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THE INTERNATIONAL
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G.774

(09/92)

**GENERAL ASPECTS OF DIGITAL
TRANSMISSION SYSTEMS;
TERMINAL EQUIPMENTS**

**SYNCHRONOUS DIGITAL HIERARCHY (SDH)
MANAGEMENT INFORMATION MODEL
FOR THE NETWORK ELEMENT VIEW**



Recommendation G.774

FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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Recommendation G.774 was prepared by Study Group XV and was approved under the Resolution No. 2 procedure on the 1st of September 1992.

CCITT NOTES

- 1) In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized private operating agency.
- 2) A list of abbreviations used in this Recommendation can be found in Annex B.

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Recommendation G.774

SYNCHRONOUS DIGITAL HIERARCHY (SDH) MANAGEMENT INFORMATION MODEL FOR THE NETWORK ELEMENT VIEW

(1992)

The CCITT,

considering

(a) that Recommendations G.707, G.708 and G.709 form a coherent set of specifications for the synchronous digital hierarchy (SDH) and the network node interface (NNI);

(b) that Recommendations G.781, G.782, G.783, and G.784 form a coherent set of specifications for SDH multiplex equipment functions and management;

(c) that Recommendation G.958 specifies the characteristics of digital line systems based on SDH for use on optical fibre cables;

(d) that Recommendation M.3010 defines the principles for a telecommunications management network (TMN);

(e) that Recommendation G.773 defines the protocol suites for Q-interfaces for management of transmission systems;

(f) that Recommendation M.3100 defines a Generic Network Information Model,

recommends

that the management of SDH equipment be carried out by using the information model defined in accordance with the details contained within this Recommendation.

Abstract

This Recommendation provides an information model for the synchronous digital hierarchy (SDH). This model describes the managed object classes and their properties that are useful to describe information exchanged across interfaces defined in M.3010 telecommunications management network (TMN) architecture. This Recommendation specializes the generic object classes of Recommendation M.3100 to provide management information specifically for the SDH.

Keywords: synchronous digital hierarchy, information model, managed object class, attributes, notification, action, GDMO, ASN.1.

1 Introduction

1.1 Scope

This Recommendation provides an information model for the synchronous digital hierarchy (SDH) [1-3]. It identifies the telecommunications management network (TMN) object classes required for the management of SDH network elements. These objects are relevant to information exchanged across standardized interfaces defined in the Recommendation M.3010 TMN architecture [4]. The managed object classes in this Recommendation are specialized from the generic managed object classes defined in Recommendation M.3100 generic network information model [5].

This Recommendation applies to SDH network elements and those systems in the TMN that manage SDH network elements. Functional capabilities of SDH multiplex equipment are given in Recommendation G.783 [6], and aspects of the management of SDH equipment are provided in Recommendation G.784 [7]. This Recommendation provides the management information required for use with the protocols specified in Recommendation G.784.

1.2 *Structure of this Recommendation*

Section 2 provides an overview of the SDH information model. Sections 3 to 6 describe the information model using the notation mechanisms defined in Recommendation X.722 Guidelines for the definition of managed Objects [8]. Section 7 contains the syntax definitions of the information carried in the protocol using Abstract Syntax Notation One (ASN.1) defined in Recommendation X.208 [9]. The relationships between the SDH managed object classes contained in this Recommendation are defined in § 8. Diagrams illustrating the construction of the SDH model are provided in Annex A.

A text version of § 3 to § 8 is available in diskette form from the ITU.

2. **SDH information model**

2.1 *Overview*

The SDH information model is based on the Generic Network Information Model of Recommendation M.3100. The Generic Network Information Model includes a Termination Point fragment which serves as a structure for specialization of those object classes specific to the SDH network. It is these SDH specific object classes, along with the generic object classes in other fragments of the Generic Network Information Model (e.g. the cross-connection fragment and the equipment fragment), that are used to manage SDH network elements. The services used to manage the SDH resources represented by these object classes are provided in M.3100 and other Recommendations.

The information exchanged at a management interface is modelled using design principles outlined in Recommendation X.720 Management Information Model [10]. Resources are modelled as objects, and the management view of a resource is a managed object. Objects with similar attributes may be grouped into object classes. An object is characterized by its object class and object instance, and may possess multiple attribute types and associated values. The terms “managed object class” and “managed object instance” apply specifically to objects that are being managed. This Recommendation specifies the properties of the resource visible for management.

An object class may be a subclass of another class. A subclass inherits attribute types, packages and behaviours of its superclass, in addition to possessing its own specific attributes and properties. The SDH specific object classes are all derived from superclasses in the Generic Network Information Model Recommendation M.3100.

Object classes and attribute types are defined only for the purpose of communicating network management messages between systems, and need not be related to the structure of data within those systems. The object classes defined in this issue of the SDH information model can apply to multiple management functional areas (e.g. fault management and configuration management).

There are several different viewpoints of management information that may be defined for management purposes. The network element viewpoint is concerned with the information that is required to manage a network element. This refers to information required to manage the network element function and the physical aspects of the network element. This Recommendation addresses only the network element viewpoint of SDH management.

2.2 *Requirements*

To allow SDH equipment to be represented in a consistent manner across the interface some of the conditional packages in M.3100 are made mandatory in this Recommendation, the following conditional packages inherited from M.3100 shall not be used when the SDH object classes defined in this Recommendation are instantiated: `ttpInstancePackage`, `ctpInstancePackage`, `networkLevelPackage`, `characteristicInformationPackage`, `channelNumberPackage`.

The SDH specific subclasses specified in this Recommendation shall be used to manage the specific transport resources of SDH network elements. Implementations shall conform to both the management information defined in §§ 3 to 7 and the requirements identified in §§ 2.2 and 8.

3 Object classes

Administrative Unit 3 Object Classes

au3CTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
au3CTPSink,
au3CTPSource;

REGISTERED AS { g774ObjectClass 1 };

au3CTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;
CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":operationalStatePackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
au3CTPSinkPkg **PACKAGE**

BEHAVIOUR

au3CTPSinkPkgBehaviour **BEHAVIOUR**

DEFINED AS

This object class represents a termination point where an AU-3 Connection is terminated.

The AU-3 consists of a VC-3 plus an AU pointer which indicates the phase alignment of the VC-3 with respect to the STM-N frame.

A communicationsAlarm notification shall be issued if a loss of AU pointer is detected. The probableCause parameter of the notification shall indicate LOP (Loss of Pointer).

A communicationsAlarm notification shall be issued if an AU path alarm indication signal is detected. The probableCause parameter of the notification shall indicate AIS (Alarm Indication Signal).

;;

ATTRIBUTES

au3CTPId GET,
pointerSinkType GET;

;;

REGISTERED AS { g774ObjectClass 2 };

au3CTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;
CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
au3CTPSourcePkg **PACKAGE**

BEHAVIOUR

au3CTPSourcePkgBehaviour **BEHAVIOUR**

DEFINED AS

This object class represents a termination point where an AU-3 Connection is originated.

The AU-3 consists of a VC-3 plus an AU pointer which indicates the phase alignment of the VC-3 with respect to the STM-N frame.

;;

ATTRIBUTES

au3CTPId GET,
pointerSourceType GET;

;;

REGISTERED AS { g774ObjectClass 3 };

au4CTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
au4CTPSink,
au4CTPSource;

REGISTERED AS { g774ObjectClass 4 };

au4CTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;
CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":operationalStatePackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,

au4CTPSinkPkg PACKAGE

BEHAVIOUR

au4CTPSinkPkgBehaviour BEHAVIOUR

DEFINED AS

This object class represents a termination point where an AU-4 Connection is terminated.

The AU-4 consists of a VC-4 plus an AU pointer which indicates the phase alignment of the VC-4 with respect to the STM-N frame.

A communicationsAlarm notification shall be issued if a loss of AU pointer is detected. The probableCause parameter of the notification shall indicate LOP (Loss of Pointer).

A communicationsAlarm notification shall be issued if an AU path alarm indication signal is detected. The probableCause parameter of the notification shall indicate AIS (Alarm Indication Signal).

;;

ATTRIBUTES

au4CTPId GET,
pointerSinkType GET;

;;

REGISTERED AS { g774ObjectClass 5 };

au4CTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;
CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
au4CTPSourcePkg PACKAGE

BEHAVIOUR

au4CTPSourcePkgBehaviour BEHAVIOUR

DEFINED AS

This object class represents a termination point where an AU-4 Connection is originated.

The AU-4 consists of a VC-4 plus an AU pointer which indicates the phase alignment of the VC-4 with respect to the STM-N frame.

;;

ATTRIBUTES

au4CTPId GET,
pointerSourceType GET;

;;

REGISTERED AS { g774ObjectClass 6 };

Administrative Unit Group Object Classes

augBidirectional MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorBidirectional,
augSink,
augSource;

REGISTERED AS { g774ObjectClass 7 };

augSink MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorSink;

CHARACTERIZED BY

augSinkPkg **PACKAGE**

BEHAVIOUR

augSinkPkgBehaviour **BEHAVIOUR**

DEFINED AS

This object class is instantiated if AU-n Connection(s) are being terminated.

An AUG consists of a homogeneous, byte interleaved, assembly of either three AU-3s or one AU-4.

This object class represents the point at which the AU-3/4 pointer is derived, based on the phase of the VC-3/4 POH relative to the STM-N SOH. Also, the STM-N payload is byte-demultiplexed into its component AU Groups (AUGs).

::

ATTRIBUTES

augId **GET,**

"Recommendation M.3100":supportableClientList **GET;**

::

REGISTERED AS { g774ObjectClass 8 };

augSource MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorSource;

CHARACTERIZED BY

augSourcePkg **PACKAGE**

BEHAVIOUR

augSourcePkgBehaviour **BEHAVIOUR**

DEFINED AS

This object class is instantiated if AU-n Connection(s) are being originated.

An AUG consists of a homogeneous, byte interleaved, assembly of either three AU-3s or one AU-4.

This object class represents the point at which the AU-3/4 pointer is generated to indicate the phase of the VC-3/4 POH relative to the STM-N SOH. Also, the AU Groups (AUGs) are byte-multiplexed to construct the complete STM-N frame.

::

ATTRIBUTES

augId **GET,**

"Recommendation M.3100":supportableClientList **GET;**

::

REGISTERED AS { g774ObjectClass 9 };

Electrical SPI trail termination point object classes

electricalSPITTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointBidirectional,
electricalSPITTPSink,
electricalSPITTPSource;

REGISTERED AS { g774ObjectClass 10 };

electricalSPITTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSink;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
electricalSPIPackage,
electricalSPITTPSinkPkg **PACKAGE**

BEHAVIOUR

electricalSPITTPSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class represents the point where the incoming electrical interface signal is converted into an internal logic level and the timing is recovered from the line signal.

The upstream connectivity pointer is NULL for an instance of this class.

A communicationsAlarm notification shall be issued if a loss of signal is detected. The probableCause parameter of the notification shall indicate LOS (Loss of signal).

;;;

REGISTERED AS { g774ObjectClass 11 };

electricalSPITTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
electricalSPIPackage,
electricalSPITTPSourcePkg **PACKAGE**

BEHAVIOUR

electricalSPITTPSourceBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class represents the point at which an outgoing internal logic level STM-N signal is converted into a STM-N in-station electrical interface signal.

The downstream connectivity pointer is NULL for an instance of this class.

;;;

REGISTERED AS { g774ObjectClass 12 };

Indirect Adaptor Object Classes

indirectAdaptorBidirectional MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorSink,
indirectAdaptorSource;

REGISTERED AS { g774ObjectClass 13 };

indirectAdaptorSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation X.721":top;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
indirectAdaptorSinkPkg **PACKAGE**

BEHAVIOUR

indirectAdaptorSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class provides a naming mechanism which describes the multiplexing hierarchy of the SDH signal.

;;;

REGISTERED AS { g774ObjectClass 14 };

indirectAdaptorSource MANAGED OBJECT CLASS
DERIVED FROM "Recommendation X.721":top;
CHARACTERIZED BY
 "Recommendation M.3100":createDeleteNotificationsPackage,
 indirectAdaptorSourcePkg **PACKAGE**
BEHAVIOUR
 indirectAdaptorSourceBehaviourPkg **BEHAVIOUR**
DEFINED AS

This object class provides a naming mechanism which describes the multiplexing hierarchy of the SDH signal.

;;;

REGISTERED AS { g774ObjectClass 15 };

Multiplex Section Connection Termination Point Object Classes

msCTPBidirectional MANAGED OBJECT CLASS
DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
 msCTPSink,
 msCTPSource;
REGISTERED AS { g774ObjectClass 16 };

msCTPSink MANAGED OBJECT CLASS
DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;
CHARACTERIZED BY
 "Recommendation M.3100":createDeleteNotificationsPackage,
 msCTPPackage,
 msCTPSinkPkg **PACKAGE**
BEHAVIOUR
 msCTPSinkBehaviourPkg **BEHAVIOUR**
DEFINED AS

This object class terminates a multiplex section connection.

;;;

REGISTERED AS { g774ObjectClass 17 };

msCTPSource MANAGED OBJECT CLASS
DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;
CHARACTERIZED BY
 "Recommendation M.3100":createDeleteNotificationsPackage,
 msCTPPackage,
 msCTPSourcePkg **PACKAGE**
BEHAVIOUR
 msCTPSourceBehaviourPkg **BEHAVIOUR**
DEFINED AS

This object class originates a multiplex section connection.

;;;

REGISTERED AS { g774ObjectClass 18 };

Multiplex Section Data Communications Channel Object Classes

msDatacomCTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
msDatacomCTPSink,
msDatacomCTPSource;

REGISTERED AS { g774ObjectClass 19 };

msDatacomCTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;
CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
msDatacomCTPSinkPkg **PACKAGE**

BEHAVIOUR

msDatacomCTPSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class terminates the D4-D12 bytes in the MSOH.

;;

ATTRIBUTES

msDatacomCTPId **GET;**

;;

REGISTERED AS { g774ObjectClass 20 };

msDatacomCTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;
CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
msDatacomCTPSourcePkg **PACKAGE**

BEHAVIOUR

msDatacomCTPSourceBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class originates the D4-D12 bytes in the MSOH.

