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Technical Specification

**Universal Mobile Telecommunications System (UMTS);  
LTE;  
Telecommunication management;  
Generic Radio Access Network (RAN)  
Network Resource Model (NRM)  
Integration Reference Point (IRP);  
Solution Set (SS) definitions  
(3GPP TS 28.663 version 11.0.0 Release 11)**



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## Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

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# Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

## Ready for Converged Management

This specification is part of a set that has been developed for converged management solutions.

---

# Introduction

The present document is part of a TS-family covering the 3<sup>rd</sup> Generation Partnership Project; Technical Specification Group Services and System Aspects; Telecommunication management; as identified below:

- |        |  |
|--------|--|
| 28.661 | Generic Radio Access Network (RAN) Network Resource Model (NRM); Integration Reference Point (IRP); Requirements                         |
| 28.662 | Generic Radio Access Network (RAN) Network Resource Model (NRM); Integration Reference Point (IRP); Information Service (IS)             |
| 28.663 | <b>Generic Radio Access Network (RAN) Network Resource Model (NRM); Integration Reference Point (IRP); Solution Set (SS) definitions</b> |

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# 1 Scope

The present document is part of an Integration Reference Point (IRP) named Generic Radio Access Network (RAN) Network Resource Model (NRM) IRP, through which an IRPAgent can communicate configuration management information to one or several IRPManagers concerning Generic RAN resources. The Generic RAN NRM IRP comprises a set of specifications defining Requirements, a protocol neutral Information Service and one or more Solution Set(s).

The present document specifies the Solution Sets for the Generic RAN NRM IRP.

This Solution Set specification is related to 3GPP TS 28.662 V11.0.X [4].

---

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 32.153: "Telecommunication management; Integration Reference Point (IRP) technology specific templates, rules and guidelines".
- [3] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [4] 3GPP TS 28,662: "Generic Radio Access Network (RAN) Network Resource Model (NRM); Integration Reference Point (IRP); Information Service (IS)".
- [5] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects".
- [6] 3GPP TS 32.606: "Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP); Solution Set (SS) definitions".
- [7] 3GPP TS 32.616: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP); Solution Set (SS) definitions".
- [8] W3C REC-xml-20001006: "Extensible Markup Language (XML) 1.0 (Second Edition)".
- [9] W3C REC-xmlschema-0-20010502: "XML Schema Part 0: Primer".
- [10] W3C REC-xmlschema-1-20010502: "XML Schema Part 1: Structures".
- [11] W3C REC-xmlschema-2-20010502: "XML Schema Part 2: Datatypes".
- [12] W3C REC-xml-names-19990114: "Namespaces in XML".
- [13] 3GPP TS 28.623: "Generic network resources Integration Reference Point (IRP); Solution Set (SS) definition".

---

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1], TS 32.600 [3] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

**XML file:** See definition of [13].

**XML document:** See definition of [13].

**XML declaration:** See definition of [13].

**XML element:** See definition of [13].

**empty XML element:** See definition of [13].

**XML content (of an XML element):** See definition of [13].

**XML start-tag:** See definition of [13].

**XML end-tag:** See definition of [13].

**XML empty-element tag:** See definition of [13].

**XML attribute specification:** See definition of [13].

**DTD:** See definition of [13].

**XML schema:** See definition of [13].

**XML namespace:** See definition of [13].

**XML complex type:** See definition of [13].

**XML element type:** See definition of [13].

### 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1], TS 32.600 [3], and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

BS	Base Station
CM	Configuration Management
CORBA	Common Object Request Broker Architecture
DTD	Document Type Definition
GSM	Global System for Mobile communication
IDL	Interface Definition Language (OMG)
IOC	Information Object Class
IRP	Integration Reference Point
IS	Information Service
MO	Managed Object
MOC	Managed Object Class
NRM	Network Resource Model
OMG	Object Management Group
RAN	Radio Access Network
SS	Solution Set
UMTS	Universal Mobile Telecommunications System
XML	eXtensible Markup Language

---

## 4 Solution Set Definition

This specification defines the following 3GPP Generic RAN NRM IRP Solution Set Definitions:

- 3GPP Generic RAN NRM IRP CORBA SS (Annex A)
- 3GPP Generic RAN NRM IRP XML Definitions (Annex B)



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## Annex A (normative): CORBA Solution Set

This annex contains the CORBA Solution Set for the IRP whose semantics is specified in Generic RAN NRM IRP: Information Service (TS 28.662 [4]).

