

ETSI TS 128 733 V13.0.0 (2016-01)



**Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
Transport Network (TN) interface
Network Resource Model (NRM)
Integration Reference Point (IRP);
Solution Set (SS) definitions
(3GPP TS 28.733 version 13.0.0 Release 13)**



Reference

RTS/TSGS-0528733vd00

Keywords

LTE,UMTS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommitteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2016.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

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>.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	4
Introduction	4
1 Scope	5
2 References	5
3 Definitions and abbreviations.....	6
3.1 Definitions	6
3.2 Abbreviations	6
4 Solution Set Definitions	7
Annex A (normative): CORBA Solution Set	8
A.0 General	8
A.1 Architectural features	8
A.1.0 Introduction	8
A.1.1 Syntax for Distinguished Names	8
A.1.2 Rules for NRM extensions	8
A.2 Mapping	8
A.2.1 General mapping	8
A.2.2 Information Object Class (IOC) mapping	8
A.2.2.1 IOC TransportNetworkInterface	8
A.2.2.2 IOC ATMChannelTerminationPoint	9
A.2.2.3 IOC ATMPATHTerminationPoint	10
A.3 Solution Set definitions	10
A.3.1 IDL definition structure.....	10
A.3.2 IDL specification "TransportNetworkResourcesNRMDefs.idl"	10
Annex B (normative): XML Definitions	12
B.0 General	12
B.1 Architectural features	12
B.1.0 Introduction	12
B.1.1 Syntax for Distinguished Names	12
B.2 Mapping	12
B.2.1 General mapping.....	12
B.2.2 Information Object Class (IOC) mapping.....	12
B.3 Solution Set definitions	12
B.3.1 XML definition structure.....	12
B.3.2 Graphical Representation	13
B.3.3 XML Schema "transportNrm.xsd"	13
Annex A (informative): Change history	18
History	19

Foreword

This Technical Specification has been produced by the 3rd 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:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- 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.

Introduction

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

28.731 Transport Network (TN) interface Network Resource Model (NRM) Integration Reference Point (IRP); Requirements

28.732 Transport Network (TN) interface Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)

28.733 Transport Network (TN) interface Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions

1 Scope

The present document is part of an Integration Reference Point (IRP) named Transport Network (TN) interface Network Resource Model (NRM) IRP, through which an IRPAgent can communicate configuration management information to one or several IRPManagers concerning TN resources. The TN 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 TN NRM IRP.

This specification is related to 3GPP TS 28.732 [4] V12.0.X.

2 References

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

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

- [1] 3GPP TS 32.101: "Telecommunication management; Principles and high level requirements".
- [2] 3GPP TS 32.102: "Telecommunication management; Architecture".
- [3] 3GPP TS 32.600: "Telecommunication management; Configuration Management (CM); Concept and high-level requirements".
- [4] 3GPP TS 28.732: "Telecommunication management; Transport Network (TN) Interface 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] OMG Notification Service, Version 1.0.
- [7] OMG CORBA services: Common Object Services Specification, Update: November 22, 1996.
- [8] The Common Object Request Broker: Architecture and Specification (for specification of valid version, see [1]).
- [9] 3GPP TS 32.306: "Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP): Solution Set (SS) definitions".
- [10] 3GPP TS 32.612: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP): Information Service (IS)".
- [11] 3GPP TS 32.616: "Telecommunication management; Configuration Management (CM); Bulk CM Integration Reference Point (IRP): Solution Set (SS) definitions".
- [12] W3C REC-xml11-20060816: "Extensible Markup Language (XML) 1.1 (Second Edition)".
- [13] Void
- [14] W3C XML Schema Definition Language (XSD) 1.1 Part 1: Structures.
- [15] W3C XML Schema Definition Language (XSD) 1.1 Part 2: Datatypes.

- [16] W3C REC-xml-names-20060816: "Namespaces in XML 1.1 (Second Edition)".
- [17] 3GPP TS 28.623: 'Generic Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions'.

3 Definitions and abbreviations

3.1 Definitions

For terms and definitions please refer to 3GPP TS 32.101 [1], TS 32.102 [2], TS 32.600 [3] and TS 32.712 [4] and the following apply.

XML file: See definition of [17].

XML document: See definition of [17].

XML declaration: See definition of [17].

