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SERIES Q: SWITCHING AND SIGNALLING

Specifications of Signalling System No. 7 – Q3 interface

**Stage 2 and stage 3 description for the Q3
interface – Customer administration:
Broadband switch management**

ITU-T Recommendation Q.824.6

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION Q.824.6

STAGE 2 AND STAGE 3 DESCRIPTION FOR THE Q3 INTERFACE – CUSTOMER ADMINISTRATION: BROADBAND SWITCH MANAGEMENT

Source

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Recommendation Q.824.6

STAGE 2 AND STAGE 3 DESCRIPTION FOR THE Q3 INTERFACE – CUSTOMER ADMINISTRATION: BROADBAND SWITCH MANAGEMENT

(Geneva, 1998)

1 Introduction

1.1 Purpose and Scope

This Recommendation specifies the Q3 interface between an ATM switch and the Telecommunications Management Network (TMN). The interface specified is that between TMN Network Elements or Q-Adapters which interface to TMN Operations Systems (OSs) without mediation and between OSs and Mediation Devices, as defined in Recommendation M.3010 [5].

The configuration by management of channels for signalling, including those for B-ISDN signalling, is within the scope of this Recommendation. The management of broadband customer administration and the configuration for call routing, including that for interworking with narrowband switches for both incoming and outgoing interfaces, is also within the scope of this Recommendation.

An ATM switch may include ATM cross-connect functionality, but this is specified by reference to the ITU-T Recommendation on ATM network elements [4] and by importing the relevant classes of managed objects where appropriate.

Existing protocols are used where possible, and the focus of the work is on defining the object model. The definition of the functionality of TMN Operations Systems is outside the scope of this Recommendation.

Security management is also outside the scope of this Recommendation.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- [1] ITU-T Recommendation I.311 (1996), *B-ISDN general network aspects*.
- [2] ITU-T Recommendation I.363.5 (1996), *B-ISDN ATM adaptation layer specification: Type 5 AAL*.
- [3] ITU-T Recommendation I.610 (1995), *B-ISDN operation and maintenance principles and functions*.

- [4] ITU-T Recommendation I.751 (1996), *Asynchronous transfer mode management of the network element view*.
- [5] ITU-T Recommendation M.3010 (1996), *Principles for a telecommunications management network*.
- [6] ITU-T Recommendation M.3100 (1995), *Generic network information model*.
- [7] ITU-T Recommendation Q.2110 (1994), *B-ISDN ATM adaptation layer – Service Specific Connection Oriented Protocol (SSCOP)*.
- [8] ITU-T Recommendation Q.2130 (1994), *B-ISDN ATM adaptation layer – Service Specific Coordination Function for the Support of Signalling at the User-Network Interface (SSFC at UNI)*.
- [9] ITU-T Recommendation Q.2140 (1995), *B-ISDN ATM adaptation layer – Service Specific Coordination Function for the Support of Signalling at the Network Node Interface (SSFC at NNI)*.
- [10] ITU-T Recommendations Q.2761 (1995), Q.2762 (1995), Q.2763 (1995), Q.2764 (1995), *A group of Recommendations on B-ISDN – User Part (B-ISUP) of Signalling System No. 7*.
- [11] ITU-T Recommendation Q.2931 (1995), *Digital Subscriber Signalling System No. 2 (DSS 2) – User-Network Interface (UNI) layer 3 specification for basic call/connection control*.
- [12] CCITT Recommendation X.720 (1992) | ISO/IEC 10165-1:1993, *Information technology – Open Systems Interconnection – Structure of management information: Management information model*.
- [13] CCITT Recommendation X.721 (1992) | ISO/IEC 10165-2:1992, *Information technology – Open Systems Interconnection – Structure of management information: Definition of management information*.
- [14] CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2:1992, *Information technology – Open Systems Interconnection – Systems management: State management function*.
- [15] CCITT Recommendation X.732 (1992) | ISO/IEC 10164-3:1992, *Information technology – Open Systems Interconnection – Systems management: Attributes for representing relationships*.
- [16] ITU-T Recommendation Q.821 (1993), *Stage 2 and stage 3 description for the Q3 interface – Alarm surveillance*.
- [17] ATM Forum Specification af-nm-0027.000 (1995), *CMIP Specification for the MA Interface*.

3 Definitions, abbreviations and conventions

3.1 Definitions

This Recommendation defines the following terms:

3.1.1 permanent VCC: A permanent VCC is a virtual circuit connection which is established by configuration management, not by on-demand call control.

3.1.2 virtual channel trail: This corresponds to a VCC in standard ATM terminology.

3.1.3 virtual channel trail termination point: This corresponds to the end point of a VCC and marks the extremity of an end-to-end F5 OAM flow.

3.1.4 virtual channel connection termination point: This corresponds to an intermediate point of a VCC and may mark the extremity of a segment F5 OAM flow.

3.1.5 virtual path trail: This corresponds to a VPC in standard ATM terminology.

3.1.6 virtual path trail termination point: This corresponds to the end point of a VPC and marks the extremity of an end-to-end F4 OAM flow.

3.1.7 virtual path connection termination point: This corresponds to an intermediate point of a VPC and may mark the extremity of a segment F4 OAM flow.

In addition, this Recommendation uses terms defined in ITU-T Recommendations:

F4 OAM flow: See Recommendation I.610 [3].

F5 OAM flow: See Recommendation I.610 [3].

Trail Termination Point: See Recommendation M.3100 [6].

Virtual Channel: See Recommendation I.311 [1].

Virtual Channel Connection: See Recommendation I.311 [1].

Virtual Path: See Recommendation I.311 [1].

Virtual Path Connection: See Recommendation I.311 [1].

3.2 Abbreviations

This Recommendation uses the following abbreviations:

NNI Network-Network Interface

TTP Trail Termination Point

UNI User-Network Interface

VC Virtual Channel

VCC Virtual Channel Connection

VP Virtual Path

VPC Virtual Path Connection

3.3 Conventions

Objects and their characteristics and associated ASN.1 defined here are given names with capitals used to indicate the start of the next word and acronyms are treated as if they were words.

Throughout this Recommendation, all new attributes are named according to the following guidelines:

- The name of an attribute ends in the string "Ptr" if and only if the attribute value is intended to identify a single object.
- The name of an attribute ends in the string "PtrList" if and only if the attribute value is intended to identify one or more objects.
- The name of an attribute is composed of the name of an object class followed by the string "Ptr" if and only if the attribute value is intended to identify a specific object class.
- If an attribute is intended to identify different object classes, a descriptive name is given to that attribute and a description is provided in the attribute behaviour.
- The name of an attribute ends in the string "Id" if and only if the attribute value is intended to identify the name of an object, in which case this attribute should be the first one listed, should use ASN.1 NameType and should not be used to convey other information.
- The name of an attribute is composed of the name of an object class followed by the string "Id" if and only if the attribute value is intended to identify the name of the object class holding that attribute.

4 General overview

The following information model diagrams have been drawn for the purpose of clarifying the relations between the different object classes of the model.

- 1) Entity Relationship Models showing the relations of the different managed objects;
- 2) Inheritance Hierarchy showing how managed objects are derived from each other (i.e. the different paths of inherited characteristics of the different managed objects).

These diagrams are only for clarification. The formal specification in terms of GDMO templates and ASN.1 type definitions are the relevant information for implementations.

4.1 Entity Relationship Models

The following conventions are used in the diagrams:

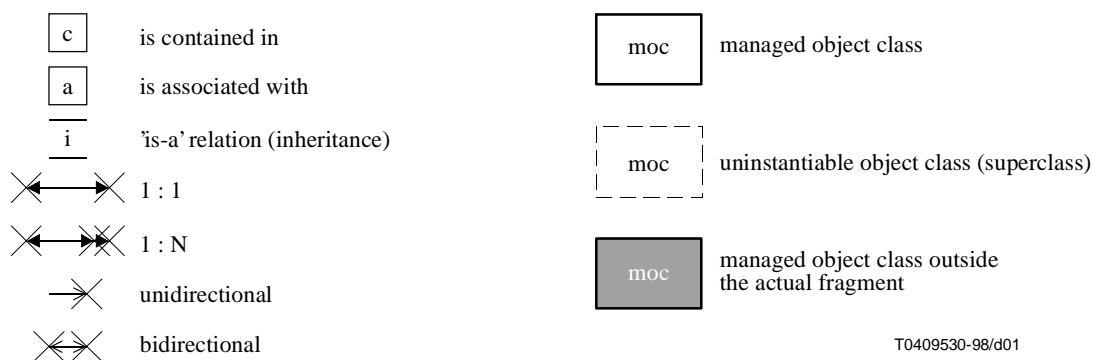


Figure 1/Q.824.6 – Conventions used in diagrams for Entity Relationship Models

Where the directionality of containment is not clear it can be identified by implications since the root class is unique.

ATM switching network elements are represented by instances of the class atmSwitch and this contains, either directly or indirectly, all other managed objects which represent parts of the ATM switch.

4.1.1 ATM generic modelling

Modelling of ATM is restricted to bidirectional trails so that there is always a backwards channel for OAM purposes.

The interfaces to the ATM switching network element consist of User-Network Interfaces (UNIs), which are labelled by instances of the class uni, and of Network-Network Interfaces (NNIs) which are labelled by instances of the class intraNNI if the interface is to the same network operator as the network element or by instances of the class interNNI if the interface is to a different network operator. The managed objects which label the interfaces are contained in the instance of managedElementR1 which represents the ATM switch and point to an instance of tcAdaptorTTPBidirectional class which represents the adaptation of the ATM layer to the underlying physical infrastructure.

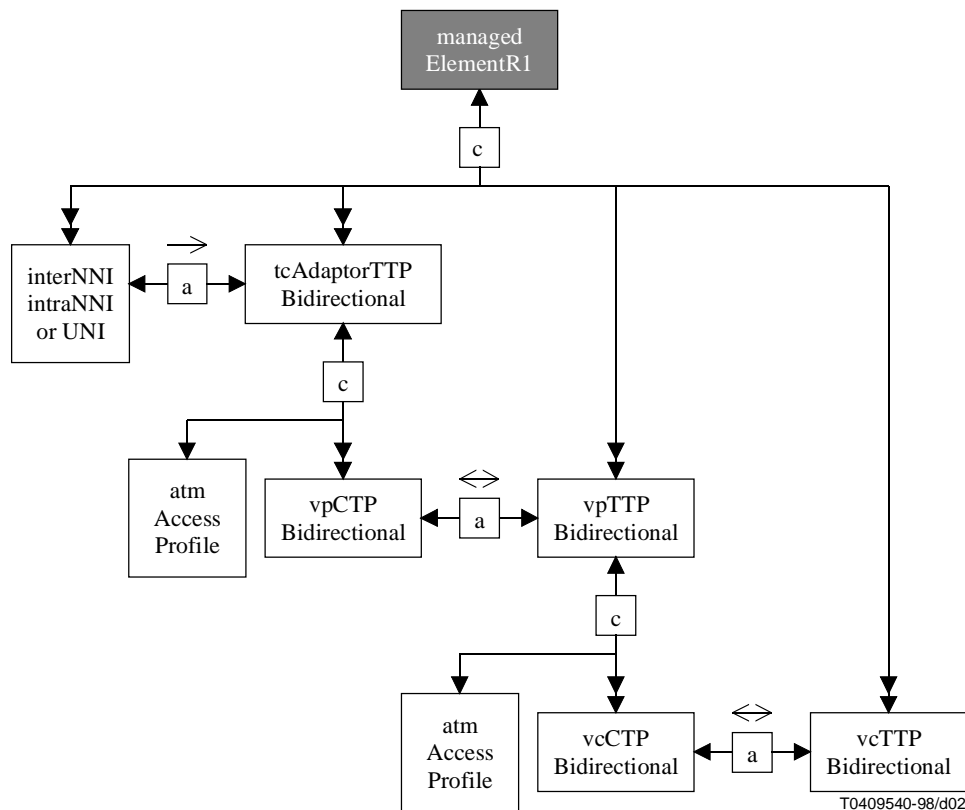


Figure 2/Q.824.6 – Entity Relationship Model – ATM interfaces

Instances of `tcAdaptorTTPBidirectional` are contained in the instance of `managedElementR1`. The adaptation to a physical infrastructure, represented by an instance of `tcAdaptorTTPBidirectional`, serves a number of virtual path trails which pass through the associated interface. The intermediate points on these trails which are served by the adaptation are represented by instances of `vpCTPBidirectional` class which are contained in the instance of `tcAdaptorTTPBidirectional`. The instance of `tcAdaptorTTPBidirectional` may also contain an instance of `atmAccessProfile` which characterizes the virtual paths.

An instance of `atmAccessProfile` may also be contained in an instance of `vpTTPBidirectional`, which represents the end point of virtual path trail, to characterize the virtual channels served by the virtual path trail. The intermediate points of the virtual channel trails are represented by instances of `vcCTPBidirectional` which are contained in the instance of `vpTTPBidirectional`. The end points of the virtual channel trails are represented by instances of `vcTTPBidirectional`. Instances of `vpTTPBidirectional` and of `vcTTPBidirectional` are contained in the instance of `managedElementR1`.

End points of virtual path trails (`vpTTPBidirectional`) must be directly associated with intermediate points (`vpCTPBidirectional`) using reciprocal upstream and downstream pointers. These pointers must also be used to associate the end points of virtual connections trails (`vcTTPBidirectional`) with their intermediate points (`vcCTPBidirectional`). A flexible cross-connection of two intermediate points at the same virtual level (either path or channel) is represented by an instance of `atmCrossConnection`. These instances are contained in an instance of `atmFabric` which represents the management of the cross-connection functionality and which is contained in the instance of `managedElementR1`. The upstream and downstream pointers may be used to associate a CTP object with a TTP object, or to associate CTP objects in a cross-connection, but not both simultaneously.

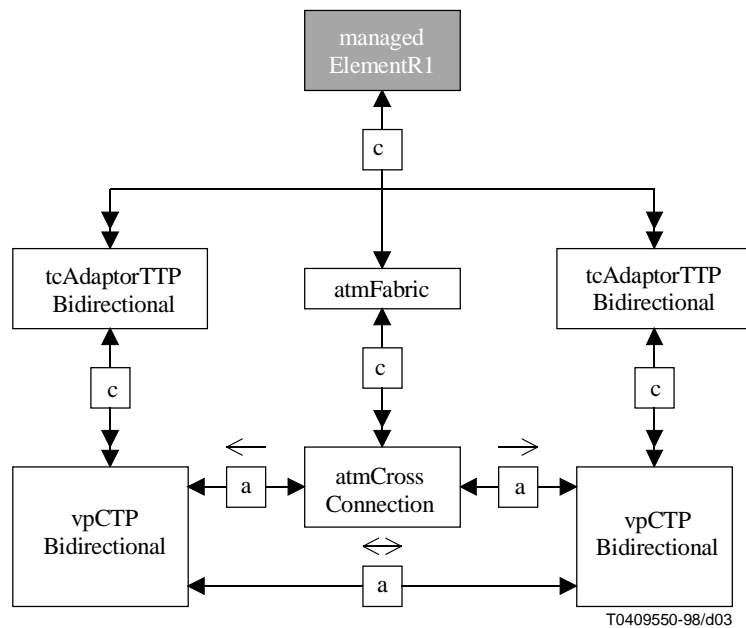


Figure 3/Q.824.6 – Instantiation example – VP cross-connection

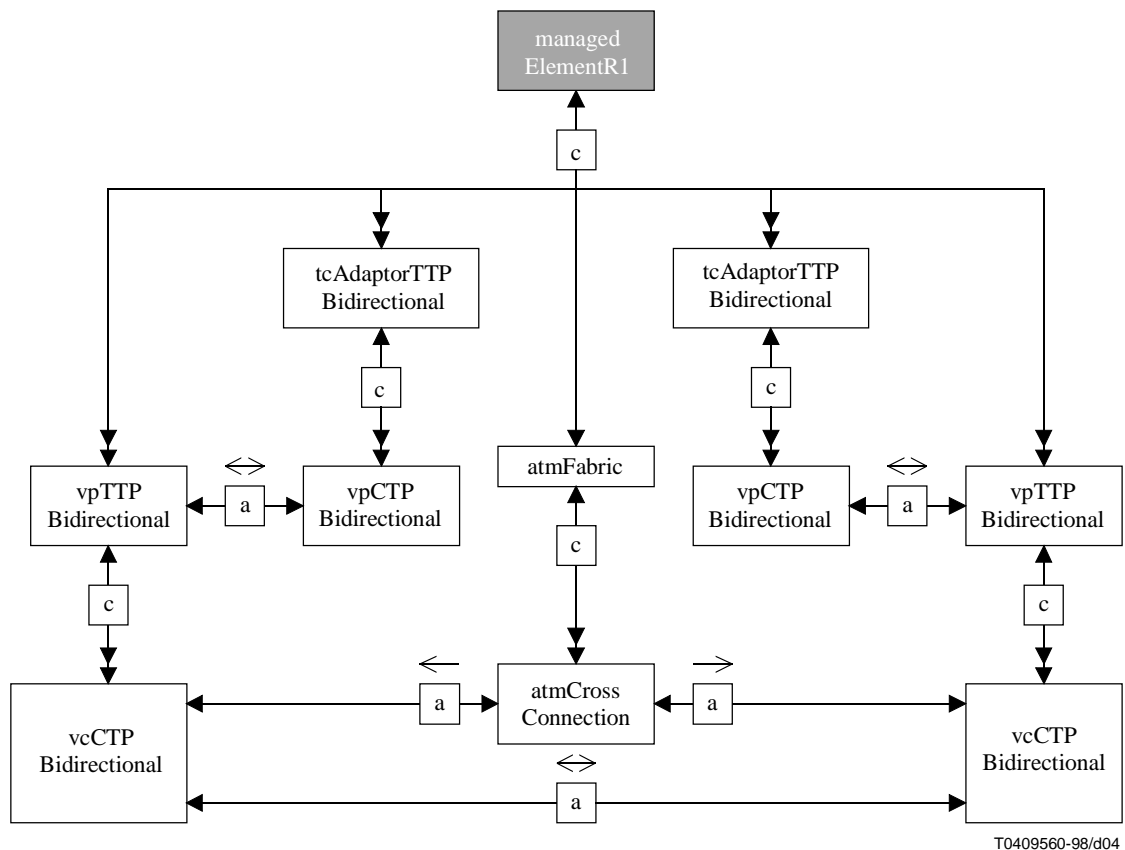
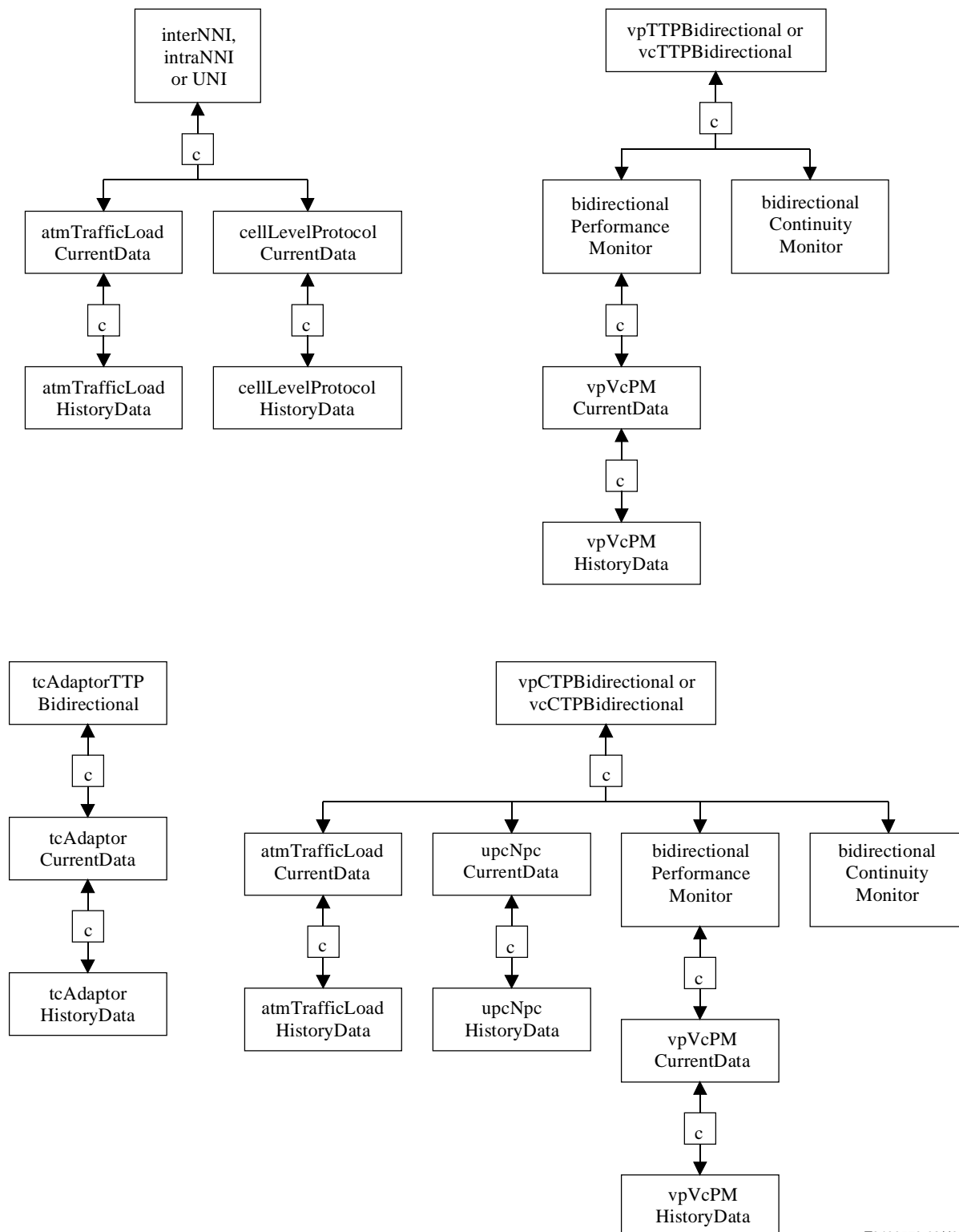


Figure 4/Q.824.6 – Instantiation example – VC cross-connection

Performance monitoring and continuity monitoring using OAM flows is modelled by instances of `bidirectionalPerformanceMonitor` and `bidirectionalContinuityMonitor` which are contained within the appropriate end points or intermediate points of the virtual path trails or virtual connection trails

(vpTTPBidirectional, vpCTPBidirectional, vcTTPBidirectional or vcCTPBidirectional). Loopback and alarm OAM flows are handled directly by the instances which represent the end points or intermediate points. ATM cell header abnormalities are recorded as instances of cellHeaderAbnormalityLogRecord which are contain in an instance of log which is contained in the instance of atmSwitch.



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Figure 5/Q.824.6 – Entity relationship diagram – ATM fault and performance management

Statistical information which is currently being gathered is represented by `currentData` objects and that which has been previously gathered is represented by `historyData` objects. The `historyData` objects are contained in the `currentData` objects which are contained in the managed object which represents the source of the statistical information. The statistics for the number of incoming and outgoing cells are represented by instances of `atmTrafficLoadCurrentData` and `atmTrafficLoadHistoryData` contained (directly or indirectly) in the managed objects which represent the interfaces or represent intermediate points on trails. Statistics on discarded cells are represented by instances of `cellLevelProtocolCurrentData` and `cellLevelProtocolHistoryData` contained (directly or indirectly) in the managed objects which represent the interfaces. Statistics on header errors are represented by instances of `tcAdaptorCurrentData` and `tcAdaptorHistoryData` contained (directly or indirectly) in `tcAdaptorTTP` which represents the adaptation function. Statistics on the policing of traffic in accordance with traffic descriptors are represented by instances of `upcNpcCurrentData` and `upcNpcHistoryData` contained (directly or indirectly) in the managed objects which represent the interfaces or represent intermediate points on trails. Statistics collected through F4 and F5 performance monitoring flows are represented by instances of `vpVcPMCurrentData` and `vpVcPMHistoryData` which are contained (directly or indirectly) in the managed objects which represent the modelling of performance monitoring by OAM flows.