;;

ATTRIBUTES

msDatacomCTPId **GET;**

;;

REGISTERED AS { g774ObjectClass 21 };

Multiplex Section Orderwire Object Classes

msOrderwireCTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
msOrderwireCTPSink,
msOrderwireCTPSource;

REGISTERED AS { g774ObjectClass 22 };

msOrderwireCTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

msOrderwireCTPSinkPkg PACKAGE

BEHAVIOUR

msOrderwireCTPSinkBehaviourPkg BEHAVIOUR

DEFINED AS

This object class represents a termination point where the E2 byte orderwire channel is terminated.

;;

ATTRIBUTES

msOrderwireCTPId

GET;

;;

REGISTERED AS { g774ObjectClass 23 };

msOrderwireCTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

msOrderwireCTPSourcePkg PACKAGE

BEHAVIOUR

msOrderwireCTPSourceBehaviourPkg BEHAVIOUR

DEFINED AS

This object class represents a termination point where the E2 byte orderwire channel is originated.

;;

ATTRIBUTES

msOrderwireCTPId

GET;

;;

REGISTERED AS { g774ObjectClass 24 };

Multiplex Section Trail Termination Point Object Classes

msTTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointBidirectional,

msTTPSink,

msTTPSource;

CHARACTERIZED BY

msTTPBidirectionalPkg PACKAGE

BEHAVIOUR

msTTPBidirectionalBehaviourPkg BEHAVIOUR

DEFINED AS

When the excessiveBERMtcInhibit attribute is set to TRUE, MS-FERF is not inserted upstream upon detection of excessive BER.

A communicationsAlarm notification shall be issued if a far end receive failure is detected. The probableCause parameter of the notification shall indicate FERF (Far End Receive Failure).

;;;

REGISTERED AS { g774ObjectClass 25 };

msTTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSink;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
 "Recommendation M.3100":createDeleteNotificationsPackage,
 "Recommendation M.3100":stateChangeNotificationPackage,
 "Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
 msTTPPackage,

msTTPSinkPkg PACKAGE**BEHAVIOUR**

msTTPSinkBehaviourPkg BEHAVIOUR

DEFINED AS

This object class terminates a multiplex section trail, i.e. the processing and removal of the multiplex section overhead from the incoming signal.

When the excessiveBERMtceInhibit attribute is set to TRUE, AIS is not inserted downstream upon detection of excessive BER.

A communicationsAlarm notification shall be issued if an excessive bit error rate is detected. The probableCause parameter of the notification shall indicate excessive BER.

A communicationsAlarm notification shall be issued if a degraded signal is detected. The probableCause parameter of the notification shall indicate signal degrade.

A communicationsAlarm notification shall be issued if an MS alarm indication signal is detected. The probableCause parameter of the notification shall indicate AIS (Alarm Indication Signal).

::

ATTRIBUTES

excessiveBERMtceInhibit	GET-REPLACE,
signalDegradeThreshold	GET-REPLACE;

::

REGISTERED AS { g774ObjectClass 26 };

msTTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
 "Recommendation M.3100":createDeleteNotificationsPackage,
 "Recommendation M.3100":stateChangeNotificationPackage,
 msTTPPackage,

msTTPSourcePkg PACKAGE**BEHAVIOUR**

msTTPSourceBehaviourPkg BEHAVIOUR

DEFINED AS

This object class originates a multiplex section trail, i.e. the generation and addition of the multiplex section overhead to the outgoing signal.

;;;

REGISTERED AS { g774ObjectClass 27 };

*Optical SDH Physical Interface Trail Termination Point Object Classes***opticalSPITTPBidirectional MANAGED OBJECT CLASS**

DERIVED FROM "Recommendation M.3100":trailTerminationPointBidirectional,
 opticalSPITTPSink,
 opticalSPITTPSource;

REGISTERED AS { g774ObjectClass 28 };

opticalSPITTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSink;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
opticalSPIPackage,
opticalSPITTPSinkPkg **PACKAGE**

BEHAVIOUR

opticalSPITTPSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class represents the point where the incoming optical interface signal is converted into an internal logic level and the timing is recovered from the line signal.

A communicationsAlarm notification shall be issued if a loss of signal is detected. The probableCause parameter of the notification shall indicate LOS (Loss of signal).

;;;

REGISTERED AS { g774ObjectClass 29 };

opticalSPITTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
opticalSPIPackage,
opticalSPITTPSourcePkg **PACKAGE**

BEHAVIOUR

opticalSPITTPSourceBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class represents the point at which an outgoing internal logic level STM-N signal is converted into a STM-N in-station or inter-station optical interface signal.

A communicationsAlarm notification shall be issued if the transmit laser fails. The probableCause parameter of the notification shall indicate TransmitFail.

;;;

REGISTERED AS { g774ObjectClass 30 };

Regenerator Section Connection Termination Point Object Classes

rsCTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
rsCTPSink,
rsCTPSource;

REGISTERED AS { g774ObjectClass 31 };

rsCTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

rsCTPPackage,

rsCTPSinkPkg **PACKAGE**

BEHAVIOUR

rsCTPSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class terminates an regenerator section connection.

;;;

REGISTERED AS { g774ObjectClass 32 };

rsCTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

rsCTPPackage,

rsCTPSourcePkg **PACKAGE**

BEHAVIOUR

rsCTPSourceBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class originates a regenerator section connection.

;;;

REGISTERED AS { g774ObjectClass 33 };

Regenerator Section Data Communications Channel Object Classes

rsDatacomCTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,

rsDatacomCTPSink,

rsDatacomCTPSource;

REGISTERED AS { g774ObjectClass 34 };

rsDatacomCTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

rsDatacomCTPSinkPkg **PACKAGE**

BEHAVIOUR

rsDatacomCTPSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class terminates the D1-D3 bytes in the RSOH.

;;

ATTRIBUTES

rsDatacomCTPId

GET;

;;

REGISTERED AS { g774ObjectClass 35 };

rsDatacomCTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

rsDatacomCTPSourcePkg **PACKAGE**

BEHAVIOUR

rsDatacomCTPSourceBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class originates the D1-D3 bytes in the RSOH.

;;

ATTRIBUTES

rsDatacomCTPId

GET;

;;

REGISTERED AS { g774ObjectClass 36 };

Regenerator Section Orderwire Object Classes

rsOrderwireCTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,

rsOrderwireCTPSink,

rsOrderwireCTPSource;

REGISTERED AS { g774ObjectClass 37 };

rsOrderwireCTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

rsOrderwireCTPSinkPkg **PACKAGE**

BEHAVIOUR

rsOrderwireCTPSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class represents the point where the E1 byte orderwire channel is terminated.

;;

ATTRIBUTES

rsOrderwireCTPId

GET;

;;

REGISTERED AS { g774ObjectClass 38 };

rsOrderwireCTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

rsOrderwireCTPSourcePkg **PACKAGE**

BEHAVIOUR

rsOrderwireCTPSourceBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class represents the point where the E1 byte orderwire channel is originated.

;;

ATTRIBUTES

rsOrderwireCTPId

GET;

;;

REGISTERED AS { g774ObjectClass 39 };

Regenerator Section Trail Termination Point Object Classes

rsTTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointBidirectional,
rsTTPSink,
rsTTPSource;

REGISTERED AS { g774ObjectClass 40 };

rsTTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSink;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
rsTTPPackage,

rsTTPSinkPkg PACKAGE

BEHAVIOUR

rsTTPSinkBehaviourPkg BEHAVIOUR

DEFINED AS

This object class represents the termination of the regenerator section trail, i.e. the processing and removal of the regenerator section overhead from the incoming signal and the descrambling of that signal.

A communicationsAlarm notification shall be issued if a loss of frame is detected. The probableCause parameter of the notification shall indicate LOF (Loss of Frame).

;;;

REGISTERED AS { g774ObjectClass 41 };

rsTTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
rsTTPPackage,

rsTTPSourcePkg PACKAGE

BEHAVIOUR

rsTTPSourceBehaviourPkg BEHAVIOUR

DEFINED AS

This object class represent the origination of the regenerator section trail, i.e. generates the regenerator section overhead for the outgoing signal, and scrambles that signal.

;;;

REGISTERED AS { g774ObjectClass 42 };

Regenerator Section User Channel Object Classes

rsUserChannelCTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
rsUserChannelCTPSink,
rsUserChannelCTPSource;

REGISTERED AS { g774ObjectClass 43 };

rsUserChannelCTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

rsUserChannelCTPSinkPkg PACKAGE

BEHAVIOUR

rsUserChannelCTPSinkBehaviourPkg BEHAVIOUR

DEFINED AS

This object class represents a class of objects that terminates the F1 byte user channel.

;;

ATTRIBUTES

rsUserChannelCTPId GET;

;;

REGISTERED AS { g774ObjectClass 44 };

rsUserChannelCTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

rsUserChannelCTPSourcePkg PACKAGE

BEHAVIOUR

rsUserChannelCTPSourceBehaviourPkg BEHAVIOUR

DEFINED AS

This object class represents a class of objects that originates the F1 byte user channel.

;;

ATTRIBUTES

rsUserChannelCTPId GET;

;;

REGISTERED AS { g774ObjectClass 45 };

SDH Network Element Object Class

sdhNE MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":managedElement;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

"Recommendation M.3100":stateChangeNotificationPackage,

sdhNEPackage PACKAGE

BEHAVIOUR

sdhNEBehaviour BEHAVIOUR

DEFINED AS

An SDH network element is a system which has no internal open-system interfaces.

;;

;;

REGISTERED AS { g774ObjectClass 46 };

Tributary Unit 11 Object Classes

tu11CTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
tu11CTPSink,
tu11CTPSource;

REGISTERED AS { g774ObjectClass 47 };

tu11CTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;
CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":operationalStatePackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
tu-nSinkPackage,

tu11CTPSinkPkg **PACKAGE**

BEHAVIOUR

tu11CTPSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class terminates a tu-11 connection.

;;

ATTRIBUTES

tu11CTPId **GET;**

;;

REGISTERED AS { g774ObjectClass 48 };

tu11CTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;
CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
tu11CTPSourcePkg **PACKAGE**

BEHAVIOUR

tu11CTPSourceBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class originates a tu-11 connection.

;;

ATTRIBUTES

tu11CTPId **GET,**
pointerSourceType **GET;**

;;

REGISTERED AS { g774ObjectClass 49 };

Tributary Unit 12 Object Classes

tu12CTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
tu12CTPSink,
tu12CTPSource;

REGISTERED AS { g774ObjectClass 50 };

tu12CTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":operationalStatePackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
tu-nSinkPackage,

tu12CTPSinkPkg PACKAGE

BEHAVIOUR

tu12CTPSinkBehaviourPkg BEHAVIOUR

DEFINED AS

This object class terminates a tu-12 connection.

;;

ATTRIBUTES

tu12CTPid GET;

;;

REGISTERED AS { g774ObjectClass 51 };

tu12CTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

tu12CTPSourcePkg PACKAGE

BEHAVIOUR

tu12CTPSourceBehaviourPkg BEHAVIOUR

DEFINED AS

This object class originates a tu-12 connection.

;;

ATTRIBUTES

tu12CTPid GET,

pointerSourceType GET;

;;

REGISTERED AS { g774ObjectClass 52 };

Tributary Unit 2 Object Classes

tu2CTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,

tu2CTPSink,

tu2CTPSource;

REGISTERED AS { g774ObjectClass 53 };

tu2CTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":operationalStatePackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
tu-nSinkPackage,

tu2CTPSinkPkg PACKAGE

BEHAVIOUR

tu2CTPSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class terminates a tu-2 connection.

;;

ATTRIBUTES

tu2CTPId **GET;**

;;

REGISTERED AS { g774ObjectClass 54 };

tu2CTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

tu2CTPSourcePkg PACKAGE

BEHAVIOUR

tu2CTPSourceBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class originates a tu-2 connection.

;;

ATTRIBUTES

tu2CTPId **GET,**
pointerSourceType **GET;**

;;

REGISTERED AS { g774ObjectClass 55 };

Tributary Unit 3 Object Classes

tu3CTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,

tu3CTPSink,

tu3CTPSource;

REGISTERED AS { g774ObjectClass 56 };

tu3CTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":operationalStatePackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
tu-nSinkPackage,

tu3CTPSinkPkg PACKAGE

BEHAVIOUR

tu3CTPSinkBehaviourPkg BEHAVIOUR

DEFINED AS

This object class terminates a tu-3 connection.

;;

ATTRIBUTES

tu3CTPId GET;

;;

REGISTERED AS { g774ObjectClass 57 };

tu3CTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

tu3CTPSourcePkg PACKAGE

BEHAVIOUR

tu3CTPSourceBehaviourPkg BEHAVIOUR

DEFINED AS

This object class originates a tu-3 connection.

;;

ATTRIBUTES

tu3CTPId GET,

pointerSourceType GET;

;;

REGISTERED AS { g774ObjectClass 58 };

Tributary Unit Group 2 Object Classes

tug2Bidirectional MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorBidirectional,

tug2Sink,

tug2Source;

REGISTERED AS { g774ObjectClass 59 };

tug2Sink MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorSink;
CHARACTERIZED BY
tug2SinkPkg PACKAGE
BEHAVIOUR
tug2SinkBehaviourPkg BEHAVIOUR
DEFINED AS

This object class is instantiated if TU-11, TU-12, TU-2 connection(s) are being terminated or originated.

A TUG-2 consists of a homogeneous or heterogeneous, assembly of four TU-11s, three TU-12s or one TU-2.

This object class represents the point at which the TU pointer is derived, based on the phase of the VC 11/12/2 POH relative to the VC-3/4 POH and the VC-3/4 signal is disassembled.

;;

ATTRIBUTES

tug2Id GET,
"Recommendation M.3100":supportableClientList GET;

;;

REGISTERED AS { g774ObjectClass 60 };

tug2Source MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorSource;
CHARACTERIZED BY
tug2SourcePkg PACKAGE
BEHAVIOUR
tug2SourceBehaviourPkg BEHAVIOUR
DEFINED AS

This object class is instantiated if TU-11, TU-12, TU-2 connection(s) are being terminated or originated.

