535"/>

</restriction>

</simpleType>

<simpleType name="resourceType">

<restriction base="string">

<enumeration value="PRB"/>

<enumeration value="RRC"/>

<enumeration value="DRB"/>

</restriction>

</simpleType>

<complexType name="LocalEndPoint">

<sequence>

<element name="ipv4Address" type="string"/>

<element name="ipv6Address" type="string"/>

<element name="ipv6Prefix" type="string"/>

<element name="vlanId" type="integer"/>

</sequence>

</complexType>

<complexType name="RemoteEndPoint">

<sequence>

<element name="ipv4Address" type="string"/>

<element name="ipv6Address" type="string"/>

<element name="ipv6Prefix" type="string"/>

</sequence>

</complexType>

<complexType name="blackListEntry">

<sequence minOccurs="0" maxOccurs="1007" >

<element name="pci" type="en:Pci" maxOccurs="504"/>

</sequence>

</complexType>

<complexType name="blackListEntryIdleMode">

<sequence minOccurs="0" maxOccurs="1007" >

<element name="pci" type="en:Pci" maxOccurs="504"/>

</sequence>

</complexType>

<complexType name="PLMNIdList">

<sequence>

<element name="pLMNId" type="en:PLMNId" maxOccurs="6"/>

<!-- The first pLMNId of the pLMNIdList is primary PLMN id -->

</sequence>

</complexType>

<complexType name="cellIndividualOffset">

<sequence>

<element name="rsrpOffsetSSB" type="qOffsetRangeList"/>

<element name="rsrqOffsetSSB" type="qOffsetRangeList"/>

<element name="sinrOffsetSSB" type="qOffsetRangeList"/>

<element name="rsrpOffsetCSI-RS" type="qOffsetRangeList"/>

<element name="rsrqOffsetCSI-RS" type="qOffsetRangeList"/>

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</sequence>

</complexType>

<complexType name="PLMNInfoType">

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<element name="pLMNId" type="en:PLMNId"/>

<element name="sNSSAI" type="ngc:SNssai" minOccurs="0"/>

</sequence>

</complexType>

<complexType name="PLMNInfoListType">

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<element name="pLMNInfo" type="PLMNInfoType" minOccurs="1"/>

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<complexContent>

<extension base="xn:NrmClass">

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<element name="attributes">

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<all>

<!-- Inherited attributes from ManagedFunction -->

<element name="userLabel" type="string" minOccurs="0"/>

<element name="vnfParametersList" type="xn:vnfParametersListType" minOccurs="0"/>

<element name="peeParametersList" type="xn:peeParametersListType" minOccurs="0"/>

<element name="priority" type="integer" minOccurs="0"/>

<element name="measurements" type="xn:MeasurementTypesAndGPsList" minOccurs="0"/>

<!--End of inherited attributes from ManagedFunction-->

<element name="gnbId" type="nn:GnbId"/>

<element name="gnbIdLength" type="nn:GnbIdLength"/>

<element name="gnbDUId" type="nn:GnbDuId"/>

<element name="gnbDuName" type="nn:GnbName" minOccurs="0"/>

<element name="x2Blacklist" type="xn:dnList" minOccurs="0"/>

<element name="x2Whitelist" type="xn:dnList" minOccurs="0"/>

<element name="xnBlacklist" type="xn:dnList" minOccurs="0"/>

<element name="xnWhitelist" type="xn:dnList" minOccurs="0"/>

<element name="x2XnHOBlackList" type="xn:dnList" minOccurs="0"/>

<element name="aggressorSetID" type="nn:AggressorSetID"/>

<element name="victimSetID" type="nn:VictimSetID"/>

</all>

</complexType>

</element>

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<element ref="nn:NRCellDU"/>

<element ref="nn:BWP"/>

<element ref="nn:NRSectorCarrier"/>

<element ref="nn:EP\_F1C"/>

<element ref="nn:EP\_F1U"/>

</choice>

<choice minOccurs="0" maxOccurs="unbounded">

<element ref="xn:MeasurementControl"/>

</choice>

</sequence>

</extension>

</complexContent>

</complexType>

</element>

<element name="GNBCUCPFunction" substitutionGroup="xn:ManagedElementOptionallyContainedNrmClass">

<complexType>

<complexContent>

<extension base="xn:NrmClass">

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<complexType>

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<element name="vnfParametersList" type="xn:vnfParametersListType" minOccurs="0"/>

<element name="peeParametersList" type="xn:peeParametersListType" minOccurs="0"/>

<element name="priority" type="integer" minOccurs="0"/>

<element name="measurements" type="xn:MeasurementTypesAndGPsList" minOccurs="0"/>