4.1.2 ATM interworking and adaptation layer modelling

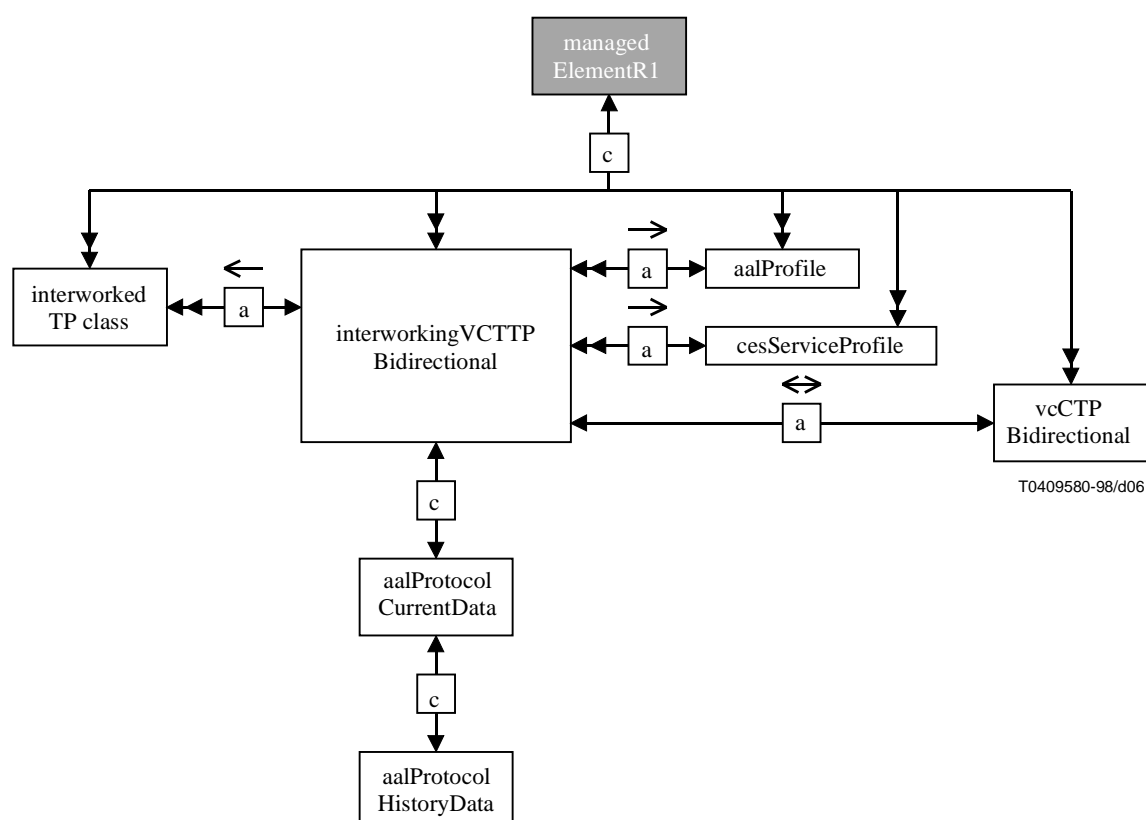
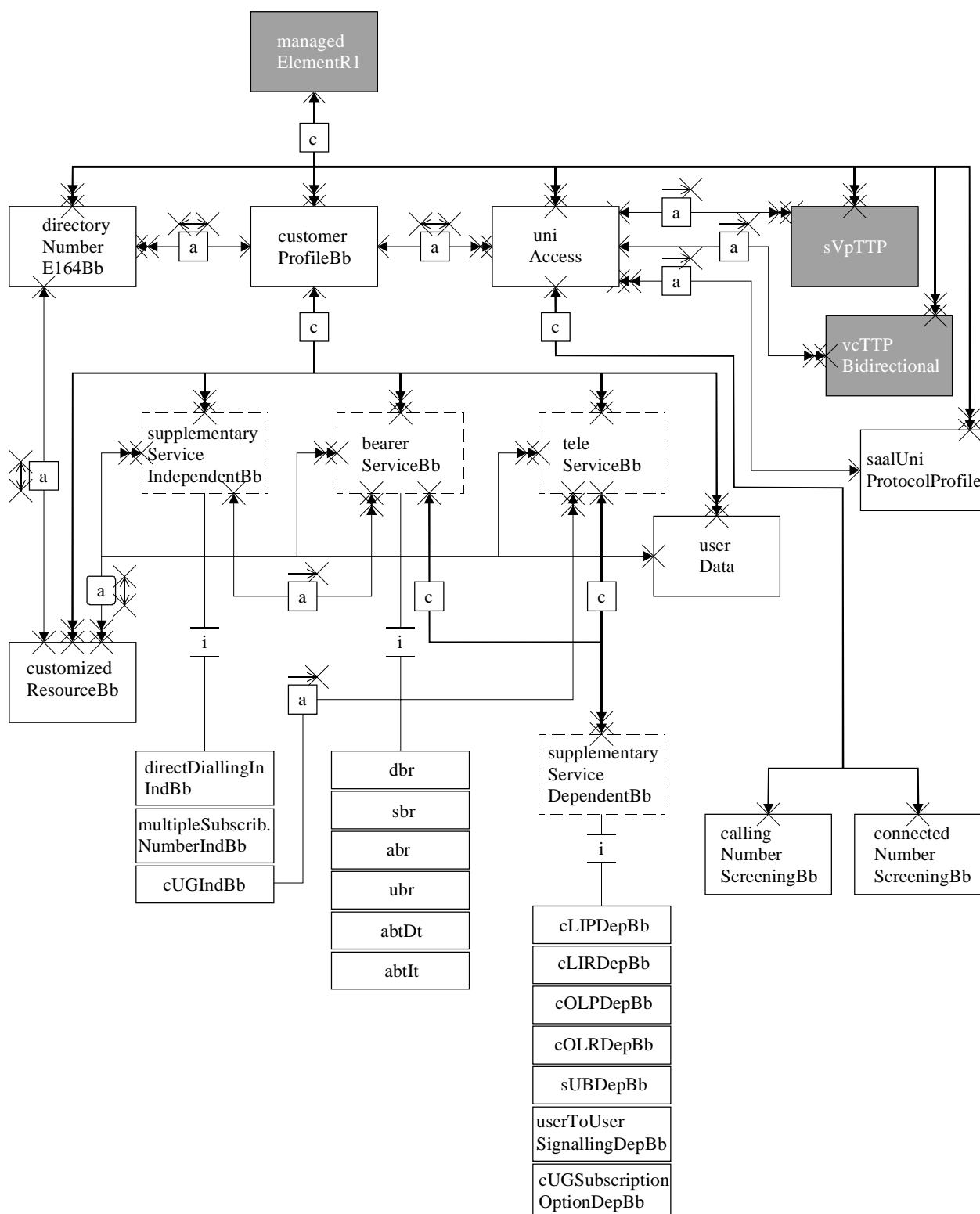


Figure 6/Q.824.6 – Entity relationship diagram – ATM interworking and adaptation layer modelling

4.1.3 Broadband customer administration modelling

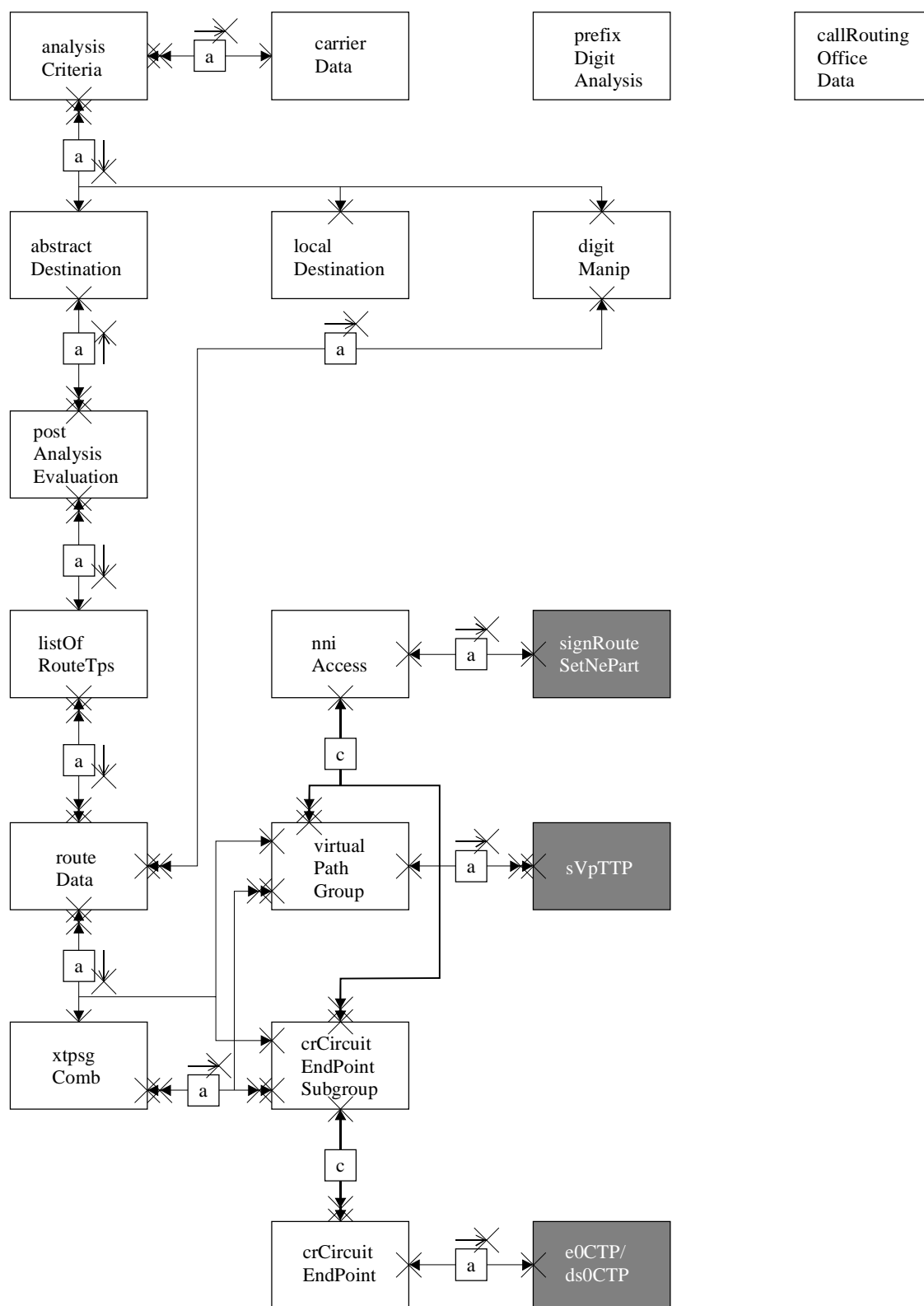


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Figure 7/Q.824.6 – Entity relationship diagram – Broadband customer administration

4.1.4 Broadband routing modelling

all object classes beside virtualPathGroup, crCircuitEndPointSubgroup and crCircuitEndPoint are contained in managedElementR1



T0409600-98/d08

Figure 8/Q.824.6 – Entity relationship diagram – Broadband call routing management

4.2 Inheritance hierarchy

Figures 9 to 13 below trace the inheritance relationships from the highest level object (Recommendation X.721 [13], "top") to the managed objects which are defined in this Recommendation.

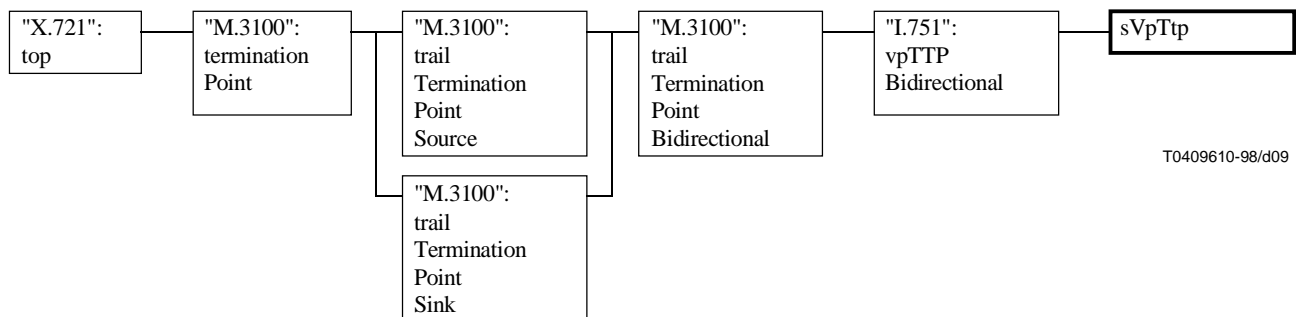


Figure 9/Q.824.6 – Inheritance hierarchy – ATM generic fragment

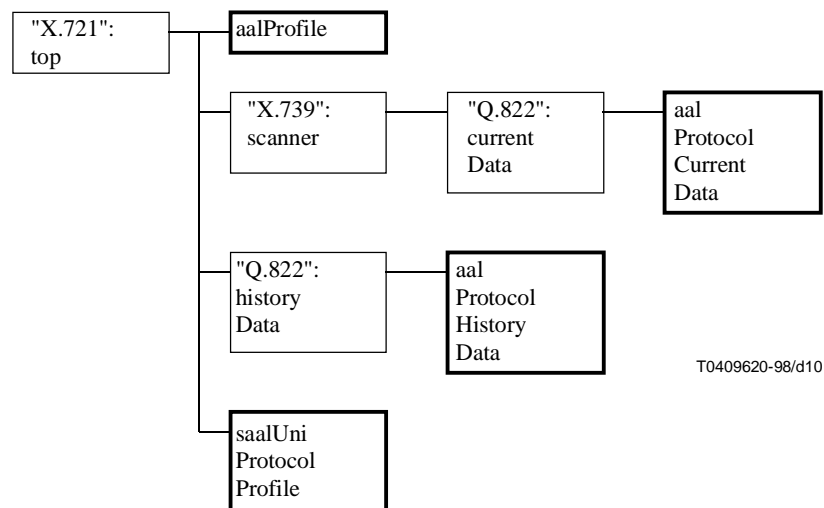


Figure 10/Q.824.6 – Inheritance hierarchy – ATM adaptation layer and signalling fragments

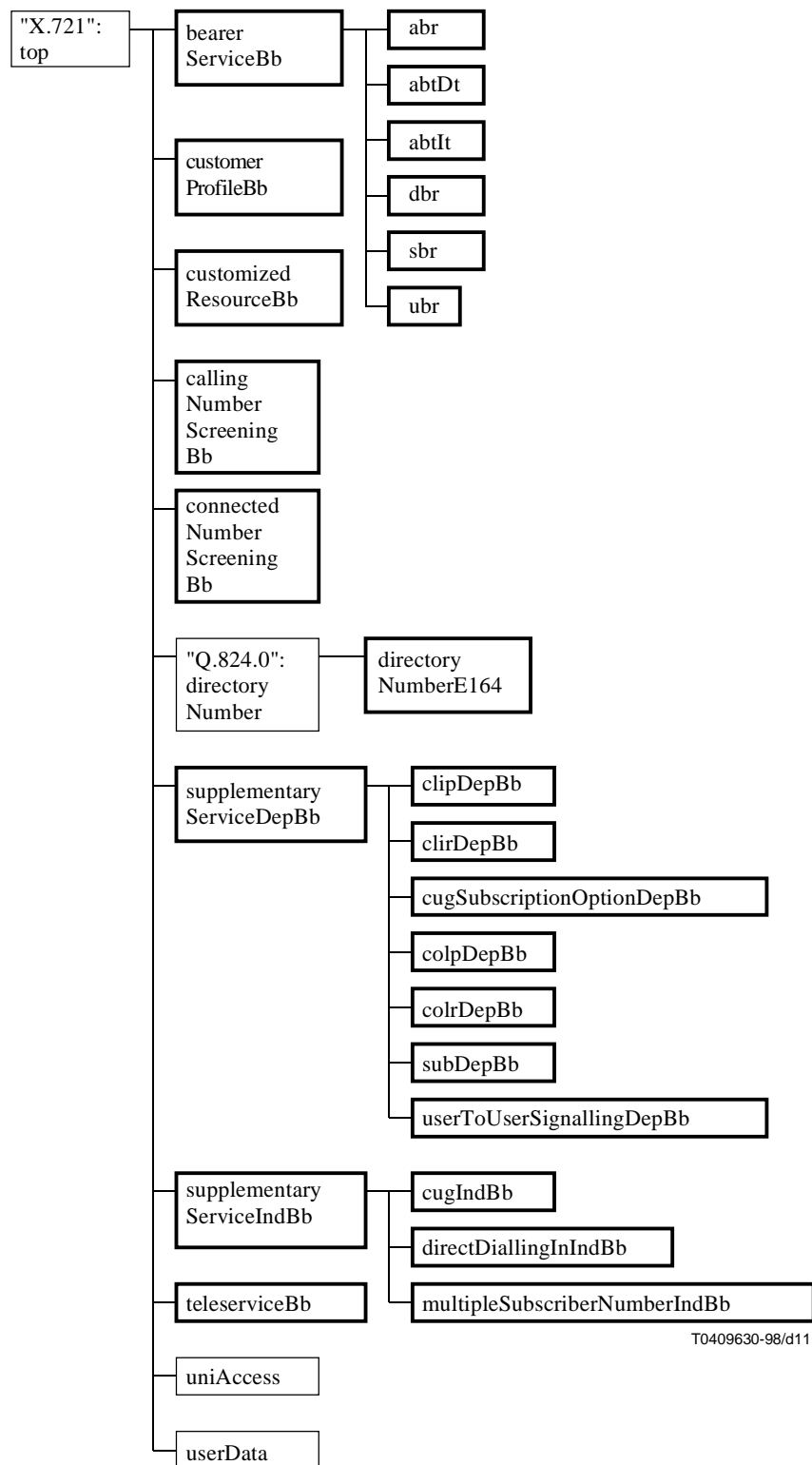


Figure 11/Q.824.6 – Inheritance hierarchy – Broadband customer administration fragment

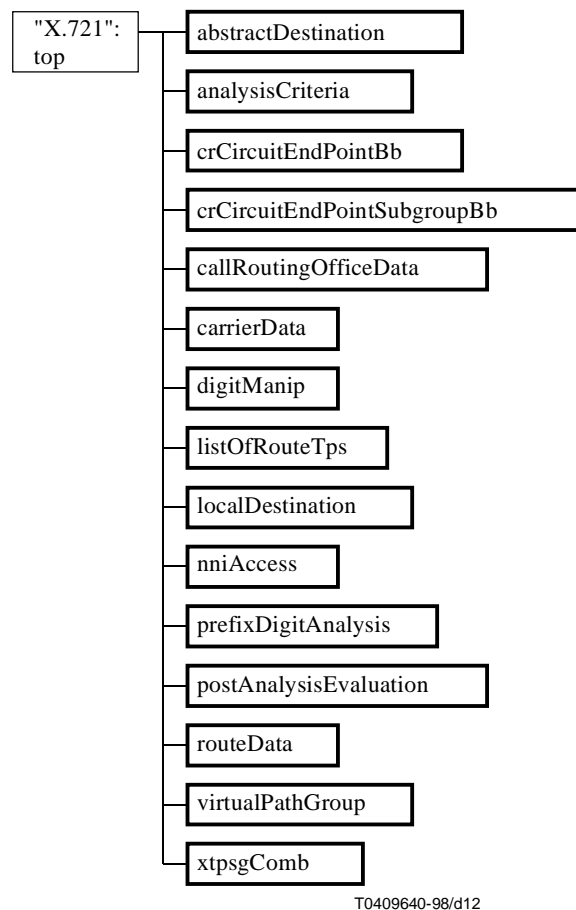


Figure 12/Q.824.6 – Inheritance hierarchy – Broadband and narrowband interworking call routing fragment

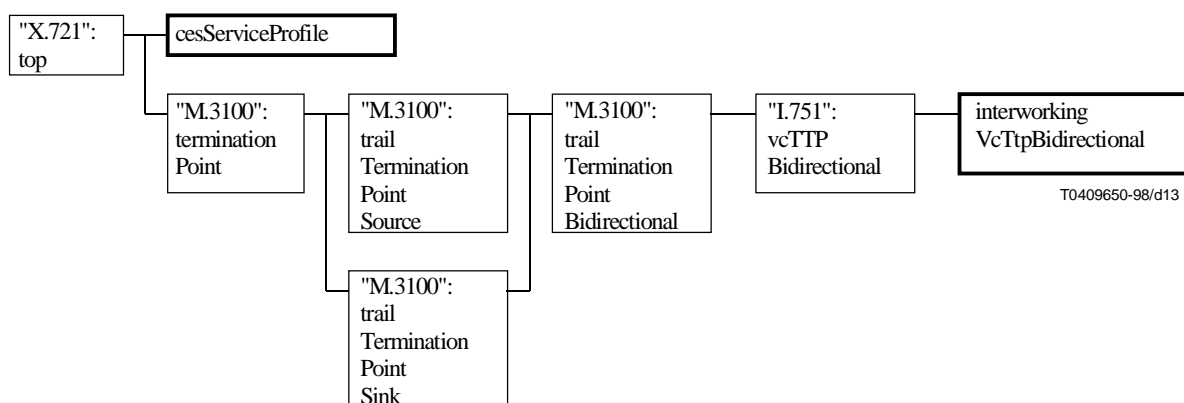


Figure 13/Q.824.6 – Inheritance hierarchy – Circuit emulation service interworking fragment

5 Formal definitions

This clause gives the formal definitions of the managed object classes, name bindings, general packages, behaviours, attributes, actions and notifications.

5.1 Object classes

This subclause specifies the object classes for all of the managed objects used in the management information model. These object classes are either defined here or by reference to other specifications. Classes of managed objects which are defined elsewhere and which are only used for containment are not included, but are identified by the name bindings for the classes specified here.

Unidirectional trails are modelled by bidirectional objects with the traffic descriptor in the unused direction set to a null value.

The following class which is defined in Recommendation M.3100 [6] may be instantiated:

- **managedElementR1.**

The following classes which are defined in Recommendation I.751 [4] may be instantiated:

- "I.751":atmAccessProfile;
- "I.751":atmCrossConnection;
- "I.751":atmCurrentData;
- "I.751":atmFabric;
- "I.751":atmTrafficLoadCurrentData;
- "I.751":atmTrafficLoadHistoryData;
- "I.751":bidirectionalContinuityMonitor;
- "I.751":bidirectionalPerformanceMonitor;
- "I.751":cellHeaderAbnormalityLogRecord;
- "I.751":cellLevelProtocolCurrentData;
- "I.751":cellLevelProtocolHistoryData;
- "I.751":interNNI;
- "I.751":intraNNI;
- "I.751":tcAdaptorCurrentData;
- "I.751":tcAdaptorHistoryData;
- "I.751":tcAdaptorTTPBidirectional;
- "I.751":uni;
- "I.751":upcNpcCurrentData;
- "I.751":upcNpcHistoryData;
- "I.751":vcCTPBidirectional;
- "I.751":vcTTPBidirectional;
- "I.751":vpCTPBidirectional;
- "I.751":vpTTPBidirectional;
- "I.751":vpVcPMCurrentData;
- "I.751":vpVcPMHistoryData.

The following class which is defined in Recommendation X.721 [13] may be instantiated:

- **log.**

5.1.1 ATM generic fragment

5.1.1.1 Switch virtual path TTP (sVpTtp)

sVpTtp MANAGED OBJECT CLASS

DERIVED FROM "Rec. I.751":vpTTPBidirectional;

CHARACTERIZED BY

sVpTtpPkg PACKAGE

BEHAVIOUR sVpTtpBeh;

ATTRIBUTES

vpType

GET-REPLACE;;;

CONDITIONAL PACKAGES

blockedForMaintenancePkg

PRESENT IF "requested by the managing system",

maintenanceSignallingRunningPkg

PRESENT IF "requested by the managing system.",

propagationDelayPkg

PRESENT IF "supported by the managing system",

remoteBlockingPkg

PRESENT IF "requested by the managing system.";

REGISTERED AS {managedObjectClass 1};

sVpTtpBeh BEHAVIOUR

DEFINED AS

"A switch virtual path TTP is an object class representing the endpoint of an ATM VPC at a switching network element.";

5.1.2 ATM adaptation layer fragment

5.1.2.1 AAL profile (aalProfile)

aalProfile MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 | ISO/IEC 10165-2":top;

CHARACTERIZED BY

aalProfilePkg PACKAGE

BEHAVIOUR aalProfileBeh;

ATTRIBUTES

aalProfileId

GET,

aalType

GET;;;

CONDITIONAL PACKAGES

aalTypeOneProfilePkg

PRESENT IF "the aalType attribute is set to aal1",

aalTypeThreeFourProfilePkg

PRESENT IF "the aalType attribute is set to aal34",

aalTypeFiveProfilePkg

PRESENT IF "the aalType attribute is set to aal5";

REGISTERED AS {managedObjectClass 2};

aalProfileBeh BEHAVIOUR

DEFINED AS

"The aalProfile object class is a managed support object used to organize data that describes the AAL processing functions of the ATM NE. The attribute aalType identifies the type of AAL processing (i.e., AAL1, AAL3/4, or AAL5). The AAL profiling information is contained in packages which are present based on the value of the aalType attribute. ";

5.1.2.2 AAL protocol current data (aalProtocolCurrentData)

aalProtocolCurrentData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. Q.822": currentData;

CHARACTERIZED BY

aalProtocolCurrentDataPkg PACKAGE

BEHAVIOUR aalProtocolCurrentDataBeh;;;

CONDITIONAL PACKAGES

aalTypeOnePerformanceParameterPkg

PRESENT IF "AAL Type 1 processing is being performed",

aalTypeThreeFourPerformanceParameterPkg

PRESENT IF "AAL Type 3/4 processing is being performed",

aalTypeFivePerformanceParameterPkg

PRESENT IF "AAL Type 5 processing is being performed";

REGISTERED AS {managedObjectClass 3};

aalProtocolCurrentDataBeh BEHAVIOUR

DEFINED AS

"The aalProtocolCurrentData object is a managed support object that contains the current performance monitoring data collected as a result of performing Segmentation and Reassembly (SAR) Level and Convergence Sublayer (CS) protocol monitoring. The granularityPeriod attribute inherited from the scanner object class shall be set to 15 minutes. Instances of this object class shall be inherently created by the managed system whenever an instance of the Interworking VCC Termination Point object class is created that represents AAL functions.";

5.1.2.3 AAL protocol history data (aalProtocolHistoryData)

aalProtocolHistoryData MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. Q.822": historyData;

CHARACTERIZED BY

aalProtocolHistoryDataPkg PACKAGE

BEHAVIOUR aalProtocolHistoryDataBeh;;;

CONDITIONAL PACKAGES

aalTypeOnePerformanceParameterHistoryDataPkg

PRESENT IF "AAL Type 1 processing is being performed",

aalTypeThreeFourPerformanceParameterHistoryDataPkg

PRESENT IF "AAL Type 3/4 processing is being performed",

aalTypeFivePerformanceParameterHistoryDataPkg

PRESENT IF "AAL Type 5 processing is being performed";

REGISTERED AS {managedObjectClass 4};

aalProtocolHistoryDataBeh BEHAVIOUR

DEFINED AS

"The aalProtocolHistoryData object is a managed support object that contains the past performance monitoring data collected as a result of performing Segmentation and Reassembly (SAR) Level and Convergence Sublayer (CS) protocol monitoring. Instances of this object class can only be created locally by an agent (managed system) according to the value of the historyRetention attribute specified in the aalProtocolCurrentData object.";

5.1.3 Signalling fragment

5.1.3.1 SAAL UNI protocol profile (saalUniProtocolProfile)

saalUniProtocolProfile MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Rec. X.721 | ISO/IEC 10165-2": top;

CHARACTERIZED BY

saalUniProtocolProfilePkg PACKAGE

 BEHAVIOUR **saalUniProtocolProfileBeh**;

 ATTRIBUTES

saalUniProtocolProfileId

 GET SET-BY-CREATE,

bufferRelease

 DEFAULT VALUE **ASN1DefinedTypesModule.bufferReleaseDefault**

 GET SET-BY-CREATE,

maxCc

 DEFAULT VALUE **ASN1DefinedTypesModule.maxCcDefault**

 GET SET-BY-CREATE,

maxInformationFieldLength

 DEFAULT VALUE

ASN1DefinedTypesModule.maxInformationFieldLengthDefault

 GET SET-BY-CREATE,

maxLengthSscopUuField

 DEFAULT VALUE

ASN1DefinedTypesModule.maxLengthSscopUuFieldDefault

 GET SET-BY-CREATE,

maxPd

 DEFAULT VALUE **ASN1DefinedTypesModule.maxPdDefault**

 GET SET-BY-CREATE,

maxSscopCreditToPeer

 DEFAULT VALUE **ASN1DefinedTypesModule.maxSscopCreditToPeerDefault**

 GET SET-BY-CREATE,

maxStat

 DEFAULT VALUE **ASN1DefinedTypesModule.maxStatDefault**

 GET SET-BY-CREATE,

sscopTimerCc

 DEFAULT VALUE **ASN1DefinedTypesModule.sscopTimerCcDefault**

 GET SET-BY-CREATE,

sscopTimerIdle

 DEFAULT VALUE **ASN1DefinedTypesModule.sscopTimerIdleDefault**

 GET SET-BY-CREATE,

sscopTimerKeepAlive

 DEFAULT VALUE **ASN1DefinedTypesModule.sscopTimerKeepAliveDefault**

 GET SET-BY-CREATE,

sscopTimerNoResponse

 DEFAULT VALUE **ASN1DefinedTypesModule.sscopTimerNoResponseDefault**

 GET SET-BY-CREATE,

sscopTimerPoll

 DEFAULT VALUE **ASN1DefinedTypesModule.sscopTimerPollDefault**

 GET SET-BY-CREATE;;;