XML element: See definition of [17].

empty XML element: See definition of [17].

XML content (of an XML element): See definition of [17].

XML start-tag: See definition of [17].

XML end-tag: See definition of [17].

XML empty-element tag: See definition of [17].

XML attribute specification: See definition of [17].

DTD: See definition of [17].

XML schema: See definition of [17].

XML namespace: See definition of [17].

XML complex type: See definition of [17].

XML element type: See definition of [17].

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CM	Configuration Management
CORBA	Common Object Request Broker Architecture
DN	Distinguished Name
DTD	Document Type Definition
EDGE	Enhanced Data for GSM Evolution
GERAN	GSM/EDGE Radio Access Network
GSM	Global System for Mobile communication
IS	Information Service
IDL	Interface Definition Language (OMG)
IOC	Information Object Class
IRP	Integration Reference Point
MO	Managed Object
MOC	Managed Object Class
NRM	Network Resource Model
OMG	Object Management Group

SS	Solution Set
TN	Transport Network
UMTS	Universal Mobile Telecommunications System
UTRAN	Universal Terrestrial Radio Access Network
XML	eXtensible Markup Language

4 Solution Set Definitions

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

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

Annex A (normative): CORBA Solution Set

A.0 General

This annex contains the CORBA Solution Set for the IRP whose semantics is specified in TN NRM IRP: Information Service (TS 32.712 [4]).

A.1 Architectural features

A.1.0 Introduction

The overall architectural feature of Transport Network Resources IRP is specified in 3GPP TS 28.712 [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 [17].

A.1.2 Rules for NRM extensions

See clause A.1.2 of [17].

A.2 Mapping

A.2.1 General mapping

See clause A.2.1 of [17].

A.2.2 Information Object Class (IOC) mapping

A.2.2.1 IOC TransportNetworkInterface

Table A.2.2.1: Mapping from NRM IOC TransportNetworkInterface attributes to SS equivalent MOC TransportNetworkInterface attributes

NRM Attributes of IOC TransportNetworkInterface in 3GPP TS 28.732 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
id	transportNetworkInterfaceId	string	M	M	-
userLabel	userLabel	string	M	M	M
transportNetworkType	transportNetworkType	string	M	M	-

A.2.2.2 IOC ATMChannelTerminationPoint

Table A.2.2.2: Mapping from NRM IOC ATMChannelTerminationPoint attributes and associations to SS equivalent MOC ATMTerminationPoint attributes

NRM Associations/Attributes of IOC ATMChannelTerminationPoint in 3GPP TS 28.732 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
id	aTMChannelTerminationPointId	string	M	M	_
usageChannel	usageChannel	string	M	M	_
virtualPathId	virtualPathId	long	M	M	O
virtualChannelId	virtualChannelId	long	M	M	O
physicalPortId	physicalPortId	string	M	M	O
physicalInterfaceType	physicalLinkType	string	M	M	O
serviceCategoryIn	serviceCategoryIn	long	M	M	O
serviceCategoryEg	serviceCategoryEg	long	M	M	O
usedAAL	usedAAL	long	M	M	O
peakCellRateIn	peakCellRateIn	long	M	M	O
peakCellRateEg	peakCellRateEg	long	M	M	O
sustainableCellRateIn	sustainableCellRateIn	long	O	M	O
sustainableCellRateEg	sustainableCellRateEg	long	O	M	O
maximumBurstSizeIn	maximumBurstSizeIn	long	M	M	O
maximumBurstSizeEg	maximumBurstSizeEg	long	M	M	O
minimumDesiredCellRateIn	minimumDesiredCellRateIn	long	O	M	O
minimumDesiredCellRateEg	minimumDesiredCellRateEg	long	O	M	O
minimumCellRateIn	minimumCellRateIn	long	O	M	O
minimumCellRateEg	minimumCellRateEg	long	O	M	O
aTMChannelTerminationPoint-ATMPATHTerminationPoint	aTMChannelTerminationPointATMPATHTerminationPoint	GenericNetworkResourcesIRPSystem::AttributeTypes::MOREference	M	M	-
aTMChannelTerminationPoint-IubLink	aTMChannelTerminationPointIubLink	GenericNetworkResourcesIRPSystem::AttributeTypes::MOREferenceSet	M	M	-