<!--End of inherited attributes from ManagedFunction-->

<element name="gnbId" type="nn:GnbId" />

<element name="gnbIdLength" type="nn:GnbIdLength"/>

<element name="gnbCuName" type=" nn:GnbName" minOccurs="0"/>

<element name="pLMNId" type="en:PLMNId" />

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<element name="x2Whitelist" type="xn:dnList" minOccurs="0"/>

<element name="xnBlacklist" type="xn:dnList" minOccurs="0"/>

<element name="xnWhitelist" type="xn:dnList" minOccurs="0"/>

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</all>

</complexType>

</element>

<choice minOccurs="0" maxOccurs="unbounded">

<element ref="nn:NRCellCU"/>

<element ref="nn:EP\_F1C"/>

<element ref="nn:EP\_E1"/>

<element ref="nn:EP\_XnC"/>

<element ref="nn:EP\_X2C"/>

<element ref="nn:EP\_NgC"/>

<element ref="xn:VsDataContainer"/>

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<element ref="xn:MeasurementControl"/>

</choice>

</sequence>

</extension>

</complexContent>

</complexType>

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<!--End of inherited attributes from ManagedFunction-->

<element name="gNBCUUPId" type="nn:GnbCuupId "/>

<element name="pLMNInfoList" type="PLMNInfoListType"/> <element name="gNBId" type="nn:GnbId"/>

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</all>

</complexType>

</element>

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<element ref="nn:EP\_F1U"/>

<element ref="nn:EP\_XnU"/>

<element ref="nn:EP\_NgU"/>

<element ref="nn:EP\_X2U"/>

<element ref="nn:EP\_S1U"/>

<element ref="xn:VsDataContainer"/>

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</element>

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<element name="vnfParametersList" type="xn:vnfParametersListType" minOccurs="0"/>

<element name="peeParametersList" type="xn:peeParametersListType" minOccurs="0"/>

<element name="priority" type="integer" minOccurs="0"/>

<element name="measurements" type="xn:MeasurementTypesAndGPsList" minOccurs="0"/>

<!--End of inherited attributes from ManagedFunction-->

<element name="nCGI" type="nn:Ncgi"/>

<element name="pLMNIdList" type="en:PLMNIdList"/>

<element name="sNSSAIList" type="ngc:SnssaiList" minOccurs="0"/>

<element name="nRFrequencyRef" type="xn:dn" minOccurs="0"/>

</all>

</complexType>

</element>

<choice minOccurs="0" maxOccurs="unbounded">

<element ref="xn:VsDataContainer"/>

<element ref="nRCellRelation"/>

<element ref="nRFreqRelation"/>

<element ref="eUtranCellRelation"/>

<element ref="eUtranFreqRelation"/>

</choice>

<choice minOccurs="0" maxOccurs="unbounded">

<element ref="xn:MeasurementControl"/>

</choice>

<choice minOccurs="0" maxOccurs="1">

<element ref="sp:EnergySavingProperties"/>

<element ref="sp:ESPolicies"/>

</choice>

<choice minOccurs="0" maxOccurs="unbounded">

<element ref= "RRMPolicyRatio"/>

</choice>

</sequence>

</extension>

</complexContent>

</complexType>

</element>

<element name="NRCellDU">

<complexType>

<complexContent>

<extension base="xn:NrmClass">

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<all>

<!-- Inherited attributes from ManagedFunction -->

<element name="userLabel" type="string" minOccurs="0"/>

<element name="vnfParametersList" type="xn:vnfParametersListType" minOccurs="0"/>

<element name="peeParametersList" type="xn:peeParametersListType" minOccurs="0"/>

<element name="priority" type="integer" minOccurs="0"/>

<element name="measurements" type="xn:MeasurementTypesAndGPsList" minOccurs="0"/>

<!--End of inherited attributes from ManagedFunction-->

<element name="nCGI" type="nn:Ncgi" minOccurs="0"/>

<element name="operationalState" type="sm:operationalStateType" minOccurs="0"/>

<element name="administrativeState" type="sm:administrativeStateType" minOccurs="0"/>

<element name="cellState" type="nn:CellState"/>

<element name="pLMNIdList" type="en:PLMNIdList"/>

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<element name="nRTac" type="nn:NrTac" />

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<element name="arfcnUL" type="integer" minOccurs="0"/>

<element name="arfcnSUL" type="integer" minOccurs="0"/>

<element name="bSChannelBwDL" type="integer"/>

<element name="bSChannelBwUL" type="integer" minOccurs="0"/>

<element name="bSChannelBwSUL" type="integer" minOccurs="0"/>

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<element name="nRSectorCarrierRef" type="xn:dn" minOccurs="0"/>