 CONDITIONAL PACKAGES

 "ITU-T Rec. M.3100":createDeleteNotificationsPackage

 PRESENT IF "supported by an instance of this class",

 pollAfterRetransmissionPkg

 PRESENT IF "an instance supports this national option";

REGISTERED AS {managedObjectClass 5};

saalUniProtocolProfileBeh BEHAVIOUR

DEFINED AS

"The saalUniProtocolProfile is a broadband-specific object class which comprises attributes required for SSCOP, SSCF-UNI and Layer Management for UNI.";

5.1.4 Broadband customer administration fragment

5.1.4.1 Available bit rate (abr)

abr MANAGED OBJECT CLASS

DERIVED FROM bearerServiceBb;

CHARACTERIZED BY

abrPkg **PACKAGE**

BEHAVIOUR abrBeh;;;

REGISTERED AS {managedObjectClass 6};

abrBeh BEHAVIOUR

DEFINED AS

"This subclass of 'bearer service' represents the adaptation of connection-oriented data with available bit rate.";

5.1.4.2 ATM block transfer with delayed transmission (abtDt)

abtDt MANAGED OBJECT CLASS

DERIVED FROM bearerServiceBb;

CHARACTERIZED BY

abtDtPkg **PACKAGE**

BEHAVIOUR abtDtBeh;;;

REGISTERED AS {managedObjectClass 7};

abtDtBeh BEHAVIOUR

DEFINED AS

"This subclass of 'bearer service' represents the adaptation of connection-oriented data with ATM block transfer with delayed transmission.";

5.1.4.3 ATM block transfer with immediate transmission (abtIt)

abtIt MANAGED OBJECT CLASS

DERIVED FROM bearerServiceBb;

CHARACTERIZED BY

abtItPkg **PACKAGE**

BEHAVIOUR abtItBeh;;;

REGISTERED AS {managedObjectClass 8};

abtItBeh BEHAVIOUR

DEFINED AS

"This subclass of 'bearer service' represents the adaptation of connection-oriented data with ATM block transfer with immediate transmission.";

5.1.4.4 Bearer service for broadband (bearerServiceBb)

bearerServiceBb MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2": top;

CHARACTERIZED BY

customizedResourcePointersBehPkg,

bearerServiceBbPkg **PACKAGE**

BEHAVIOUR bearerServiceBbBeh;
 ATTRIBUTES
 "ITU-T Q.824.0":bearerServiceId
 GET SET-BY-CREATE,
 "CCITT Rec. X.721 | ISO/IEC 10165-2": administrativeState
 GET-REPLACE,
 "ITU-T Q.824.0":customizedResourcePtrList
 DEFAULT VALUE ASN1DefinedTypesModule.emptySet
 GET;
 NOTIFICATIONS
 "CCITT Rec. X.721 | ISO/IEC 10165-2":stateChange,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange;;;

REGISTERED AS {managedObjectClass 9};

bearerServiceBbBeh BEHAVIOUR

DEFINED AS

"The Bearer Service object class represents the common aspects of the bearer services. While the Bearer Service object class is not instantiated, it is a superclass from which specialized subclasses are derived and instantiated.";

5.1.4.5 Calling line identification presentation dependent for broadband (clipDepBb)

clipDepBb MANAGED OBJECT CLASS

DERIVED FROM supplementaryServiceDepBb;

CHARACTERIZED BY

clipBbPkg;

CONDITIONAL PACKAGES

twoCallingPartyNumberDeliveryPkg

PRESENT IF "supplied by the managing system";

REGISTERED AS {managedObjectClass 10};

5.1.4.6 Calling line identification restriction dependent for broadband (clirDepBb)

clirDepBb MANAGED OBJECT CLASS

DERIVED FROM supplementaryServiceDepBb;

CHARACTERIZED BY

clirBbPkg;

REGISTERED AS {managedObjectClass 11};

5.1.4.7 Calling number screening for broadband (callingNumberScreeningBb)

callingNumberScreeningBb MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top;

CHARACTERIZED BY

callingNumberScreeningPkg PACKAGE

BEHAVIOUR callingNumberScreeningBeh;

ATTRIBUTES

"ITU-T Q.824.1": callingNumberScreeningId

GET SET-BY-CREATE,

screenNumber

DEFAULT VALUE ASN1DefinedTypesModule.defaultScreenNumber

GET-REPLACE,

defaultDirectoryNumber

GET-REPLACE;

NOTIFICATIONS

"CCITT Rec. X.721 | ISO/IEC 10165-2": attributeValueChange,

"CCITT Rec. X.721 | ISO/IEC 10165-2": objectCreation,

"CCITT Rec. X.721 | ISO/IEC 10165-2": objectDeletion;;;

REGISTERED AS {managedObjectClass 12};

callingNumberScreeningBeh BEHAVIOUR

DEFINED AS

"This object identifies characteristics used for the screening of the Calling Party Directory Number as described in Rec. Q.2951.3. Only one object of this object class shall be contained in the superior object instance.";

5.1.4.8 Closed user group independent for broadband (cugIndBb)

cugIndBb MANAGED OBJECT CLASS

DERIVED FROM supplementaryServiceIndBb;

CHARACTERIZED BY

cugBbPkg PACKAGE

BEHAVIOUR cugBbBeh;

ATTRIBUTES

cugIndex

GET SET-BY-CREATE,

cugInterlockCode

GET SET-BY-CREATE,

cugDataNetworkIdentification

GET SET-BY-CREATE,

cugBarring GET-REPLACE,

"ITU-T Q.824.0":servicePtrList

DEFAULT VALUE ASN1DefinedTypesModule.emptySet

GET-REPLACE ADD-REMOVE;;;

REGISTERED AS {managedObjectClass 13};

cugBbBeh BEHAVIOUR

DEFINED AS

"This managed object class is used to store the closed user group general subscription options specified by ITU-T Rec. Q.2955.1. This package is instantiated by for each Closed User Group. When the value of cugBarring is outgoingCallsBarred, this CUG must not be a preferential Closed User Group (denoted by preferredCugIndex in cugSubscriptionOption managed object). An object of this class can only be deleted, if it is not referenced by a cugSubscriptionOption(Independent) object. The 'customizedResourcePtrList' and the 'servicePtrList' can only be used mutually exclusive. This means that one of them has to be empty.";

5.1.4.9 Closed user group subscription option dependent for broadband (cugSubscriptionOptionDepBb)

cugSubscriptionOptionDepBb MANAGED OBJECT CLASS

DERIVED FROM supplementaryServiceDepBb;

CHARACTERIZED BY

cugSubscriptionOptionBbPkg;

REGISTERED AS {managedObjectClass 14};

5.1.4.10 Connected line identification presentation dependent for broadband (colpDepBb)

colpDepBb MANAGED OBJECT CLASS
DERIVED FROM supplementaryServiceDepBb;
CHARACTERIZED BY
colpBbPkg;
REGISTERED AS {managedObjectClass 15};

5.1.4.11 Connected line identification restriction dependent for broadband (colrDepBb)

colrDepBb MANAGED OBJECT CLASS
DERIVED FROM supplementaryServiceDepBb;
CHARACTERIZED BY
colrBbPkg;
REGISTERED AS {managedObjectClass 16};

5.1.4.12 Connected number screening for broadband (connectedNumberScreeningBb)

connectedNumberScreeningBb MANAGED OBJECT CLASS
DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top;
CHARACTERIZED BY
connectedNumberScreeningPkg PACKAGE
BEHAVIOUR connectedNumberScreeningBeh;
ATTRIBUTES
connectedNumberScreeningId
GET SET-BY-CREATE,
screenNumber
DEFAULT VALUE ASN1DefinedTypesModule.defaultScreenNumber
GET-REPLACE,
defaultDirectoryNumber
GET-REPLACE;
NOTIFICATIONS
"CCITT Rec. X.721 | ISO/IEC 10165-2": attributeValueChange,
"CCITT Rec. X.721 | ISO/IEC 10165-2": objectCreation,
"CCITT Rec. X.721 | ISO/IEC 10165-2": objectDeletion;;
REGISTERED AS {managedObjectClass 17};

connectedNumberScreeningBeh BEHAVIOUR
DEFINED AS
"This object identifies characteristics used for the screening of the Connected Line Directory Number as described in Rec. Q.2951.5. Only one object of this object class shall be contained in the superior object instance.";

5.1.4.13 Customer profile for broadband (customerProfileBb)

customerProfileBb MANAGED OBJECT CLASS
DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top;
CHARACTERIZED BY
customerProfilePointersBehPkg,
customerProfileBbPkg PACKAGE
BEHAVIOUR customerProfileBbBeh;
ATTRIBUTES

"ITU-T Q.824.0":customerProfileId
 GET SET-BY-CREATE,
 accessPtrList
 GET-REPLACE ADD-REMOVE,
 "ITU-T Q.824.0":directoryNumberPtrList
 GET-REPLACE ADD-REMOVE;;;

REGISTERED AS {managedObjectClass 18};

customerProfileBbBeh BEHAVIOUR

DEFINED AS

"The Customer Profile represents a single point of reference used to bind together a range of services and resources for customer administration purposes. It is a class of managed objects representing the characteristics of the Directory Number(s) (DN) assigned to an individual subscriber, independent of the access type and bearer service. Each instance of the customer profile object class includes a Directory Number Pointer List attribute that represents the Directory Number(s) assigned to the customer profile object and an Access Pointer List attribute that represents Access(es) also assigned to the customer profile object.

Objects which are related through direct or indirect containment or by a direct pointer relationship with a customerProfileBb object can not be related in the same way to a different customerProfileBb object.

More than one entry in the 'directoryNumberPtrList' are allowed only if a 'multipleSubscriberNumberIndBb' object is contained in this 'customerProfileBb' object.";

5.1.4.14 Customized resource for broadband (customizedResourceBb)

customizedResourceBb MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2": top;

CHARACTERIZED BY

customizedResourcePointersBehPkg,
 customizedResourceBbPkg PACKAGE
 BEHAVIOUR customizedResourceBbBeh;
 ATTRIBUTES

"ITU-T Q.824.0":customizedResourceId
 GET SET-BY-CREATE,
 "ITU-T Q.824.0":bearerServicePtrList
 GET-REPLACE ADD-REMOVE,
 "ITU-T Q.824.0":directoryNumberPtrList
 GET-REPLACE ADD-REMOVE,
 "ITU-T Q.824.0":teleServicePtrList
 GET-REPLACE ADD-REMOVE,
 supplementaryServiceIndBbPtrList
 GET-REPLACE ADD-REMOVE,
 userDataPtr
 GET-REPLACE;;;

REGISTERED AS {managedObjectClass 19};

customizedResourceBbBeh BEHAVIOUR

DEFINED AS

"The Customized Resource object is a class of managed objects that represents the service provisioning for a subscriber. It allows association of a set of services and/or one userData object to one or more Directory Numbers.

When no customized resource objects are contained in a customer profile object, then all services/userData contained in this customer profile object are applicable to all directory numbers associated with this customer profile object.

If one or more customized resource objects are contained in a customer profile object, then only these services/userData (contained in this customer profile object) are applicable to a certain directory number (associated with the customer profile object) which are explicitly associated to this directory number object using a customized resource object.

Only one entry shall be contained in the directoryNumberPtrList.

The teleServicePtrList attribute points to instances of the class teleserviceBb or its subclasses.";

5.1.4.15 Deterministic bit rate (dbr)

dbr MANAGED OBJECT CLASS

DERIVED FROM bearerServiceBb;

CHARACTERIZED BY

dbrPkg PACKAGE

BEHAVIOUR dbrBeh;;;

REGISTERED AS {managedObjectClass 20};

dbrBeh BEHAVIOUR

DEFINED AS

"This subclass of 'bearer service' represents the adaptation of connection-oriented data with deterministic (constant) bit rate and timing relation between sender and receiver.";

5.1.4.16 Direct dialling in independent for broadband (directDiallingInIndBb)

directDiallingInIndBb MANAGED OBJECT CLASS

DERIVED FROM supplementaryServiceIndBb;

CHARACTERIZED BY

directDiallingInIndBbPkg PACKAGE

BEHAVIOUR directDiallingInIndBbBeh;

ATTRIBUTES

cdpnRepresentationType

GET-REPLACE;;;

CONDITIONAL PACKAGES

"ITU-T Q.824.2":digitsOptionPkg

PRESENT IF "if supported by administration";

REGISTERED AS {managedObjectClass 21};

directDiallingInIndBbBeh BEHAVIOUR

DEFINED AS

"This Supplementary Service enables a user to call directly via a public ISDN to a user on a private ISDN by use of the public ISDN numbering plan as described in ITU-T Rec. Q.2951.1.

Only one object of this class shall be contained within the superior managed object. The customizedResourcePtrList derived from the supplementaryServiceIndBb shall be empty.";

5.1.4.17 Directory number E164 (directoryNumberE164)

directoryNumberE164 MANAGED OBJECT CLASS

DERIVED FROM "ITU-T Q.824.0":directoryNumber;

CHARACTERIZED BY

customerProfilePointersBehPkg,

directoryNumberE164Pkg PACKAGE

BEHAVIOUR directoryNumberE164Beh;

ATTRIBUTES

"ITU-T Q.824.0":e164DirectoryNumber

GET SET-BY-CREATE,

localDestinationPtr

GET SET-BY-CREATE;;;

REGISTERED AS {managedObjectClass 22};

directoryNumberE164Beh BEHAVIOUR

DEFINED AS

"The E.164 Directory Number object class represents directory numbers belonging to the international public telecommunication numbering plan as defined in ITU-T E.164. The E.164 Directory Number is a single-valued, read-only attribute, set only at creation time. The E.164 Directory Number is updated implicitly if the attribute values of the referenced localDestination object are modified. The routingBlockPtrPkg inherited from the directoryNumber object class shall not be present.

Only one entry shall be contained in the customizedResourcePtrList.";

5.1.4.18 Multiple subscriber number independent for broadband (multipleSubscriberNumberIndBb)

multipleSubscriberNumberIndBb MANAGED OBJECT CLASS

DERIVED FROM supplementaryServiceIndBb;

CHARACTERIZED BY

multipleSubscriberNumberIndBbPkg PACKAGE

BEHAVIOUR multipleSubscriberNumberIndBbBeh;

ATTRIBUTES

"ITU-T Q.824.2": assocDefaultDN

GET-REPLACE,

cdpnRepresentationType

GET-REPLACE;;;

CONDITIONAL PACKAGES

"ITU-T Q.824.2": networkOptionsPkg

PRESENT IF "if supported by administration.";

REGISTERED AS {managedObjectClass 23};

multipleSubscriberNumberIndBbBeh BEHAVIOUR

DEFINED AS

"The MSN supplementary service provides the possibility for assigning multiple numbers (not necessarily consecutive) to a single public or private interface as described in ITU-T Rec. Q.2951.2. This enables the selection of multiple distinct terminals attached to the same interface.

The service provider shall fix the length of the numbers to be transmitted to the user's installation. They may comprise the least significant digit up to the full ISDN number as defined in CCITT Rec. E.164. The digit(s) significant for terminal differentiation shall be an integral part of the ISDN numbering scheme.

If the attribute 'cdpnRepresentationType' has the value 'unknown', the 'networkOptionsPkg' must be present to determine the number of digits to be transmitted to the user.

Only one object of this class shall be contained within the superior managed object. The customizedResourcePtrList derived from the supplementaryServiceIndBb shall be empty.";

5.1.4.19 Statistical bit rate (sbr)

sbr MANAGED OBJECT CLASS

DERIVED FROM bearerServiceBb;

CHARACTERIZED BY

sbrPkg PACKAGE

BEHAVIOUR sbrBeh;

ATTRIBUTES

timingRelation

GET-REPLACE;;;

REGISTERED AS {managedObjectClass 24};

sbrBeh BEHAVIOUR

DEFINED AS

"This subclass of 'bearer service' represents the adaptation of connection-oriented data with statistical (variable) bit rate (SBR 1/2/3).";

5.1.4.20 Sub-addressing dependent for broadband (subDepBb)

subDepBb MANAGED OBJECT CLASS

DERIVED FROM supplementaryServiceDepBb;

CHARACTERIZED BY

subBbPkg;

REGISTERED AS {managedObjectClass 25};

5.1.4.21 Supplementary service dependent for broadband (supplementaryServiceDepBb)

supplementaryServiceDepBb MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2": top;

CHARACTERIZED BY

supplementaryServiceDepBbPkg PACKAGE

BEHAVIOUR

supplementaryServiceDepBbBeh;

ATTRIBUTES

"ITU-T Q.824.0":supplementaryServiceId

GET SET-BY-CREATE,

"CCITT Rec. X.721 | ISO/IEC 10165-2": administrativeState

GET-REPLACE;

NOTIFICATIONS

"CCITT Rec. X.721 | ISO/IEC 10165-2": stateChange,

"CCITT Rec. X.721 | ISO/IEC 10165-2": attributeValueChange,

"CCITT Rec. X.721 | ISO/IEC 10165-2": objectCreation,

"CCITT Rec. X.721 | ISO/IEC 10165-2": objectDeletion;;;

REGISTERED AS {managedObjectClass 26};

supplementaryServiceDepBbBeh BEHAVIOUR

DEFINED AS

"This object class is defined to allow the creation of specific supplementary service subclasses for those supplementary services that are defined by ITU-T to be configurable on a per bearer or teleservice basis. Supplementary services, as defined in I.210, are services that can only be used in conjunction with another bearer service or another teleservice.

While the supplementaryServiceDepBb object class is not instantiated, it is a superclass from which specialized subclasses are derived and instantiated.";

5.1.4.22 Supplementary service independent for broadband (supplementaryServiceIndBb)

supplementaryServiceIndBb MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2": top;

CHARACTERIZED BY

customizedResourcePointersBehPkg,

supplementaryServiceIndBbPkg PACKAGE

BEHAVIOUR supplementaryServiceIndBbBeh;

ATTRIBUTES

"ITU-T Q.824.0":supplementaryServiceId

GET SET-BY-CREATE,

"CCITT Rec. X.721 | ISO/IEC 10165-2": administrativeState

GET-REPLACE,

"ITU-T Q.824.0":customizedResourcePtrList
 DEFAULT VALUE ASN1DefinedTypesModule.emptySet
 GET;
 NOTIFICATIONS
 "CCITT Rec. X.721 | ISO/IEC 10165-2": stateChange,
 "CCITT Rec. X.721 | ISO/IEC 10165-2": attributeValueChange,
 "CCITT Rec. X.721 | ISO/IEC 10165-2": objectCreation,
 "CCITT Rec. X.721 | ISO/IEC 10165-2": objectDeletion;;;

REGISTERED AS {managedObjectClass 27};

supplementaryServiceIndBbBeh BEHAVIOUR

DEFINED AS

"This object class is defined to allow the creation of specific supplementary service subclasses for those supplementary services that are defined by ITU-T to be independent of any particular bearer/teleservice. Supplementary services, as defined in I.210, are services that can only be used in conjunction with another bearer service or another teleservice.
 While the supplementaryServiceIndBb object class is not instantiated, it is a superclass from which specialized subclasses are derived and instantiated."

5.1.4.23 Teleservice for broadband (teleserviceBb)

teleserviceBb MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2": top;

CHARACTERIZED BY

customizedResourcePointersBehPkg,
 teleserviceBbPkg PACKAGE
 BEHAVIOUR teleserviceBbBeh;
 ATTRIBUTES
 "ITU-T Q.824.0":teleserviceId
 GET SET-BY-CREATE,
 "ITU-T Q.824.0":bearerServicePtr
 GET-REPLACE,
 "CCITT Rec. X.721 | ISO/IEC 10165-2": administrativeState
 GET-REPLACE,
 "ITU-T Q.824.0":customizedResourcePtrList
 DEFAULT VALUE ASN1DefinedTypesModule.emptySet
 GET;
 NOTIFICATIONS
 "CCITT Rec. X.721 | ISO/IEC 10165-2": stateChange;;;

REGISTERED AS {managedObjectClass 28};

teleserviceBbBeh BEHAVIOUR

DEFINED AS

"The teleservices managed object class defines a communication service that makes available layer 1 – layer 7 capabilities.
 While the teleserviceBb object class is not instantiated, it is a superclass from which specialized subclasses are derived and instantiated."

5.1.4.24 Uni access (uniAccess)

uniAccess MANAGED OBJECT CLASS

DERIVED FROM "Rec. X.721 | ISO/IEC 10165-2":top;

CHARACTERIZED BY

"CCITT Rec. X.721 | ISO/IEC 10165-2":administrativeStatePackage,
 customerProfilePointersBehPkg,
 uniAccessPkg PACKAGE

BEHAVIOUR uniAccessBeh;

ATTRIBUTES

uniAccessId

GET SET-BY-CREATE,

signallingStandard

GET-REPLACE,

customerProfilePtr

DEFAULT VALUE ASN1DefinedTypesModule.defaultNULL

GET,

tpAndVpciSigPtrList

GET-REPLACE

ADD-REMOVE,

connectionIdOffering

DEFAULT VALUE ASN1DefinedTypesModule.connectionIdOfferingDefault

GET-REPLACE;;;

CONDITIONAL PACKAGES

maintenanceSignallingRunningPkg

PRESENT IF "requested by the managing system.",

searchMethodPkg

PRESENT IF "supplied by the managing system.",

signallingChannelPtrPkg

PRESENT IF "non-associated signalling is used for this object instance",

signallingTypePkg

PRESENT IF "the managed system supports associated signalling";

REGISTERED AS {managedObjectClass 29};

uniAccessBeh BEHAVIOUR

DEFINED AS

"This managed object represents a group of VPs coming from the same User Network Interface (UNI). The VPs can be distributed over one or more physical interfaces. One physical interface can contain VPs of several object instances of the object class uniAccess.

In the case of non-associated signalling, all VPs of one uniAccess object instance are controlled by the same signalling channel and there is only one signalling channel for the group. In the case of associated signalling there is one signalling channel, typically VCI = 5, for each VP in the group.

Non-associated signalling is assumed if the signallingTypePkg is not present in a uniAccess object instance.

If the administrativeState attribute is set to locked, all signalled virtual connections shall be released. PVCs are not influenced by this attribute.

It is not requested (but allowed) that the VPC which contains the signalling VCC be contained in the tpAndVpciSigPtrList. If this VPC is contained in the list then it can be used for on-demand connections controlled by this signalling VCC. If the VPC is not in the list then it cannot be used for on-demand connections controlled by the identified signalling VC.";

5.1.4.25 Unspecified bit rate (ubr)

ubr MANAGED OBJECT CLASS

DERIVED FROM bearerServiceBb;

CHARACTERIZED BY

ubrPkg PACKAGE

BEHAVIOUR ubrBeh;;;

REGISTERED AS {managedObjectClass 30};

ubrBeh BEHAVIOUR

DEFINED AS

"This subclass of 'bearer service' represents the adaptation of connection-oriented data with unspecified bit rate.";

5.1.4.26 User data (userData)

userData MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2": top;

CHARACTERIZED BY

customizedResourcePointersBehPkg,

userDataPkg PACKAGE

BEHAVIOUR userDataBeh;

ATTRIBUTES

userDataId

GET SET-BY-CREATE,

"ITU-T Q.824.0": customizedResourcePtrList

DEFAULT VALUE ASN1DefinedTypesModule.emptySet

GET,

subscriberCategory

DEFAULT VALUE ASN1DefinedTypesModule.subscriberCategoryDefault

GET-REPLACE ;

NOTIFICATIONS

"CCITT Rec. X.721 | ISO/IEC 10165-2": attributeValueChange,

"CCITT Rec. X.721 | ISO/IEC 10165-2": objectCreation,

"CCITT Rec. X.721 | ISO/IEC 10165-2": objectDeletion;;;

CONDITIONAL PACKAGES

originMarkPkg

PRESENT IF "supplied by the managing system" ,

preferredCarrierPkg

PRESENT IF "carrier specific routing is supplied" ;

REGISTERED AS {managedObjectClass 31};

userDataBeh BEHAVIOUR

DEFINED AS

"This entity describes the properties of a certain subscriber (user). The properties may be either valid for the whole superior customerProfile or for a certain directory number only, depending from the use of customizedResource objects.