A.2.2.3 IOC ATMPATHTerminationPoint

Table A.2.2.3: Mapping from NRM IOC ATMPATHTerminationPoint attributes and associations to SS equivalent MOC ATMTerminationPoint attributes

NRM Associations/Attributes of IOC ATMPATHTerminationPoint in 3GPP TS 28.732 [4]	SS Attributes	SS Type	Support Qualifier	Read	Write
id	aTMPATHTerminationPointId	string	M	M	_
virtualPathId	virtualPathId	long	M	M	O
physicalPortIdList	physicalPortIdList	string	M	M	O
peakCellRateIn	peakCellRateIn	long	M	M	O
peakCellRateEg	peakCellRateEg	long	M	M	O
aTMPATHTerminationPoint-ATMChannelTerminationPoint	aTMPATHTerminationPointATMChannelTerminationPoint	GenericNetworkResourcesIRPSystem::AttributeTypes::MOReferenceSet	M	M	-

A.3 Solution Set definitions

A.3.1 IDL definition structure

Clause A.3.2 defines the MO classes for the TN NRM IRP.

A.3.2 IDL specification 'TransportNetworkResourcesNRMDefs.idl'

```
//File: TransportNetworkResourcesNRMDefs.idl
#ifndef _TRANSPORT_NETWORK_RESOURCES_NRM_DEFS_IDL_
#define _TRANSPORT_NETWORK_RESOURCES_NRM_DEFS_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 TransportNetworkResourcesNRMDefs
{
    /**
     * Definitions for MO class TransportNetworkInterface
     */
    interface TransportNetworkInterface : GenericNetworkResourcesNRMDefs::ManagedFunction
    {
        const string CLASS = "TransportNetworkInterface";
        // Attribute Names
        //
        const string transportNetworkInterfaceId = "transportNetworkInterfaceId";
        const string transportNetworkType= "transportNetworkType";
    };
    /**
     * Definitions for MO class ATMChannelTerminationPoint
     */
    interface ATMChannelTerminationPoint
    {
        const string CLASS = "ATMChannelTerminationPoint";
        // Attribute Names
        //
        const string atmChannelTerminationPointId = "atmChannelTerminationPointId";
        const string usageChannel= "usageChannel";
        const string virtualPathId= "virtualPathId";
    };
};
#endif
```

```

const string virtualChannelId= "virtualChannelId";
const string physicalPortId= "physicalPortId";
const string physicalLinkType= "physicalLinkType";
const string serviceCategoryIn= "serviceCategoryIn";
const string serviceCategoryEg= "serviceCategoryEg";
const string usedAAL= "usedAAL";
const string peakCellRateIn= "peakCellRateIn";
const string peakCellRateEg= "peakCellRateEg";
const string sustainableCellRateIn= "sustainableCellRateIn";
const string sustainableCellRateEg= "sustainableCellRateEg";
const string maximumBurstSizeIn= "maximumBurstSizeIn";
const string maximumBurstSizeEg= "maximumBurstSizeEg";
const string minimumDesiredCellRateIn= "minimumDesiredCellRateIn";
const string minimumDesiredCellRateEg= "minimumDesiredCellRateEg";
const string minimumCellRateIn= "minimumCellRateIn";
const string minimumCellRateEg= "minimumCellRateEg";
const string aTMChannelTerminationPointATMPATHTerminationPoint =
"aTMChannelTerminationPointATMPATHTerminationPoint";
const string aTMChannelTerminationPointIubLink = "aTMChannelTerminationPointIubLink";
};
/**
 * Definitions for MO class ATMPATHTerminationPoint
 */
interface ATMPATHTerminationPoint
{
const string CLASS = "ATMPATHTerminationPoint";
// Attribute Names
//
const string aTMPathTerminationPointId = "aTMPathTerminationPoint";
const string virtualPathId= "virtualPathId";
const string physicalPortIdList= "physicalPortIdList";
const string peakCellRateIn= "peakCellRateIn";
const string peakCellRateEg= "peakCellRateEg";
const string aTMPathTerminationPointATMChannelTerminationPoint =
"aTMPathTerminationPointATMChannelTerminationPoint";
};
};
#endif // _TRANSPORT_NETWORK_RESOURCES_NRM_DEFS_IDL_

```

Annex B (normative): XML Definitions

B.0 General

This annex contains the XML Definitions for the TN NRM IRP as it applies to Itf-N, in accordance with TN NRM IRP Information Service (TS 32.712 [4]).