A TUG-2 consists of a homogeneous or heterogeneous, assembly of four TU-11s, three TU-12s or one TU-2.

This object class represents the point at which the TU pointer is processed to indicate the phase of the VC 11/12/2 POH relative to the VC-3/4 POH and assembles the complete VC-3/4.

;;

ATTRIBUTES

tug2Id GET,
"Recommendation M.3100":supportableClientList GET;

;;

REGISTERED AS { g774ObjectClass 61 };

Tributary Unit Group 3 Object Classes

tug3Bidirectional MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorBidirectional,
tug3Sink,
tug3Source;

REGISTERED AS { g774ObjectClass 62 };

tug3Sink MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorSink;

CHARACTERIZED BY

tug3SinkPkg PACKAGE

BEHAVIOUR

tug3SinkBehaviourPkg BEHAVIOUR

DEFINED AS

This object class is instantiated if TU-3 connection(s) are being terminated. Or if TU-11s, TU-12s, or TU-2s are being terminated from a VC-4.

A TUG-3 consists of a homogeneous assembly of seven TUG-2s or one TU-3.

;;

ATTRIBUTES

tug3Id GET,

"Recommendation M.3100":supportableClientList GET;

;;

REGISTERED AS { g774ObjectClass 63 };

tug3Source MANAGED OBJECT CLASS

DERIVED FROM indirectAdaptorSource;

CHARACTERIZED BY

tug3SourcePkg PACKAGE

BEHAVIOUR

tug3SourceBehaviourPkg BEHAVIOUR

DEFINED AS

This object class is instantiated if TU-3 connection(s) are being originated. Or TU-11s, TU-12s, or TU-2s are being combined to form a VC-4.

A TUG-3 consists of a homogeneous assembly of seven TUG-2s or one TU-3.

;;

ATTRIBUTES

tug3Id GET,

"Recommendation M.3100":supportableClientList GET;

;;

REGISTERED AS { g774ObjectClass 64 };

Virtual Container 11 Object Classes

vc11TTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointBidirectional,
vc11TTPSink,
vc11TTPSource;

CHARACTERIZED BY

vc11-2BidirectionalPackage;

REGISTERED AS { g774ObjectClass 65 };

vc11TTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSink;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,

vc11-2SinkPackage,

vc11TTPSinkPkg PACKAGE

BEHAVIOUR

vc11TTPSinkPkgBehaviour BEHAVIOUR

DEFINED AS

This object class terminates a vc11 trail, i.e. the point at which the VC11-POH is extracted from the STM-N frame.

;;

ATTRIBUTES

vc11TTPId GET;

;;

REGISTERED AS { g774ObjectClass 66 };

vc11TTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,

vc11TTPSourcePkg PACKAGE

BEHAVIOUR

vc11TTPSourcePkgBehaviour BEHAVIOUR

DEFINED AS

This object class originates a vc11 trail, i.e. the point at which the VC11-POH is added to the STM-N frame.

;;

ATTRIBUTES

vc11TTPId GET,
v5SignalLabelSend GET;

;;

REGISTERED AS { g774ObjectClass 67 };

Virtual Container 12 Object Classes

vc12TTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointBidirectional,

vc12TTPSink,

vc12TTPSource;

CHARACTERIZED BY

vc11-2BidirectionalPackage;

REGISTERED AS { g774ObjectClass 68 };

vc12TTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSink;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,

vc11-2SinkPackage,

vc12TTPSinkPkg PACKAGE

BEHAVIOUR

vc12TTPSinkPkgBehaviour **BEHAVIOUR**

DEFINED AS

This object class terminates a vc12 trail, i.e. the point at which the VC12-POH is extracted from the STM-N frame.

;;

ATTRIBUTES

vc12TTPId GET;

;;

REGISTERED AS { g774ObjectClass 69 };

vc12TTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,

vc12TTPSourcePkg PACKAGE

BEHAVIOUR

vc12TTPSourcePkgBehaviour **BEHAVIOUR**

DEFINED AS

This object class originates a vc12 trail, i.e. the point at which the VC12-POH is added to the STM-N frame.

;;

ATTRIBUTES

vc12TTPId GET,
v5SignalLabelSend GET;

;;

REGISTERED AS { g774ObjectClass 70 };

Virtual Container 2 Object Classes

vc2TTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointBidirectional,

vc2TTPSink,

vc2TTPSource;

CHARACTERIZED BY

vc11-2BidirectionalPackage;

REGISTERED AS { g774ObjectClass 71 };

vc2TTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSink;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,

vc11-2SinkPackage,

vc2TTPSinkPkg PACKAGE

BEHAVIOUR

vc2TTPSinkPkgBehaviour BEHAVIOUR

DEFINED AS

This object class terminates a vc2 trail, i.e. the point at which the VC2-POH is extracted from the STM-N frame.

;;

ATTRIBUTES

vc2TTPIId GET;

;;

REGISTERED AS { g774ObjectClass 72 };

vc2TTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,

vc2TTPSourcePkg PACKAGE

BEHAVIOUR

vc2TTPSourcePkgBehaviour BEHAVIOUR

DEFINED AS

This object class originates a vc2 trail, i.e. the point at which the VC2-POH is added to the STM-N frame.

;;

ATTRIBUTES

vc2TTPIId GET,
v5SignalLabelSend GET;

;;

REGISTERED AS { g774ObjectClass 73 };

Virtual Container 3 Object Classes

vc3TTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointBidirectional,

vc3TTPSink,

vc3TTPSource;

CHARACTERIZED BY

vc3-4BidirectionalPackage;

REGISTERED AS { g774ObjectClass 74 };

vc3TTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSink;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
vc3-4SinkPackage,

vc3TTPSinkPkg PACKAGE

BEHAVIOUR

vc3TTPSinkPkgBehaviour **BEHAVIOUR**

DEFINED AS

This object class terminates a vc3 trail, i.e. the point at which the SDH VC-3 is terminated.

;;

ATTRIBUTES

vc3TTPId **GET;**

;;

REGISTERED AS { g774ObjectClass 75 };

vc3TTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
vc3-4SourcePackage,

vc3TTPSourcePkg PACKAGE

BEHAVIOUR

vc3TTPSourcePkgBehaviour **BEHAVIOUR**

DEFINED AS

This object class originates a vc3 trail, i.e. the point at which the SDH VC-3 is originated.

;;

ATTRIBUTES

vc3TTPId **GET;**

;;

REGISTERED AS { g774ObjectClass 76 };

Virtual Container 4 Object Classes

vc4TTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointBidirectional,

vc4TTPSink,
vc4TTPSource;

CHARACTERIZED BY

vc3-4BidirectionalPackage;

REGISTERED AS { g774ObjectClass 77 };

vc4TTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSink;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
"Recommendation M.3100":tmnCommunicationsAlarmInformationPackage,
vc3-4SinkPackage,

vc4TTPSinkPkg PACKAGE

BEHAVIOUR

vc4TTPSinkPkgBehaviour BEHAVIOUR

DEFINED AS

This object class terminates a vc4 trail, i.e. the point at which the SDH VC-4 is terminated.

;;

ATTRIBUTES

vc4TTPId GET;

;;

REGISTERED AS { g774ObjectClass 78 };

vc4TTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":trailTerminationPointSource;

CHARACTERIZED BY

"Recommendation X.721":administrativeStatePackage,
"Recommendation M.3100":createDeleteNotificationsPackage,
"Recommendation M.3100":stateChangeNotificationPackage,
vc3-4SourcePackage,

vc4TTPSourcePkg PACKAGE

BEHAVIOUR

vc3-4TTPSourcePkgBehaviour BEHAVIOUR

DEFINED AS

This object class originates a vc4 trail, i.e. the point at which the SDH VC-4 is originated.

;;

ATTRIBUTES

vc4TTPId GET;

;;

REGISTERED AS { g774ObjectClass 79 };

VC-n User Channel Object Classes

vcnUserChannelCTPBidirectional MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointBidirectional,
vcnUserChannelCTPSink,
vcnUserChannelCTPSource;

REGISTERED AS { g774ObjectClass 80 };

vcnUserChannelCTPSink MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSink;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

vcnUserChannelCTPSinkPkg **PACKAGE**

BEHAVIOUR

vcnUserChannelCTPSinkBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class terminates the F2 byte user channel.

;;

ATTRIBUTES

vcnUserChannelCTPId **GET;**

;;

REGISTERED AS { g774ObjectClass 81 };

vcnUserChannelCTPSource MANAGED OBJECT CLASS

DERIVED FROM "Recommendation M.3100":connectionTerminationPointSource;

CHARACTERIZED BY

"Recommendation M.3100":createDeleteNotificationsPackage,

vcnUserChannelCTPSourcePkg **PACKAGE**

BEHAVIOUR

vcnUserChannelCTPSourceBehaviourPkg **BEHAVIOUR**

DEFINED AS

This object class originates the F2 byte user channel.

;;

ATTRIBUTES

vcnUserChannelCTPId **GET;**

;;

REGISTERED AS { g774ObjectClass 82 };

4 Packages

electricalSPIPackage PACKAGE

ATTRIBUTES

electricalSPITTPId GET,
stmLevel GET;

;

msCTPPackage PACKAGE

ATTRIBUTES

msCTPId GET,
stmLevel GET;

;

msTTPPackage PACKAGE

ATTRIBUTES

msTTPId GET,
stmLevel GET;

;

opticalSPIPackage PACKAGE

ATTRIBUTES

opticalSPITTPId GET,
opticalReach GET,
opticalWavelength GET,
stmLevel GET;

;

rsCTPPackage PACKAGE

ATTRIBUTES

rsCTPId GET,
stmLevel GET;

;

rsTTPPackage PACKAGE

ATTRIBUTES

rsTTPId GET,
stmLevel GET;

;

tu-nSinkPackage PACKAGE

BEHAVIOUR

tu-nSinkPackageBehaviour BEHAVIOUR

DEFINED AS

A communicationsAlarm notification shall be issued if a loss of TU pointer is detected. The probableCause parameter of the notification shall indicate LOP (Loss of Pointer).

A communicationsAlarm notification shall be issued if an TU path alarm indication signal is detected. The probableCause parameter of the notification shall indicate AIS (Alarm Indication Signal).

```
;;  
ATTRIBUTES  
    pointerSinkType    GET;  
;
```

vc11-2BidirectionalPackage PACKAGE

BEHAVIOUR

vc11-2BidirectionalPackageBehaviour BEHAVIOUR

DEFINED AS

A communicationsAlarm notification shall be issued if a far end receive failure (V5 byte) is detected. The probableCause parameter of the notification shall indicate FERF (Far End Receive Failure).

```
;;  
ATTRIBUTES  
    ferfState          GET-REPLACE;  
;
```

vc11-2SinkPackage PACKAGE

BEHAVIOUR

vc11-2SinkPackageBehaviour BEHAVIOUR

DEFINED AS

A communicationsAlarm notification shall be issued if the signal label received (V5 Byte) does not match the signal label expected. The probableCause parameter of the notification shall indicate signal label mismatch.

```
;;  
ATTRIBUTES  
    v5SignalLabelExpected          GET-REPLACE,  
    v5SignalLabelReceive          GET;  
;
```

vc3-4BidirectionalPackage PACKAGE

BEHAVIOUR

vc3-4BidirectionalPackageBehaviour BEHAVIOUR

DEFINED AS

A communicationsAlarm notification shall be issued if a far end receive failure (G1 byte) is detected. The probableCause parameter of the notification shall indicate FERF (Far End Receive Failure).

```
;;  
ATTRIBUTES  
    ferfState          GET-REPLACE;  
;
```

vc3-4SinkPackage PACKAGE

BEHAVIOUR

vc3-4SinkPackageBehaviour BEHAVIOUR

DEFINED AS

A communicationsAlarm notification shall be issued if the signal label received (C2 Byte) does not match the signal label expected. The probableCause parameter of the notification shall indicate signal label mismatch.

A communicationsAlarm notification shall be issued if the path trace received (J1 Byte) does not match the path trace expected. The probableCause parameter of the notification shall indicate path trace mismatch.

A communicationsAlarm notification shall be issued if a loss of TU multiframe indicator (H4 Byte) is detected. The probableCause parameter of the notification shall indicate loss of TU multiframe. This communicationsAlarm notification is only required for high order paths with payloads that require use of the multiframe indicator.

::

ATTRIBUTES

j1PathTraceExpected	GET-REPLACE,
j1PathTraceReceive	GET,
c2SignalLabelExpected	GET-REPLACE,
c2SignalLabelReceive	GET;

;

vc3-4SourcePackage PACKAGE

ATTRIBUTES

j1PathTraceSend	GET-REPLACE,
c2SignalLabelSend	GET;

;

5 Attributes

AU-3 Identification

au3CTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
au3CTPIdBehaviour BEHAVIOUR
DEFINED AS

The au3CTPId attribute is an attribute type whose distinguished value can be used as an RDN when naming an instance of the AU3CTPBidirectional, AU3CTPSink, and AU3CTPSource managed object classes. This attribute specifies the timeslot of the au3CTP within its server TTP or IA. The value shall be the integer which represents the position of the timeslot in temporal order. The first timeslot shall be numbered one.

;;

REGISTERED AS { g774Attribute 1 };

AU-4 Identification

au4CTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
au4CTPIdBehaviour BEHAVIOUR
DEFINED AS

The au4CTPId attribute is an attribute type whose distinguished value can be used as an RDN when naming an instance of the AU4CTPBidirectional, AU4CTPSink, and AU4CTPSource managed object classes. This attribute specifies the timeslot of the au4CTP within its server TTP or IA. The value shall be the integer which represents the position of the timeslot in temporal order. The first timeslot shall be numbered one.

;;

REGISTERED AS { g774Attribute 2 };

AUG Identification

augId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
augIdBehaviour BEHAVIOUR
DEFINED AS

The augId attribute is an attribute type whose distinguished value can be used as an RDN when naming an instance of the AUG managed object class. This attribute specifies the timeslot of the aug within its server TTP or IA. The value shall be the integer which represents the position of the timeslot in temporal order. The first timeslot shall be numbered one.