Only one 'userData' object with an empty 'customizedResourcePtrList' shall be contained in a customerProfile object." ;

5.1.4.27 User to user signalling dependent for broadband (userToUserSignallingDepBb)

userToUserSignallingDepBb MANAGED OBJECT CLASS

DERIVED FROM supplementaryServiceDepBb;

CHARACTERIZED BY

userToUserSignallingBbPkg;

REGISTERED AS {managedObjectClass 32};

5.1.5 Broadband and narrowband interworking call routing fragment

5.1.5.1 Abstract destination (abstractDestination)

abstractDestination MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;

CHARACTERIZED BY

abstractDestinationPkg PACKAGE

BEHAVIOUR abstractDestinationBeh;

ATTRIBUTES

abstractDestinationId

GET SET-BY-CREATE;

NOTIFICATIONS

"CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,

"CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,

"CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ; ;

CONDITIONAL PACKAGES

maxDigitsPkg

PRESENT IF "supplied by managing system" ,

ringTimeLimitPkg

PRESENT IF "supplied by managing system" ;

REGISTERED AS {managedObjectClass 33};

abstractDestinationBeh BEHAVIOUR

DEFINED AS

"This entity is a result of digit processing in the originating, transit or gateway exchange.";

5.1.5.2 Analysis criteria (analysisCriteria)

analysisCriteria MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;

CHARACTERIZED BY

analysisCriteriaPkg PACKAGE

BEHAVIOUR analysisCriteriaBeh;

ATTRIBUTES

analysisCriteriaId

GET SET-BY-CREATE,

activeTargetPtr

GET-REPLACE,

callingPartyCategory

GET-REPLACE,

origin

GET-REPLACE ;

NOTIFICATIONS

"CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,

"CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,

"CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ; ;

CONDITIONAL PACKAGES

carrierDataPtrPkg

PRESENT IF "the target is carrier dependent",

destinationCodePkg

PRESENT IF "in any case with exception of the case of one Point of Presence of the carrier " ,

destinationTypePkg

PRESENT IF "destinationCodePkg is present";

REGISTERED AS {managedObjectClass 34};

analysisCriteriaBeh BEHAVIOUR

DEFINED AS

"This entity describes the management information needed to manage the internal digit trees.";

5.1.5.3 Call routing circuit end point for broadband (crCircuitEndPointBb)

crCircuitEndPointBb MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top;

CHARACTERIZED BY

**"CCITT Rec. X.721 | ISO/IEC 10165-2":administrativeStatePackage,
 crCircuitEndPointBbPkg PACKAGE
 BEHAVIOUR crCircuitEndPointBbBeh;
 ATTRIBUTES**

**crCircuitEndPointId
 GET SET-BY-CREATE,
 cic
 GET SET-BY-CREATE,
 propagationDelay
 GET-REPLACE,
 timeslotPtr
 GET SET-BY-CREATE;;;**

CONDITIONAL PACKAGES

**blockedForMaintenancePkg
 PRESENT IF "supplied by the managing system",
 remoteBlockingNbPkg
 PRESENT IF "supplied by the managing system",
 maintenanceSignallingRunningPkg
 PRESENT IF "supplied by the managing system";**

REGISTERED AS {managedObjectClass 35};

crCircuitEndPointBbBeh BEHAVIOUR

DEFINED AS

"This object class represents a termination point of an individual circuit. The CIC value has to be unique within the NNI access.";

5.1.5.4 Call routing circuit end point subgroup for broadband (crCircuitEndPointSubgroupBb)

crCircuitEndPointSubgroupBb MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top;

CHARACTERIZED BY

**crCircuitEndPointSubgroupBbPkg PACKAGE
 BEHAVIOUR crCircuitEndPointSubgroupBbBeh;
 ATTRIBUTES**

**crCircuitEndPointSubgroupId
 GET SET-BY-CREATE,
 "ITU-T M.3100":userLabel
 GET-REPLACE,
 searchMethod
 GET-REPLACE;;;**

REGISTERED AS {managedObjectClass 36};

crCircuitEndPointSubgroupBbBeh BEHAVIOUR

DEFINED AS

"This object class represents a set of circuit end points with similar characteristics. The value of the signallingType attribute of the superior nniAccess object shall be equal 'nisup'.";

5.1.5.5 Call routing office data (callRoutingOfficeData)

callRoutingOfficeData MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;

CHARACTERIZED BY

**callRoutingOfficeDataPkg PACKAGE
 BEHAVIOUR callRoutingOfficeDataBeh;
 ATTRIBUTES**

callRoutingOfficeDataId
 GET SET-BY-CREATE,
ownInternationalCode
 GET-REPLACE ;
 NOTIFICATIONS
 "CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ;
 REGISTERED AS {managedObjectClass 37};
callRoutingOfficeDataBeh BEHAVIOUR
 DEFINED AS
 "This entity describes the office data concerning the call routing application. One instance of this object class shall be automatically created by the managed system upon completion of system initialization.";

5.1.5.6 Carrier data (carrierData)

carrierData MANAGED OBJECT CLASS
 DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;
 CHARACTERIZED BY
 carrierDataPkg PACKAGE
 BEHAVIOUR carrierDataBeh;
 ATTRIBUTES
 carrierDataId
 GET SET-BY-CREATE,
 carrierCode
 GET SET-BY-CREATE;
 NOTIFICATIONS
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ; ;
 CONDITIONAL PACKAGES
 carrierParameterRequiredPkg
 PRESENT IF "supplied by the managing system";
 REGISTERED AS {managedObjectClass 38};
carrierDataBeh BEHAVIOUR
 DEFINED AS
 "This entity describes the necessary information concerning carrier available within one exchange.";

5.1.5.7 Digit manipulation (digitManip)

digitManip MANAGED OBJECT CLASS
 DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;
 CHARACTERIZED BY
 digitManipPkg PACKAGE
 BEHAVIOUR digitManipBeh;
 ATTRIBUTES
 digitManipId
 GET SET-BY-CREATE;
 NOTIFICATIONS
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ; ;
 CONDITIONAL PACKAGES
 destinationTypePkg
 PRESENT IF "modification of digits effects a change of the type of number" ,

digitCombInsertPkg
 PRESENT IF "supplied by managing system" ,
 digitCombReplacePkg
 PRESENT IF "supplied by managing system" ,
 digitSuppressPkg
 PRESENT IF "supplied by managing system" ;
 REGISTERED AS {managedObjectClass 39};

digitManipBeh BEHAVIOUR
 DEFINED AS

"This entity describes the possibility to manipulate the called number (sequence of digits) and/or the destination type. Parts of the sequence or the whole number including the destination type may be changed. It is also used for signalling purposes, i.e. it can be referenced from 'routeData'. It is possible either to insert, to replace or to suppress digits. Reference for all changes is the original string, start position is the first digit.";

5.1.5.8 List of route termination points (listOfRouteTps)

listOfRouteTps MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;

CHARACTERIZED BY

listOfRouteTpsPkg PACKAGE

BEHAVIOUR listOfRouteTpsBeh;

ATTRIBUTES

listOfRouteTpsId

GET SET-BY-CREATE,

listOfRoutesPtrList

GET-REPLACE,

usedAlgorithm

GET-REPLACE ;

NOTIFICATIONS

"CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,

"CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,

"CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ; ;

REGISTERED AS {managedObjectClass 40};

listOfRouteTpsBeh BEHAVIOUR

DEFINED AS

"This entity describes a set of routes for a 'postAnalysisEvaluation' object. With it an ordered list of possible routes (instance 'routeData') exists meeting the quality parameters required by attributes of 'postAnalysisEvaluation'. Additionally, it describes the traffic distribution about the set of routes.";

5.1.5.9 Local destination (localDestination)

localDestination MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;

CHARACTERIZED BY

localDestinationPkg PACKAGE

BEHAVIOUR localDestinationBeh;

ATTRIBUTES

localDestinationId

GET SET-BY-CREATE,

excludedSubscriberCodes

GET-REPLACE ADD-REMOVE,

initialSubscriberCodes

GET-REPLACE ADD-REMOVE;

NOTIFICATIONS

"CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,
"CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,
"CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ; ;

CONDITIONAL PACKAGES

localAreaCodePkg

PRESENT IF "E164 addresses or subfields are supported",

ringTimeLimitPkg

PRESENT IF "supplied by managing system" ;

REGISTERED AS {managedObjectClass 41};

localDestinationBeh BEHAVIOUR

DEFINED AS

"This entity describes a set of terminating points within the exchange as the result of the digit analysis.";

5.1.5.10 NNI access (nniAccess)

nniAccess MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top;

CHARACTERIZED BY

nniAccessPkg PACKAGE

BEHAVIOUR nniAccessBeh;

ATTRIBUTES

nniAccessId

GET SET-BY-CREATE,

signallingProtocol

GET SET-BY-CREATE,

networkBorder

GET-REPLACE,

linkType

GET-REPLACE,

originForRouting

GET-REPLACE,

sigRoutePtr

GET SET-BY-CREATE;;;

CONDITIONAL PACKAGES

networkTypePkg

PRESENT IF "supplied by the managing system";

REGISTERED AS {managedObjectClass 42};

nniAccessBeh BEHAVIOUR

DEFINED AS

"This object class is used to group the VPCs in broadband NNIs or equivalent narrowband links between two signalling points which are controlled by the same signalling protocol.";

5.1.5.11 Prefix digit analysis (prefixDigitAnalysis)

prefixDigitAnalysis MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;

CHARACTERIZED BY

prefixDigitAnalysisPkg PACKAGE

BEHAVIOUR prefixDigitAnalysisBeh;

ATTRIBUTES

prefixDigitAnalysisId

GET SET-BY-CREATE,

code

GET-REPLACE ADD-REMOVE,

natureOfAddress
 GET SET-BY-CREATE;
NOTIFICATIONS
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ;
REGISTERED AS {managedObjectClass 43};
prefixDigitAnalysisBeh BEHAVIOUR
DEFINED AS
 "This entity describes the digits used as prefix dependent of the nature of the address." ;

5.1.5.12 Post analysis evaluation (postAnalysisEvaluation)

postAnalysisEvaluation MANAGED OBJECT CLASS
DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;
CHARACTERIZED BY
 postAnalysisEvaluationPkg **PACKAGE**
 BEHAVIOUR postAnalysisEvaluationBeh;
ATTRIBUTES
 postAnalysisEvaluationId
 GET SET-BY-CREATE,
 activeListOfRouteTpsPtr
 GET-REPLACE,
 reqBandwidthEgress
 GET-REPLACE,
 reqBandwidthIngress
 GET-REPLACE,
 reqBearerCapab
 GET-REPLACE ADD-REMOVE,
 abstractDestinationPtr
 GET-REPLACE,
 transitDelayLimit
 GET-REPLACE ;
NOTIFICATIONS
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ;
CONDITIONAL PACKAGES
 reqNbTransferCapabilityPkg
 PRESENT IF "narrowband transfer capability dependent routing required" ;
REGISTERED AS {managedObjectClass 44};
postAnalysisEvaluationBeh BEHAVIOUR
DEFINED AS
 "This entity describes a set of information like abstractDestination and different quality parameters. The required quality parameter of a certain call is compared with the defined value. For a certain call only one instance has to match the required parameters. The network operator is responsible to define a set of route selection criterias without gaps or overlapping parts." ;

5.1.5.13 Route data (routeData)

routeData MANAGED OBJECT CLASS
DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;
CHARACTERIZED BY
 routeDataPkg **PACKAGE**

BEHAVIOUR routeDataBeh;
ATTRIBUTES
 routeDataId
 GET SET-BY-CREATE,
 linkGroupPtr
 GET-REPLACE ;
NOTIFICATIONS
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,
 "CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ;
CONDITIONAL PACKAGES
 digitManipPtrPkg
 PRESENT IF "digit manipulation is required" ,
 minDigitsPkg
 PRESENT IF "minimum number of digits for seizing required" ,
 sendTnsPkg
 PRESENT IF "TNS has to be signalled" ;
REGISTERED AS {managedObjectClass 45};
routeDataBeh BEHAVIOUR
 DEFINED AS
 "This entity describes one element of the ordered list of routes ('listOfRouteTps').";

5.1.5.14 Virtual path group (virtualPathGroup)

virtualPathGroup MANAGED OBJECT CLASS
DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top;
CHARACTERIZED BY
 virtualPathGroupPkg **PACKAGE**
 BEHAVIOUR virtualPathGroupBeh;
 ATTRIBUTES
 virtualPathGroupId
 GET SET-BY-CREATE,
 "ITU-T M.3100":userLabel
 GET-REPLACE,
 assignNonAssign
 GET SET-BY-CREATE,
 tpAndVpciPtrList
 GET-REPLACE
 ADD-REMOVE;;;
 CONDITIONAL PACKAGES
 searchMethodPkg
 PRESENT IF "object instance is of type assign";
REGISTERED AS {managedObjectClass 46};

virtualPathGroupBeh BEHAVIOUR
 DEFINED AS
 "This object class represents a set of end points of VPCs with similar characteristics. The VPCs can be distributed over one or more physical interfaces. One physical interface can contain VPCs of several object instances of the object class virtualPathGroup.
 All vpTTPBidirectional referenced by the tpAndVpciPtrList shall be administratively locked before the virtualPathGroup can be deleted.";

5.1.5.15 XTPSG combination (xtpsgComb)

xtpsgComb MANAGED OBJECT CLASS
DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top ;
CHARACTERIZED BY

```

xtpsgCombPkg PACKAGE
    BEHAVIOUR xtpsgCombBeh;
    ATTRIBUTES
        xtpsgCombId
            GET SET-BY-CREATE,
        listOfLinkGroupsPtrList
            GET-REPLACE,
        usedAlgorithm
            GET-REPLACE ;
    NOTIFICATIONS
        "CCITT Rec. X.721 | ISO/IEC 10165-2":objectCreation,
        "CCITT Rec. X.721 | ISO/IEC 10165-2":objectDeletion,
        "CCITT Rec. X.721 | ISO/IEC 10165-2":attributeValueChange ; ;
REGISTERED AS {managedObjectClass 47};

```

```

xtpsgCombBeh BEHAVIOUR
    DEFINED AS
        "This entity describes an ordered list of virtual path groups (vpg) or CEPSGs.";

```

5.1.6 Circuit emulation service interworking fragment

5.1.6.1 CES service profile (cesServiceProfile)

```

cesServiceProfile MANAGED OBJECT CLASS
    DERIVED FROM "CCITT Rec. X.721 | ISO/IEC 10165-2":top;
    CHARACTERIZED BY
        cesServiceProfilePkg PACKAGE
            BEHAVIOUR cesServiceProfileBeh;
            ATTRIBUTES
                cesServiceProfileId
                    GET SET-BY-CREATE,
                cesBufferedCDVtolerance
                    GET-REPLACE,
                channelAssociatedSignalling
                    GET-REPLACE;;;
    REGISTERED AS {managedObjectClass 48};

```

cesServiceProfileBeh BEHAVIOUR

DEFINED AS

"This managed object is used to organize data that describes the circuit emulation service interworking functions of the ATM NE.

The cesBufferedCDVtolerance attribute specifies the duration of user data that must be buffered by the interworkingVcTtpBidirectional managed object to offset Cell Delay variation. The recommended default value for DS1 CES is 750 micro seconds and 1000 micro seconds for DS3 CES.

The channelAssociatedSignalling attribute identifies which AAL1 format should be used. It applies only to structured format. For unstructured format this attribute must be set to the default value of basic.

Instances of this object class shall be explicitly created and deleted by the managing system. An instance of this object class shall not be deleted if it is in use by any interworkingVcTtpBidirectional object instance.";

5.1.6.2 Interworking VC TTP Bidirectional (interworkingVcTtpBidirectional)

interworkingVcTtpBidirectional MANAGED OBJECT CLASS

DERIVED FROM "CCITT Rec. I.751":vcTTPBidirectional;

CHARACTERIZED BY

interworkingVcTtpBidirectionalPkg PACKAGE

BEHAVIOUR interworkingVcTtpBidirectionalBeh;

ATTRIBUTES

"ITU-T Rec. I.751":vpiValue

GET,

serviceProfilePointer

GET-REPLACE,

aalProfilePointer

GET-REPLACE,

terminationPointList

GET SET-BY-CREATE;;;

CONDITIONAL PACKAGES

modifyTerminationPointListPkg

PRESENT IF "an instance supports addition and removal of interworked termination points.";

REGISTERED AS {managedObjectClass 49};

interworkingVcTtpBidirectionalBeh BEHAVIOUR

DEFINED AS

"This managed object represents a point in the managed system where the interworking of a service (e.g. frame relay or SMDS) or an underlying physical infrastructure (e.g. nDS0/DS1/DS3/E3/J2) takes place. At this point ATM cells are generated from the service or physical bit stream or vice versa.

An instance of this object class shall point (via the upstreamConnectivityPointer and downstreamConnectivityPointer attributes) to a vcCTPBidirectional managed object (if already created) and that instance of vcCTPBidirectional object class shall point back (via supportedByObjectList) to this instance of interworkingVcTtpBidirectional object class.

For the conditional package oamCellLoopbackPkg inherited from vcTTPBidirectional object, the loopback cell shall be inserted at the interworkingVcTtpBidirectional side of the network element and the direction of the cell shall be into the switch. Thus the connection matrix of the interworking NE is included by the Loopback.

This managed object shall send a communicationsAlarm notification to the managing system, when the cellLossIntegrationPeriod (identified by aalProfile) expires.

Instances of this object class may be explicitly created and deleted by the managing system. Instances of this managed object class may also be automatically created by the managed system.";

5.2 Name bindings

5.2.1 aalProfile-managedElementR1

aalProfile-managedElementR1 NAME BINDING

SUBORDINATE OBJECT CLASS aalProfile AND SUBCLASSES;

NAMED BY SUPERIOR OBJECT CLASS "ITU-T Rec. M.3100":managedElementR1 AND SUBCLASSES;

WITH ATTRIBUTE aalProfileId;

CREATE

WITH-REFERENCE-OBJECT,

WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS {nameBinding 1};

5.2.2 aalProtocolCurrentData-interworkingVcTtpBidirectional

aalProtocolCurrentData-interworkingVcTtpBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS aalProtocolCurrentData AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS interworkingVcTtpBidirectional AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Rec. X.739":scannerId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS {nameBinding 2};

5.2.3 abstractDestination-managedElementR1

abstractDestination-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS abstractDestination
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE abstractDestinationId ;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ;
REGISTERED AS {nameBinding 3};

5.2.4 analysisCriteria-managedElementR1

analysisCriteria-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS analysisCriteria
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE analysisCriteriaId ;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ;
REGISTERED AS {nameBinding 4};

5.2.5 bearerServiceBb-customerProfileBb

bearerServiceBb-customerProfileBb NAME BINDING
SUBORDINATE OBJECT CLASS bearerServiceBb
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS customerProfileBb
AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Q.824.0":bearerServiceId;
CREATE;
DELETE;
REGISTERED AS {nameBinding 5};

5.2.6 callingNumberScreeningBb-uniAccess

callingNumberScreeningBb-uniAccess NAME BINDING
SUBORDINATE OBJECT CLASS callingNumberScreeningBb AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS uniAccess
AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Q.824.1":callingNumberScreeningId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {nameBinding 6};

5.2.7 callRoutingOfficeData-managedElementR1

callRoutingOfficeData-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS callRoutingOfficeData
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE callRoutingOfficeDataId ;
REGISTERED AS {nameBinding 7};

5.2.8 carrierData-managedElementR1

carrierData-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS carrierData
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE carrierDataId ;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ;
REGISTERED AS {nameBinding 8};

5.2.9 cesServiceProfile-managedElementR1

cesServiceProfile-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS cesServiceProfile
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE cesServiceProfileId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {nameBinding 9};

5.2.10 connectedNumberScreeningBb-uniAccess

connectedNumberScreeningBb-uniAccess NAME BINDING
SUBORDINATE OBJECT CLASS connectedNumberScreeningBb AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS uniAccess
AND SUBCLASSES;
WITH ATTRIBUTE connectedNumberScreeningId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {nameBinding 10};

5.2.11 crCircuitEndPoint-crCircuitEndPointSubgroupBb

crCircuitEndPointBb-crCircuitEndPointSubgroupBb NAME BINDING
SUBORDINATE OBJECT CLASS crCircuitEndPointBb
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS crCircuitEndPointSubgroupBb
AND SUBCLASSES;
WITH ATTRIBUTE crCircuitEndPointId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 11};

5.2.12 crCircuitEndPointSubgroupBb-nniAccess

crCircuitEndPointSubgroupBb-nniAccess NAME BINDING
SUBORDINATE OBJECT CLASS crCircuitEndPointSubgroupBb
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS nniAccess
AND SUBCLASSES;
WITH ATTRIBUTE crCircuitEndPointSubgroupId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {nameBinding 12};

5.2.13 customerProfileBb-managedElementR1

customerProfileBb-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS customerProfileBb
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Q.824.0":customerProfileId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 13};

5.2.14 customizedResourceBb-customerProfileBb

customizedResourceBb-customerProfileBb NAME BINDING
SUBORDINATE OBJECT CLASS customizedResourceBb
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS customerProfileBb
AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Q.824.0":customizedResourceId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 14};

5.2.15 digitManip-managedElementR1

digitManip-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS digitManip
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE digitManipId ;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ;
REGISTERED AS {nameBinding 15};

5.2.16 directoryNumberE164-managedElementR1

directoryNumberE164-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS directoryNumberE164
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Rec. Q.824.0":directoryNumberId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 16};

5.2.17 listOfRouteTps-managedElementR1

listOfRouteTps-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS listOfRouteTps
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE listOfRouteTpsId ;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ;
REGISTERED AS {nameBinding 17};

5.2.18 localDestination-managedElementR1

localDestination-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS localDestination
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE localDestinationId ;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ;
REGISTERED AS {nameBinding 18};

5.2.19 nniAccess-managedElementR1

nniAccess-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS nniAccess AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES;
WITH ATTRIBUTE nniAccessId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {nameBinding 19};

5.2.20 postAnalysisEvaluation-managedElementR1

postAnalysisEvaluation-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS postAnalysisEvaluation
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE postAnalysisEvaluationId ;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ;
REGISTERED AS {nameBinding 20};

5.2.21 prefixDigitAnalysis-managedElementR1

prefixDigitAnalysis-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS prefixDigitAnalysis
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE prefixDigitAnalysisId ;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ;
REGISTERED AS {nameBinding 21};

5.2.22 routeData-managedElementR1

routeData-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS routeData
AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES ;
WITH ATTRIBUTE routeDataId ;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE ;
REGISTERED AS {nameBinding 22};

5.2.23 saalUniProtocolProfile-managedElementR1

saalUniProtocolProfile-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS saalUniProtocolProfile
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T Rec. M.3100":managedElementR1
AND SUBCLASSES;
WITH ATTRIBUTE saalUniProtocolProfileId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 23};

5.2.24 supplementaryServiceDepBb-bearerServiceBb

supplementaryServiceDepBb-bearerServiceBb NAME BINDING
SUBORDINATE OBJECT CLASS supplementaryServiceDepBb
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS bearerServiceBb
AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Q.824.0":supplementaryServiceId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 24};

5.2.25 supplementaryServiceDepBb-teleserviceBb

supplementaryServiceDepBb-teleserviceBb NAME BINDING
SUBORDINATE OBJECT CLASS supplementaryServiceDepBb
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS teleserviceBb
AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Q.824.0":supplementaryServiceId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 25};

5.2.26 supplementaryServiceIndBb-customerProfileBb

supplementaryServiceIndBb-customerProfileBb NAME BINDING
SUBORDINATE OBJECT CLASS supplementaryServiceIndBb
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS customerProfileBb
AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Q.824.0":supplementaryServiceId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 26};

5.2.27 sVpTtp-managedElementR1

The name binding to managedElementR1 and subclasses as defined in Recommendation I.751 [4] for subclasses of vpTTPBidirectional is used.

5.2.28 teleserviceBb-customerProfileBb

teleserviceBb-customerProfileBb NAME BINDING
SUBORDINATE OBJECT CLASS teleserviceBb
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS customerProfileBb
AND SUBCLASSES;
WITH ATTRIBUTE "ITU-T Q.824.0":teleserviceId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 27};

5.2.29 userData-customerProfileBb

userData-customerProfileBb NAME BINDING
SUBORDINATE OBJECT CLASS userData
AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS customerProfileBb
AND SUBCLASSES;
WITH ATTRIBUTE userDataId;
CREATE
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE;
REGISTERED AS {nameBinding 28};

5.2.30 uniAccess-managedElementR1

uniAccess-managedElementR1 NAME BINDING
SUBORDINATE OBJECT CLASS uniAccess AND SUBCLASSES;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1
AND SUBCLASSES;
WITH ATTRIBUTE uniAccessId;
CREATE

WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
ONLY-IF-NO-CONTAINED-OBJECTS;
REGISTERED AS {nameBinding 29};

5.2.31 vcCTPBidirectional-managedElementR1

vcCTPBidirectional-managedElementR1 NAME BINDING

SUBORDINATE OBJECT CLASS "ITU-T I.751":vcCTPBidirectional AND SUBCLASSES ;
NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1 AND SUBCLASSES ;
WITH ATTRIBUTE "ITU-T M.3100":cTPIId ;

BEHAVIOUR

vcCTPBidirectional-managedElementR1Behaviour BEHAVIOUR

DEFINED AS

"The value of vcCTPIId attribute (VCI value) in the vcCTPBidirectional object is used internal to the ATM Network Element and the value it is given is a local matter.";;

CREATE

WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE

ONLY-IF-NO-CONTAINED-OBJECTS;

REGISTERED AS {nameBinding 30};

5.2.32 virtualPathGroup-nniAccess

virtualPathGroup-nniAccess NAME BINDING

SUBORDINATE OBJECT CLASS virtualPathGroup AND SUBCLASSES;

NAMED BY SUPERIOR OBJECT CLASS nniAccess

AND SUBCLASSES;

WITH ATTRIBUTE virtualPathGroupId;

CREATE

WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE;

REGISTERED AS {nameBinding 31};

5.2.33 xtpsgComb-managedElementR1

xtpsgComb-managedElementR1 NAME BINDING

SUBORDINATE OBJECT CLASS xtpsgComb

AND SUBCLASSES ;

NAMED BY SUPERIOR OBJECT CLASS "ITU-T M.3100":managedElementR1

AND SUBCLASSES ;

WITH ATTRIBUTE xtpsgCombId ;

CREATE

WITH-AUTOMATIC-INSTANCE-NAMING;

DELETE ;

REGISTERED AS {nameBinding 32};

5.3 Definition of packages

5.3.1 Paquetage "paramètre de performance de couche AAL de type 1" (aalTypeOnePerformanceParameterPkg)

aalTypeOnePerformanceParameterPkg PACKAGE

ATTRIBUTES

sequenceViolations

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET,

cellLoss

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET,

cellMisinsertion

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET,

bufferUnderflows

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET,

bufferOverflows

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET,

headerErrors

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET,

stdPointerReframes

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET,

stdPointerParityFailures

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET;

REGISTERED AS {package 1};

5.3.2 AAL type 1 performance parameter history data package (aalTypeOnePerformanceParameterHistoryDataPkg)

aalTypeOnePerformanceParameterHistoryDataPkg PACKAGE

ATTRIBUTES

sequenceViolations

GET,

cellLoss

GET,

cellMisinsertion

GET,

bufferUnderflows

GET,

bufferOverflows

GET,

```

    headerErrors
        GET,
    stdPointerReframes
        GET,
    stdPointerParityFailures
        GET;
REGISTERED AS {package 2};

```

5.3.3 AAL type 1 profile package (aalTypeOneProfilePkg)

```

aalTypeOneProfilePkg PACKAGE
    ATTRIBUTES
        cbrRate
            GET,
        cellLossIntegrationPeriod
            GET,
        clockRecoveryType
            GET,
        forwardErrorCorrectionMethod
            GET,
        partiallyFilledCells
            GET,
        structuredDataTransfer
            GET,
        subType
            GET;
REGISTERED AS {package 3};

```

5.3.4 AAL type 3/4 performance parameter package (aalTypeThreeFourPerformanceParameterPkg)

```

aalTypeThreeFourPerformanceParameterPkg PACKAGE
    ATTRIBUTES
        sumOfInvalidSARFieldErrors
            REPLACE-WITH-DEFAULT
            DEFAULT VALUE ASN1DefinedTypesModule.integerZero
            GET,
        sumOfIncorrectSARFieldErrors
            REPLACE-WITH-DEFAULT
            DEFAULT VALUE ASN1DefinedTypesModule.integerZero
            GET,
        sarCrcViolations
            REPLACE-WITH-DEFAULT
            DEFAULT VALUE ASN1DefinedTypesModule.integerZero
            GET,
        comsEomsUnexpectedSN
            REPLACE-WITH-DEFAULT
            DEFAULT VALUE ASN1DefinedTypesModule.integerZero
            GET,
        bomsEomsUnexpectedMID
            REPLACE-WITH-DEFAULT
            DEFAULT VALUE ASN1DefinedTypesModule.integerZero
            GET,
        sriTimeOuts
            REPLACE-WITH-DEFAULT
            DEFAULT VALUE ASN1DefinedTypesModule.integerZero
            GET,