The XML file formats are based on XML [12], XML Schema [14] [15] and XML Namespace [16] standards.

B.1 Architectural features

B.1.0 Introduction

The overall architectural feature of Transport Network Resources IRP is specified in 3GPP TS 32.712 [4]. This clause specifies features that are specific to the XML Definitions.

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

The mapping is 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 [11].

Annex B.3.3 of the present document defines the NRM-specific XML schema `transportNrm.xsd` for the Transport interface Network Resources IRP NRM defined in 3GPP TS 32.712 [4].

XML schema `transportNrm.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 [11].

B.3.2 Graphical Representation

The graphical representation is not present in the current version of this specification.

B.3.3 XML Schema "transportNrm.xsd"

```
<?xml version="1.1" encoding="UTF-8"?>

<!--
 3GPP TS 32.716 Transport Network Interface NRM IRP
 Bulk CM Configuration data file NRM-specific XML schema
 transportNrm.xsd
-->

<schema
  targetNamespace=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.716#transportNrm"
  elementFormDefault="qualified"
  xmlns="http://www.w3.org/2001/XMLSchema"
  xmlns:xn=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.626#genericNrm"
  xmlns:tn=
"http://www.3gpp.org/ftp/specs/archive/32_series/32.716#transportNrm"
>

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

<!--Transport Network Interface Resources IRP NRM attribute related XML types -->

<simpleType name="transportNetworkType">
  <restriction base="string">
    <enumeration value="ATM"/>
    <enumeration value="IP"/>
  </restriction>
</simpleType>

<simpleType name="serviceCategoryIn">
  <restriction base="string">
    <enumeration value="CBR"/>
    <enumeration value="RT-VBR"/>
    <enumeration value="NRT-VBR"/>
    <enumeration value="ABR"/>
    <enumeration value="UBR"/>
    <enumeration value="GFR"/>
  </restriction>
</simpleType>

<simpleType name="serviceCategoryEg">
  <restriction base="string">
    <enumeration value="CBR"/>
    <enumeration value="RT-VBR"/>
    <enumeration value="NRT-VBR"/>
    <enumeration value="ABR"/>
    <enumeration value="UBR"/>
    <enumeration value="GFR"/>
  </restriction>
</simpleType>

<simpleType name="usedAAL">
  <restriction base="string">
    <enumeration value="Null"/>
    <enumeration value="AAL1"/>
    <enumeration value="AAL2"/>
    <enumeration value="AAL3"/>
    <enumeration value="AAL4"/>
    <enumeration value="AAL5"/>
  </restriction>
</simpleType>

<simpleType name="virtualPathId">
  <restriction base="integer">
    <minInclusive value="0"/>
  </restriction>
</simpleType>
```

```
</restriction>
</simpleType>

<simpleType name="virtualChannelId">
  <restriction base="integer">
    <minInclusive value="0"/>
  </restriction>
</simpleType>

<complexType name="physicalPortIdList">
  <sequence>
    <element name="physicalPortId" type="string" minOccurs="1" maxOccurs="unbounded">
    </element>
  </sequence>
</complexType>

<simpleType name="peakCellRateIn">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="peakCellRateEg">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="sustainableCellRateIn">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="sustainableCellRateEg">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="maximumBurstSizeIn">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="maximumBurstSizeEg">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="minimumCellRateIn">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="minimumCellRateEg">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="minimumDesiredCellRateIn">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<simpleType name="minimumDesiredCellRateEg">
  <restriction base="integer">
    <minInclusive value="1"/>
  </restriction>
</simpleType>

<!-- Transport Network Interface Resources IRP NRM class associated XML elements -->
```

```

<element
  name="TransportNetworkInterface"
  substitutionGroup="xn:ManagedElementOptionallyContainedNrmClass"
>
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="userLabel" type="string"/>
                <element
                  name="transportNetworkType"
                  type="tn:transportNetworkType"
                />
              </all>
            </complexType>
          </element>
          <choice minOccurs="0" maxOccurs="unbounded">
            <element ref="tn:ATMPATHTerminationPoint"/>
            <element ref="tn:ATMChannelTerminationPoint"/>
            <element ref="xn:VsDataContainer"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

<element name="ATMChannelTerminationPoint">
  <complexType>
    <complexContent>
      <extension base="xn:NrmClass">
        <sequence>
          <element name="attributes" minOccurs="0">
            <complexType>
              <all>
                <element name="usageChannel" type="string"/>
                <element
                  name="virtualPathId"
                  type="tn:virtualPathId"
                />
                <element
                  name="virtualChannelId"
                  type="tn:virtualChannelId"
                />
                <element
                  name="physicalPortId"
                  type="string"
                />
                <element name="physicalInterfaceType" type="string" minOccurs="0"/>
                <element
                  name="serviceCategoryIn"
                  type="tn:serviceCategoryIn"
                />
                <element
                  name="serviceCategoryEg"
                  type="tn:serviceCategoryEg"
                />
                <element
                  name="usedAAL"
                  type="tn:usedAAL"
                />
                <element
                  name="peakCellRateIn"
                  type="tn:peakCellRateIn"
                />
                <element
                  name="peakCellRateEg"
                  type="tn:peakCellRateEg"
                />
                <element
                  name="sustainableCellRateIn"
                  type="tn:sustainableCellRateIn"
                  minOccurs="0"
                />
              </all>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