;;

REGISTERED AS { g774Attribute 3 };

C2 Signal Label Expected

c2SignalLabelExpected ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.C2SignalLabel;
MATCHES FOR EQUALITY;
BEHAVIOUR
c2SignalLabelExpectedBehaviour BEHAVIOUR
DEFINED AS

This attribute specifies the expected C2 VC Signal Label for an incoming VC-n TTP. See Recommendation G.709 for a list of valid values.

;;

REGISTERED AS { g774Attribute 4 };

C2 Signal Label Receive

c2SignalLabelReceive ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.C2SignalLabel;
MATCHES FOR EQUALITY;
BEHAVIOUR
c2SignalLabelReceiveBehaviour BEHAVIOUR
DEFINED AS

This attribute specifies the C2 VC Signal Label for an incoming VC-n TTP. See Recommendation G.709 for a list of valid values.

;;

REGISTERED AS { g774Attribute 5 };

C2 Signal Label Send

c2SignalLabelSend ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.C2SignalLabel;
MATCHES FOR EQUALITY;
BEHAVIOUR
c2SignalLabelSendBehaviour BEHAVIOUR
DEFINED AS

This attribute specifies the C2 VC Signal Label for an outgoing VC-n TTP. See Recommendation G.709 for a list of valid values.

;;

REGISTERED AS { g774Attribute 6 };

Electrical SDH Physical Interface Trail Termination Point Identification

electricalSPITTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR
electricalSPITTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the electricalSPITTP object classes.

;;

REGISTERED AS { g774Attribute 7 };

Excessive Bit Error Ratio Maintenance Inhibit

excessiveBERMtcInhibit ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.Boolean;
MATCHES FOR EQUALITY;
BEHAVIOUR
excessiveBERMtcInhibitBehaviour BEHAVIOUR
DEFINED AS

This attribute is set to TRUE to cause the inhibition of consequent maintenance signalling upon the detection of excessive bit error ratio.

;;
REGISTERED AS { g774Attribute 8 };

Ferf State

ferfState ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.FerfState;
MATCHES FOR EQUALITY;
BEHAVIOUR
ferfStateBehaviour BEHAVIOUR
DEFINED AS

The ferfState is used to control the operation of far end receive failure indication when bidirectional path termination points are used. It normally is set to automatic when a TTP is used for bidirectional transmission. The FERF bit can also be set to forced on or off thus inhibiting automatic operation.

;;
REGISTERED AS { g774Attribute 9 };

J1 Path Trace Expected

j1PathTraceExpected ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.PathTrace;
MATCHES FOR EQUALITY;
BEHAVIOUR
j1PathTraceExpectedBehaviour BEHAVIOUR
DEFINED AS

This attribute is used to specify the value of the expected J1 Byte VC Path Trace byte message for instances of the VC-n TTP object class.

;;
REGISTERED AS { g774Attribute 10 };

J1 Path Trace Receive

j1PathTraceReceive ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.PathTrace;
MATCHES FOR EQUALITY;
BEHAVIOUR
j1PathTraceReceiveBehaviour BEHAVIOUR
DEFINED AS

This attribute is used to indicate the value of the incoming J1 Byte VC Path Trace byte message for instances of the VC-n TTP object class.

;;
REGISTERED AS { g774Attribute 11 };

J1 Path Trace Send

j1PathTraceSend ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.PathTrace;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
j1PathTraceSendBehaviour BEHAVIOUR
DEFINED AS

This attribute is used to indicate the value of the outgoing J1 VC Path Trace byte message for instances of the VC-n TTP object class.

;;
REGISTERED AS { g774Attribute 12 };

Multiplex Section Connection Termination Point Identification

msCTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
msCTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the msCTP object class. This attribute represents the first and only timeslot of this type. The value of this attribute shall be integer one.

;;
REGISTERED AS { g774Attribute 13 };

Multiplex Section Data Communications Channel Connection Termination Point Identification

msDatacomCTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
msDatacomCTPIdBehaviour BEHAVIOUR
DEFINED AS

The msDatacomCTPId attribute is an attribute type whose distinguished value can be used as an RDN when naming an instance of the msDatacomCTPBidirectional, msDatacomCTPSink, and msDatacomCTPSource managed object classes. This attribute represents the first and only timeslot of this type. The value of this attribute shall be integer one.

;;
REGISTERED AS { g774Attribute 14 };

Multiplex Section Orderwire Identification

msOrderwireCTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
msOrderwireCTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the Multiplex Section Orderwire Channel object class. This attribute represents the first and only timeslot of this type. The value of this attribute shall be integer one.

;;
REGISTERED AS { g774Attribute 15 };

Multiplex Section Trail Termination Point Identification

msTTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
msTTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the msTTP object class.

;;

REGISTERED AS { g774Attribute 16 };

Optical Reach

opticalReach ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.OpticalReach;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
opticalReachBehaviour BEHAVIOUR
DEFINED AS

This attribute indicates the length the optical signal may travel before requiring termination or regeneration.

;;

REGISTERED AS { g774Attribute 17 };

Optical SDH Physical Interface Trail Termination Point Identification

opticalSPITTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
opticalSPITTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the opticalSPITTP object class.

;;

REGISTERED AS { g774Attribute 18 };

Optical WaveLength

opticalWavelength ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.OpticalWavelength;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
opticalWavelengthBehaviour BEHAVIOUR
DEFINED AS

This attribute specifies the optical wavelength used by an opticalSPITTP object instance.

;;

REGISTERED AS { g774Attribute 19 };

Pointer Sink Type

pointerSinkType ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.PointerSinkType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
pointerSinkTypeBehaviour BEHAVIOUR
DEFINED AS

This attribute indicates the status of the incoming Pointer of a sink or bidirectional CTP.

;;

REGISTERED AS { g774Attribute 20 };

Pointer Source Type

pointerSourceType ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.PointerSourceType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
pointerSourceTypeBehaviour BEHAVIOUR
DEFINED AS

This attribute indicates the status of the outgoing Pointer of a source or bidirectional CTP.

;;

REGISTERED AS { g774Attribute 21 };

Regenerator Section Connection Termination Point Identification

rsCTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
rsCTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the rsCTP object classes. This attribute represents the first and only time slot of this type. The value of this attribute shall be integer one.

;;

REGISTERED AS { g774Attribute 22 };

Regenerator Section Data Communications Channel Connection Termination Point Identification

rsDatacomCTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
rsDatacomCTPIdBehaviour BEHAVIOUR
DEFINED AS

The rsDatacomCTPId attribute is an attribute type whose distinguished value can be used as an RDN when naming an instance of the rsDatacomCTPBidirectional, rsDatacomCTPSink, and rsDatacomCTPSource managed object classes. This attribute represents the first and only time slot of this type. The value of this attribute shall be integer one.

;;

REGISTERED AS { g774Attribute 23 };

Regenerator Section Orderwire Identification

rsOrderwireCTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
rsOrderwireCTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the Regenerator Section Orderwire Channel object classes. This attribute represents the first and only time slot of this type. The value of this attribute shall be integer one.

;;
REGISTERED AS { g774Attribute 24 };

Regenerator Section Trail Termination Point Identification

rsTTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
rsTTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the rsTTP object classes.

;;
REGISTERED AS { g774Attribute 25 };

Regenerator Section User Channel Identification

rsUserChannelCTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
rsUserChannelCTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the rsUserChannel object classes. This attribute represents the first and only time slot of this type. The value of this attribute shall be integer one.

;;
REGISTERED AS { g774Attribute 26 };

Signal Degrade Threshold

signalDegradeThreshold ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.Integer;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
signalDegradeThresholdBehaviour BEHAVIOUR
DEFINED AS

This attribute specifies the specific BER used to define the signal degrade threshold. The specific BER used is an equipment issue. This attribute represents the negative power of 10. So, for instance, if this attribute had a value of 5, then the BER threshold is 10 raised to the power of -5.

;;
REGISTERED AS { g774Attribute 27 };

STM Level

stmLevel ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.Integer;
MATCHES FOR EQUALITY;
BEHAVIOUR
stmLevelBehaviour BEHAVIOUR
DEFINED AS

This attribute specifies the level, n, of the STM-n signal being received, transmitted, or received and transmitted for termination point object instance.

;;
REGISTERED AS { g774Attribute 28 };

Tributary Unit 11 Connection Termination Point Identification

tu11CTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR
tu11CTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the tu11CTP object classes. This attribute specifies the time slot of the TU-11 CTP within its server TTP or IA. The value shall be the integer which represents the position of the time slot in temporal order. The first time slot shall be numbered one.

;;
REGISTERED AS { g774Attribute 29 };

Tributary Unit 12 Connection Termination Point Identification

tu12CTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR
tu12CTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the tu12CTP object classes. This attribute specifies the time slot of the TU-12 CTP within its server TTP or IA. The value shall be the integer which represents the position of the time slot in temporal order. The first time slot shall be numbered one.

;;
REGISTERED AS { g774Attribute 30 };

Tributary Unit 2 Connection Termination Point Identification

tu2CTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR
tu2CTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the tu2CTP object classes. This attribute specifies the time slot of the TU-2 CTP within its server TTP or IA. The value shall be the integer which represents the position of the time slot in temporal order. The first time slot shall be numbered one.

;;
REGISTERED AS { g774Attribute 31 };

tu3CTPId ATTRIBUTE

WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
tu3CTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the tu3CTP object classes. This attribute specifies the time slot of the TU-3 CTP within its server TTP or IA. The value shall be the integer which represents the position of the time slot in temporal order. The first time slot shall be numbered one.

;;

REGISTERED AS { g774Attribute 32 };

TUG-2 Identification

tug2Id ATTRIBUTE

WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
tug2IdBehaviour BEHAVIOUR
DEFINED AS

The tug2Id attribute is an attribute type whose distinguished value can be used as an RDN when naming an instance of the TUG-2 managed object class. This attribute specifies the time slot of the TUG2 within its server TTP or IA. The value shall be the integer which represents the position of the time slot in temporal order. The first time slot shall be numbered one.

;;

REGISTERED AS { g774Attribute 33 };

TUG-3 Identification

tug3Id ATTRIBUTE

WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
tug3IdBehaviour BEHAVIOUR
DEFINED AS

The tug3Id attribute is an attribute type whose distinguished value can be used as an RDN when naming an instance of the TUG-3 managed object class. This attribute specifies the time slot of the TUG3 within its server TTP or IA. The value shall be the integer which represents the position of the time slot in temporal order. The first time slot shall be numbered one.

;;

REGISTERED AS { g774Attribute 34 };

V5 Signal Label Expected

v5SignalLabelExpected ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.V5SignalLabel;
MATCHES FOR EQUALITY;
BEHAVIOUR
v5SignalLabelExpectedBehaviour BEHAVIOUR
DEFINED AS

This attribute specifies the expected V5 VC Signal Label for an incoming VC-n TTP. See Recommendation G.709 for a list of valid values.

;;

REGISTERED AS { g774Attribute 35 };

V5 Signal Label Receive

v5SignalLabelReceive ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.V5SignalLabel;
MATCHES FOR EQUALITY;
BEHAVIOUR
v5SignalLabelReceiveBehaviour BEHAVIOUR
DEFINED AS

This attribute specifies the V5 VC Signal Label for an incoming VC-n TTP. See Recommendation G.709 for a list of valid values.

;;

REGISTERED AS { g774Attribute 36 };

V5 Signal Label Send

v5SignalLabelSend ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.V5SignalLabel;
MATCHES FOR EQUALITY;
BEHAVIOUR
v5SignalLabelSendBehaviour BEHAVIOUR
DEFINED AS

This attribute specifies the V5 VC Signal Label for an outgoing VC-n TTP. See Recommendation G.709 for a list of valid values.

;;

REGISTERED AS { g774Attribute 37 };

Virtual Container 11 Trail Termination Point Identification

vc11TTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX SDH.NameType;
MATCHES FOR EQUALITY;
BEHAVIOUR
vc11TTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the vc11TTP object classes.

;;

REGISTERED AS { g774Attribute 38 };

Virtual Container 12 Trail Termination Point Identification

vc12TTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
vc12TTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the vc12TTP object classes.

;;

REGISTERED AS { g774Attribute 39 };

Virtual Container 2 Trail Termination Point Identification

vc2TTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
vc2TTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the vc2TTP object classes.

;;

REGISTERED AS { g774Attribute 40 };

Virtual Container 3 Trail Termination Point Identification

vc3TTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
vc3TTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the vc3TTP object classes.

;;

REGISTERED AS { g774Attribute 41 };

Virtual Container 4 Trail Termination Point Identification

vc4TTPId ATTRIBUTE
WITH ATTRIBUTE SYNTAX **SDH.NameType;**
MATCHES FOR **EQUALITY;**
BEHAVIOUR
vc4TTPIdBehaviour BEHAVIOUR
DEFINED AS

This attribute is used as an RDN for naming instances of the vc4TTP object classes.

;;

REGISTERED AS { g774Attribute 42 };

VC-n User Channel Identification

vcnUserChannelCTPId ATTRIBUTE

WITH ATTRIBUTE SYNTAX **SDH.NameType;**

MATCHES FOR **EQUALITY;**

BEHAVIOUR

vcnUserChannelCTPIdBehaviour BEHAVIOUR

DEFINED AS

This attribute is used as an RDN for naming instances of the vcnUserChannel object classes. This attribute represents the first and only time slot of this type. The value of this attribute shall be integer one.