```

```

    numberOfAborts
        REPLACE-WITH-DEFAULT
        DEFAULT VALUE ASN1DefinedTypesModule.integerZero
        GET,
    sumOfInvalidCSFieldErrors
        REPLACE-WITH-DEFAULT
        DEFAULT VALUE ASN1DefinedTypesModule.integerZero
        GET,
    sumOfIncorrectCSFieldErrors
        REPLACE-WITH-DEFAULT
        DEFAULT VALUE ASN1DefinedTypesModule.integerZero
        GET,
    bETagMismatch
        REPLACE-WITH-DEFAULT
        DEFAULT VALUE ASN1DefinedTypesModule.integerZero
        GET,
    lengthBAMSizeMismatch
        REPLACE-WITH-DEFAULT
        DEFAULT VALUE ASN1DefinedTypesModule.integerZero
        GET,
    lengthMismatch
        REPLACE-WITH-DEFAULT
        DEFAULT VALUE ASN1DefinedTypesModule.integerZero
        GET;
REGISTERED AS {package 4};

```

5.3.5 AAL type 3/4 performance parameter history data package (aalTypeThreeFourPerformanceParameterHistoryDataPkg)

aalTypeThreeFourPerformanceParameterHistoryDataPkg PACKAGE

ATTRIBUTES

```

    sumOfInvalidSARFieldErrors
        GET,
    sumOfIncorrectSARFieldErrors
        GET,
    sarCrcViolations
        GET,
    comsEomsUnexpectedSN
        GET,
    bomsEomsUnexpectedMID
        GET,
    sriTimeOuts
        GET,
    numberOfAborts
        GET,
    sumOfInvalidCSFieldErrors
        GET,
    sumOfIncorrectCSFieldErrors
        GET,
    bETagMismatch
        GET,
    lengthBAMSizeMismatch
        GET,
    lengthMismatch
        GET;
REGISTERED AS {package 5};

```

5.3.6 AAL type 3/4 profile package (aalTypeThreeFourProfilePkg)

aalTypeThreeFourProfilePkg PACKAGE

ATTRIBUTES

maxCpcsPduSize

GET,

midRange

GET,

aalMode

GET,

sscsType

GET;

REGISTERED AS {package 6};

5.3.7 AAL type 5 performance parameter package (aalTypeFivePerformanceParameterPkg)

aalTypeFivePerformanceParameterPkg PACKAGE

ATTRIBUTES

sumOfInvalidCSFieldErrors

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET,

crcViolations

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET,

reassemblyTimerExpirations

REPLACE-WITH-DEFAULT

DEFAULT VALUE ASN1DefinedTypesModule.integerZero

GET;

REGISTERED AS {package 7};

5.3.8 AAL type 5 performance parameter history data package (aalTypeFivePerformanceParameterHistoryDataPkg)

aalTypeFivePerformanceParameterHistoryDataPkg PACKAGE

ATTRIBUTES

sumOfInvalidCSFieldErrors

GET,

crcViolations

GET,

reassemblyTimerExpirations

GET;

REGISTERED AS {package 8};

5.3.9 AAL type 5 profile package (aalTypeFiveProfilePkg)

aalTypeFiveProfilePkg PACKAGE

ATTRIBUTES

maxCpcsPduSize

GET,

aalMode

GET,

sscsType

GET;

REGISTERED AS {package 9};

5.3.10 Blocked for maintenance package (blockedForMaintenancePkg)

blockedForMaintenancePkg PACKAGE

ATTRIBUTES

blockedForMaintenance

DEFAULT VALUE ASN1DefinedTypesModule.defaultBlockedForMaintenance

GET-REPLACE;

REGISTERED AS {package 10};

5.3.11 Calling line identification presentation for broadband package (clipBbPkg)

clipBbPkg PACKAGE

BEHAVIOUR clipBbBeh;

ATTRIBUTES

"ITU-T Q.824.2": noRestrictionsAllowed

GET-REPLACE;;

clipBbBeh BEHAVIOUR

DEFINED AS

"This Supplementary Service (described in Rec. Q.2951.3) provides the called party with the possibility of receiving identification of the calling party. In addition to the ISDN number, the calling line identity may include a subaddress generated by the calling user and transparently transported by the network. The network shall deliver the calling line identity to the called party during call establishment, regardless of the terminal capability to handle the information.";

5.3.12 Calling line identification restriction for broadband package (clirBbPkg)

clirBbPkg PACKAGE

BEHAVIOUR clirBbBeh;

ATTRIBUTES

"ITU-T Q.824.2": callIdRestrictionOptions

GET-REPLACE;;

clirBbBeh BEHAVIOUR

DEFINED AS

"This Supplementary Service (described in Rec. Q.2951.4) provides the calling party with the possibility to prevent presentation of the calling party's ISDN number, and subaddress information (if any) to the called party. If the called party subscribes to the CLIP Supplementary Service then the called party shall receive an indication that the calling party information is not available due to restriction.";

5.3.13 Carrier data pointer package (carrierDataPtrPkg)

carrierDataPtrPkg PACKAGE

ATTRIBUTES

carrierDataPtr

GET SET-BY-CREATE;

REGISTERED AS {package 11};

5.3.14 Carrier parameter required package (carrierParameterRequiredPkg)

carrierParameterRequiredPkg PACKAGE

ATTRIBUTES

cspRequired

GET-REPLACE,

cipRequired
 GET-REPLACE;
REGISTERED AS {package 12};

5.3.15 Closed user group subscription option package for broadband (cugSubscriptionOptionBbPkg)

cugSubscriptionOptionBbPkg PACKAGE
 BEHAVIOUR cugSubscriptionOptionBbBeh;
 ATTRIBUTES
 preferredCugIndex
 GET-REPLACE,
 interCugAccess
 GET-REPLACE;;

cugSubscriptionOptionBbBeh BEHAVIOUR
 DEFINED AS

 "The CUG subscription options object may only be instantiated if either attribute preferredCugIndex is assigned a non-NULL value or attribute interCugAccess is not empty. M_SET operations which would result in preferredCugIndex value NULL and interCugAccess value empty set are not allowed. The value of attribute preferredCugIndex should not be NULL when interCugvalue is 'none' or 'incomingaccess'.";

5.3.16 Connected line identification presentation for broadband package (colpBbPkg)

colpBbPkg PACKAGE
 BEHAVIOUR colpBbBeh;
 ATTRIBUTES
 noColpRestrictionsAllowed
 GET-REPLACE;;

colpBbBeh BEHAVIOUR
 DEFINED AS

 "This Supplementary Service (described in Rec. Q.2951.5) provides the calling party with the possibility of receiving identification of the connected party.";

5.3.17 Connected line identification restriction for broadband package (colrBbPkg)

colrBbPkg PACKAGE
 BEHAVIOUR colrBbBeh;
 ATTRIBUTES
 connLineIdRestrictionOptions
 GET-REPLACE;;

colrBbBeh BEHAVIOUR
 DEFINED AS

 "This Supplementary Service (described in Rec. Q.2951.6) provides the called party with the possibility to prevent presentation of the connected party's ISDN number, and subaddress information (if any) to the calling party.";

5.3.18 Customer profile pointers behaviour package (customerProfilePointersBehPkg)

customerProfilePointersBehPkg PACKAGE
 BEHAVIOUR customerProfilePointersBeh;
REGISTERED AS {package 13};

customerProfilePointersBeh BEHAVIOUR

DEFINED AS

"The attribute 'customerProfilePtr' in the slave objects are synchronized with the pointers in the master customer profile object. That is, when the pointers in the associated customer profile object are changed, the 'customerProfilePtr' in the slave objects are updated accordingly.";

5.3.19 Customized resource pointers behaviour package (customizedResourcePointersBehPkg)

customizedResourcePointersBehPkg PACKAGE

BEHAVIOUR customizedResourcePointersBeh;

REGISTERED AS {package 14};

customizedResourcePointersBeh BEHAVIOUR

DEFINED AS

"The attribute 'customizedResourcePtrList' in the slave objects are synchronized with the pointers in the master customized resource object. That is, when the pointers in the associated customized resource object are changed, the 'customizedResourcePtrList' in the slave objects are updated accordingly.";

5.3.20 Destination code package (destinationCodePkg)

destinationCodePkg PACKAGE

ATTRIBUTES

destinationCode

GET SET-BY-CREATE;

REGISTERED AS {package 15};

5.3.21 Destination type package (destinationTypePkg)

destinationTypePkg PACKAGE

ATTRIBUTES

destinationType

GET SET-BY-CREATE;

REGISTERED AS {package 16};

5.3.22 Digit combination insertion package (digitCombInsertPkg)

digitCombInsertPkg PACKAGE

ATTRIBUTES

digitCombInsert

GET-REPLACE ADD-REMOVE ;

REGISTERED AS {package 17};

5.3.23 Digit combination replace package (digitCombReplacePkg)

digitCombReplacePkg PACKAGE

ATTRIBUTES

digitCombReplace

GET-REPLACE ADD-REMOVE ;

REGISTERED AS {package 18};

5.3.24 Digit manipulation pointer package (digitManipPtrPkg)

digitManipPtrPkg PACKAGE
ATTRIBUTES
 digitManipPtr
 GET-REPLACE ;
REGISTERED AS {package 19};

5.3.25 Digit suppression package (digitSuppressPkg)

digitSuppressPkg PACKAGE
ATTRIBUTES
 digitSuppress
 GET-REPLACE ADD-REMOVE ;
REGISTERED AS {package 20};

5.3.26 Local area code package (localAreaCodePkg)

localAreaCodePkg PACKAGE
ATTRIBUTES
 localAreaCode
 GET-REPLACE;
REGISTERED AS {package 21};

5.3.27 Maintenance signalling running package (maintenanceSignallingRunningPkg)

maintenanceSignallingRunningPkg PACKAGE
ATTRIBUTES
 maintenanceSignallingRunning
 INITIAL VALUE DERIVATION RULE setByManagerBeh
 GET;
REGISTERED AS {package 22};

5.3.28 Maximum digits package (maxDigitsPkg)

maxDigitsPkg PACKAGE
ATTRIBUTES
 maxDigits
 GET-REPLACE ;
REGISTERED AS {package 23};

5.3.29 Minimum digits package (minDigitsPkg)

minDigitsPkg PACKAGE
ATTRIBUTES
 minDigits
 GET-REPLACE ;
REGISTERED AS {package 24};

5.3.30 Modify termination point list package (modifyTerminationPointListPkg)

modifyTerminationPointListPkg PACKAGE

ACTIONS

**addTerminationPoint,
removeTerminationPoint;**

REGISTERED AS {package 25};

5.3.31 Network type package (networkTypePkg)

networkTypePkg PACKAGE

ATTRIBUTES

**networkType
GET SET-BY-CREATE;**

REGISTERED AS {package 26};

5.3.32 Origin mark package (originMarkPkg)

originMarkPkg PACKAGE

ATTRIBUTES

**originMark
GET-REPLACE;**

REGISTERED AS {package 27};

5.3.33 Poll after retransmission package (pollAfterRetransmissionPkg)

pollAfterRetransmissionPkg PACKAGE

BEHAVIOUR pollAfterRetransmissionPkgBeh;

ATTRIBUTES

**pollAfterRetransmission
GET SET-BY-CREATE;**

REGISTERED AS {package 28};

pollAfterRetransmissionPkgBeh BEHAVIOUR

DEFINED AS

**"This package should be used, if the poll after retransmission can be selected at creation time of a
saalUniProtocolProfile.";**

5.3.34 Preferred carrier package (preferredCarrierPkg)

preferredCarrierPkg PACKAGE

ATTRIBUTES

**preferredCarrier
GET-REPLACE;**

REGISTERED AS {package 29};

5.3.35 Propagation delay package (propagationDelayPkg)

propagationDelayPkg PACKAGE

ATTRIBUTES

**propagationDelay
GET-REPLACE;**

REGISTERED AS {package 30};

5.3.36 Remote blocking package (remoteBlockingPkg)

remoteBlockingPkg PACKAGE

ATTRIBUTES

remoteBlocking

INITIAL VALUE DERIVATION RULE setByManagerBeh
GET;

REGISTERED AS {package 31};

5.3.37 Remote blocking narrowband package (remoteBlockingNbPkg)

remoteBlockingNbPkg PACKAGE

ATTRIBUTES

remoteBlocking

INITIAL VALUE DERIVATION RULE setByManagerBeh
GET,

remoteBlockingReason

INITIAL VALUE DERIVATION RULE setByManagerBeh
GET;

REGISTERED AS {package 32};

5.3.38 Required narrowband transfer capability package (reqNbTransferCapabilityPkg)

reqNbTransferCapabilityPkg PACKAGE

ATTRIBUTES

reqNbTransferCapability

GET-REPLACE ADD-REMOVE;

REGISTERED AS {package 33};

5.3.39 Ring time limit package (ringTimeLimitPkg)

ringTimeLimitPkg PACKAGE

ATTRIBUTES

ringTimeLimit

GET-REPLACE ;

REGISTERED AS {package 34};

5.3.40 Search method package (searchMethodPkg)

searchMethodPkg PACKAGE

ATTRIBUTES

searchMethod

GET-REPLACE;

REGISTERED AS {package 35};

5.3.41 Send TNS package (sendTnsPkg)

sendTnsPkg PACKAGE

ATTRIBUTES

sendTns

GET-REPLACE ;

REGISTERED AS {package 36};

5.3.42 Signalling channel pointer package (signallingChannelPtrPkg)

signallingChannelPtrPkg PACKAGE

ATTRIBUTES

aalPtr

GET-REPLACE,

signallingChannelPtr

GET SET-BY-CREATE;

REGISTERED AS {package 37};

5.3.43 Signalling type package (signallingTypePkg)

signallingTypePkg PACKAGE

ATTRIBUTES

signallingType

DEFAULT VALUE ASN1DefinedTypesModule.defaultSignallingType

GET SET-BY-CREATE;

REGISTERED AS {package 38};

5.3.44 Sub-addressing for broadband package (subBbPkg)

subBbPkg PACKAGE

BEHAVIOUR subBbBeh;;

subBbBeh BEHAVIOUR

DEFINED AS

"This Supplementary Service (described in Rec. Q.2951.8) provides the called user to expand his addressing capacity beyond the one given by the ISDN number.";

5.3.45 Two calling party number delivery package (twoCallingPartyNumberDeliveryPkg)

twoCallingPartyNumberDeliveryPkg PACKAGE

ATTRIBUTES

twoCallingPartyNumberDelivery

DEFAULT VALUE ASN1DefinedTypesModule.defaultTwoCallingPartyNumberDelivery

GET-REPLACE;

REGISTERED AS {package 39};

5.3.46 User to user signalling for broadband package (userToUserSignallingBbPkg)

userToUserSignallingBbPkg PACKAGE

BEHAVIOUR userToUserSignallingBbBeh;;

userToUserSignallingBbBeh BEHAVIOUR

DEFINED AS

"This service allows an ISDN subscriber to send/receive a limited amount of information to/from another ISDN subscriber over the signalling channel associated with their call according to Rec. Q.2957.";

5.4 Definition of attributes

5.4.1 AAL mode (aalMode)

aalMode ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.AalMode;
MATCHES FOR EQUALITY, ORDERING;
BEHAVIOUR aalModeBeh;**

REGISTERED AS {attribute 1};

aalModeBeh BEHAVIOUR

DEFINED AS

"This attribute indicates whether the AAL for the supporting VCC is operating in message mode or streaming mode, assured or unassured.";

5.4.2 AAL pointer (aalPtr)

aalPtr ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ObjectInstance;
MATCHES FOR EQUALITY;
BEHAVIOUR aalPtrBeh;**

REGISTERED AS {attribute 2};

aalPtrBeh BEHAVIOUR

DEFINED AS

"This attribute identifies the associated object which represents the functions performed at the ATM adaptation layer.";

5.4.3 AAL profile identifier (aalProfileId)

aalProfileId ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR aalProfileIdBeh;**

REGISTERED AS {attribute 3};

aalProfileIdBeh BEHAVIOUR

DEFINED AS

"This attribute can be used as an RDN when naming an instance of the aalProfile managed object class.";

5.4.4 AAL profile pointer (aalProfilePointer)

aalProfilePointer ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.PointerOrNull;
MATCHES FOR EQUALITY;
BEHAVIOUR aalProfilePointerBeh;**

REGISTERED AS {attribute 4};

aalProfilePointerBeh BEHAVIOUR

DEFINED AS

"This attribute provides a pointer to an aalProfile managed object instance that defines the common ATM Adaptation Layer processing needed.";

5.4.5 AAL type (aalType)

aalType ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.AalType;
MATCHES FOR EQUALITY;**

BEHAVIOUR aalTypeBeh;
REGISTERED AS {attribute 5};
aalTypeBeh BEHAVIOUR
DEFINED AS
 "This attribute identifies the AAL Type. Valid types are AAL1, AAL3/4, and AAL5.";

5.4.6 Abstract destination identifier (abstractDestinationId)

abstractDestinationId ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;
MATCHES FOR EQUALITY;
BEHAVIOUR abstractDestinationIdBeh;
REGISTERED AS {attribute 6};
abstractDestinationIdBeh BEHAVIOUR
DEFINED AS
 "This entity describes the object identifier attribute of the object class 'abstractDestination'." ;

5.4.7 Abstract destination pointer (abstractDestinationPtr)

abstractDestinationPtr ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.AbstractDestinationPtr ;
MATCHES FOR EQUALITY;
BEHAVIOUR abstractDestinationPtrBeh;
REGISTERED AS {attribute 7};
abstractDestinationPtrBeh BEHAVIOUR
DEFINED AS
 "This entity describes the pointer to the instance of 'abstractDestination'." ;

5.4.8 Access pointer list (accessPtrList)

accessPtrList ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SetOfInstances;
MATCHES FOR EQUALITY;
BEHAVIOUR accessPtrListBeh;
REGISTERED AS {attribute 8};
accessPtrListBeh BEHAVIOUR
DEFINED AS
 "This is a set-valued attribute whose value(s) points to instances of the Access object class or its subclasses.";

5.4.9 Active list of route termination points pointer (activeListOfRouteTpsPtr)

activeListOfRouteTpsPtr ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ActiveListOfRouteTpsPtr ;
MATCHES FOR EQUALITY;
BEHAVIOUR activeListOfRouteTpsPtrBeh;
REGISTERED AS {attribute 9};
activeListOfRouteTpsPtrBeh BEHAVIOUR
DEFINED AS
 "This entity describes the pointer to the selected 'ListOfRouteTps' object, which contains an ordered list of instances of 'routeData' matching the selection criteria." ;

5.4.10 Active target pointer (activeTargetPtr)

activeTargetPtr ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ActiveTargetPtr ;

MATCHES FOR EQUALITY;

BEHAVIOUR activeTargetPtrBeh;

REGISTERED AS {attribute 10};

activeTargetPtrBeh BEHAVIOUR

DEFINED AS

"This entity describes the target which is currently addressed by the 'analysisCriteria' instance.";

5.4.11 Analysis criteria identifier (analysisCriteriaId)

analysisCriteriaId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;

MATCHES FOR EQUALITY;

BEHAVIOUR analysisCriteriaIdBeh;

REGISTERED AS {attribute 11};

analysisCriteriaIdBeh BEHAVIOUR

DEFINED AS

"This entity describes the object identifier attribute of the object class 'analysisCriteria'." ;

5.4.12 Assign non-assign (assignNonAssign)

assignNonAssign ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.AssignNonAssign;

MATCHES FOR EQUALITY;

BEHAVIOUR assignNonAssignBeh;

REGISTERED AS {attribute 12};

assignNonAssignBeh BEHAVIOUR

DEFINED AS

"Indicates whether the exchange is for the VPC's of this object instance the assigning or the nonassigning exchange.";

5.4.13 B/E tag mismatch (bETagMismatch)

bETagMismatch ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR bETagMismatchBeh;

REGISTERED AS {attribute 13};

bETagMismatchBeh BEHAVIOUR

DEFINED AS

"This attribute represents the number of times an incoming CS_PDU had a BTag field value that did not equal the ETag field value.";

5.4.14 Blocked for maintenance (blockedForMaintenance)

blockedForMaintenance ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.BlockedForMaintenance;

MATCHES FOR EQUALITY;

BEHAVIOUR blockedForMaintenanceBeh;

REGISTERED AS {attribute 14};

blockedForMaintenanceBeh BEHAVIOUR

DEFINED AS

"This attribute indicates the blocking state of the virtual path and is typically used when creating new VPs. A blocked virtual path cannot be selected for new non-test traffic; however it can be used for test calls. The blocking of a virtual path has no influence on existing calls (non-test calls and test calls).";

5.4.15 BOM/EOM unexpected MID (bomsEomsUnexpectedMID)

bomsEomsUnexpectedMID ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR bomsEomsUnexpectedMIDBeh;

REGISTERED AS {attribute 15};

bomsEomsUnexpectedMIDBeh BEHAVIOUR

DEFINED AS

"This attribute represents the number of BOM/EOM segments with an unexpected MID value. This attribute will be incremented by one each time a BOM is received with a currently active MID (a MID for which an EOM has not yet been received), or when an EOM is received for which a MID is NOT currently active. ";

5.4.16 Buffer overflows (bufferOverflows)

bufferOverflows ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR bufferOverflowsBeh;

REGISTERED AS {attribute 16};

bufferOverflowsBeh BEHAVIOUR

DEFINED AS

"This attribute represents a count of the number of times the reassembly buffer overflows. If the interworking function is implemented with multiple buffers, such as a cell level buffer and a bit level buffer, then either buffer overflow will cause this count to be incremented.";

5.4.17 Buffer release (bufferRelease)

bufferRelease ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.BufferRelease;

BEHAVIOUR bufferReleaseBeh;

REGISTERED AS {attribute 17};

bufferReleaseBeh BEHAVIOUR

DEFINED AS

"This attribute determines whether SSCOP can release its transmission buffer and transmission queue on connection release and can selectively release messages from the transmission buffer when older messages are still outstanding.";

5.4.18 Buffer underflows (bufferUnderflows)

bufferUnderflows ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR bufferUnderflowsBeh;

REGISTERED AS {attribute 18};

bufferUnderflowsBeh BEHAVIOUR

DEFINED AS

"This attribute represents a count the number of times the reassembly buffer underflows. In the case of a continuous underflow caused by a loss of ATM cell flow, a single buffer underflow should be counted. If the interworking function is implemented with multiple buffers, such as a cell level buffer and a bit level buffer, then either buffer underflow will cause this count to be incremented.";

5.4.19 Calling party category (callingPartyCategory)

callingPartyCategory ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CallingPartyCategory ;

MATCHES FOR EQUALITY;

BEHAVIOUR callingPartyCategoryBeh;

REGISTERED AS {attribute 19};

callingPartyCategoryBeh BEHAVIOUR

DEFINED AS

"This entity describes the category as the type of calling subscriber considered for the routing process." ;

5.4.20 Called party number representation Type (cdpnRepresentationType)

cdpnRepresentationType ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CdpnRepresentationType;

BEHAVIOUR cdpnRepresentationTypeBeh;

REGISTERED AS {attribute 20};

cdpnRepresentationTypeBeh BEHAVIOUR

DEFINED AS

"This attribute specifies the format (nature of address) of the called party number to be delivered to the called party." ;

5.4.21 Call routing circuit endpoint identifier (crCircuitEndPointId)

crCircuitEndPointId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;

MATCHES FOR EQUALITY;

BEHAVIOUR crCircuitEndPointIdBeh;

REGISTERED AS {attribute 21};

crCircuitEndPointIdBeh BEHAVIOUR

DEFINED AS

"This attribute is used to name instances of the crCircuitEndPoint managed object class.";

5.4.22 Call routing circuit endpoint subgroup identifier (crCircuitEndPointSubgroupId)

crCircuitEndPointSubgroupId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;

MATCHES FOR EQUALITY;

BEHAVIOUR crCircuitEndPointSubgroupIdBeh;

REGISTERED AS {attribute 22};

crCircuitEndPointSubgroupIdBeh BEHAVIOUR

DEFINED AS

"This attribute is used to name instances of the crCircuitEndPointSubgroup managed object class.";

5.4.23 Call routing office data identifier (callRoutingOfficeDataId)

callRoutingOfficeDataId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;

MATCHES FOR EQUALITY;

BEHAVIOUR callRoutingOfficeDataIdBeh;

REGISTERED AS {attribute 23};

callRoutingOfficeDataIdBeh BEHAVIOUR

DEFINED AS

"This entity describes the object identifier attribute of the object class 'callRoutingOfficeData'." ;

5.4.24 Carrier code (carrierCode)

carrierCode ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CarrierCode ;

MATCHES FOR EQUALITY;

BEHAVIOUR carrierCodeBeh;

REGISTERED AS {attribute 24};

carrierCodeBeh BEHAVIOUR

DEFINED AS

"This entity describes the unambiguous carrier specific code used to distinguish it from other carriers at the exchange. It can be dialled by the customer or supplied by the originating exchange." ;

5.4.25 Carrier data identifier (carrierDataId)

carrierDataId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;

MATCHES FOR EQUALITY;

BEHAVIOUR carrierDataIdBeh;

REGISTERED AS {attribute 25};

carrierDataIdBeh BEHAVIOUR

DEFINED AS

"This entity describes the object identifier attribute of the object class 'carrierData'." ;

5.4.26 Carrier data pointer (carrierDataPtr)

carrierDataPtr ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CarrierDataPtr ;

MATCHES FOR EQUALITY;

BEHAVIOUR carrierDataPtrBeh;

REGISTERED AS {attribute 26};

carrierDataPtrBeh BEHAVIOUR

DEFINED AS

"This entity describes the pointer to an instance of 'carrierData'." ;

5.4.27 CBR rate (cbrRate)

cbrRate ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Integer;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR cbrRateBeh;

REGISTERED AS {attribute 27};

cbrRateBeh BEHAVIOUR

DEFINED AS

"This attribute represents the rate of the CBR service supported by the AAL.";

5.4.28 Cell loss (cellLoss)

cellLoss ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR cellLossBeh;

REGISTERED AS {attribute 28};

cellLossBeh BEHAVIOUR

DEFINED AS

"This attribute represents a count the number of lost cells, as detected by the AAL1 sequence number processing, for example. This count records the number of cells detected as lost in the network prior to the destination interworking function AAL1 layer processing. A negative value indicates that this attribute is not supported.";

5.4.29 Cell loss integration period (cellLossIntegrationPeriod)

cellLossIntegrationPeriod ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Integer;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR cellLossIntegrationPeriodBeh;

REGISTERED AS {attribute 29};

cellLossIntegrationPeriodBeh BEHAVIOUR

DEFINED AS

"This attribute identifies the time in milliseconds for the cell loss integration period. If cells are lost for this period of time, the containing interworkingVcTtpBidirectional object will generate a communications alarm.";

5.4.30 Cell misinsertion (cellMisinsertion)

cellMisinsertion ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR cellMisinsertionBeh;