---

### A.1 Architectural features

The overall architectural feature of Generic RAN Network Resources IRP is specified in 3GPP TS 28.662 [4]. This clause specifies features that are specific to the CORBA SS.

#### A.1.1 Syntax for Distinguished Names

See clause A.1.1 of [13].

#### A.1.2 Rules for NRM extensions

See clause A.1.2 of [13].

##### A.1.2.1 Allowed extensions

See clause A.2.1 of [13].

##### A.1.2.2 Extensions not allowed

See clause A.2.1 of [13].

## A.2 Mapping

### A.2.1 General mapping

See clause A.2.1 of [13].

### A.2.2 Information Object Class (IOC) mapping

#### A.2.2.1 IOC SectorEquipmentFunction

Mapping from NRM IOC SectorEquipmentFunction attributes and associations to SS equivalent MOC SectorEquipmentFunction attributes

Attribute of IOC SectorEquipmentFunction in 3GPP TS 32.792 [4]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
id	id	string	M	M	-
fqBand	fqBand	short	M	M	-
confOutputPower	confOutputPower	short	M	M	M
relatedTmaList	relatedTmaList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet	M	M	-
relatedAntennaList	relatedAntennaList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet	M	M	-
relatedCellList	relatedCellList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet	M	M	-

## A.2.2.2 IOC AntennaFunction

## Mapping from NRM IOC AntennaFunction attributes and associations to SS equivalent MOC AntennaFunction attributes

NRM Attributes of IOC antennaFunction in TS 32.692 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
id	id	string	O	M	-
retTiltValue	retTiltValue	short	O	M	M
bearing	bearing	short	O	M	M
retGroupName	retGroupName	string	O	M	M
height	height	short	O	M	M
maxAzimuthValue	maxAzimuthValue	short	O	M	M
minAzimuthValue	minAzimuthValue	short	O	M	M
horizBeamwidth	horizBeamwidth	short	O	M	M
vertBeamwidth	vertBeamwidth	short	O	M	M
relatedCellList	relatedCellList	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet	M	M	-

NOTE: For all support qualifiers with the value "O", see attribute constraints in TS 32.692 [4].

## A.2.2.3 IOC TmaFunction

## Mapping from NRM IOC TmaFunction attributes and associations to SS equivalent MOC TmaFunction attributes

NRM Attributes of IOC tmaFunction in TS 32.692 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
id	id	string	M	M	-
tmaSubunitNumber	tmaSubunitNumber	unsigned short	M	M	M
tmaStateFlag	tmaStateFlag	unsigned short	M	M	O
tmaFunctionFlag	tmaFunctionFlag	unsigned short	M	M	M
tmaMinGain	tmaMinGain	unsigned short	M	M	-
tmaMaxGain	tmaMaxGain	unsigned short	M	M	-
tmaResolution	tmaResolution	unsigned short	M	M	-
tmaGainFigure	tmaGainFigure	unsigned short	M	M	O
tmaNumberOfSubunits	tmaNumberOfSubunits	unsigned short	M	M	-
tmaBaseStationId	tmaBaseStationId	string	CO	M	CO
tmaSectorId	tmaSectorId	string	CO	M	CO
tmaAntennaBearing	tmaAntennaBearing	unsigned short	CO	M	CO
tmaInstalledMechanicalTilt	tmaInstalledMechanicalTilt	short	CO	M	CO
tmaSubunitType	tmaSubunitType	unsigned short	CO	M	CO
tmaSubunitRxFrequencyBand	tmaSubunitRxFrequencyBand	sequence of unsigned short	CO	M	CO
tmaSubunitTxFrequencyBand	tmaSubunitTxFrequencyBand	sequence of unsigned short	CO	M	CO
tmaGainResolution	tmaGainResolution	unsigned short	CO	M	CO
relatedCellList	relatedCellList	GenericNetworkResourcesIRPSys tem::AttributeTypes::MOReferenceSet	M	M	-

Editor's note: The attributes tmaSubunitType, tmaSubunitRxFrequencyBand, tmaSubunitTxFrequencyBand, tmaGainResolution, tmaBaseStationId and tmaSectorId are to be checked if they should be moved to inventory.