;;

REGISTERED AS { g774Attribute 43 };

6 Name Bindings

au3CTPBidirectional-augBidirectional NAME BINDING

SUBORDINATE OBJECT CLASS **au3CTPBidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **augBidirectional;**
WITH ATTRIBUTE **au3CTPId;**
BEHAVIOUR
 au3CTPBidirectional-augBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 1 };

au3CTPSink-augBidirectional NAME BINDING

SUBORDINATE OBJECT CLASS **au3CTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **augBidirectional;**
WITH ATTRIBUTE **au3CTPId;**
BEHAVIOUR
 au3CTPSink-augBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 2 };

au3CTPSink-augSink NAME BINDING

SUBORDINATE OBJECT CLASS **au3CTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **augSink;**
WITH ATTRIBUTE **au3CTPId;**
BEHAVIOUR
 au3CTPSink-augSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 3 };

au3CTPSource-augBidirectional NAME BINDING

SUBORDINATE OBJECT CLASS **au3CTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **augBidirectional;**
WITH ATTRIBUTE **au3CTPId;**
BEHAVIOUR
 au3CTPSource-augBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 4 };

au3CTPSource-augSource NAME BINDING
SUBORDINATE OBJECT CLASS **au3CTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **augSource;**
WITH ATTRIBUTE **au3CTPId;**
BEHAVIOUR
 au3CTPSource-augSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 5 };

au4CTPBidirectional-augBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **au4CTPBidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **augBidirectional;**
WITH ATTRIBUTE **au4CTPId;**
BEHAVIOUR
 au4CTPBidirectional-augBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 6 };

au4CTPSink-augBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **au4CTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **augBidirectional;**
WITH ATTRIBUTE **au4CTPId;**
BEHAVIOUR
 au4CTPSink-augBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 7 };

au4CTPSink-augSink NAME BINDING
SUBORDINATE OBJECT CLASS **au4CTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **augSink;**
WITH ATTRIBUTE **au4CTPId;**
BEHAVIOUR
 au4CTPSink-augSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 8 };

au4CTPSource-augBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **au4CTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **augBidirectional;**
WITH ATTRIBUTE **au4CTPId;**
BEHAVIOUR
 au4CTPSource-augBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 9 };

au4CTPSource-augSource NAME BINDING
SUBORDINATE OBJECT CLASS **au4CTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **augSource;**
WITH ATTRIBUTE **au4CTPId;**
BEHAVIOUR
 au4CTPSource-augSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 10 };

augBidirectional-msTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **augBidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **msTTPBidirectional;**
WITH ATTRIBUTE **augId;**
BEHAVIOUR
 augBidirectional-msTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 11 };

augSink-msTTPSink NAME BINDING
SUBORDINATE OBJECT CLASS **augSink;**
NAMED BY
SUPERIOR OBJECT CLASS **msTTPSink;**
WITH ATTRIBUTE **augId;**
BEHAVIOUR
 augSink-msTTPSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 12 };

```

augSource-msTTPSource NAME BINDING
  SUBORDINATE OBJECT CLASS    augSource;
  NAMED BY
  SUPERIOR OBJECT CLASS      msTTPSource;
  WITH ATTRIBUTE             augId;
  BEHAVIOUR
    augSource-msTTPSourceBehaviour BEHAVIOUR
    DEFINED AS

```

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

```
;;
```

```
REGISTERED AS { g774NameBinding 13 };
```

```

electricalSPITTPBidirectional-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    electricalSPITTPBidirectional;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE             electricalSPITTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 14 };

```

```

electricalSPITTPSink-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    electricalSPITTPSink;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE             electricalSPITTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 15 };

```

```

electricalSPITTPSource-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    electricalSPITTPSource;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE             electricalSPITTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 16 };

```

msCTPBidirectional-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS msCTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS rsTTPBidirectional;
WITH ATTRIBUTE msCTPId;
BEHAVIOUR
 msCTPBidirectional-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 17 };

msCTPSink-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS msCTPSink;
NAMED BY
SUPERIOR OBJECT CLASS rsTTPBidirectional;
WITH ATTRIBUTE msCTPId;
BEHAVIOUR
 msCTPSink-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 18 };

msCTPSink-rsTTPSink NAME BINDING
SUBORDINATE OBJECT CLASS msCTPSink;
NAMED BY
SUPERIOR OBJECT CLASS rsTTPSink;
WITH ATTRIBUTE msCTPId;
BEHAVIOUR
 msCTPSink-rsTTPSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 19 };

msCTPSource-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS msCTPSource;
NAMED BY
SUPERIOR OBJECT CLASS rsTTPBidirectional;
WITH ATTRIBUTE msCTPId;
BEHAVIOUR
 msCTPSource-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 20 };

msCTPSource-rsTTPSource NAME BINDING

SUBORDINATE OBJECT CLASS msCTPSource;
NAMED BY
SUPERIOR OBJECT CLASS rsTTPSource;
WITH ATTRIBUTE msCTPId;
BEHAVIOUR
msCTPSource-rsTTPSourceBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 21 };

msDatacomCTPBidirectional-msTTPBidirectional NAME BINDING

SUBORDINATE OBJECT CLASS msDatacomCTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS msTTPBidirectional;
WITH ATTRIBUTE msDatacomCTPId;
BEHAVIOUR
msDatacomCTPBidirectional-msTTPBidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 22 };

msDatacomCTPSink-msTTPBidirectional NAME BINDING

SUBORDINATE OBJECT CLASS msDatacomCTPSink;
NAMED BY
SUPERIOR OBJECT CLASS msTTPBidirectional;
WITH ATTRIBUTE msDatacomCTPId;
BEHAVIOUR
msDatacomCTPSink-msTTPBidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 23 };

msDatacomCTPSink-msTTPSink NAME BINDING

SUBORDINATE OBJECT CLASS msDatacomCTPSink;
NAMED BY
SUPERIOR OBJECT CLASS msTTPSink;
WITH ATTRIBUTE msDatacomCTPId;
BEHAVIOUR
msDatacomCTPSink-msTTPSinkBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 24 };

msDatacomCTPSource-msTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS msDatacomCTPSource;
NAMED BY
SUPERIOR OBJECT CLASS msTTPBidirectional;
WITH ATTRIBUTE msDatacomCTPId;
BEHAVIOUR
 msDatacomCTPSource-msTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 25 };

msDatacomCTPSource-msTTPSource NAME BINDING
SUBORDINATE OBJECT CLASS msDatacomCTPSource;
NAMED BY
SUPERIOR OBJECT CLASS msTTPSource;
WITH ATTRIBUTE msDatacomCTPId;
BEHAVIOUR
 msDatacomCTPSource-msTTPSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 26 };

msOrderwireCTPBidirectional-msTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS msOrderwireCTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS msTTPBidirectional;
WITH ATTRIBUTE msOrderwireCTPId;
BEHAVIOUR
 msOrderwireCTPBidirectional-msTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 27 };

msOrderwireCTPSink-msTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS msOrderwireCTPSink;
NAMED BY
SUPERIOR OBJECT CLASS msTTPBidirectional;
WITH ATTRIBUTE msOrderwireCTPId;
BEHAVIOUR
 msOrderwireCTPSink-msTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 28 };

msOrderwireCTPSink-msTTPSink NAME BINDING
SUBORDINATE OBJECT CLASS msOrderwireCTPSink;
NAMED BY
SUPERIOR OBJECT CLASS msTTPSink;
WITH ATTRIBUTE msOrderwireCTPId;
BEHAVIOUR
msOrderwireCTPSink-msTTPSinkBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 29 };

msOrderwireCTPSource-msTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS msOrderwireCTPSource;
NAMED BY
SUPERIOR OBJECT CLASS msTTPBidirectional;
WITH ATTRIBUTE msOrderwireCTPId;
BEHAVIOUR
msOrderwireCTPSource-msTTPBidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 30 };

msOrderwireCTPSource-msTTPSource NAME BINDING
SUBORDINATE OBJECT CLASS msOrderwireCTPSource;
NAMED BY
SUPERIOR OBJECT CLASS msTTPSource;
WITH ATTRIBUTE msOrderwireCTPId;
BEHAVIOUR
msOrderwireCTPSource-msTTPSourceBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 31 };

msTTPBidirectional-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS msTTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE msTTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 32 };

```
msTTPSink-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    msTTPSink;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE             msTTPIId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 33 };
```

```
msTTPSource-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    msTTPSource;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE             msTTPIId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 34 };
```

```
opticalSPITTPBidirectional-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    opticalSPITTPBidirectional;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE             opticalSPITTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 35 };
```

```
opticalSPITTPSink-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    opticalSPITTPSink;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE             opticalSPITTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 36 };
```

```
opticalSPITTPSource-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    opticalSPITTPSource;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE             opticalSPITTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 37 };
```

rsCTPBidirectional-electricalSPITTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPBidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **electricalSPITTPBidirectional;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPBidirectional-electricalSPITTPBidirectionalBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 38 };

rsCTPSink-electricalSPITTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **electricalSPITTPBidirectional;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPSink-electricalSPITTPBidirectionalBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 39 };

rsCTPSink-electricalSPITTPSink NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **electricalSPITTPSink;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPSink-electricalSPITTPSinkBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 40 };

rsCTPSource-electricalSPITTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **electricalSPITTPBidirectional;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPSource-electricalSPITTPBidirectionalBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 41 };

rsCTPSource-electricalSPITTPSource NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **electricalSPITTPSource;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPSource-electricalSPITTPSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 42 };

rsCTPBidirectional-opticalSPITTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPBidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **opticalSPITTPBidirectional;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPBidirectional-opticalSPITTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 43 };

rsCTPSink-opticalSPITTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **opticalSPITTPBidirectional;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPSink-opticalSPITTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 44 };

rsCTPSink-opticalSPITTPSink NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **opticalSPITTPSink;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPSink-opticalSPITTPSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 45 };

rsCTPSource-opticalSPITTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **opticalSPITTPBidirectional;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPSource-opticalSPITTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 46 };

rsCTPSource-opticalSPITTPSource NAME BINDING
SUBORDINATE OBJECT CLASS **rsCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **opticalSPITTPSource;**
WITH ATTRIBUTE **rsCTPId;**
BEHAVIOUR
 rsCTPSource-opticalSPITTPSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 47 };

rsDatacomCTPBidirectional-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsDatacomCTPBidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPBidirectional;**
WITH ATTRIBUTE **rsDatacomCTPId;**
BEHAVIOUR
 rsDatacomCTPBidirectional-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 48 };

rsDatacomCTPSink-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsDatacomCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPBidirectional;**
WITH ATTRIBUTE **rsDatacomCTPId;**
BEHAVIOUR
 rsDatacomCTPSink-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 49 };

rsDatacomCTPSink-rsTTPSink NAME BINDING
SUBORDINATE OBJECT CLASS **rsDatacomCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPSink;**
WITH ATTRIBUTE **rsDatacomCTPId;**
BEHAVIOUR
 rsDatacomCTPSink-rsTTPSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 50 };

rsDatacomCTPSource-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsDatacomCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPBidirectional;**
WITH ATTRIBUTE **rsDatacomCTPId;**
BEHAVIOUR
 rsDatacomCTPSource-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 51 };

rsDatacomCTPSource-rsTTPSource NAME BINDING
SUBORDINATE OBJECT CLASS **rsDatacomCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPSource;**
WITH ATTRIBUTE **rsDatacomCTPId;**
BEHAVIOUR
 rsDatacomCTPSource-rsTTPSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 52 };

rsOrderwireCTPBidirectional-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsOrderwireCTPBidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPBidirectional;**
WITH ATTRIBUTE **rsOrderwireCTPId;**
BEHAVIOUR
 rsOrderwireCTPBidirectional-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 53 };

rsOrderwireCTPSink-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsOrderwireCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPBidirectional;**
WITH ATTRIBUTE **rsOrderwireCTPId;**
BEHAVIOUR
 rsOrderwireCTPSink-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 54 };

rsOrderwireCTPSink-rsTTPSink NAME BINDING
SUBORDINATE OBJECT CLASS **rsOrderwireCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPSink;**
WITH ATTRIBUTE **rsOrderwireCTPId;**
BEHAVIOUR
 rsOrderwireCTPSink-rsTTPSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 55 };

rsOrderwireCTPSource-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsOrderwireCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPBidirectional;**
WITH ATTRIBUTE **rsOrderwireCTPId;**
BEHAVIOUR
 rsOrderwireCTPSource-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 56 };

rsOrderwireCTPSource-rsTTPSource NAME BINDING
SUBORDINATE OBJECT CLASS **rsOrderwireCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPSource;**
WITH ATTRIBUTE **rsOrderwireCTPId;**
BEHAVIOUR
 rsOrderwireCTPSource-rsTTPSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 57 };

rsTTPBidirectional-sdhNE NAME BINDING
 SUBORDINATE OBJECT CLASS rsTTPBidirectional;
 NAMED BY
 SUPERIOR OBJECT CLASS sdhNE;
 WITH ATTRIBUTE rsTTPId;
 CREATE
 WITH-REFERENCE-OBJECT,
 WITH-AUTOMATIC-INSTANCE-NAMING;
 DELETE
 DELETES-CONTAINED-OBJECTS;
 REGISTERED AS { g774NameBinding 58 };

rsTTPSink-sdhNE NAME BINDING
 SUBORDINATE OBJECT CLASS rsTTPSink;
 NAMED BY
 SUPERIOR OBJECT CLASS sdhNE;
 WITH ATTRIBUTE rsTTPId;
 CREATE
 WITH-REFERENCE-OBJECT,
 WITH-AUTOMATIC-INSTANCE-NAMING;
 DELETE
 DELETES-CONTAINED-OBJECTS;
 REGISTERED AS { g774NameBinding 59 };

rsTTPSource-sdhNE NAME BINDING
 SUBORDINATE OBJECT CLASS rsTTPSource;
 NAMED BY
 SUPERIOR OBJECT CLASS sdhNE;
 WITH ATTRIBUTE rsTTPId;
 CREATE
 WITH-REFERENCE-OBJECT,
 WITH-AUTOMATIC-INSTANCE-NAMING;
 DELETE
 DELETES-CONTAINED-OBJECTS;
 REGISTERED AS { g774NameBinding 60 };

rsUserChannelCTPBidirectional-rsTTPBidirectional NAME BINDING
 SUBORDINATE OBJECT CLASS rsUserChannelCTPBidirectional;
 NAMED BY
 SUPERIOR OBJECT CLASS rsTTPBidirectional;
 WITH ATTRIBUTE rsUserChannelCTPId;
 BEHAVIOUR
 rsUserChannelCTPBidirectional-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
 REGISTERED AS { g774NameBinding 61 };