REGISTERED AS {attribute 30};

cellMisinsertionBeh BEHAVIOUR

DEFINED AS

"This attribute represents a count of sequence violation events which the AAL CS interprets as misinserted of cells as defined by ITU-T Rec. I.363.1. A negative value indicates that this attribute is not supported.";

5.4.31 CES buffered CDV tolerance (cesBufferedCDVtolerance)

cesBufferedCDVtolerance ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Integer;

MATCHES FOR EQUALITY;

BEHAVIOUR cesBufferedCDVtoleranceBeh;

REGISTERED AS {attribute 31};

cesBufferedCDVtoleranceBeh BEHAVIOUR

DEFINED AS

"This attribute identifies the duration of user data that must be buffered by the InterworkingVcTtpBidirectional managed object to offset Cell Delay variation. The timing is in increment of 10 micro seconds. The recommended default value for DS1 CES is 750 micro seconds and 1000 micro seconds for DS3 CES. The use of this attribute is for further study.";

5.4.32 CES service profile identifier (cesServiceProfileId)

cesServiceProfileId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;

MATCHES FOR EQUALITY;

BEHAVIOUR cesServiceProfileIdBeh;

REGISTERED AS {attribute 32};

cesServiceProfileIdBeh BEHAVIOUR

DEFINED AS

"This attribute is used for naming instances of cesServiceProfile managed object class.";

5.4.33 Channel associated signalling (channelAssociatedSignalling)

channelAssociatedSignalling ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ChannelAssociatedSignalling;

MATCHES FOR EQUALITY;

BEHAVIOUR channelAssociatedSignallingBeh;

REGISTERED AS {attribute 33};

channelAssociatedSignallingBeh BEHAVIOUR

DEFINED AS

"This attribute identifies which AAL1 format should be used. This attribute applies only to structured format. The default value Basic does not carry channel associated signalling (CAS) bits and uses a single 125 microsec frame. e1Cas, ds1sfCas, and ds1esfCas carry CAS bits in a multiframe structure for E1, DS1 SF, and DS1 ESF respectively.";

5.4.34 CIP required (cipRequired)

cipRequired ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CIPRequired ;

BEHAVIOUR cipRequiredBeh;

REGISTERED AS {attribute 34};

cipRequiredBeh BEHAVIOUR

DEFINED AS

"This entity indicates if the CIP (carrier identification parameter) has to be signalled further." ;

5.4.35 Circuit identification code (cic)

cic ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Cic;

MATCHES FOR EQUALITY;

BEHAVIOUR cicBeh;

REGISTERED AS {attribute 35};

cicBeh BEHAVIOUR

DEFINED AS

"This attribute indicates the Circuit Identification Code (CIC) of the circuit which is terminated by the circuit end point. The value of the CIC is identical in the two circuit end points which terminate the circuit.";

5.4.36 Clock recovery type (clockRecoveryType)

clockRecoveryType ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ClockRecoveryType;

MATCHES FOR EQUALITY;

BEHAVIOUR clockRecoveryTypeBeh;

REGISTERED AS {attribute 36};

clockRecoveryTypeBeh BEHAVIOUR

DEFINED AS

"This attribute indicates whether the clock recovery type is Synchronous, SRTS (Synchronous Residual Time Stamp), or Adaptive Clock Recovery.";

5.4.37 Closed user group barring (cugBarring)

cugBarring ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CugBarring ;

MATCHES FOR EQUALITY;

BEHAVIOUR cugBarringBeh;

REGISTERED AS {attribute 37};

cugBarringBeh BEHAVIOUR

DEFINED AS

"This attribute maintains the Intra-CUG restriction of the General subscription option in ITU-T Rec. Q.2955.1.";

5.4.38 Closed user group data network identification (cugDataNetworkIdentification)

cugDataNetworkIdentification ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CugDataNetworkIdentification ;

MATCHES FOR EQUALITY;

BEHAVIOUR cugDataNetworkIdentificationBeh;

REGISTERED AS {attribute 38};

cugDataNetworkIdentificationBeh BEHAVIOUR

DEFINED AS

"This information is signalled during setup of a CUG call and serves (in conjunction with the closed user groupInterlockCode) to uniquely identify the CUG in the international network. It can be thought of as the area code of the CUG.";

5.4.39 Closed user group index (cugIndex)

cugIndex ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CugIndex ;

MATCHES FOR EQUALITY;

BEHAVIOUR cugIndexBeh;

REGISTERED AS {attribute 39};

cugIndexBeh BEHAVIOUR

DEFINED AS

"cugIndex of General subscription option in ITU-T Rec. Q.2955.1 must be explicitly assigned upon object creation. No two instances of the closed user group object class contained within a single object may have identical values for attribute cugIndex.";

5.4.40 Closed user group interlock code (cugInterlockCode)

cugInterlockCode ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CugInterlockCode ;

MATCHES FOR EQUALITY;

BEHAVIOUR cugInterlockCodeBeh;

REGISTERED AS {attribute 40};

cugInterlockCodeBeh BEHAVIOUR

DEFINED AS

"The attribute cugInterlockCode must be assigned explicitly upon object creation. No multiple instances of the closed user group object class contained within a single object are allowed to have identical combinations of attribute cugInterlockCode and cugDataNetworkIdentification.";

5.4.41 Code (code)

code ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Code ;

BEHAVIOUR codeBeh;

REGISTERED AS {attribute 41};

codeBeh BEHAVIOUR

DEFINED AS

"This entity describes the prefix digits." ;

5.4.42 COM/EOM unexpected SN (comsEomsUnexpectedSN)

comsEomsUnexpectedSN ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR comsEomsUnexpectedSNBeh;

REGISTERED AS {attribute 42};

comsEomsUnexpectedSNBeh BEHAVIOUR

DEFINED AS

"This attribute represents the number of COM and EOM segments received with an unexpected Sequence Number (SN). For a particular message (i.e., MID) transported over a VPC or VCC, this attribute is incremented by one each time a COM or EOM is received with a SAR Sequence Number (SN) that is not correct relative to the SN in the previous (non-EOM) segment.";

5.4.43 Connected line identification restriction options (connLineIdRestrictionOptions)

connLineIdRestrictionOptions ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ConnLineIdRestrictionOptions;

MATCHES FOR EQUALITY;

BEHAVIOUR connLineIdRestrictionOptionsBeh;

REGISTERED AS {attribute 43};

connLineIdRestrictionOptionsBeh BEHAVIOUR

DEFINED AS

"This attribute of the COLRBB supplementary Service allows the subscriber to select the mode in which the connected line identification restriction is applied. Valid options for the mode are: Permanent to have the service active for all calls, or Temporary to have the service requested by the user per call.";

5.4.44 Connected number screening identifier (connectedNumberScreeningId)

connectedNumberScreeningId ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR connectedNumberScreeningIdBehv;
REGISTERED AS {attribute 44};

connectedNumberScreeningIdBehv BEHAVIOUR
DEFINED AS
"This is the naming attribute of the connected number screening managed object.";

5.4.45 Connection identification offering (connectionIdOffering)

connectionIdOffering ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ConnectionIdOffering;
MATCHES FOR EQUALITY;
BEHAVIOUR connectionIdOfferingBeh;
REGISTERED AS {attribute 45};

connectionIdOfferingBeh BEHAVIOUR
DEFINED AS
"This attribute indicates which procedure is used for the selection of VPCI and VCI.";

5.4.46 CRC violations (crcViolations)

crcViolations ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721":counter;
BEHAVIOUR crcViolationsBeh;
REGISTERED AS {attribute 46};

crcViolationsBeh BEHAVIOUR
DEFINED AS
"This attribute represents the number of CRC violations that were detected for the incoming AAL PDUs.";

5.4.47 CSP Required (cspRequired)

cspRequired ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.CSPRequired ;
MATCHES FOR EQUALITY;
BEHAVIOUR cspRequiredBeh;
REGISTERED AS {attribute 47};

cspRequiredBeh BEHAVIOUR
DEFINED AS
"This entity indicates if the CSP (carrier selection parameter) has to be signalled further." ;

5.4.48 Customer profile pointer (customerProfilePtr)

customerProfilePtr ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.PointerOrNull;
MATCHES FOR EQUALITY;
BEHAVIOUR customerProfilePtrBeh;
REGISTERED AS {attribute 48};

customerProfilePtrBeh BEHAVIOUR
DEFINED AS
"This attribute is used as a pointer to an instance of the customerProfile managed object class.";

5.4.49 Customized resource pointer list (customizedResourcePtrList)

customizedResourcePtrList ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SetOfInstances;
MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;
BEHAVIOUR customizedResourcePtrListBeh;**

REGISTERED AS {attribute 49};

customizedResourcePtrListBeh BEHAVIOUR

DEFINED AS

"This is a set-valued attribute whose value(s) points to instances or instances of subclasses of the customizedResourceBb object class.";

5.4.50 Default directory number (defaultDirectoryNumber)

defaultDirectoryNumber ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.DefaultDirectoryNumber;
MATCHES FOR EQUALITY;
BEHAVIOUR defaultDirectoryNumberBhv;**

REGISTERED AS {attribute 50};

defaultDirectoryNumberBhv BEHAVIOUR

DEFINED AS

"This attribute indicates the default directory number.";

5.4.51 Destination code (destinationCode)

destinationCode ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.DestinationCode ;
MATCHES FOR EQUALITY;
BEHAVIOUR destinationCodeBeh;**

REGISTERED AS {attribute 51};

destinationCodeBeh BEHAVIOUR

DEFINED AS

"This entity describes the digit string including the local area code." ;

5.4.52 Destination type (destinationType)

destinationType ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.DestinationType ;
MATCHES FOR EQUALITY;
BEHAVIOUR destinationTypeBeh;**

REGISTERED AS {attribute 52};

destinationTypeBeh BEHAVIOUR

DEFINED AS

"This entity describes unambiguously the type of destination like international, national or local." ;

5.4.53 Digit combination insertion (digitCombInsert)

digitCombInsert ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.DigitCombInsert ;
MATCHES FOR EQUALITY;
BEHAVIOUR digitCombInsertBeh;**

REGISTERED AS {attribute 53};

digitCombInsertBeh BEHAVIOUR

DEFINED AS

"This entity describes which sequence of digits is to be inserted and where." ;

5.4.54 Digit combination replace (digitCombReplace)

digitCombReplace ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.DigitCombReplace ;

MATCHES FOR EQUALITY;

BEHAVIOUR digitCombReplaceBeh;

REGISTERED AS {attribute 54};

digitCombReplaceBeh BEHAVIOUR

DEFINED AS

"This entity describes which sequence of digits is to be replaced and through which." ;

5.4.55 Digit manipulation identifier (digitManipId)

digitManipId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;

MATCHES FOR EQUALITY;

BEHAVIOUR digitManipIdBeh;

REGISTERED AS {attribute 55};

digitManipIdBeh BEHAVIOUR

DEFINED AS

"This entity describes the object identifier attribute of the object class 'digitManip'." ;

5.4.56 Digit manipulation pointer (digitManipPtr)

digitManipPtr ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.DigitManipPtr ;

MATCHES FOR EQUALITY;

BEHAVIOUR digitManipPtrBeh;

REGISTERED AS {attribute 56};

digitManipPtrBeh BEHAVIOUR

DEFINED AS

"This entity describes the pointer to 'digitManip' " ;

5.4.57 Digit suppression (digitSuppress)

digitSuppress ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.DigitSuppress ;

MATCHES FOR EQUALITY;

BEHAVIOUR digitSuppressBeh;

REGISTERED AS {attribute 57};

digitSuppressBeh BEHAVIOUR

DEFINED AS

"This entity describes which sequence of digits is to be suppressed." ;

5.4.58 Excluded subscriber codes (excludedSubscriberCodes)

excludedSubscriberCodes ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ExcludedSubscriberCodes ;

MATCHES FOR EQUALITY;

BEHAVIOUR excludedSubscriberCodesBeh;

REGISTERED AS {attribute 58};

excludedSubscriberCodesBeh BEHAVIOUR

DEFINED AS

"This attribute defines the directory numbers which are excluded from the upper limit of the possible directory numbers for this local destination. The excluded numbers are defined in terms of a set of sequences of directory numbers where each sequence is specified by its common most significant digits." ;

5.4.59 Forward error correction method (forwardErrorCorrectionMethod)

forwardErrorCorrectionMethod ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.FecMethod;

MATCHES FOR EQUALITY;

BEHAVIOUR forwardErrorCorrectionMethodBeh;

REGISTERED AS {attribute 59};

forwardErrorCorrectionMethodBeh BEHAVIOUR

DEFINED AS

"This attribute indicates the FEC method: no FEC, FEC for Loss Sensitive Signal Transport, or FEC for Delay Sensitive Signal Transport.";

5.4.60 Header errors (headerErrors)

headerErrors ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR headerErrorsBeh;

REGISTERED AS {attribute 60};

headerErrorsBeh BEHAVIOUR

DEFINED AS

"This attribute represents a count of the number of AAL1 header errors detected, including those corrected. Header errors include correctable and uncorrectable CRC plus bad parity.";

5.4.61 Initial subscriber codes (initialSubscriberCodes)

initialSubscriberCodes ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.InitialSubscriberCodes ;

MATCHES FOR EQUALITY;

BEHAVIOUR initialSubscriberCodesBeh;

REGISTERED AS {attribute 61};

initialSubscriberCodesBeh BEHAVIOUR

DEFINED AS

"This attribute defines the upper limit of the possible directory numbers which can belong to this local destination. The upper limit is defined in terms of a set of sequences of directory numbers where each sequence is specified by its common most significant digits." ;

5.4.62 Inter closed user group access (interCugAccess)

interCugAccess ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.InterCugAccess;

MATCHES FOR EQUALITY;

BEHAVIOUR interCugAccessBeh;

REGISTERED AS {attribute 62};

interCugAccessBeh BEHAVIOUR

DEFINED AS

"Inter-CUG access of per service subscription option in ITU-T Rec. Q.2955.1.";

5.4.63 Length BA size mismatch (lengthBASizeMismatch)

lengthBASizeMismatch ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR lengthBASizeMismatchBeh;

REGISTERED AS {attribute 63};

lengthBASizeMismatchBeh BEHAVIOUR

DEFINED AS

"This attribute represents the number of CS_PDU's in which the Length field value was not consistent with the BAsize field value. The definition of consistent depends on the mode in which CS_PDU fragments are being processed. In the message-mode, the BAsize field must equal the Length field. In the streaming mode, the BAsize field must be less than the Length field.";

5.4.64 Length mismatch (lengthMismatch)

lengthMismatch ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR lengthMismatchBeh;

REGISTERED AS {attribute 64};

lengthMismatchBeh BEHAVIOUR

DEFINED AS

"This attribute represents the number of CS_PDU's received with a Length field value that does not represent the actual length of the CS_PDU payload.";

5.4.65 Link group pointer (linkGroupPtr)

linkGroupPtr ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ObjectInstance;

MATCHES FOR EQUALITY;

BEHAVIOUR linkGroupPtrBeh;

REGISTERED AS {attribute 65};

linkGroupPtrBeh BEHAVIOUR

DEFINED AS

"This entity describes the result pointer to an instance of 'xtpsgComb', 'crCircuitEndPointSubgroup' or 'virtualPathGroup'.";

5.4.66 Link type (linkType)

linkType ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.LinkType;

MATCHES FOR EQUALITY;

BEHAVIOUR linkTypeBeh;

REGISTERED AS {attribute 66};

linkTypeBeh BEHAVIOUR

DEFINED AS

"This attribute is used to indicate whether the NNI is an international interface or not.";

5.4.67 List of link groups pointer list (listOfLinkGroupsPtrList)

listOfLinkGroupsPtrList ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ListOfLinkGroupsPtrList;

MATCHES FOR EQUALITY;

BEHAVIOUR listOfLinkGroupsPtrListBeh;

REGISTERED AS {attribute 67};

listOfLinkGroupsPtrListBeh BEHAVIOUR

DEFINED AS

"This entity describes the sequence of instances of 'virtualPathGroup' or 'crCircuitEndPointSubgroup'." ;

5.4.68 List of routes pointer list (listOfRoutesPtrList)

listOfRoutesPtrList ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ListOfRoutesPtrList ;

MATCHES FOR EQUALITY;

BEHAVIOUR listOfRoutesPtrListBeh;

REGISTERED AS {attribute 68};

listOfRoutesPtrListBeh BEHAVIOUR

DEFINED AS

"This entity describes the sequence of the selected routes ('routeData')." ;

5.4.69 List of route termination points identifier (listOfRouteTpsId)

listOfRouteTpsId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;

MATCHES FOR EQUALITY;

BEHAVIOUR listOfRouteTpsIdBeh;

REGISTERED AS {attribute 69};

listOfRouteTpsIdBeh BEHAVIOUR

DEFINED AS

"This entity describes the object identifier attribute of the object class 'listOfRouteTps'." ;

5.4.70 Local area code (localAreaCode)

localAreaCode ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.LocalAreaCode ;

MATCHES FOR EQUALITY;

BEHAVIOUR localAreaCodeBeh;

REGISTERED AS {attribute 70};

localAreaCodeBeh BEHAVIOUR

DEFINED AS

"This entity describes the local area code of the subscribers which belong to this local destination. The local area code is used without any prefix." ;

5.4.71 Local destination identifier (localDestinationId)

localDestinationId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;

MATCHES FOR EQUALITY;

BEHAVIOUR localDestinationIdBeh;

REGISTERED AS {attribute 71};

localDestinationIdBeh BEHAVIOUR

DEFINED AS

"This entity describes the object identifier attribute of the object class 'localDestination'." ;

5.4.72 Local destination pointer (localDestinationPtr)

localDestinationPtr ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ObjectInstance;

MATCHES FOR EQUALITY;

BEHAVIOUR localDestinationPtrBeh;

REGISTERED AS {attribute 72};

localDestinationPtrBeh BEHAVIOUR

DEFINED AS

"This attribute describes the pointer to localDestination. The directoryNumberE164 shall be member of the local area defined by the localAreaCode and the initial digit string part of the SN part of the directoryNumberE164 shall match with one of the initialSubscriberCodes of the referenced object. The directoryNumberE164 shall not be excluded by one of the excludedSubscriberCodes from the referenced object.";

5.4.73 Maintenance signalling running (maintenanceSignallingRunning)

maintenanceSignallingRunning ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MaintenanceSignallingRunning;

MATCHES FOR EQUALITY;

BEHAVIOUR maintenanceSignallingRunningBeh;

REGISTERED AS {attribute 73};

maintenanceSignallingRunningBeh BEHAVIOUR

DEFINED AS

"This attribute indicates that a maintenance signalling procedure (e.g. reset, restart, blocking, unblocking) is running.";

5.4.74 Maximun CC (maxCc)

maxCc ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MaxCc;

BEHAVIOUR maxCcBeh;

REGISTERED AS {attribute 74};

maxCcBeh BEHAVIOUR

DEFINED AS

"This attribute defines the maximum value [PDUs] of the state variable VT(CC), corresponding to the maximum number of transmissions of BGN, END, ER or RS PDUs.";

5.4.75 Maximum CPCS_PDU size (maxCpcsPduSize)

maxCpcsPduSize ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MaxCpcsPduSize;

MATCHES FOR EQUALITY;

BEHAVIOUR maxCpcsPduSizeBeh;

REGISTERED AS {attribute 75};

maxCpcsPduSizeBeh BEHAVIOUR

DEFINED AS

"This multi-valued attribute represents the maximum CPCS_PDU size that will be transmitted over the connection in both the incoming (forward) and outgoing (backward) direction of transmission.";

5.4.76 Maximum digits (maxDigits)

maxDigits ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MaxDigits ;

MATCHES FOR EQUALITY;

BEHAVIOUR maxDigitsBeh;

REGISTERED AS {attribute 76};

maxDigitsBeh BEHAVIOUR

DEFINED AS

"This entity describes the maximum number of digits required by the destination exchange. Further digits will be ignored." ;

5.4.77 Maximum information field length (maxInformationFieldLength)

maxInformationFieldLength ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MaxInformationFieldLength;

BEHAVIOUR maxInformationFieldLengthBeh;

REGISTERED AS {attribute 77};

maxInformationFieldLengthBeh BEHAVIOUR

DEFINED AS

"This attribute defines the maximum length of the information field in SD PDUs, UD PDUs and MD PDUs 'k'. The unit of the INTEGER value is octets.";

5.4.78 Maximum length of SSCOP user to user field (maxLengthSscopUuField)

maxLengthSscopUuField ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MaxLengthSscopUuField;

BEHAVIOUR maxLengthSscopUuFieldBeh;

REGISTERED AS {attribute 78};

maxLengthSscopUuFieldBeh BEHAVIOUR

DEFINED AS

"This attribute defines the maximum length of a variable length SSCOP UU field 'j'. The SSCOP UU is an optional field of BGN PDUs, BGAK PDUs, BGREJ PDUs, END PDUs and RS PDUs. The unit of the INTEGER value is octets";

5.4.79 Maximum PD (maxPd)

maxPd ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MaxPd;

BEHAVIOUR maxPdBeh;

REGISTERED AS {attribute 79};

maxPdBeh BEHAVIOUR

DEFINED AS

"This attribute defines the maximum acceptable value [PDUs] of the state variable VT(PD) before sending a POLL PDU and resetting VT(PD) to zero. The VT(PD) is incremented each time an SD PDU is transmitted.";

5.4.80 Maximum SSCOP credit to peer (maxSscopCreditToPeer)

maxSscopCreditToPeer ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MaxSscopCreditToPeer;

BEHAVIOUR maxSscopCreditToPeerBeh;

REGISTERED AS {attribute 80};

maxScopCreditToPeerBeh BEHAVIOUR

DEFINED AS

"This attribute defines the absolute value [PDUs] of the size of the receive window given to the peer. This value is added to VR(R) to generate VR(MR). VR(MR) is mapped to N(MR) by transmission of STAT, USTAT, RS RSAK, ER, ERAK, BGN or BGAK PDUs.";

5.4.81 Maximum STAT (maxStat)

maxStat ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MaxStat;

BEHAVIOUR maxStatBeh;

REGISTERED AS {attribute 81};

maxStatBeh BEHAVIOUR

DEFINED AS

"This attribute defines the maximum number of list elements placed in a STAT PDU.";

5.4.82 MID range (midRange)

midRange ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MidRange;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR midRangeBeh;

REGISTERED AS {attribute 82};

midRangeBeh BEHAVIOUR

DEFINED AS

"This attribute represents the range of MID values supported at the AAL for the supporting VCC.";

5.4.83 Minimum digits (minDigits)

minDigits ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.MinDigits ;

MATCHES FOR EQUALITY;

BEHAVIOUR minDigitsBeh;

REGISTERED AS {attribute 83};

minDigitsBeh BEHAVIOUR

DEFINED AS

"This entity describes the minimum number of digits required before the outgoing termination point can be seized. It is only needed in case of overlapped dialling." ;

5.4.84 Nature of address (natureOfAddress)

natureOfAddress ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NatureOfAddress ;

MATCHES FOR EQUALITY;

BEHAVIOUR natureOfAddressBeh;
REGISTERED AS {attribute 84};
natureOfAddressBeh BEHAVIOUR
DEFINED AS
 "This entity describes the destination type of the prefix." ;

5.4.85 Network border (networkBorder)

networkBorder ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NetworkBorder;
MATCHES FOR EQUALITY;
BEHAVIOUR networkBorderBeh;
REGISTERED AS {attribute 85};
networkBorderBeh BEHAVIOUR
DEFINED AS
 "This attribute is used to indicate whether the NNI is an operator network border or not.";

5.4.86 Network type (networkType)

networkType ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NetworkType;
MATCHES FOR EQUALITY;
BEHAVIOUR networkTypeBeh;
REGISTERED AS {attribute 86};
networkTypeBeh BEHAVIOUR
DEFINED AS
 "This attribute is used to indicate whether an access belongs to a national transit network. It is used together with the linkType and the signallingType to generate the setting of the location field according to Q.850.";

5.4.87 NNI access identifier (nniAccessId)

nniAccessId ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR nniAccessIdBeh;
REGISTERED AS {attribute 87};
nniAccessIdBeh BEHAVIOUR
DEFINED AS
 "This attribute is used to name instances of the nniAccess managed object class.";

5.4.88 No connected line identification presentation restrictions allowed (noColpRestrictionsAllowed)

noColpRestrictionsAllowed ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR noColpRestrictionsAllowedBeh ;
REGISTERED AS {attribute 88};

noColpRestrictionsAllowedBeh BEHAVIOUR

DEFINED AS

"This attribute of COLP is where the calling party continues to have the capability to override the COLR restriction and have the connected party number presented as described in the COLP supplementary service. A TRUE value of this attribute permits the called party COLP supplementary service to override the calling party COLR supplementary service.";

5.4.89 Number of aborts (numberOfAborts)

numberOfAborts ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR numberOfAbortsBeh;

REGISTERED AS {attribute 89};

numberOfAbortsBeh BEHAVIOUR

DEFINED AS

"This attribute provides a count of the number aborts (i.e., EOM with SAR_PDU Length Indication = 63) that are received for the underlying VPC or VCC.";

5.4.90 Origin (origin)

origin ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Origin ;

MATCHES FOR EQUALITY;

BEHAVIOUR originBeh;

REGISTERED AS {attribute 90};

originBeh BEHAVIOUR

DEFINED AS

"This entity describes the origin of the calling subscriber considered for the routing process." ;

5.4.91 Origin for routing (originForRouting)

originForRouting ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Integer;

MATCHES FOR EQUALITY;

BEHAVIOUR originForRoutingBeh;

REGISTERED AS {attribute 91};

originForRoutingBeh BEHAVIOUR

DEFINED AS

"This attribute determines the origin assigned to the NNI access for call routing purpose.";

5.4.92 Origin mark (originMark)

originMark ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Integer;

MATCHES FOR EQUALITY;

BEHAVIOUR originMarkBeh;

REGISTERED AS {attribute 92};

originMarkBeh BEHAVIOUR

DEFINED AS

"This attribute determines the origination of the calling subscriber.";

5.4.93 Own international code (ownInternationalCode)

ownInternationalCode ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.OwnInternationalCode ;

MATCHES FOR EQUALITY;

BEHAVIOUR ownInternationalCodeBeh;

REGISTERED AS {attribute 93};

ownInternationalCodeBeh BEHAVIOUR

DEFINED AS

"This entity describes the country code of the calling party. The own international code is used without any prefix." ;

5.4.94 Partially filled cells (partiallyFilledCells)

partiallyFilledCells ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Integer;

MATCHES FOR EQUALITY, ORDERING;

BEHAVIOUR partiallyFilledCellsBeh;

REGISTERED AS {attribute 94};

partiallyFilledCellsBeh BEHAVIOUR

DEFINED AS

"This attribute identifies the number of leading octets in use.";

5.4.95 Poll after retransmission (pollAfterRetransmission)

pollAfterRetransmission ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.PollAfterRetransmission;