## A.2.2.4 IOC CommonBSFunction

## Mapping from NRM IOC CommonBSFunction attributes and associations to SS equivalent MOC CommonBSFunction attributes

Attribute of IOC SectorEquipmentFunction in 3GPP TS 32.792 [4]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
id	id	string	M	M	-
sharedTechnologies	sharedTechnologies	short	M	M	O

## A.2.2.5 IOC GSMCellPart

## Mapping from NRM IOC GSMCellPart attributes and associations to SS equivalent MOC GSMCellPart attributes

Attribute of IOC SectorEquipmentFunction in 3GPP TS 32.792 [4]	SS Attribute	SS Type	Support Qualifier	Read Qualifier	Write Qualifier
id	id	string	M	M	-
aRFCN	aRFCN	string	M	M	M
tsc	tsc	long	M	M	M
aTA	aTA	short	M	M	M
relatedSectorEquipment	relatedSectorEquipment	GenericNetworkResourcesIRPSystem:: AttributeTypes::MOReference	M	M	-

## A.3 Solution Set definitions

### A.3.1 IDL definition structure

Clause A.3.2 defines the MO classes for the Generic RAN NRM IRP.

### A.3.2 IDL specification "GenericRanNRMDefs.idl"

```
//File:GenericRanNRMDefs.idl
#ifndef _GENERICRANNRMDEFS_IDL_
#define _GENERICRANNRMDEFS_IDL_
#include "GenericNetworkResourcesNRMDefs.idl"
#pragma prefix "3gppsa5.org"
/**
 * This module defines constants for each MO class name and
 * the attribute names for each defined MO class.
 */
module GenericRanNRMDefs
{
    /**
    * Definitions for MO class AntennaFunction
    */
    interface AntennaFunction: GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS= "AntennaFunction";
        // Attribute Names
        //
        const string id = "id";
        const string retTiltValue = "retTiltValue";
        const string bearing = "bearing";
        const string retGroupName = "retGroupName";
        const string height = "height";
        const string maxAzimuthValue = "maxAzimuthValue";
        const string minAzimuthValue = "minAzimuthValue";
        const string horizBeamwidth = "horizBeamwidth";
        const string vertBeamwidth = "vertBeamwidth";
        const string relatedCellList= "relatedCellList";
    };

    /**
    * Definitions for MO class TmaFunction
    */
    interface TmaFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "TmaFunction";
        // Attribute Names
        //
        const string id = "id";
        const string tmaSubunitNumber = "tmaSubunitNumber";
        const string tmaStateFlag = "tmaStateFlag";
        const string tmaFunctionFlag = "tmaFunctionFlag";
        const string tmaMinGain = "tmaMinGain";
        const string tmaMaxGain = "tmaMaxGain";
        const string tmaResolution = "tmaResolution";
        const string tmaGainFigure = "tmaGainFigure";
        const string tmaNumberOfSubunits = "tmaNumberOfSubunits";
        const string tmaBaseStationId = "tmaBaseStationId";
        const string tmaSectorId = "tmaSectorId";
        const string tmaAntennaBearing = "tmaAntennaBearing";
        const string tmaInstalledMechanicalTilt = "tmaInstalledMechanicalTilt";
        const string tmaSubunitType = "tmaSubunitType";
        const string tmaSubunitRxFrequencyBand = "tmaSubunitRxFrequencyBand";
        const string tmaSubunitTxFrequencyBand = "tmaSubunitTxFrequencyBand";
        const string tmaGainResolution = "tmaGainResolution";
        const string relatedCellList= "relatedCellList";
    };

    /**
    * Definitions for MO class SectorEquipmentFunction

```

```
*/
interface SectorEquipmentFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
{
    const string CLASS = "SectorEquipmentFunction";
    // Attribute Names
    //
    const string id = "id";
    const string fqBand = "fqBand";
    const string confOutputPower = "confOutputPower";
    const string relatedTmaList = "relatedTmaList";
    const string relatedAntennaList = "relatedAntennaList";
    const string relatedCellList = "relatedCellList";
};

/*
 * Definitions for MO class CommonBSFunction
 */
interface CommonBSFunction : GenericNetworkResourcesNRMDefs::ManagedFunction
{
    const string CLASS = "CommonBSFunction";
    // Attribute Names
    //
    const string id = "id";
    const string sharedTechnologies = "sharedTechnologies";
};

/*
 * Definitions for MO class GSMCellPart
 */
interface GSMCellPart : GenericNetworkResourcesNRMDefs::ManagedFunction
{
    const string CLASS = "GSMCellPart";
    // Attribute Names
    //
    const string id = "id";
    const string aRFCN = "aRFCN";
    const string tsc = "tsc";
    const string aTA = "aTA";
    const string relatedSectorEquipment = "relatedSectorEquipment";
};

}
#endif // _GENERICRANNRMDEFS_IDL_
```

---

## Annex B (normative): XML Definitions

This annex contains the XML Definitions for the Generic RAN NRM IRP as it applies to Itf-N, in accordance with Generic RAN NRM IRP IS definitions [4].