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<element name="cellReselectionPriority" type="en:cellReselectionPriority"/>

<element name="cellReselectionSubPriority" type="en:cellReselectionSubPriority"/>

<element name="pMax" type="en:PMaxRangeType" minOccurs="0"/>

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<element name="threshXHighQ" type="en:threshxhighq" minOccurs="0"/>

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|  |
| --- |
| **3rd Change** |

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

openapi: 3.0.1

info:

title: NR NRM

version: 16.4.0

description: >-

OAS 3.0.1 specification of the NR NRM

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externalDocs:

description: 3GPP TS 28.541 V16.4.0; 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'

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'

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

RrmPolicyMember:

type: object

properties:

plmnId:

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

snssai:

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

RrmPolicyMemberList:

type: array

items:

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

LocalAddress:

type: object

properties:

ipv4Address:

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

ipv6Address:

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

vlanId:

type: integer

minimum: 0

maximum: 4096

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

#-------- 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'

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'

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'

aggressorSetID:

type: integer

victimSetID:

type: integer

- $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'

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'

- $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'

x2BlackList:

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

xnWhiteList:

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

x2XnHOBlackList:

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

mappingSetIDBackhaulAddress:

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

- $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'

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'

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'

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

- type: object

properties:

RRMPolicyRatio:

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

NRFrequency-Single:

allOf:

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

- type: object

properties:

attributes:

allOf:

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

- type: object

properties:

absoluteFrequencySSB:

type: integer

minimum: 0

maximum: 3279165

ssbSubCarrierSpacing:

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

multiFrequencyBandListNR:

type: integer

minimum: 1

maximum: 256

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

EUtranFrequency-Single:

allOf:

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

- type: object

properties:

attributes:

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

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

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:

quotaType:

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

rRMPolicyMaxRatio:

type: integer

rRMPolicyMarginMaxRatio:

type: integer

rRMPolicyMinRatio:

type: integer

rRMPolicyMarginMinRatio:

type: integer

NRCellRelation-Single:

allOf:

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

- type: object

properties:

attributes:

allOf:

- 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

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

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:

allOf:

- type: object

properties:

offsetMO:

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

blackListEntry:

type: array

items:

type: integer

minimum: 0

maximum: 1007

blackListEntryIdleMode:

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'

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

EUtranFreqRelation-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'

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'

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'

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/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'

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

|  |
| --- |
| **4th Change** |

## E.5.21 module \_3gpp-nr-nrm-nrcellrelation@2019-10-28.yang

module \_3gpp-nr-nrm-nrcellrelation {

yang-version 1.1;

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

prefix "nrcellrel3gpp";

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 NRCellRelation 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 2019-08-30 {

description "Initial revision";

}

grouping NRCellRelationGrp {

description "Represents the NRCellRelation IOC.";

reference "3GPP TS 28.541";

leaf nRTCI {

description "Target NR Cell Identifier. It consists of NR Cell

Identifier (NCI) and Physical Cell Identifier of the target NR cell

(nRPCI).";

type uint64;

}

container cellIndividualOffset {

description "A set of offset values for the neighbour cell. Used when

UE is in connected mode. Defined for rsrpOffsetSSB, rsrqOffsetSSB,

sinrOffsetSSB, rsrpOffsetCSI-RS, rsrqOffsetCSI-RS and

sinrOffsetCSI-RS.";

reference "cellIndividualOffset 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 nRFreqRelationRef {

description "Reference to a corresponding NRFreqRelation instance.";

mandatory true;

type types3gpp:DistinguishedName;

}

leaf adjacentNRCellRef {

description "Reference to an adjacent NR cell (NRCellCU or

ExternalNRCellCU).";

mandatory true;

type types3gpp:DistinguishedName;

}

leaf isRemoveAllowed {

type boolean;

default true;

description "True if the ANR function in the node is allowed to remove this relation.";

}

leaf isHOAllowed {

type boolean;

default true;

description "True if handovers are allowed over this relation.";

}

}

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

list NRCellRelation {

description "Represents a neighbour cell relation from a source cell

to a target cell, where the target cell is an NRCellCU or

ExternalNRCellCU instance.";

reference "3GPP TS 28.541";

key id;

uses top3gpp:Top\_Grp;

container attributes {

uses NRCellRelationGrp;

}

uses mf3gpp:ManagedFunctionContainedClasses;

}

}

}

## 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 blackListEntry {

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

blacklisted in NR measurements.";

reference "3GPP TS 38.331";

min-elements 0;

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

}

leaf-list blackListEntryIdleMode {

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

blacklisted 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";

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 Change** |