rsUserChannelCTPSink-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsUserChannelCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPBidirectional;**
WITH ATTRIBUTE **rsUserChannelCTPId;**
BEHAVIOUR
 rsUserChannelCTPSink-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 62 };

rsUserChannelCTPSink-rsTTPSink NAME BINDING
SUBORDINATE OBJECT CLASS **rsUserChannelCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPSink;**
WITH ATTRIBUTE **rsUserChannelCTPId;**
BEHAVIOUR
 rsUserChannelCTPSink-rsTTPSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 63 };

rsUserChannelCTPSource-rsTTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **rsUserChannelCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPBidirectional;**
WITH ATTRIBUTE **rsUserChannelCTPId;**
BEHAVIOUR
 rsUserChannelCTPSource-rsTTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 64 };

rsUserChannelCTPSource-rsTTPSource NAME BINDING
SUBORDINATE OBJECT CLASS **rsUserChannelCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **rsTTPSource;**
WITH ATTRIBUTE **rsUserChannelCTPId;**
BEHAVIOUR
 rsUserChannelCTPSource-rsTTPSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 65 };

tu11CTPBidirectional-tug2Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu11CTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS tug2Bidirectional;
WITH ATTRIBUTE tu11CTPId;
BEHAVIOUR
tu11CTPBidirectional-tug2BidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 66 };

tu11CTPSink-tug2Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu11CTPSink;
NAMED BY
SUPERIOR OBJECT CLASS tug2Bidirectional;
WITH ATTRIBUTE tu11CTPId;
BEHAVIOUR
tu11CTPSink-tug2BidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 67 };

tu11CTPSink-tug2Sink NAME BINDING
SUBORDINATE OBJECT CLASS tu11CTPSink;
NAMED BY
SUPERIOR OBJECT CLASS tug2Sink;
WITH ATTRIBUTE tu11CTPId;
BEHAVIOUR
tu11CTPSink-tug2SinkBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 68 };

tu11CTPSource-tug2Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu11CTPSource;
NAMED BY
SUPERIOR OBJECT CLASS tug2Bidirectional;
WITH ATTRIBUTE tu11CTPId;
BEHAVIOUR
tu11CTPSource-tug2BidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 69 };

tu11CTPSource-tug2Source NAME BINDING
SUBORDINATE OBJECT CLASS tu11CTPSource;
NAMED BY
SUPERIOR OBJECT CLASS tug2Source;
WITH ATTRIBUTE tu11CTPId;
BEHAVIOUR
tu11CTPSource-tug2SourceBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 70 };

tu12CTPBidirectional-tug2Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu12CTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS tug2Bidirectional;
WITH ATTRIBUTE tu12CTPId;
BEHAVIOUR
tu12CTPBidirectional-tug2BidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 71 };

tu12CTPSink-tug2Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu12CTPSink;
NAMED BY
SUPERIOR OBJECT CLASS tug2Bidirectional;
WITH ATTRIBUTE tu12CTPId;
BEHAVIOUR
tu12CTPSink-tug2BidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 72 };

tu12CTPSink-tug2Sink NAME BINDING
SUBORDINATE OBJECT CLASS tu12CTPSink;
NAMED BY
SUPERIOR OBJECT CLASS tug2Sink;
WITH ATTRIBUTE tu12CTPId;
BEHAVIOUR
tu12CTPSink-tug2SinkBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 73 };

tu12CTPSource-tug2Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu12CTPSource;
NAMED BY
SUPERIOR OBJECT CLASS tug2Bidirectional;
WITH ATTRIBUTE tu12CTPId;
BEHAVIOUR
tu12CTPSource-tug2BidirectionalBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 74 };

tu12CTPSource-tug2Source NAME BINDING
SUBORDINATE OBJECT CLASS tu12CTPSource;
NAMED BY
SUPERIOR OBJECT CLASS tug2Source;
WITH ATTRIBUTE tu12CTPId;
BEHAVIOUR
tu12CTPSource-tug2SourceBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 75 };

tu2CTPBidirectional-tug2Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu2CTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS tug2Bidirectional;
WITH ATTRIBUTE tu2CTPId;
BEHAVIOUR
tu2CTPBidirectional-tug2BidirectionalBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 76 };

tu2CTPSink-tug2Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu2CTPSink;
NAMED BY
SUPERIOR OBJECT CLASS tug2Bidirectional;
WITH ATTRIBUTE tu2CTPId;
BEHAVIOUR
tu2CTPSink-tug2BidirectionalBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 77 };

tu2CTPSink-tug2Sink NAME BINDING
SUBORDINATE OBJECT CLASS tu2CTPSink;
NAMED BY
SUPERIOR OBJECT CLASS tug2Sink;
WITH ATTRIBUTE tu2CTPId;
BEHAVIOUR
tu2CTPSink-tug2SinkBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 78 };

tu2CTPSource-tug2Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu2CTPSource;
NAMED BY
SUPERIOR OBJECT CLASS tug2Bidirectional;
WITH ATTRIBUTE tu2CTPId;
BEHAVIOUR
tu2CTPSource-tug2BidirectionalBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 79 };

tu2CTPSource-tug2Source NAME BINDING
SUBORDINATE OBJECT CLASS tu2CTPSource;
NAMED BY
SUPERIOR OBJECT CLASS tug2Source;
WITH ATTRIBUTE tu2CTPId;
BEHAVIOUR
tu2CTPSource-tug2SourceBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 80 };

tu3CTPBidirectional-tug3Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu3CTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS tug3Bidirectional;
WITH ATTRIBUTE tu3CTPId;
BEHAVIOUR
tu3CTPBidirectional-tug3BidirectionalBehaviour BEHAVIOUR
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 81 };

tu3CTPSink-tug3Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu3CTPSink;
NAMED BY
SUPERIOR OBJECT CLASS tug3Bidirectional;
WITH ATTRIBUTE tu3CTPId;
BEHAVIOUR
tu3CTPSink-tug3BidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 82 };

tu3CTPSink-tug3Sink NAME BINDING
SUBORDINATE OBJECT CLASS tu3CTPSink;
NAMED BY
SUPERIOR OBJECT CLASS tug3Sink;
WITH ATTRIBUTE tu3CTPId;
BEHAVIOUR
tu3CTPSink-tug3SinkBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 83 };

tu3CTPSource-tug3Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS tu3CTPSource;
NAMED BY
SUPERIOR OBJECT CLASS tug3Bidirectional;
WITH ATTRIBUTE tu3CTPId;
BEHAVIOUR
tu3CTPSource-tug3BidirectionalBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 84 };

tu3CTPSource-tug3Source NAME BINDING
SUBORDINATE OBJECT CLASS tu3CTPSource;
NAMED BY
SUPERIOR OBJECT CLASS tug3Source;
WITH ATTRIBUTE tu3CTPId;
BEHAVIOUR
tu3CTPSource-tug3SourceBehaviour **BEHAVIOUR**
DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 85 };

tug2Bidirectional-tug3Bidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **tug2Bidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **tug3Bidirectional;**
WITH ATTRIBUTE **tug2Id;**
BEHAVIOUR
 tug2Bidirectional-tug3BidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 86 };

tug2Sink-tug3Sink NAME BINDING
SUBORDINATE OBJECT CLASS **tug2Sink;**
NAMED BY
SUPERIOR OBJECT CLASS **tug3Sink;**
WITH ATTRIBUTE **tug2Id;**
BEHAVIOUR
 tug2Sink-tug3SinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 87 };

tug2Source-tug3Source NAME BINDING
SUBORDINATE OBJECT CLASS **tug2Source;**
NAMED BY
SUPERIOR OBJECT CLASS **tug3Source;**
WITH ATTRIBUTE **tug2Id;**
BEHAVIOUR
 tug2Source-tug3SourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 88 };

tug2Bidirectional-vc3TTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **tug2Bidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **vc3TTPBidirectional;**
WITH ATTRIBUTE **tug2Id;**
BEHAVIOUR
 tug2Bidirectional-vc3TTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 89 };

tug2Sink-vc3TTPSink NAME BINDING
SUBORDINATE OBJECT CLASS **tug2Sink;**
NAMED BY
SUPERIOR OBJECT CLASS **vc3TTPSink;**
WITH ATTRIBUTE **tug2Id;**
BEHAVIOUR
 tug2Sink-vc3TTPSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 90 };

tug2Source-vc3TTPSource NAME BINDING
SUBORDINATE OBJECT CLASS **tug2Source;**
NAMED BY
SUPERIOR OBJECT CLASS **vc3TTPSource;**
WITH ATTRIBUTE **tug2Id;**
BEHAVIOUR
 tug2Source-vc3TTPSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 91 };

tug3Bidirectional-vc4TTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **tug3Bidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **vc4TTPBidirectional;**
WITH ATTRIBUTE **tug3Id;**
BEHAVIOUR
 tug3Bidirectional-vc4TTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 92 };

tug3Sink-vc4TTPSink NAME BINDING
SUBORDINATE OBJECT CLASS **tug3Sink;**
NAMED BY
SUPERIOR OBJECT CLASS **vc4TTPSink;**
WITH ATTRIBUTE **tug3Id;**
BEHAVIOUR
 tug3Sink-vc4TTPSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 93 };

```

tug3Source-vc4TTPSource NAME BINDING
  SUBORDINATE OBJECT CLASS    tug3Source;
  NAMED BY
  SUPERIOR OBJECT CLASS      vc4TTPSource;
  WITH ATTRIBUTE              tug3Id;
  BEHAVIOUR
    tug3Source-vc4TTPSourceBehaviour BEHAVIOUR
  DEFINED AS

```

The subordinate managed objects are automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

```

;;
REGISTERED AS { g774NameBinding 94 };

```

```

vc11TTPBidirectional-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    vc11TTPBidirectional;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE              vc11TTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 95 };

```

```

vc11TTPSink-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    vc11TTPSink;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE              vc11TTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 96 };

```

```

vc11TTPSource-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    vc11TTPSource;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE              vc11TTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 97 };

```

```

vc12TTPBidirectional-sdhNE NAME BINDING
  SUBORDINATE OBJECT CLASS    vc12TTPBidirectional;
  NAMED BY
  SUPERIOR OBJECT CLASS      sdhNE;
  WITH ATTRIBUTE              vc12TTPId;
  CREATE
    WITH-REFERENCE-OBJECT,
    WITH-AUTOMATIC-INSTANCE-NAMING;
  DELETE
    DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 98 };

```

vc12TTPSink-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc12TTPSink;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc12TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 99 };

vc12TTPSource-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc12TTPSource;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc12TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 100 };

vc2TTPBidirectional-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc2TTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc2TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 101 };

vc2TTPSink-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc2TTPSink;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc2TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 102 };

vc2TTPSource-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc2TTPSource;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc2TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 103 };

vc3TTPBidirectional-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc3TTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc3TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 104 };

vc3TTPSink-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc3TTPSink;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc3TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 105 };

vc3TTPSource-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc3TTPSource;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc3TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 106 };

vc4TTPBidirectional-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc4TTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc4TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 107 };

vc4TTPSink-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc4TTPSink;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc4TTPId;
CREATE
WITH-REFERENCE-OBJECT,
WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 108 };

vc4TTPSource-sdhNE NAME BINDING
SUBORDINATE OBJECT CLASS vc4TTPSource;
NAMED BY
SUPERIOR OBJECT CLASS sdhNE;
WITH ATTRIBUTE vc4TTPId;
CREATE
 WITH-REFERENCE-OBJECT,
 WITH-AUTOMATIC-INSTANCE-NAMING;
DELETE
 DELETES-CONTAINED-OBJECTS;
REGISTERED AS { g774NameBinding 109 };

vcnUserChannelCTPBidirectional-vc3TTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS vcnUserChannelCTPBidirectional;
NAMED BY
SUPERIOR OBJECT CLASS vc3TTPBidirectional;
WITH ATTRIBUTE vcnUserChannelCTPId;
BEHAVIOUR
 vcnUserChannelCTPBidirectional-vc3TTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 110 };

vcnUserChannelCTPSink-vc3TTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS vcnUserChannelCTPSink;
NAMED BY
SUPERIOR OBJECT CLASS vc3TTPBidirectional;
WITH ATTRIBUTE vcnUserChannelCTPId;
BEHAVIOUR
 vcnUserChannelCTPSink-vc3TTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 111 };

vcnUserChannelCTPSink-vc3TTPSink NAME BINDING
SUBORDINATE OBJECT CLASS vcnUserChannelCTPSink;
NAMED BY
SUPERIOR OBJECT CLASS vc3TTPSink;
WITH ATTRIBUTE vcnUserChannelCTPId;
BEHAVIOUR
 vcnUserChannelCTPSink-vc3TTPSinkBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;
REGISTERED AS { g774NameBinding 112 };

vcnUserChannelCTPSource-vc3TTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **vcnUserChannelCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **vc3TTPBidirectional;**
WITH ATTRIBUTE **vcnUserChannelCTPId;**
BEHAVIOUR
 vcnUserChannelCTPSource-vc3TTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 113 };

vcnUserChannelCTPSource-vc3TTPSource NAME BINDING
SUBORDINATE OBJECT CLASS **vcnUserChannelCTPSource;**
NAMED BY
SUPERIOR OBJECT CLASS **vc3TTPSource;**
WITH ATTRIBUTE **vcnUserChannelCTPId;**
BEHAVIOUR
 vcnUserChannelCTPSource-vc3TTPSourceBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 114 };

vcnUserChannelCTPBidirectional-vc4TTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **vcnUserChannelCTPBidirectional;**
NAMED BY
SUPERIOR OBJECT CLASS **vc4TTPBidirectional;**
WITH ATTRIBUTE **vcnUserChannelCTPId;**
BEHAVIOUR
 vcnUserChannelCTPBidirectional-vc4TTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 115 };

vcnUserChannelCTPSink-vc4TTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS **vcnUserChannelCTPSink;**
NAMED BY
SUPERIOR OBJECT CLASS **vc4TTPBidirectional;**
WITH ATTRIBUTE **vcnUserChannelCTPId;**
BEHAVIOUR
 vcnUserChannelCTPSink-vc4TTPBidirectionalBehaviour BEHAVIOUR
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 116 };

vcnUserChannelCTPSink-vc4TTPSink NAME BINDING
SUBORDINATE OBJECT CLASS vcnUserChannelCTPSink;
NAMED BY
SUPERIOR OBJECT CLASS vc4TTPSink;
WITH ATTRIBUTE vcnUserChannelCTPId;
BEHAVIOUR
 vcnUserChannelCTPSink-vc4TTPSinkBehaviour **BEHAVIOUR**
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 117 };

vcnUserChannelCTPSource-vc4TTPBidirectional NAME BINDING
SUBORDINATE OBJECT CLASS vcnUserChannelCTPSource;
NAMED BY
SUPERIOR OBJECT CLASS vc4TTPBidirectional;
WITH ATTRIBUTE vcnUserChannelCTPId;
BEHAVIOUR
 vcnUserChannelCTPSource-vc4TTPBidirectionalBehaviour **BEHAVIOUR**
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 118 };

vcnUserChannelCTPSource-vc4TTPSource NAME BINDING
SUBORDINATE OBJECT CLASS vcnUserChannelCTPSource;
NAMED BY
SUPERIOR OBJECT CLASS vc4TTPSource;
WITH ATTRIBUTE vcnUserChannelCTPId;
BEHAVIOUR
 vcnUserChannelCTPSource-vc4TTPSourceBehaviour **BEHAVIOUR**
 DEFINED AS

The subordinate managed object is automatically instantiated when the superior managed object is instantiated, according to the make-up and mode of operation of the equipment.