---

### B.1 Architectural features

The overall architectural feature of Generic RAN Network Resources IRP is specified in 3GPP TS 32.792 [4]. This clause specifies features that are specific to the Schema definitions.

The XML definitions of this document specify the schema for a configuration content.

When using the XML definitions for a configuration file transfer with the Bulk CM IRP, using either CORBA Solution Set of 3GPP TS 32.616 [7] or SOAP Solution Set of 3GPP TS 32.616 [7], the basic part of the XML file format definition is provided by 3GPP TS 32.616 [7]. The XML definitions of this document provide the schema for the configuration content to be included in such a configuration file.

When using the XML definitions with a SOAP Solution Set of any Interface IRP that perform operations on managed objects, for example the Basic CM IRP SOAP SS of 3GPP TS 32.606 [6], the XML definitions of this document provides the schema for the configuration content operated on by the interface IRP. Such configuration content can be name of managed object and, if applicable, IOC attributes.

#### B.1.1 Syntax for Distinguished Names

The syntax of a Distinguished Name is defined in 3GPP TS 32.300 [5].

---

### B.2 Mapping

#### B.2.1 General mapping

An IOC maps to an XML element of the same name as the IOC's name in the IS. An IOC attribute maps to a sub-element of the corresponding IOC's XML element, and the name of this sub-element is the same as the attribute's name in the IS.

#### B.2.2 Information Object Class (IOC) mapping

Not present in the current version of this specification.



---

## B.3 Solution Set definitions

### B.3.1 XML definition structure

The overall description of the file format of configuration data XML files is provided by 3GPP TS 32.616 [7].

Annex B.3.3 of the present document defines the NRM-specific XML schema `genericRanNrm.xsd` for the Generic RAN Network Resources IRP NRM defined in 3GPP TS 32.792 [4].

XML schema `genericRanNrm.xsd` explicitly declares NRM-specific XML element types for the related NRM.

The definition of those NRM-specific XML element types complies with the generic mapping rules defined in 3GPP TS 32.616 [7].

### B.3.2 Graphical Representation

Not present in the current version of this specification.

### B.3.3 XML schema "genericRanNrm.xsd"

```

❑ <?xml version="1.0" encoding="UTF-8"?>
❑ <!--
❑ 3GPP TS 32.796 Generic RAN Network Resources IRP
❑ Bulk CM Configuration data file NRM-specific XML schema
genericRanNrm.xsd
-->
<schema xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:xn="http://www.3gpp.org/ftp/specs/archive/32_series/32.626#genericNrm"
xmlns:gn="http://www.3gpp.org/ftp/specs/archive/32_series/32.656#geranNrm"
xmlns:gr="http://www.3gpp.org/ftp/specs/archive/32_series/32.796# genericRanNrm"
targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.796#genericRanNrm"
elementFormDefault="qualified">

<import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.626#genericNrm"/>
<import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.656#geranNrm"/>

<!-- Generic RAN Network Resources IRP NRM attribute related XML types -->

<simpleType name="angleValue">
  <restriction base="short">
    <minInclusive value="0"/>
    <maxInclusive value="3600"/>
  </restriction>
</simpleType>

<simpleType name="retGroupName">
  <restriction base="string">
    <maxLength value="80"/>
  </restriction>
</simpleType>

<simpleType name="bearing">
  <restriction base="short">
    <minInclusive value="0"/>
    <maxInclusive value="360"/>
  </restriction>
</simpleType>

<simpleType name="tmaFunctionFlag">
  <restriction base="unsignedShort">
    <minInclusive value="0"/>
    <maxInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="tmaStateFlag">
  <restriction base="unsignedShort">
    <minInclusive value="0"/>
    <maxInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="fourOctets">
  <restriction base="hexBinary">
    <length value="4"/>
  </restriction>
</simpleType>

<!-- Generic RAN Network Resources IRP NRM class associated XML elements -->

<element name="SectorEquipmentFunction"
  substitutionGroup="xn:ManagedElementOptionallyContainedNrmClass">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="userLabel" type="string"/>
                <element name="fqBand" type="short" />
                <element name="confOutputPower" type="short" />
                <element name="relatedTmaList" type="xn:dnList" />
                <element name="relatedAntennaList" type="xn:dnList" />
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