BEHAVIOUR pollAfterRetransmissionBeh;

REGISTERED AS {attribute 95};

pollAfterRetransmissionBeh BEHAVIOUR

DEFINED AS

"This attribute specifies if a POLL is transmitted each time the retransmission queue is emptied";

5.4.96 Post analysis evaluation identifier (postAnalysisEvaluationId)

postAnalysisEvaluationId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;

MATCHES FOR EQUALITY;

BEHAVIOUR postAnalysisEvaluationIdBeh;

REGISTERED AS {attribute 96};

postAnalysisEvaluationIdBeh BEHAVIOUR

DEFINED AS

"This entity describes the object identifier attribute of the object class 'postAnalysisEvaluation'." ;

5.4.97 Preferred carrier (preferredCarrier)

preferredCarrier ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.PreferredCarrier;

MATCHES FOR EQUALITY;

BEHAVIOUR preferredCarrierBeh;

REGISTERED AS {attribute 97};

preferredCarrierBeh BEHAVIOUR

DEFINED AS

"This attribute identifies the default carrier to use when one is not explicitly identified in the call setup message received and processed by the managed system.";

5.4.98 Preferred closed user group index (preferredCugIndex)

preferredCugIndex ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.PreferredCugIndex;
MATCHES FOR EQUALITY;
BEHAVIOUR preferredCugIndexBeh;
REGISTERED AS {attribute 98};

preferredCugIndexBeh BEHAVIOUR
DEFINED AS
"This attribute indicates the index of the preferred CUG.";

5.4.99 Prefix digit analysis identifier (prefixDigitAnalysisId)

prefixDigitAnalysisId ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;
MATCHES FOR EQUALITY;
BEHAVIOUR prefixDigitAnalysisIdBeh;
REGISTERED AS {attribute 99};

prefixDigitAnalysisIdBeh BEHAVIOUR
DEFINED AS
"This entity describes the object identifier attribute of the object class 'prefixDigitAnalysis'." ;

5.4.100 Propagation delay (propagationDelay)

propagationDelay ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.PropagationDelay;
MATCHES FOR EQUALITY;
BEHAVIOUR propagationDelayBeh;
REGISTERED AS {attribute 100};

propagationDelayBeh BEHAVIOUR
DEFINED AS
"Indicates the expected propagation delay (in micro seconds).";

5.4.101 Reassembly timer expirations (reassemblyTimerExpirations)

reassemblyTimerExpirations ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721":counter;
BEHAVIOUR reassemblyTimerExpirationsBeh;
REGISTERED AS {attribute 101};

reassemblyTimerExpirationsBeh BEHAVIOUR
DEFINED AS
"This attribute provides a count of reassembly timer expirations. A negative value indicates that this attribute is not supported. ";

5.4.102 Remote blocking (remoteBlocking)

remoteBlocking ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.RemoteBlocking;
MATCHES FOR EQUALITY;
BEHAVIOUR remoteBlockingBeh;
REGISTERED AS {attribute 102};

remoteBlockingBeh BEHAVIOUR

DEFINED AS

"This attribute indicates the remote blocking state of the virtual path. A blocked virtual path cannot be selected for new non-test traffic; however it can be used for test calls. The blocking of a virtual path has no influence to existing calls (non-test calls and test calls).";

5.4.103 Remote blocking reason (remoteBlockingReason)

remoteBlockingReason ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.RemoteBlockingReason ;

MATCHES FOR EQUALITY;

BEHAVIOUR remoteBlockingReasonBeh;

REGISTERED AS {attribute 103};

remoteBlockingReasonBeh BEHAVIOUR

DEFINED AS

"Indicates the reason when the circuit was remotely blocked.";

5.4.104 Required bandwidth egress (reqBandwidthEgress)

reqBandwidthEgress ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule ReqBandwidthEgress ;

MATCHES FOR EQUALITY;

BEHAVIOUR reqBandwidthEgressBeh;

REGISTERED AS {attribute 104};

reqBandwidthEgressBeh BEHAVIOUR

DEFINED AS

"This entity describes the range of supported bandwidth." ;

5.4.105 Required bandwidth ingress (reqBandwidthIngress)

reqBandwidthIngress ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule ReqBandwidthIngress ;

MATCHES FOR EQUALITY;

BEHAVIOUR reqBandwidthIngressBeh;

REGISTERED AS {attribute 105};

reqBandwidthIngressBeh BEHAVIOUR

DEFINED AS

"This entity describes the range of supported bandwidth." ;

5.4.106 Required bearer capability (reqBearerCapab)

reqBearerCapab ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule ReqBearerCapab ;

MATCHES FOR EQUALITY;

BEHAVIOUR reqBearerCapabBeh;

REGISTERED AS {attribute 106};

reqBearerCapabBeh BEHAVIOUR

DEFINED AS

"This entity describes the supported bearer capabilities." ;

5.4.107 Required narrowband transfer capability (reqNbTransferCapability)

reqNbTransferCapability ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule ReqNbTransferCapability ;
MATCHES FOR EQUALITY;
BEHAVIOUR reqNbTransferCapabilityBeh;
REGISTERED AS {attribute 107};

reqNbTransferCapabilityBeh BEHAVIOUR
DEFINED AS
"This entity describes the N-ISDN bearer capability of the underlying routes." ;

5.4.108 Ring time limit (ringTimeLimit)

ringTimeLimit ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.RingTimeLimit ;
MATCHES FOR EQUALITY;
BEHAVIOUR ringTimeLimitBeh;
REGISTERED AS {attribute 108};

ringTimeLimitBeh BEHAVIOUR
DEFINED AS
"This attribute limits the ring time in seconds.";

5.4.109 Route data identifier (routeDataId)

routeDataId ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;
MATCHES FOR EQUALITY;
BEHAVIOUR routeDataIdBeh;
REGISTERED AS {attribute 109};

routeDataIdBeh BEHAVIOUR
DEFINED AS
"This entity describes the object identifier attribute of the object class 'routeData'." ;

5.4.110 SAAL UNI protocol profile identifier (saalUniProtocolProfileId)

saalUniProtocolProfileId ATTRIBUTE
WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR saalUniProtocolProfileIdBeh;
REGISTERED AS {attribute 110};

saalUniProtocolProfileIdBeh BEHAVIOUR
DEFINED AS
"This attribute is used for naming instances of the object class saalUniProtocolProfile.";

5.4.111 SAR CRC violations (sarCrcViolations)

sarCrcViolations ATTRIBUTE
DERIVED FROM "ITU-T Rec. X.721":counter;
BEHAVIOUR sarCrcViolationsBeh;
REGISTERED AS {attribute 111};

sarCrcViolationsBeh BEHAVIOUR
DEFINED AS
"This attribute represents the number of CRC violations that were detected for the incoming SAR PDUs.";

5.4.112 Screen number (screenNumber)

screenNumber ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR screenNumberBhv;

REGISTERED AS {attribute 112};

screenNumberBhv BEHAVIOUR

DEFINED AS

"This is a boolean attribute. When the value of this attribute is TRUE, the switch will screen the directory number information for validity when provided on a call by the user equipment.";

5.4.113 Search method (searchMethod)

searchMethod ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SearchMethod;

MATCHES FOR EQUALITY;

BEHAVIOUR searchMethodBeh;

REGISTERED AS {attribute 113};

searchMethodBeh BEHAVIOUR

DEFINED AS

"This attribute describes the method how to select a VPC with sufficient free bandwidth or an idle circuit within this object instance. The following algorithms are defined for that purpose:

- forwardSequential: This algorithm selects the VPC with the lowest VPCI value, which has sufficient free bandwidth in the broadband case. This algorithm selects the idle circuit with the lowest CIC number in the narrowband case.
- backwardSequential: This algorithm selects the VPC with the highest VPCI value, which has sufficient free bandwidth in the broadband case. This algorithm selects the idle circuit with the highest CIC number in the narrowband case.
- forwardCyclic: In the broadband case this algorithm selects the VPC with sufficient free bandwidth with the lowest VPCI value that is larger than the VPCI value of the previously selected VPC. If no such VPC exists, it selects the VPC with sufficient bandwidth with the lowest VPCI value that is less than the VPCI value of the previously selected VPC.

In the narrowband case this algorithm selects the idle circuit with the lowest CIC number that is larger than the CIC number of the previously selected circuit. If no such idle circuit exists, it selects the idle CIC with the lowest CIC number that is less than the CIC number of the previously selected circuit.

- backwardCyclic: In the broadband case this algorithm selects the VPC with sufficient bandwidth with the highest VPCI value that is less than the VPCI value of the previously selected VPC. If no such VPC exists, it selects the VPC with sufficient bandwidth with the highest VPCI value that is larger than the VPCI value number of the previously selected circuit.

In the narrowband case this algorithm selects the idle circuit with the highest CIC number that is less than the CIC number of the previously selected circuit. If no such idle circuit exists, it selects the idle CIC with the highest CIC number that is larger than the CIC number of the previously selected circuit.";

5.4.114 Sends TNS (sendTns)

sendTns ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SendTns ;

MATCHES FOR EQUALITY;

BEHAVIOUR sendTnsBeh;

REGISTERED AS {attribute 114};

sendTnsBeh BEHAVIOUR

DEFINED AS

"This entity describes whether for this instance of 'routeData' the TNS is to be signalled to the next node." ;

5.4.115 Sequence violations (sequenceViolations)

sequenceViolations ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR sequenceViolationsBeh;

REGISTERED AS {attribute 115};

sequenceViolationsBeh BEHAVIOUR

DEFINED AS

"This attribute represents a count incoming AAL Type 1 SAR-PDUs where the sequence count in the PDU header causes a transition from the SYNC state to the OUT OF SEQUENCE state as defined by ITU-T Rec. I.363.1. A negative value indicates that this attribute is not supported.";

5.4.116 Service profile pointer (serviceProfilePointer)

serviceProfilePointer ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.PointerOrNull;

MATCHES FOR EQUALITY;

BEHAVIOUR serviceProfilePointerBeh;

REGISTERED AS {attribute 116};

serviceProfilePointerBeh BEHAVIOUR

DEFINED AS

"This attribute provides a pointer to a managed object instance that provides information used to control service interworking (e.g., a cesServiceProfile object).";

5.4.117 Signalling channel pointer (signallingChannelPtr)

signallingChannelPtr ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ObjectInstance;

MATCHES FOR EQUALITY;

BEHAVIOUR signallingChannelPtrBeh;

REGISTERED AS {attribute 117};

signallingChannelPtrBeh BEHAVIOUR

DEFINED AS

"This attribute is used as a pointer to an instance of the vcTTPBidirectional managed object class. The referenced vcTTPBidirectional instance terminates the signalling virtual channel.";

5.4.118 Signalling protocol (signallingProtocol)

signallingProtocol ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SignallingProtocol;

MATCHES FOR EQUALITY;

BEHAVIOUR signallingProtocolBeh;

REGISTERED AS {attribute 118};

signallingProtocolBeh BEHAVIOUR

DEFINED AS

"This attribute indicates which type of signalling protocol is used.";

5.4.119 Signalling route pointer (sigRoutePtr)

sigRoutePtr ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ObjectInstance;

MATCHES FOR EQUALITY;

BEHAVIOUR sigRoutePtrBeh;

REGISTERED AS {attribute 119};

sigRoutePtrBeh BEHAVIOUR

DEFINED AS

"Identifies the CCS7 signalling resource (Q.2751:signRouteSetNePart).";

5.4.120 Signalling standard (signallingStandard)

signallingStandard ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SignallingStandard;

MATCHES FOR EQUALITY;

BEHAVIOUR signallingStandardBeh;

REGISTERED AS {attribute 120};

signallingStandardBeh BEHAVIOUR

DEFINED AS

"This attribute is used to indicate the type of signalling used by instances of this class.";

5.4.121 Signalling type (signallingType)

signallingType ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SignallingType;

MATCHES FOR EQUALITY;

BEHAVIOUR signallingTypeBeh;

REGISTERED AS {attribute 121};

signallingTypeBeh BEHAVIOUR

DEFINED AS

"This attribute is used to indicate whether associated or nonassociated signalling is used at the instance of this class.";

5.4.122 SRI timeouts (sriTimeOuts)

sriTimeOuts ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR sriTimeOutsBeh;

REGISTERED AS {attribute 122};

sriTimeOutsBeh BEHAVIOUR

DEFINED AS

"This attribute represents a count of the number of SRI time-outs that occurred on an ATM connection.";

5.4.123 SSCOP timer CC (sscopTimerCc)

sscopTimerCc ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SscopTimerCc;

BEHAVIOUR sscopTimerCcBeh;

REGISTERED AS {attribute 123};

sscopTimerCcBeh BEHAVIOUR

DEFINED AS

"This attribute defines the time interval between transmissions of BGN, END, RS and ER PDUs when an acknowledge to these PDUs has not been received. The unit for the INTEGER value is milliseconds.";

5.4.124 SSCOP timer idle (sscopTimerIdle)

sscopTimerIdle ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SscopTimerIdle;

BEHAVIOUR sscopTimerIdleBeh;

REGISTERED AS {attribute 124};

sscopTimerIdleBeh BEHAVIOUR

DEFINED AS

"This attribute defines the SSCOP timer IDLE. The SSCOP connection is partitioned into phases. The SSCOP timer IDLE supervises the idle phase. In this phase the timer NO_RESPONSE is not running and no POLL PDUs are transmitted. The unit for the INTEGER value is milliseconds.";

5.4.125 SSCOP timer keep alive (sscopTimerKeepAlive)

sscopTimerKeepAlive ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SscopTimerKeepAlive;

BEHAVIOUR sscopTimerKeepAliveBeh;

REGISTERED AS {attribute 125};

sscopTimerKeepAliveBeh BEHAVIOUR

DEFINED AS

"This attribute defines the SSCOP timer KEEP_ALIVE. The SSCOP connection is partitioned into phases. The SSCOP timer KEEP_ALIVE supervises the transient phase. In this phase there are no outstanding acknowledgements or new data pending transmission. The unit for the INTEGER value is milliseconds.";

5.4.126 SSCOP timer no response (sscopTimerNoResponse)

sscopTimerNoResponse ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SscopTimerNoResponse;

BEHAVIOUR sscopTimerNoResponseBeh;

REGISTERED AS {attribute 126};

sscopTimerNoResponseBeh BEHAVIOUR

DEFINED AS

"This attribute defines the SSCOP timer NO_RESPONSE. This timer is used to detect a faulty connection. The timer runs with either the timer POLL or KEEP_ALIVE simultaneously. The unit for the INTEGER value is milliseconds.";

5.4.127 SSCOP timer poll (sscopTimerPoll)

sscopTimerPoll ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SscopTimerPoll;

BEHAVIOUR sscopTimerPollBeh;

REGISTERED AS {attribute 127};

sscopTimerPollBeh BEHAVIOUR

DEFINED AS

"This attribute defines the SSCOP timer POLL. The SSCOP connection is partitioned into phases. The SSCOP timer POLL supervises the active phase. In this new data is pending, transmission or acknowledgements are outstanding. The unit for the INTEGER value is milliseconds.";

5.4.128 SSCS type (sscsType)

sscsType ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SscsType;

MATCHES FOR EQUALITY;

BEHAVIOUR sscsTypeBeh;

REGISTERED AS {attribute 128};

sscsTypeBeh BEHAVIOUR

DEFINED AS

"This attribute identifies the SSCS type for the AAL. Valid values are NULL, Data SSCS based on SSCOP (assured operation), Data SSCS based on SSCOP (non-assured operation), or Frame Relay SSCS.";

5.4.129 STD pointer parity failures (stdPointerParityFailures)

stdPointerParityFailures ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR stdPointerParityFailuresBeh;

REGISTERED AS {attribute 129};

stdPointerParityFailuresBeh BEHAVIOUR

DEFINED AS

"This attribute represents a count of the number of times the AAL reassembler detects a parity check failure at the point where a structured data pointer is expected. This count is only meaningful for structured data transfer modes as unstructured modes do not use pointers. A negative value indicates that this attribute is not supported.";

5.4.130 STD pointer reframes (stdPointerReframes)

stdPointerReframes ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR stdPointerReframesBeh;

REGISTERED AS {attribute 130};

stdPointerReframesBeh BEHAVIOUR

DEFINED AS

"This attribute represents a count of the number of events in which the AAL1 reassembler found that a structured data pointer is not where it is expected, and the pointer must be reacquired. This count is only meaningful for structured data transfer modes as unstructured modes do not use pointers. A negative value indicates that this attribute is not supported; however it must be supported when pointers are used.";

5.4.131 Structured data transfer (structuredDataTransfer)

structuredDataTransfer ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Boolean;

MATCHES FOR EQUALITY;

BEHAVIOUR structuredDataTransferBeh;

REGISTERED AS {attribute 131};

structuredDataTransferBeh BEHAVIOUR

DEFINED AS

"This attribute indicates whether Structured Data Transfer (SDT) has been configured at the AAL. A value of TRUE means SDT has been selected. This attribute value cannot be set to TRUE when the errorCorrectionType attribute equals TRUE.";

5.4.132 Subscriber category (subscriberCategory)

subscriberCategory ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SubscriberCategory;

MATCHES FOR EQUALITY;

BEHAVIOUR subscriberCategoryBeh;

REGISTERED AS {attribute 132};

subscriberCategoryBeh BEHAVIOUR

DEFINED AS

"This attribute determines the category of the calling subscriber.";

5.4.133 Subtype (subType)

subType ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SubType;

MATCHES FOR EQUALITY;

BEHAVIOUR subTypeBeh;

REGISTERED AS {attribute 133};

subTypeBeh BEHAVIOUR

DEFINED AS

"This attribute is used to identify the AAL subtype. Valid values for this attribute are NULL, Voice-band based on 64 kbit/s, Circuit Emulation (synchronous), Circuit Emulation (asynchronous), High-quality Audio, and Video.";

5.4.134 Sum of incorrect CS field errors (sumOfIncorrectCSFieldErrors)

sumOfIncorrectCSFieldErrors ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR sumOfIncorrectCSFieldErrorsBeh;

REGISTERED AS {attribute 134};

sumOfIncorrectCSFieldErrorsBeh BEHAVIOUR

DEFINED AS

"This attribute provides a sum-of-errors count for incorrect Convergence Sublayer (CS) field errors. For AAL Type 3/4, this attribute provides a single count of CS_PDUs discarded due to one of the following error conditions: BETag mismatch, BASize field value not consistent with Length field value, or Length field value not consistent with CS_PDU length.";

5.4.135 Sum of incorrect SAR field errors (sumOfIncorrectSARFieldErrors)

sumOfIncorrectSARFieldErrors ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR sumOfIncorrectSARFieldErrorsBeh;

REGISTERED AS {attribute 135};

sumOfIncorrectSARFieldErrorsBeh BEHAVIOUR

DEFINED AS

"This attribute provides a sum-of-errors count for incorrect Segmentation And Reassembly (SAR) field errors. For AAL Type 3/4, this attribute provides a single count of SAR_PDUs discarded due to one of the following errors: CRC violation, unexpected Sequence Number (SN) field value, or unexpected MID field value.";

5.4.136 Sum of invalid CS field errors (sumOfInvalidCSFieldErrors)

sumOfInvalidCSFieldErrors ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR sumOfInvalidCSFieldErrorsBeh;

REGISTERED AS {attribute 136};

sumOfInvalidCSFieldErrorsBeh BEHAVIOUR

DEFINED AS

"This attribute provides a sum-of-errors count for invalid Convergence Sublayer (CS) field errors. For AAL Type 3/4, this attribute provides a single count of the number of CS_PDUs discarded due to one of the following error conditions: Common Part Indicator (CPI) field not equal to 0, Alignment field value not equal to 0, or BSize field value < 37 octets for multi-segment messages. For AAL Type 5, this attribute provides a single count of the number of CS_PDUs discarded due to one of the following error conditions: Invalid Common Part Indicator (CPI), oversized received SDU, or length violation.";

5.4.137 Sum of invalid SAR field errors (sumOfInvalidSARFieldErrors)

sumOfInvalidSARFieldErrors ATTRIBUTE

DERIVED FROM "ITU-T Rec. X.721":counter;

BEHAVIOUR sumOfInvalidSARFieldErrorsBeh;

REGISTERED AS {attribute 137};

sumOfInvalidSARFieldErrorsBeh BEHAVIOUR

DEFINED AS

"This attribute provides a sum-of-errors count for invalid Segmentation And Reassembly (SAR) field errors. For AAL Type 3/4, this attribute provides a single count of the number of SAR_PDUs discarded due to one of the following error conditions: MID = 0 when there is multiplexing, MID not equal to 0 when there is no multiplexing, Length field not equal to 44 octets for a BOM or COM, Length field not in the set [4, 8, ..., 44] octets or 63 octets for an EOM, or Length field not in the set [8, 12, ..., 44] octets for an SSM.";

5.4.138 Supplementary service independent for broadband pointer list (supplementaryServiceIndBbPtrList)

supplementaryServiceIndBbPtrList ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.SetOfInstances;

MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;

BEHAVIOUR supplementaryServiceIndBbPtrListBeh;

REGISTERED AS {attribute 138};

supplementaryServiceIndBbPtrListBeh BEHAVIOUR

DEFINED AS

"This is a set-valued attribute whose value(s) points to instances of subclasses of the supplementaryServiceIndBb object class.";

5.4.139 Termination point and VPCI pointer list (tpAndVpciPtrList)

tpAndVpciPtrList ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.TpAndVpciPtrList;

MATCHES FOR EQUALITY, SET-COMPARISON, SET-INTERSECTION;

BEHAVIOUR tpAndVpciPtrListBeh;

REGISTERED AS {attribute 139};

tpAndVpciPtrListBeh BEHAVIOUR

DEFINED AS

"This is a set-valued attribute whose value(s) point to instances of termination point classes. A VPCI value is related to every pointer.";

5.4.140 Termination point and VPCI Signalling Pointer List (tpAndVpciSigPtrList)

tpAndVpciSigPtrList ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.TpAndVpciSigPtrList;

MATCHES FOR EQUALITY;

BEHAVIOUR tpAndVpciSigPtrListBeh;

REGISTERED AS {attribute 140};

tpAndVpciSigPtrListBeh BEHAVIOUR

DEFINED AS

"This is a set-valued attribute whose value(s) point to instances of the vpTTPBidirectional managed object class or its subclasses. This vpTTPBidirectional object instances terminate the VPC's managed by this uni access. A VPCI value is related to every pointer, corresponding to the two octets defined for ITU-T UNI signalling. In the case of associated signalling, additionally a signalling channel pointer is related to every pointer. The optional signChannel in the associated ASN.1 definition which identifies the signalling channel for associated signalling is omitted for non-associated signalling.";

5.4.141 Termination point list (terminationPointList)

terminationPointList ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ObjectList;

MATCHES FOR EQUALITY;

BEHAVIOUR terminationPointListBeh;

REGISTERED AS {attribute 141};

terminationPointListBeh BEHAVIOUR

DEFINED AS

"This attribute provides an ordered list of the termination points (e.g. nDS0/DS1/DS3/E3/J2/Frame Relay) that are interworked. The traffic characteristics of the interworked ATM VC termination point must be able to accommodate the combination of traffic characteristics of all the termination points in this list.";

5.4.142 Timeslot pointer (timeslotPtr)

timeslotPtr ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.ObjectInstance;
MATCHES FOR EQUALITY;
BEHAVIOUR timeslotPtrBeh;**

REGISTERED AS {attribute 142};

timeslotPtrBeh BEHAVIOUR

DEFINED AS

"Pointer to the terminated timeslot (e.g. e0CTP, ds0CTP).";

5.4.143 Timing relation (timingRelation)

timingRelation ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.TimingRelation ;
MATCHES FOR EQUALITY;
BEHAVIOUR timingRelationBeh;**

REGISTERED AS {attribute 143};

timingRelationBeh BEHAVIOUR

DEFINED AS

"This attribute indicates the timing relation between sender and receiver (end-to-end).";

5.4.144 Transit delay limit (transitDelayLimit)

transitDelayLimit ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.TransitDelayLimit ;
MATCHES FOR EQUALITY;
BEHAVIOUR transitDelayLimitBeh;**

REGISTERED AS {attribute 144};

transitDelayLimitBeh BEHAVIOUR

DEFINED AS

**"This entity describes the range of transit delay value (in micro seconds) for the underlying routes.
The propagation delay (delay already encountered as signalled) plus the transit delay (for this route)
have to be less than the end to end transit delay required by the user." ;**

5.4.145 Two calling party number delivery (twoCallingPartyNumberDelivery)

twoCallingPartyNumberDelivery ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR twoCallingPartyNumberDeliveryBeh;**

REGISTERED AS {attribute 145};

twoCallingPartyNumberDeliveryBeh BEHAVIOUR

DEFINED AS

**"This attribute indicates whether two calling party numbers have to be sent to the called party if
two were received.";**

5.4.146 UNI access identifier (uniAccessId)

uniAccessId ATTRIBUTE

**WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR uniAccessIdBeh;**

REGISTERED AS {attribute 146};

uniAccessIdBeh BEHAVIOUR
DEFINED AS

"This attribute is used to name instances of the uniAccess managed object class.";

5.4.147 Used algorithm (usedAlgorithm)

usedAlgorithm ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.UsedAlgorithm;
MATCHES FOR EQUALITY;
BEHAVIOUR usedAlgorithmBeh;

REGISTERED AS {attribute 147};

usedAlgorithmBeh BEHAVIOUR
DEFINED AS

"This attribute describes the method how to select a resource from the pointer list.";

5.4.148 User data identifier (userDataId)

userDataId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR userDataIdBeh;

REGISTERED AS {attribute 148};

userDataIdBeh BEHAVIOUR
DEFINED AS

"This attribute is used to name objects of the userData managed object class.";

5.4.149 User data pointer (userDataPtr)

userDataPtr ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.PointerOrNull;
MATCHES FOR EQUALITY;
BEHAVIOUR userDataPtrBeh;

REGISTERED AS {attribute 149};

userDataPtrBeh BEHAVIOUR
DEFINED AS

"This attribute describes a single pointer to an object of the userData object class or its subclasses.";

5.4.150 Virtual path group identifier (virtualPathGroupId)

virtualPathGroupId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR virtualPathGroupIdBeh;

REGISTERED AS {attribute 150};

virtualPathGroupIdBeh BEHAVIOUR
DEFINED AS

"This attribute is used to name instances of the virtualPathGroup managed object class.";

5.4.151 Virtual path type (vpType)

vpType ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.VpType;
MATCHES FOR EQUALITY;
BEHAVIOUR vpTypeBeh;

REGISTERED AS {attribute 151};

vpTypeBeh BEHAVIOUR

DEFINED AS

"This attribute indicates whether a virtual path can be used for permanent, for on-demand or for both types of virtual channels.";

5.4.152 XTPSG combination identifier (xtpsgCombId)

xtpsgCombId ATTRIBUTE

WITH ATTRIBUTE SYNTAX ASN1DefinedTypesModule.NameType ;

MATCHES FOR EQUALITY;

BEHAVIOUR xtpsgCombIdBeh;

REGISTERED AS {attribute 152};

xtpsgCombIdBeh BEHAVIOUR

DEFINED AS

"This entity describes the object identifier attribute of the object class 'xtpsgComb'." ;

5.5 Definition of actions

5.5.1 Add termination point (addTerminationPoint)

addTerminationPoint ACTION

BEHAVIOUR addTerminationPointBeh;

MODE CONFIRMED;

WITH INFORMATION SYNTAX ASN1DefinedTypesModule.AddTerminationPointInfo;

WITH REPLY SYNTAX ASN1DefinedTypesModule.AddTerminationPointReply;

REGISTERED AS {action 1};

addTerminationPointBeh BEHAVIOUR

DEFINED AS

"This action is used to add one or more termination point objects to the identified interworkingVcTtpBidirectional. The traffic characteristics of the interworked ATM VC termination point must be able to accommodate the additional termination point.