;;

REGISTERED AS { g774NameBinding 119 };

7 Supporting ASN.1

SDH {ccitt(0) recommendation(0) g(7) sdhm(774) informationModel(0) asn1Module(2) sdh(0)}

DEFINITIONS IMPLICIT TAGS ::= BEGIN

IMPORTS

NameType -- M.3100

**FROM ASN1DefinedTypesModule {ccitt(0) recommendation(0) m(13) gnm(3100)
informationModel(0) asn1Modules(2) asn1DefinedTypeModule(0)}**

;

g774 OBJECT IDENTIFIER ::= {ccitt(0) recommendation(0) g(7) sdhm(774) informationModel(0)}

g774ObjectClass OBJECT IDENTIFIER ::= {g774 managedObjectClass(3)}

g774Attribute OBJECT IDENTIFIER ::= {g774 attribute(7)}

g774NameBinding OBJECT IDENTIFIER ::= {g774 nameBinding(6)}

Boolean ::= BOOLEAN

C2SignalLabel ::= INTEGER (0..255)

**FerfState ::= ENUMERATED {
automatic(0),
forceOn(1),
forceOff(2)
}**

Integer ::= INTEGER

**OpticalReach ::= ENUMERATED {
intraOffice(0),
shortHaul(1),
longHaul(2)
}**

**OpticalWavelength ::= ENUMERATED {
w1310(0),
w1550(1)
}**

**PathTrace ::= CHOICE {
null NULL,
pathtrace [1] GRAPHICSTRING
}**

**PointerSinkType ::= ENUMERATED {
normalPointer(0),
concatenationIndication(1),
invalidPointer(2)
}**

**PointerSourceType ::= ENUMERATED {
normalPointer(0),
concatenationIndication(1)
}**

V5SignalLabel ::= INTEGER (0..7)

END

8 Object relations

Note — The SUBORDINATION RULE and CONSTRAINT RULE templates are used in this Recommendation as an interim specification tool. A RELATIONSHIP template is currently under study; when it has been standardized, the rules specified in the SUBORDINATION RULE and CONSTRAINT RULE templates will be re-specified using the RELATIONSHIP template.

8.1 Syntax

```
<subordination-rule-label> SUBORDINATION RULE
  SUPERIOR OBJECT CLASS <class-label> ;
  NAMES SUBORDINATES <class-list> ;
  ACCORDING TO RULE <subordination-rule> ;
;
```

```
<constraint-rule-label> CONSTRAINT RULE
  OBJECT CLASS <class-label> [AND SUBCLASSES] ;
  IS RELATED TO <class-list> ;
  USING ATTRIBUTE <attribute-label> ;
  <constraint-rule-set> ;
;
```

```
<constraint-rule-set> ::= <single-constraint-rule> | <named-type-constraint-rules>
```

```
<single-constraint-rule> ::= ACCORDING TO RULE <constraint-rule>
```

```
<named-type-constraint-rule> ::= CASE { <named-type-constraint-rule-list> }
```

```
<named-type-constraint-rule-list> ::= <named-type-constraint-rule-item> |
  <named-type-constraint-rule-item> , <named-type-constraint-rule-list>
```

```
<named-type-constraint-rule-item> ::=
  <named-type> ACCORDING TO RULE <constraint-rule>
```

```
<class-label> ::= label string as defined in ISO/IEC IS 10165-4
```

```
<attribute-label> ::= label string as defined in ISO/IEC IS 10165-4
```

```
<class-list> ::= <class-label> | <class-list> , <class-label>
```

```
<subordination-rule> ::= SET { <subordination-members> }
  | CHOICE { <subordination-members> }
  | SET SIZE ( <ordinality> ) OF <subordination-term>
```

```
<constraint-rule> ::= SET { <constraint-members> }
  | SEQUENCE { <constraint-members> }
  | CHOICE { <constraint-members> }
  | SET SIZE ( <ordinality> ) OF <constraint-term>
  | SEQUENCE SIZE ( <ordinality> ) OF <constraint-term>
```

```
<subordination-members> ::= <subordination-term>
  | <subordination-term> , <subordination-members>
```

**<constraint-members> ::= <constraint-term>
| <constraint-term> , <constraint-members>**

<subordination-term> ::= <class-label> | <subordination-rule>

<constraint-term> ::= <class-label> | <constraint-rule>

<ordinality> ::= <valueRange> | <valueList>

<valueRange> ::= <lowerValue> .. <upperValue>

<valueList> ::= <itemValue> | <itemValue> , <valueList>

<itemValue> ::= INTEGER

<lowerValue> ::= INTEGER

<upperValue> ::= INTEGER | N

8.1.1 *Subordination rule templates*

SUPERIOR OBJECT CLASS <class-label>;

indicates the class that is governing this subordination-rule. A class may govern through more than one subordination-rule several non-overlapping sets of subordinate classes in the NAMES SUBORDINATES clause.

NAMES SUBORDINATES <class-list>;

indicates the set of classes of subordinates that are governed by this subordination-rule. Any classes that are not in this list are not governed by this subordination-rule.

ACCORDING TO RULE <subordination-rule>

provides the rule

SET { <subordination-members> }

indicates that *all* of the subordination-members must be present.

CHOICE { <subordination-members> }

indicates that *any one* of the subordination-members must be present.

SET SIZE <ordinality> OF <subordination-term>

indicates the number of <subordination-term> that must be present.

8.1.2 *Constraint rule templates*

OBJECT CLASS <class-label>;

indicates the class with this attribute that is governed by this constraint-rule. A class may be governed by more than one constraint-rule with non-overlapping sets of related classes in the RELATES TO OBJECT CLASSES clause.

IS RELATED TO OBJECT CLASSES <class-list>;

indicates the set of classes of related instances that are governed by this constraint-rule. Any classes that are not in this list are not governed by this constraint-rule.

USING ATTRIBUTE <attribute-label>;

indicates the attribute that represents a relationship by means of a pointer (DN) to the related object instances.

<constraint-rule-set>;

there can be either a single rule, or a set of rules one for each of a set of named choices. In the latter case the CASE { ... } structure is used.

CASE { ... };

provides a distinct constraint-rule for each of the set of named choices in the attribute syntax.

ACCORDING TO RULE <constraint-rule>

provides the rule

SET { <constraint-members> }

indicates that *all* of the constraint-members must be present in any order.

SEQUENCE { <constraint-members> }

indicates that *all* of the constraint-members must be present in sequence.

CHOICE { <constraint-members> }

indicates that *any one* of the constraint-members must be present.

SET SIZE <ordinality> OF <constraint-term>

indicates the number of <constraint-term> that must be present in any order.

SEQUENCE SIZE <ordinality> OF <constraint-term>

indicates the number of <constraint-term> that must be present in sequence.

8.2 Connectivity pointer constraints

This subsection defines the allowable values for the downstreamConnectivityPointer and upstreamConnectivityPointer attributes using the object classes defined in this Recommendation.

downstreamConnectivityPointer-au3CTPSink CONSTRAINT RULE

OBJECT CLASS

au3CTPSink AND SUBCLASSES;

IS RELATED TO

vc3TTPSink, vc3TTPBidirectional,
au3CTPSource, au3CTPBidirectional,
tu3CTPSource, tu3CTPBidirectional,
vc4TTPSink, vc4TTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":downstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc3TTPSink,vc3TTPBidirectional,
au3CTPSource,au3CTPBidirectional,
tu3CTPSource, tu3CTPBidirectional,
vc4TTPSink,vc4TTPBidirectional },

broadcast ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

SET SIZE(1..N) OF CHOICE {
vc3TTPSink, vc3TTPBidirectional,
tu3CTPSource, tu3CTPBidirectional,
au3CTPSource, au3CTPBidirectional },

SET SIZE(1..N) OF CHOICE {

vc4TTPSink, vc4TTPBidirectional }

}

};

;

upstreamConnectivityPointer-au3CTPSource CONSTRAINT RULE

OBJECT CLASS

au3CTPSource AND SUBCLASSES;

IS RELATED TO

vc3TTPSource, vc3TTPBidirectional,
au3CTPSink, au3CTPBidirectional,
tu3CTPSink, tu3CTPBidirectional,
vc4TTPSource, vc4TTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":upstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE { vc3TTPSource,vc3TTPBidirectional,

au3CTPSink,au3CTPBidirectional,
tu3CTPSink,tu3CTPBidirectional,
vc4TTPSource,vc4TTPBidirectional }

};

;

downstreamConnectivityPointer-au4CTPSink CONSTRAINT RULE

OBJECT CLASS

au4CTPSink AND SUBCLASSES;

IS RELATED TO

au4CTPSource, au4CTPBidirectional,
vc4TTPSink, vc4TTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":downstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc4TTPSink,vc4TTPBidirectional,
au4CTPSource,au4CTPBidirectional },

broadcast ACCORDING TO RULE

SET SIZE(1..N) OF CHOICE {

vc4TTPSink, vc4TTPBidirectional,
au4CTPSource, au4CTPBidirectional }

};

;

upstreamConnectivityPointer-au4CTPSource CONSTRAINT RULE

OBJECT CLASS

au4CTPSource AND SUBCLASSES;

IS RELATED TO

au4CTPSink, au4CTPBidirectional,
vc4TTPSource, vc4TTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":upstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc4TTPSource, vc4TTPBidirectional,
au4CTPSink, au4CTPBidirectional }

};

;

downstreamConnectivityPointer-msCTPSink CONSTRAINT RULE

OBJECT CLASS

msCTPSink AND SUBCLASSES;

IS RELATED TO

msTTPSink, msTTPBidirectional,
msCTPSource, msCTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":downstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

msTTPSink, msTTPBidirectional,
msCTPSource, msCTPBidirectional }

};

;

upstreamConnectivityPointer-msCTPSource CONSTRAINT RULE

```
OBJECT CLASS
  msCTPSource AND SUBCLASSES;
IS RELATED TO
  msTTPSource, msTTPBidirectional,
  msCTPSink, msCTPBidirectional;
USING ATTRIBUTE
  "Recommendation M.3100":upstreamConnectivityPointer;
CASE {
  single ACCORDING TO RULE
    SET SIZE(1) OF CHOICE {
      msTTPSource, msTTPBidirectional,
      msCTPSink, msCTPBidirectional }
};
;
```

upstreamConnectivityPointer-msTTPSink CONSTRAINT RULE

```
OBJECT CLASS
  msTTPSink AND SUBCLASSES;
IS RELATED TO
  msCTPSink, msCTPBidirectional;
USING ATTRIBUTE
  "Recommendation M.3100":upstreamConnectivityPointer;
CASE {
  single ACCORDING TO RULE
    SET SIZE(1) OF CHOICE {
      msCTPSink, msCTPBidirectional }
};
;
```

downstreamConnectivityPointer-msTTPSource CONSTRAINT RULE

```
OBJECT CLASS
  msTTPSource AND SUBCLASSES;
IS RELATED TO
  msCTPSource, msCTPBidirectional;
USING ATTRIBUTE
  "Recommendation M.3100":downstreamConnectivityPointer;
CASE {
  single ACCORDING TO RULE
    SET SIZE(1) OF CHOICE {
      msCTPSource, msCTPBidirectional }
};
;
```

downstreamConnectivityPointer-rsCTPSink CONSTRAINT RULE

```
OBJECT CLASS
  rsCTPSink AND SUBCLASSES;
IS RELATED TO
  rsTTPSink, rsTTPBidirectional,
  rsCTPSource, rsCTPBidirectional;
USING ATTRIBUTE
  "Recommendation M.3100":downstreamConnectivityPointer;
CASE {
  single ACCORDING TO RULE
    SET SIZE(1) OF CHOICE {
      rsTTPSink, rsTTPBidirectional,
      rsCTPSource, rsCTPBidirectional }
};
;
```

upstreamConnectivityPointer-rsCTPSource CONSTRAINT RULE

OBJECT CLASS
rsCTPSource AND SUBCLASSES;
IS RELATED TO
rsTTPSource, rsTTPBidirectional,
rsCTPSink, rsCTPBidirectional;
USING ATTRIBUTE
"Recommendation M.3100":upstreamConnectivityPointer;
CASE {
single ACCORDING TO RULE
SET SIZE(1) OF CHOICE {
rsTTPSource, rsTTPBidirectional,
rsCTPSink, rsCTPBidirectional }
};

;

upstreamConnectivityPointer-rsTTPSink CONSTRAINT RULE

OBJECT CLASS
rsCTPSink AND SUBCLASSES;
IS RELATED TO
rsCTPSink, rsCTPBidirectional;
USING ATTRIBUTE
"Recommendation M.3100":upstreamConnectivityPointer;
CASE {
single ACCORDING TO RULE
SET SIZE(1) OF CHOICE {
rsCTPSink, rsCTPBidirectional }
};