```

```

        <element name="relatedCellList" type="xn:dnList" />
      </all>
    </complexType>
  </element>
  <choice minOccurs="0" maxOccurs="unbounded">
    <element ref="gr:SectorEquipmentFunctionOptionallyContainedNrmClass"/>

    <element ref="xn:VsDataContainer"/>
  </choice>
</sequence>
</extension>
</complexContent>
</complexType>
</element>

  <element name="AntennaFunction"
substitutionGroup="xn:ManagedElementOptionallyContainedNrmClass">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="userLabel" type="string"/>
                <element name="retTiltValue" type="gr:angleValue"
minOccurs="0"/>
                <element name="bearing" type="gr:bearing" minOccurs="0"/>
                <element name="retGroupName" type="gr:retGroupName"
minOccurs="0"/>
                <element name="height" type="short" minOccurs="0"/>
                <element name="maxAzimuthValue" type="gr:angleValue"
minOccurs="0"/>
                <element name="minAzimuthValue" type="gr:angleValue"
minOccurs="0"/>
                <element name="horizBeamwidth" type="gr:angleValue"
minOccurs="0"/>
                <element name="vertBeamwidth" type="gr:angleValue"
minOccurs="0"/>
                <element name="relatedCellList" type="xn:dnList" />
              </all>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="gr:AntennaFunctionOptionallyContainedNrmClass"/>
            <element ref="xn:VsDataContainer"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

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                <element name="tmaSubunitNumber" type="unsignedShort" />
                <element name="tmaStateFlag" type="gr:tmaStateFlag" />
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                <element name="tmaMinGain" type="unsignedShort" />
                <element name="tmaMaxGain" type="unsignedShort" />
                <element name="tmaResolution" type="unsignedShort" />
                <element name="tmaGainFigure" type="unsignedShort" />
                <element name="tmaNumberOfSubunits" type="unsignedShort" />
                <element name="tmaBaseStationId" type="string" minOccurs="0"/>
                <element name="tmaSectorId" type="string" minOccurs="0"/>
                <element name="tmaAntennaBearing" type="unsignedShort"
minOccurs="0"/>
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minOccurs="0"/>
                <element name="tmaSubunitType" type="unsignedShort"
minOccurs="0"/>
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

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minOccurs="0"/>
minOccurs="0"/>
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        <element name="tmaSubunitTxFrequencyBand" type="gr:fourOctets"
        <element name="tmaGainResolution" type="unsignedShort"
        <element name="relatedCellList" type="xn:dnList"/>
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        </complexType>
    </element>
    <choice minOccurs="0" maxOccurs="unbounded">
        <element ref="gr:TmaFunctionOptionallyContainedNrmClass"/>
        <element ref="xn:VsDataContainer"/>
    </choice>
</sequence>
</extension>
</complexContent>
</complexType>
</element>

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                                <element name="aRFCN" type="string"/>
                                <element name="tsc" type="long"/>
                                <element name="aTA" type="short"/>
                                <element name="relatedSectorEquipment" type="xn:dn"/>
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                        <element ref="xn:VsDataContainer"/>
                    </choice>
                </sequence>
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</element>

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substitutionGroup="xn:ManagedElementOptionallyContainedNrmClass">
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        <complexContent>
            <extension base="xn:NrmClass">
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                            <all>
                                <element name="userLabel" type="string"/>
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                        <element ref="gr:CommonBSFunctionOptionallyContainedNrmClass"/>
                        <element ref="xn:VsDataContainer"/>
                    </choice>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
</element>

<element name="SectorEquipmentFunctionOptionallyContainedNrmClass" type="xn:NrmClass"
abstract="true"/>
<element name="AntennaFunctionOptionallyContainedNrmClass" type="xn:NrmClass" abstract="true"/>
<element name="TmaFunctionOptionallyContainedNrmClass" type="xn:NrmClass" abstract="true"/>
<element name="GSMCellPartOptionallyContainedNrmClass" type="xn:NrmClass" abstract="true"/>
<element name="CommonBSFunctionOptionallyContainedNrmClass" type="xn:NrmClass" abstract="true"/>
</schema>

```

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## Annex A (informative): Change history

Change history								
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Cat	Old	New
2012-10					First draft			0.1.0
2012-12	SA#58				Presented for information and approval		0.1.0	1.0.0
2012-12					New version after approval		1.0.0	11.0.0

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# History

<b>Document history</b>		
V11.0.0	January 2013	Publication