Supplied with this action is the following information:

- **New TPs:** This parameter identifies the additional Termination Points to be added to the existing terminationPointList attribute of the identified interworkingVcTtpBidirectional object.
- **InterworkingVcTtpBidirectional:** This parameter identifies the instance of the interworkingVcTtpBidirectional object class to which the additional termination point to be interworked.

If the request is granted, the terminationPointList attribute, in the interworkingVcTtpBidirectional object, shall be reset to reflect the new termination point added.";

5.5.2 Remove termination point (removeTerminationPoint)

removeTerminationPoint ACTION

BEHAVIOUR removeTerminationPointBeh;

MODE CONFIRMED;

WITH INFORMATION SYNTAX ASN1DefinedTypesModule.RemoveTerminationPointInfo;

WITH REPLY SYNTAX ASN1DefinedTypesModule.RemoveTerminationPointReply;

REGISTERED AS {action 2};

removeTerminationPointBeh BEHAVIOUR

DEFINED AS

"This action is used to remove one or more termination point objects from the identified interworkingVcTtpBidirectional.

Supplied with this action is the following information:

- Existing TPs: This parameter identifies the existing Termination Points to be removed from the identified interworkingVcTtpBidirectional object.
- InterworkingVcTtpBidirectional: This parameter identifies the instance of the interworkingVcTtpBidirectional object class from which the identified termination points should be removed.

If the request is granted, the terminationPointList attribute, in the interworkingVcTtpBidirectional object, shall be reset to reflect the remaining termination points.";

5.6 Definition of behaviour

5.6.1 Set by manager behaviour (setByManagerBeh)

setByManagerBeh BEHAVIOUR

DEFINED AS

"value is set by the managed system";

6 Type Definitions

ASN1DefinedTypesModule {itu-t(0) recommendation(0) q(17) 824(824) dot(127) bsm(6) informationModel(0)
asn1Module(2) asn1TypeModule(0)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- EXPORTS everything

IMPORTS

ObjectInstance

FROM CMIP-1 {joint-iso-ccitt ms(9) cmip(1) modules(0) protocol(3)}

NameType,

ObjectList,

PointerOrNull,

ProblemCause

FROM ASN1DefinedTypesModule {ccitt recommendation m gnm(3100) informationModel(0)

asn1Modules(2) asn1DefinedTypesModule(0)}

ProbableCause

FROM Attribute-ASN1Module {joint-iso-ccitt ms(9) smi(3) part2(2) asn1Module(2) 1}

integerZero

FROM

AtmMIBMod {itu-t(0) recommendation(0) i(9) atmm(751) informationModel(0)

asn1Module(2) atm(0)};

-- additional value definitions to probableCause production

cellStarvation ProbableCause ::= globalValue : {atmSwitchProbableCause 1}

informationModel **OBJECT IDENTIFIER ::=** {itu-t(0) recommendation(0) q(17) 824(824) dot(127)
bsm(6) informationModel(0) asn1Module(2) asn1TypeModule(0)}

standardSpecificExtension **OBJECT IDENTIFIER ::=** {informationModel
standardSpecificExtension(0)}

Category ::= BIT STRING (SIZE (8)) -- *acc. Rec. Q.2763*
CarrierCode ::= NetworkIdentification
CarrierDataPtr ::= ObjectInstance
CCITTNetworkPlanIndicator ::= INTEGER
ChannelAssociatedSignalling ::= INTEGER
 {
 basic (0),
 e1Cas (1),
 ds1SfCas (2),
 ds1EsfCas (3),
 j2Cas (4)
 }
Cic ::= INTEGER (0..65335)
CIPRequired ::= Boolean
ClockRecoveryType ::= ENUMERATED {
 synchronous (0),
 srts (1),
 adaptive (2)}
Code ::= SET OF DigitString4
CSPRequired ::= Boolean
ConnLineIdRestrictionOptions ::= SEQUENCE {
 mode **INTEGER {permanent(1), temporary(2)},**
 default **INTEGER {restricted(1),**
 notRestr(2)} **OPTIONAL -- for temporary mode only --**
 }
ConnectionIdOffering ::= INTEGER {
 exclusiveVpciExclusiveVci **(0),**
 exclusiveVpciAnyVci **(1),**
 noIndication **(8) }**
connectionIdOfferingDefault ConnectionIdOffering ::= exclusiveVpciExclusiveVci
CdpnRepresentationType ::= INTEGER {
 subscriber **(0),**
 national **(1),**
 international **(2),**
 unknown **(3) }**
CugBarring ::= INTEGER {
 none **(1),**
 incomingCallsBarred **(2),**
 outgoingCallsBarred **(3)}**
CugDataNetworkIdentification ::= NumericString (SIZE(4)) -- *Rec. Q.2763*
CugIndex ::= INTEGER (0..65535) -- *Rec. Q.2955*
CugInterlockCode ::= INTEGER (0..65535) -- *Rec. Q.2763*
DestinationCode ::= DigitString15
DestinationType ::= INTEGER {
 international **(1),**
 national **(2),**
 local **(3)}**

defaultBlockedForMaintenance BlockedForMaintenance ::= blocked

DefaultDirectoryNumber ::= CHOICE {
 noDefault NULL,
 directoryNumber DirectoryNumber}

defaultNULL ::= NULL

defaultScreenNumber Boolean ::= TRUE

defaultSignallingType SignallingType ::= nonassociated

defaultTwoCallingPartyNumberDelivery Boolean ::= TRUE

DigitComb ::= SEQUENCE OF DigitElement

DigitCombInsert ::= SET OF SEQUENCE {
 startPosition [0] INTEGER ,
 combination [1] DigitComb }

DigitCombReplace ::= SET OF SEQUENCE {
 startPosition [0] INTEGER ,
 endPosition [1] INTEGER ,
 combination [2] DigitComb }

DigitElement ::= PrintableString
 (FROM("1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9"|"0"|"A"|"B"|"C"|"D"|"E"|"F"))
 (SIZE (1))

DigitManipPtr ::= ObjectInstance

DigitString4 ::= PrintableString
 (FROM("1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9"|"0"|"A"|"B"|"C"|"D"|"E"|"F"))
 (SIZE (1..4))

DigitString8 ::= PrintableString
 (FROM("1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9"|"0"|"A"|"B"|"C"|"D"|"E"|"F"))
 (SIZE (1..8))

DigitString15 ::= PrintableString
 (FROM("1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9"|"0"|"A"|"B"|"C"|"D"|"E"|"F"))
 (SIZE (1..15))

DigitSuppress ::= SET OF SEQUENCE {
 startPosition [0] INTEGER ,
 endPosition [1] INTEGER }

DirectoryNumber ::= E164DN

E164DN ::= SEQUENCE {
 countryCode [0] NumericString (SIZE (1..4)) OPTIONAL,
 nationalSignificantNumber [1] SEQUENCE {
 nationalDestinationNumber [0] NumericString (SIZE (1..6)) OPTIONAL,
 subscriberNumber [1] NumericString (SIZE (1..8))
 }

emptySet SetOfInstances ::= { }

ExcludedSubscriberCodes ::= SET OF PrintableString
 (FROM("1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9"|"0"|"A"|"B"|"C"|"D"|"E"|"F"))

ExistingTPs ::= SEQUENCE OF ObjectInstance

FecMethod ::= ENUMERATED{
 noFEC (0),
 lossSensitiveSignalFEC (1),
 delaySensitiveSignalFEC (2)}

InitialSubscriberCodes ::= SET OF PrintableString
(FROM('1'|'2'|'3'|'4'|'5'|'6'|'7'|'8'|'9'|'0'|'A'|'B'|'C'|'D'|'E'|'F'))

Integer ::= INTEGER

InterCugAccess ::= INTEGER
{none (1),
outgoingPermanentAccess (2),
outgoingPerCallAccess (3),
incomingAccess (4),
outgoingPermanentAndIncomingAccess (5),
outgoingPerCallAndIncomingAccess (6) }

LinkType ::= INTEGER {
national (0),
international (1) }

ListOfRoutesPtrList ::= SEQUENCE OF ObjectInstance

ListOfLinkGroupsPtrList ::= SEQUENCE OF ObjectInstance

LocalAreaCode ::=
NumericString (FROM ('0'|'1'|'2'|'3'|'4'|'5'|'6'|'7'|'8'|'9'))

MaintenanceSignallingRunning ::= BOOLEAN

MaxCc ::= INTEGER
maxCcDefault MaxCc ::= 4

MaxCpcsPduSize ::= SEQUENCE {
forward [0] INTEGER (1..65535) OPTIONAL,
backward [1] INTEGER (1..65535) OPTIONAL}

MaxDigits ::= INTEGER

MaxInformationFieldLength ::= INTEGER
maxInformationFieldLengthDefault MaxInformationFieldLength ::= 4096

MaxLengthSscopUuField ::= INTEGER
maxLengthSscopUuFieldDefault MaxLengthSscopUuField ::= 4096

MaxPd ::= INTEGER
maxPdDefault MaxPd ::= 25

MaxSscopCreditToPeer ::= INTEGER
maxSscopCreditToPeerDefault MaxSscopCreditToPeer ::= 16

MaxStat ::= INTEGER
maxStatDefault MaxStat ::= 67

MidRange ::= SEQUENCE {
lowvalue [0] INTEGER (1..66536),
highvalue [1] INTEGER (1..66536)}

MinDigits ::= INTEGER

NationalNetworkIdenPlanIndicator ::= INTEGER

NatureOfAddress ::= DestinationType

NbTransferCapability ::= INTEGER {
speech (0),
r64kbitUnrestricted (1),
r56kbitDigitalRestricted (2),
r3point1khzAudio (3),
r7khzAudio (4),
video (5) }


```

NetworkBorder ::= INTEGER {
    intraNetwork      (0),
    interNetwork    (1) }

```

```

NetworkIdentificationPlan ::= CHOICE
{
  cCITTNetworkPlanIndicator      [0] CCITTNetworkPlanIndicator,
  nationalNetworkIdenPlanIndicator [1] NationalNetworkIdenPlanIndicator }

```

```
Origin ::= CHOICE {
    unused    NULL,
    origin    INTEGER }
```

PreferredCarrier ::= SEQUENCE {	<i>-- acc. Rec. Q.2763</i>
networkIdentificationPlan	NetworkIdentificationPlan,
typesOfNetworkIdentification	TypesOfNetworkIdentification,
networkIdentification	NetworkIdentification }

```
RemoteBlocking ::= INTEGER {
    remoteBlocked      (0),
    remoteUnblocked    (1) }
```

```
RemoveTerminationPointInfo ::= SEQUENCE {
    existingTPs ExistingTPs,
    interworkingVcTtpBidirectionalInstance ObjectInstance}
```

```
ReqBandwidthEgress ::= SEQUENCE {
    lowerLimit      INTEGER,
    upperLimit      INTEGER }
```

```

ReqBandwidthIngress ::= SEQUENCE {
    lowerLimit      INTEGER,
    upperLimit      INTEGER }

ReqBearerCapab ::= SET OF BearerCapab

ReqNbTransferCapability ::= CHOICE {
    withoutNbCapab  NULL,
    withNbCapab     NbTransferCapabilitySet }

RingTimeLimit ::= INTEGER

SearchMethod ::= INTEGER {
    forwardSequential      (0),
    backwardSequential     (1),
    forwardCyclic          (2),
    backwardCyclic         (3) }

SendTns ::= BOOLEAN

SetOfInstances ::= SET OF ObjectInstance

SignallingStandard ::= INTEGER {
    itu      (0),
    atmf31   (1),
    atm40    (2) }

SignallingProtocol ::= INTEGER {
    nisup     (0),
    bisup     (1) }

SignallingType ::= INTEGER {
    nonassociated (0),
    associated    (1) }

SscopTimerCc ::= INTEGER
sscopTimerCcDefault SscopTimerCc ::= 1000

SscopTimerIdle ::= INTEGER
sscopTimerIdleDefault SscopTimerIdle ::= 15000

SscopTimerKeepAlive ::= INTEGER
sscopTimerKeepAliveDefault SscopTimerKeepAlive ::= 2000

SscopTimerNoResponse ::= INTEGER
sscopTimerNoResponseDefault SscopTimerNoResponse ::= 7000

SscopTimerPoll ::= INTEGER
sscopTimerPollDefault SscopTimerPoll ::= 750

ScsType ::= INTEGER {
    null (0),
    dataAssured (1),
    dataNonAssured (2),
    frameRelay (3)}

SubscriberCategory ::= INTEGER {
    unknownAtThisMoment      (0),
    operatorLanguageFrench   (1),
    operatorLanguageEnglish  (2),
    operatorLanguageGerman   (3),
    operatorLanguageRussian  (4),
    operatorLanguageSpanish  (5),
    nationalOperator         (9),
    ordinaryCallingSubscriber (10),
    -- acc. Rec. Q.2763
    -- for national use
    -- for national use
}

```

callingSubscriberWithPriority (11),
dataCall (12),
testCall (13),
payPhone (15) } (0..255)

subscriberCategoryDefault SubscriberCategory ::= ordinaryCallingSubscriber

SubType ::= INTEGER {
null (0),
voiceBand (1),
circuitEmulationSynchronous (2),
circuitEmulationAsynchronous (3),
highQualityAudio (4),
video (5)}

TimingRelation ::= INTEGER {
timingNotRequired (0),
timingRequired (1) }

TpAndVpciSigPtrList ::= SET OF SEQUENCE {
tp ObjectInstance,
vpci VpciValue,
sigChannel ObjectInstance OPTIONAL}

TransitDelayLimit ::= SEQUENCE {
lowerLimit INTEGER,
upperLimit UpLimit }

TypesOfNetworkIdentification ::= INTEGER

UpLimit ::= CHOICE {
noLimit NULL,
limit INTEGER }

UsedAlgorithm ::= INTEGER {
sequential (0),
cyclic (1) }

VpciValue ::= INTEGER (0..65535)

TpAndVpciPtrList ::= SET OF SEQUENCE {
tp ObjectInstance,
vpci VpciValue }

VpType ::= INTEGER {
on-demand (0),
permanent (1),
mixed (2)}

END -- of ASN1DefinedTypesModule

7 Protocol stacks

The protocol stacks specified in Recommendations Q.811, Q.812, G.773 and the SDH digital cross-connect part of Recommendation G.784 can be used as part of this Recommendation. The following Recommendations should be used to extend these stacks to include ATM:

- Q.2811 Broadband Q3 and X interfaces – Lower Layer Protocols;
- Q.2812 Broadband Q3 and X interfaces – Upper Layer Protocols.

ANNEX A

Management requirements

This annex uses as a reference Recommendation I.751 [4] about the management of the ATM cross-connects, and describes or enhances management requirements for those aspects present only in the ATM switch.

The complete set of management requirements for ATM switching network elements has to be composed from this and the above-mentioned Recommendation.

ATM adaptation layer 5 is specified in Recommendation I.363.5 [2]

The signalling ATM adaptation layer is split into the Service Specific Connection-Oriented Protocol (SSCOP) defined in Recommendation Q.2110 [7] and the Service Specific Coordination Function (SSCF) defined for the UNI in Recommendation Q.2130 [8] and for the NNI in Recommendation Q.2140 [9].

DSS 2 user signalling is defined in Recommendation Q.2931 [11] and B-ISUP network signalling is defined in Recommendations Q.2761 to Q.2764 [10].

A.1 Configuration management functions

Configuration management provides functions to exercise control over, identify, collect data from and provide data to NEs.

On one side, in an ATM cross-connect VP/VC connections are set up, modified and released via configuration management functions. On the other side, in an ATM switch, connections are set up, modified and released by signalling procedures, and configuration management is concerned mainly with managing control entities.

A.1.1 General NE configuration functions

This group of functions includes the set of procedures needed to bring the NE into service and to take care of hardware and software modifications and upgrades. It also includes the requirements for customer administration and call routing.

A.1.2 ATM transport layer configuration functions

A.1.2.1 VPC/VCC configuration functions

The capability of setting a VP/VC connection in an unlocked administrative state (traffic flow is enabled), or in a locked state (traffic flow is suspended) must be provided.

This capability will be used by system management to take corrective actions in response to performance degradation or fault of the virtual connection.

A.1.3 ATM adaptation layer configuration functions

The various ATM adaptation layers generate requirements for configuration management and these requirements which are listed here. Each trail on the virtual channel layer supports a single ATM adaptation layer, which may either be configured or defined by call control. Unless otherwise stated, changes to the ATM adaptation layer may be requested, but such a request may be rejected if the change is not supported by the implementation. Likewise, unless otherwise stated, it shall always be possible to read the details of the actual configuration of the ATM adaptation layers.

A.1.3.1 Configuration management requirements for ATM adaptation layer 5

The following items may be read and changes may be requested:

- the maximum number of octets in CPCS-PDU payload which is supported by ATM adaptation layer 5 both for transmit and for receive directions;
- the form of data encapsulation used over the ATM adaptation layer 5 Service Specific Convergence Sublayer (SSCS).

A.1.3.2 Configuration management requirements for the signalling ATM adaptation layer

The type of Service Specific Convergence Sublayer (SSCS) used may be read and changes may be requested.

It should be possible to configure timer values for the Signalling ATM Adaptation Layer (SAAL).

A.1.4 Broadband signalling configuration functions

A.1.4.1 Co-ordination of VPCI values

There is a requirement for management co-ordination between interconnected switches so that the switch which handles the signalling is aware of how the VPCI mappings differ from those of directly connected accesses when the access is connected indirectly via another switch with cross-connect functionality.

A.2 Performance management functions

Performance management provides functions to evaluate and report upon the behaviour of telecommunications equipment and the effectiveness of the network element.

Performance management functions will be based on Recommendation Q.822; the set of monitored parameters is detailed in the following subclauses.

The identified functions for the ATM switches are concerned with performance and error measurements to report the general behaviour of the network element and can be useful to detect situations of degraded performance and identify possible causes of the abnormal situation.

A.2.1 General NE performance functions

A.2.2 ATM transport layer performance functions

Three main sets of parameters need to be monitored; the first one is related to the OAM F4 and F5 flows mechanism, the second one deals with load and traffic related parameters, while the third one relies on system-dependent techniques.

A.2.2.1 F4 / F5 OAM flows related parameters

Performance monitoring is based on the use of OAM flows, both segment and end-to-end (see Recommendation I.610). At the ATM layer the F4 and F5 flows are considered.

Each trail termination point must have the capability to generate the F4/F5 flows on the outgoing link and/or to process the incoming F4/F5 flows.

These flows can be used to monitor the following parameters, at VP and VC layer, respectively:

- bit error rate;
- cell loss/insertion;
- cell transfer delay;
- cell delay variation.

Suitable mechanisms are present in the flow, to support these functions, such as the Block Error Detection Code (BIP-X: see Recommendation I.610).

When the measured values of these parameters exceed a preassigned threshold, an alarm is generated and sent to the TMN and to the control plane functions.

A.2.2.2 Load and traffic related parameters

The following parameters related to load and traffic need to be monitored; various methods can be used not included in the OAM flow mechanism:

- internal overload/congestion;
- external congestion;
- blocking at virtual connection level.

Functions responsible for the supervision of the overload and congestion state of the node (internal congestion) and of the network (external congestion) are examined below.

Possible causes of overload can be faults inside the switching fabric, lack of internal capacity due to a poor system engineering that is unable to deal with traffic bursts, or malfunctioning of the UPC/NPC functions.

Overload conditions can be indicated by overflow of the buffers located at the input and/or output of the switching fabric. In this case the automatic reaction to the condition is to discard cells, possibly in a selective way if a priority mechanism has been adopted.

If the overload condition persists, the switch can enter into a congestion state. This status is also shown by a permanent buffer overflow condition.

When a network element enters in a congestion state, the system has to inform all the downstream nodes about its condition; a notification of this state is inserted in all the cells leaving the node through a particular code on the PTI field of the ATM cell header (I.361).

The congestion indication is therefore propagated forward in the network.

Monitoring of congested cells on a VP/VC basis can be used to prevent the congestion of the whole network.

At virtual connection level, the switch can experience a connection blocking state when it is impossible to connect an allocatable VP/VC connection on an input interface with an equivalent allocatable VP/VC connection on the corresponding output interface. The connection control cannot accept the new VP/VC connection, although the interfaces have enough capacity available.

Causes of this event can be internal blocking inside the switching fabric, due to implementation of the switching fabric itself with a blocking architecture, or use of resources management policies to guarantee the requested quality of service.

A.2.2.3 Additional parameters

The following parameters need also to be monitored:

- HEC error check;
- Cell multiplexing error check;
- UPC/NPC intervention.

The HEC and the cell multiplexing error checking functions are performed at the lower layers of the B-ISDN protocol reference model (at physical layer and ATM layer, respectively). In the first case indications are provided about cells affected by multiple errors on the header, so that correction procedures cannot be applied; in the second case cells come in with an apparently correct cell header, but the internal VCI/VPI translation table does not contain any valid entry for that VCI/VPI. This means that a VCI/VPI multiplexing error has occurred.

It is assumed that in both cases cells are discarded.

The UPC and NPC functions mark or discard cells when they exceed the agreed service parameters. The number of tagged cells need to be counted on a VP and/or VC basis.

A.2.3 ATM adaptation layer performance functions

Sets of parameters need to be monitored for the various ATM adaptation layers.

A.2.3.1 Performance management requirements for ATM adaptation layer 5

Performance monitoring of ATM adaptation layer 5 is concerned with the use of the payload type field in the ATM cell header and the use of the last 8 octets of the CPCS-PDU [2]. In particular, the following should be monitored:

- undelineated ATM cell sequences which are longer than the maximum number of cells in a CPCS-PDU;
- inconsistencies between the number of ATM cells in a CPCS-PDU as indicated by the coding in the cells' payload type field and the length of the CPCS as indicated in the length field of the CPCS-PDU trailer;
- the error rate as detected by the CRC field in the CPCS-PDU.

In addition, the following performance statistics should be available:

- number of received and transmitted PDUs;
- PDUs discarded due to CRC errors;
- PDUs discarded due to reassembly time out;
- PDUs discarded due to overlarge size;
- PDUs discarded due to protocol errors.

A.3 Fault management functions

Fault management is a set of functions which enables the detection, isolation and correction of abnormal operation of the ATM switch.

A.3.1 Alarm surveillance

A.3.1.1 General NE alarm surveillance functions

No requirements identified.

A.3.1.2 ATM transport layer alarm surveillance functions

When a fault or a condition of severely degraded performance situation is detected, a connection termination point must be able to send a VP-AIS alarm on the OAM F4/F5 flow, and to send an alarm to the TMN and to the control plane functions.

A.3.1.3 ATM adaptation layer alarm surveillance functions

Detected problems in the ATM adaptation layers will generate various alarms.

A.3.1.3.1 Alarm surveillance management requirements for ATM adaptation layer 5

Alarms are generated under the following conditions:

- when the payload type field in the ATM cell header fails to indicate the last ATM cell of a CPCS-PDU for more than the maximum number of cells in a CPCS-PDU;
- when the number of ATM cells in a CPCS-PDU is not consistent with the length of the CPCS as indicated in the length field of the CPCS-PDU trailer;
- when the error rate as detected by the CRC field in the CPCS-PDU becomes too high.

A.3.2 Test and fault localisation

A.3.2.1 General NE test and fault localisation functions

No requirements identified.

A.3.2.2 ATM transport layer test and fault localisation functions

The mechanism of continuity check, performed using OAM F4/F5 flows, is used for testing the integrity of the translation and routing tables of the NE. When a connection termination point does not transmit user cells and there is no failure indication through the VP-AIS and VP-FERF signals, then it must be able to send a continuity check signal. If the receiving termination point receives no OAM cells, it will generate a VP-FERF signal. This mechanism is useful for localisation of the termination points that has experienced a failure.

A.3.2.3 ATM adaptation layer test and fault localisation functions

When a fault is suspected in the ATM adaptation layers, or an alarm has been generated, it may be necessary to perform activities to check the correct operation of the ATM adaptation layers and to identify the origin of a confirmed ATM adaptation layer fault.

A.3.2.3.1 Testing and fault localisation requirements for ATM adaptation layer 5

Non-intrusive testing of ATM adaptation layer 5 shall be carried out by generating and detecting patterns on the CPCS-UU octet of the CPCS-PDU trailer and/or on the padding octets. Intrusive testing of ATM adaptation layer 5 shall be carried out by generating and detecting patterns on the CPCS-PDU payload. These patterns may either be looped back to their source or sent in a single direction.

A.3.3 Fault correction

A.3.3.1 General NE fault correction functions

No requirements identified.

A.3.3.2 ATM transport layer fault correction functions

When a failure in a VP/VC connection occurs, it is possible to perform fault correction by protection switching.

The mechanism of protection switching is based on the use of a spare VP/VC connection, shared among a group of active virtual connections; it is directed by Layer Management.

A.4 Modelling specific requirements

Recommendation Q.2764 describes a parameter Transit Network Selection for the setup messages. This parameter may be "included in the setup message from the calling party or provided on a subscription basis". This information "is used for routing the call/connection, e.g. to a specific B-ISDN".

To support this parameter, it should be possible to assign a preferred carrier (transit network) value either to the whole customer or to an individual directory number.

Recommendation Q.2764 describes a parameter Calling Party Category for the setup messages.

To support this parameter, it should be possible to assign a category value either to the whole customer or to an individual directory number.

The Call Routing Management allows to mark a NNI with an origination mark, to support the origination dependent routing of incoming calls. Origination dependent routing should be possible for calls coming from an UNI too.

It should be possible to mark either the whole customer or an individual directory number with an origination mark, which can be used e.g. for the origination dependent routing.

APPENDIX I

Point-to-multipoint connections

As long as there is no modelling of point-to-multipoint connections within ITU-T, the reader is referred to the ATM Forum Specification af-nm-0027.000 [17].

APPENDIX II

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