```



```

        name="sustainableCellRateEg"
        type="tn:sustainableCellRateEg"
        minOccurs="0"
    />
    <element
        name="maximumBurstSizeIn"
        type="tn:maximumBurstSizeIn"
    />
    <element
        name="maximumBurstSizeEg"
        type="tn:maximumBurstSizeEg"
    />
    <element
        name="minimumDesiredCellRateIn"
        type="tn:minimumDesiredCellRateIn"
        minOccurs="0"
    />
    <element
        name="minimumDesiredCellRateEg"
        type="tn:minimumDesiredCellRateEg"
        minOccurs="0"
    />
    <element
        name="minimumCellRateIn"
        type="tn:minimumCellRateIn"
        minOccurs="0"
    />
    <element
        name="minimumCellRateEg"
        type="tn:minimumCellRateEg"
        minOccurs="0"
    />
    <element name="atMChannelTerminationPointATMPATHTerminationPoint" type="xn:dn"/>
    <element name="atMChannelTerminationPointIubLink" type="xn:dnList"/>
</all>
</complexType>
</element>
<choice>
    <element ref="xn:VsDataContainer" minOccurs="0" maxOccurs="unbounded"/>
</choice>
</sequence>
</extension>
</complexContent>
</complexType>
</element>

<element name="ATMPATHTerminationPoint">
    <complexType>
        <complexContent>
            <extension base="xn:NrmClass">
                <sequence>
                    <element name="attributes" minOccurs="0">
                        <complexType>
                            <all>
                                <element
                                    name="virtualPathId"
                                    type="tn:virtualPathId"
                                />
                                <element
                                    name="physicalPortIdList"
                                    type="tn:physicalPortIdList"
                                />
                                <element
                                    name="peakCellRateIn"
                                    type="tn:peakCellRateIn"
                                />
                                <element
                                    name="peakCellRateEg"
                                    type="tn:peakCellRateEg"
                                />
                                <element name="atMPATHTerminationPointATMChannelTerminationPoint"
type="xn:dnList"/>
                            </all>
                        </complexType>
                    </element>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
</element>
<choice minOccurs="0" maxOccurs="unbounded">
    <element ref="xn:VsDataContainer"/>
</choice>

```

```
        </sequence>
      </extension>
    </complexContent>
  </complexType>
</element>

</schema>
```

Annex A (informative): Change history

Change history								
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Cat	Old	New
2014-06	SA#64	SP-140358	001	-	Upgrade W3C XML Schema version from 1.0 to 1.1	F	11.0.0	11.1.0
		SP-140332	002	-	remove the feature support statements	F		
2014-09	SA#65	SP-140560	003	-	Update the link from Solution Set to Information Service due to the end of Release 12	C	11.1.0	12.0.0
2016-01					Update to Rel-13 (MCC)		12.0.0	13.0.0

History

Document history		
V13.0.0	January 2016	Publication