;

downstreamConnectivityPointer-rsTTPSource CONSTRAINT RULE

OBJECT CLASS
rsCTPSource AND SUBCLASSES;
IS RELATED TO
rsCTPSource, rsCTPBidirectional;
USING ATTRIBUTE
"Recommendation M.3100":downstreamConnectivityPointer;
CASE {
single ACCORDING TO RULE
SET SIZE(1) OF CHOICE {
rsCTPSource, rsCTPBidirectional }
};

;

downstreamConnectivityPointer-tu11CTPSink CONSTRAINT RULE

OBJECT CLASS
tu11CTPSink AND SUBCLASSES;
IS RELATED TO
vc11TTPSink, vc11TTPBidirectional,
tu11CTPSource, tu11CTPBidirectional;
USING ATTRIBUTE
"Recommendation M.3100":downstreamConnectivityPointer;
CASE {
single ACCORDING TO RULE
SET SIZE(1) OF CHOICE {
vc11TTPSink, vc11TTPBidirectional,
tu11CTPSource, tu11CTPBidirectional },
broadcast ACCORDING TO RULE
SET SIZE(1..N) OF CHOICE {
vc11TTPSink, vc11TTPBidirectional,
tu11CTPSource, tu11CTPBidirectional }
};

;

upstreamConnectivityPointer-tu11CTPSource CONSTRAINT RULE

OBJECT CLASS

tu11CTPSource AND SUBCLASSES;

IS RELATED TO

vc11TTPSource, vc11TTPBidirectional,
tu11CTPSink, tu11CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":upstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc11TTPSource, vc11TTPBidirectional,
tu11CTPSink, tu11CTPBidirectional }

};

;

downstreamConnectivityPointer-tu12CTPSink CONSTRAINT RULE

OBJECT CLASS

tu12CTPSink AND SUBCLASSES;

IS RELATED TO

vc12TTPSink, vc12TTPBidirectional,
tu12CTPSource, tu12CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":downstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc12TTPSink, vc12TTPBidirectional,
tu12CTPSource, tu12CTPBidirectional },

broadcast ACCORDING TO RULE

SET SIZE(1..N) OF CHOICE {

vc12TTPSink, vc12TTPBidirectional,
tu12CTPSource, tu12CTPBidirectional }

};

;

upstreamConnectivityPointer-tu12CTPSource CONSTRAINT RULE

OBJECT CLASS

tu12CTPSource AND SUBCLASSES;

IS RELATED TO

vc12TTPSource, vc12TTPBidirectional,
tu12CTPSink, tu12CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":upstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc12TTPSource, vc12TTPBidirectional,
tu12CTPSink, tu12CTPBidirectional }

};

;

```

downstreamConnectivityPointer-tu2CTPSink CONSTRAINT RULE
OBJECT CLASS
    tu2CTPSink AND SUBCLASSES;
IS RELATED TO
    vc2TTPSink, vc2TTPBidirectional,
    tu2CTPSource, tu2CTPBidirectional;
USING ATTRIBUTE
    "Recommendation M.3100":downstreamConnectivityPointer;
CASE {
    single ACCORDING TO RULE
        SET SIZE(1) OF CHOICE {
            vc2TTPSink, vc2TTPBidirectional,
            tu2CTPSource, tu2CTPBidirectional },
    broadcast ACCORDING TO RULE
        SET SIZE(1..N) OF CHOICE {
            vc2TTPSink, vc2TTPBidirectional,
            tu2CTPSource, tu2CTPBidirectional }
};
;

```

```

upstreamConnectivityPointer-tu2CTPSource CONSTRAINT RULE
OBJECT CLASS
    tu2CTPSource AND SUBCLASSES;
IS RELATED TO
    vc2TTPSource, vc2TTPBidirectional,
    tu2CTPSink, tu2CTPBidirectional;
USING ATTRIBUTE
    "Recommendation M.3100":upstreamConnectivityPointer;
CASE {
    single ACCORDING TO RULE
        SET SIZE(1) OF CHOICE {
            vc2TTPSource, vc2TTPBidirectional,
            tu2CTPSink, tu2CTPBidirectional }
};
;

```

```

downstreamConnectivityPointer-tu3CTPSink CONSTRAINT RULE
OBJECT CLASS
    tu3CTPSink AND SUBCLASSES;
IS RELATED TO
    vc3TTPSink, vc3TTPBidirectional,
    au3CTPSource, au3CTPBidirectional,
    tu3CTPSource, tu3CTPBidirectional;
USING ATTRIBUTE
    "Recommendation M.3100":downstreamConnectivityPointer;
CASE {
    single ACCORDING TO RULE
        SET SIZE(1) OF CHOICE {
            vc3TTPSink, vc3TTPBidirectional,
            au3CTPSource, au3CTPBidirectional,
            tu3CTPSource, tu3CTPBidirectional },
    broadcast ACCORDING TO RULE
        SET SIZE(1..N) OF CHOICE {
            vc3TTPSink, vc3TTPBidirectional,
            au3CTPSource, au3CTPBidirectional,
            tu3CTPSource, tu3CTPBidirectional }
};
;

```

upstreamConnectivityPointer-tu3CTPSource CONSTRAINT RULE

OBJECT CLASS

tu3CTPSource AND SUBCLASSES;

IS RELATED TO

vc3TTPSource, vc3TTPBidirectional,
au3CTPSink, au3CTPBidirectional,
tu3CTPSink, tu3CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":upstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc3TTPSource, vc3TTPBidirectional,
au3CTPSink, au3CTPBidirectional,
tu3CTPSink, tu3CTPBidirectional }

};

;

upstreamConnectivityPointer-vc11TTPSink CONSTRAINT RULE

OBJECT CLASS

vc11TTPSink AND SUBCLASSES;

IS RELATED TO

vc11TTPSource, vc11TTPBidirectional,
tu11CTPSink, tu11CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":upstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc11TTPSource, vc11TTPBidirectional,
tu11CTPSink, tu11CTPBidirectional }

};

;

downstreamConnectivityPointer-vc11TTPSource CONSTRAINT RULE

OBJECT CLASS

vc11TTPSource AND SUBCLASSES;

IS RELATED TO

vc11TTPSink, vc11TTPBidirectional,
tu11CTPSource, tu11CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":downstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc11TTPSink, vc11TTPBidirectional,
tu11CTPSource, tu11CTPBidirectional },

broadcast ACCORDING TO RULE

SET SIZE(1..N) OF CHOICE {

vc11TTPSink, vc11TTPBidirectional,
tu11CTPSource, tu11CTPBidirectional }

};

;

upstreamConnectivityPointer-vc12TTPSink CONSTRAINT RULE

OBJECT CLASS

vc12TTPSink AND SUBCLASSES;

IS RELATED TO

vc12TTPSource, vc12TTPBidirectional,
tu12CTPSink, tu12CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":upstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc12TTPSource, vc12TTPBidirectional,
tu12CTPSink, tu12CTPBidirectional }

};

;

downstreamConnectivityPointer-vc12TTPSource CONSTRAINT RULE

OBJECT CLASS

vc12TTPSource AND SUBCLASSES;

IS RELATED TO

vc12TTPSink, vc12TTPBidirectional,
tu12CTPSource, tu12CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":downstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc12TTPSink, vc12TTPBidirectional,
tu12CTPSource, tu12CTPBidirectional },

broadcast ACCORDING TO RULE

SET SIZE(1..N) OF CHOICE {

vc12TTPSink, vc12TTPBidirectional,
tu12CTPSource, tu12CTPBidirectional }

};

;

upstreamConnectivityPointer-vc2TTPSink CONSTRAINT RULE

OBJECT CLASS

vc2TTPSink AND SUBCLASSES;

IS RELATED TO

vc2TTPSource, vc2TTPBidirectional,
tu2CTPSink, tu2CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":upstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc2TTPSource, vc2TTPBidirectional,
tu2CTPSink, tu2CTPBidirectional }

};

;

downstreamConnectivityPointer-vc2TTPSource CONSTRAINT RULE

```
OBJECT CLASS
  vc2TTPSource AND SUBCLASSES;
IS RELATED TO
  vc2TTPSink, vc2TTPBidirectional,
  tu2CTPSource, tu2CTPBidirectional;
USING ATTRIBUTE
  "Recommendation M.3100":downstreamConnectivityPointer;
CASE {
  single ACCORDING TO RULE
    SET SIZE(1) OF CHOICE {
      vc2TTPSink, vc2TTPBidirectional,
      tu2CTPSource, tu2CTPBidirectional },
  broadcast ACCORDING TO RULE
    SET SIZE(1..N) OF CHOICE {
      vc2TTPSink, vc2TTPBidirectional,
      tu2CTPSource, tu2CTPBidirectional }
};
;
```

upstreamConnectivityPointer-vc3TTPSink CONSTRAINT RULE

```
OBJECT CLASS
  vc3TTPSink AND SUBCLASSES;
IS RELATED TO
  vc3TTPSource, vc3TTPBidirectional,
  au3CTPSink, au3CTPBidirectional,
  tu3CTPSink, tu3CTPBidirectional;
USING ATTRIBUTE
  "Recommendation M.3100":upstreamConnectivityPointer;
CASE {
  single ACCORDING TO RULE
    SET SIZE(1) OF CHOICE {
      vc3TTPSource, vc3TTPBidirectional,
      au3CTPSink, au3CTPBidirectional,
      tu3CTPSink, tu3CTPBidirectional }
};
;
```

downstreamConnectivityPointer-vc3TTPSource CONSTRAINT RULE

```
OBJECT CLASS
  vc3TTPSource AND SUBCLASSES;
IS RELATED TO
  vc3TTPSink, vc3TTPBidirectional,
  au3CTPSource, au3CTPBidirectional,
  tu3CTPSource, tu3CTPBidirectional;
USING ATTRIBUTE
  "Recommendation M.3100":downstreamConnectivityPointer;
CASE {
  single ACCORDING TO RULE
    SET SIZE(1) OF CHOICE {
      vc3TTPSink, vc3TTPBidirectional,
      au3CTPSource, au3CTPBidirectional,
      tu3CTPSource, tu3CTPBidirectional },
  broadcast ACCORDING TO RULE
    SET SIZE(1..N) OF CHOICE {
      vc3TTPSink, vc3TTPBidirectional,
      au3CTPSource, au3CTPBidirectional,
      tu3CTPSource, tu3CTPBidirectional }
};
;
```

upstreamConnectivityPointer-vc4TTPSink CONSTRAINT RULE

OBJECT CLASS

vc4TTPSink AND SUBCLASSES;

IS RELATED TO

vc4TTPSource, vc4TTPBidirectional,
au4CTPSink, au4CTPBidirectional,
au3CTPSink, au3CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":upstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc4TTPSource, vc4TTPBidirectional,
au4CTPSink, au4CTPBidirectional },

concatenated ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

SEQUENCE SIZE(3) OF au3CTPSink,
SEQUENCE SIZE(3) OF au3CTPBidirectional }

};

;

downstreamConnectivityPointer-vc4TTPSource CONSTRAINT RULE

OBJECT CLASS

vc4TTPSource AND SUBCLASSES;

IS RELATED TO

vc4TTPSink, vc4TTPBidirectional,
au4CTPSource, au4CTPBidirectional,
au3CTPSource, au3CTPBidirectional;

USING ATTRIBUTE

"Recommendation M.3100":downstreamConnectivityPointer;

CASE {

single ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

vc4TTPSink, vc4TTPBidirectional,
au4CTPSource, au4CTPBidirectional },

broadcast ACCORDING TO RULE

SET SIZE(1..N) OF CHOICE {

vc4TTPSink, vc4TTPBidirectional,
au4CTPSource, au4CTPBidirectional },

concatenated ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

SEQUENCE SIZE(3) OF au3CTPSource,
SEQUENCE SIZE(3) OF au3CTPBidirectional },

broadcastConcatenated ACCORDING TO RULE

SET SIZE(1..N) OF CHOICE {

SEQUENCE SIZE(3) OF au3CTPSource,
SEQUENCE SIZE(3) OF au3CTPBidirectional }

};

;

8.3 Naming constraints

This subsection defines the allowable combinations of subordinate object class instances that made be named by a superior object class instance, using the object classes contained in this Recommendation.

augSinkSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

augSink;

NAMES SUBORDINATES

au3CTPSink,

au4CTPSink;

ACCORDING TO RULE

CHOICE {

SET SIZE(1) OF au4CTPSink,

SET SIZE(3) OF au3CTPSink

};

;

augSourceSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

augSource;

NAMES SUBORDINATES

au3CTPSource,

au4CTPSource;

ACCORDING TO RULE

CHOICE {

SET SIZE(1) OF au4CTPSource,

SET SIZE(3) OF au3CTPSource

};

;

augBidirectionalSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

augBidirectional;

NAMES SUBORDINATES

au3CTPSink, au3CTPSource, au3CTPBidirectional,

au4CTPSink, au4CTPSource, au4CTPBidirectional;

ACCORDING TO RULE

CHOICE {

SET SIZE(1) OF CHOICE {

 au4CTPSink, au4CTPSource, au4CTPBidirectional },

SET SIZE(3) OF CHOICE {

 au3CTPSink, au3CTPSource, au3CTPBidirectional }

};

;

electricalSPITTPSinkSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

electricalSPITTPSink;

NAMES SUBORDINATES

rsCTPSink;

ACCORDING TO RULE

SET SIZE(1) OF rsCTPSink;

;

electricalSPITTPSourceSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

electricalSPITTPSource;

NAMES SUBORDINATES

rsCTPSource;

ACCORDING TO RULE

SET SIZE(1) OF rsCTPSource;

;

electricalSPITTPBidirectionalSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

electricalSPITTPBidirectional;

NAMES SUBORDINATES

rsCTPSink, rsCTPSource, rsCTPBidirectional;

ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

rsCTPSink, rsCTPSource, rsCTPBidirectional };

;

opticalSPITTPSinkSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

opticalSPITTPSink;

NAMES SUBORDINATES

rsCTPSink;

ACCORDING TO RULE

SET SIZE(1) OF rsCTPSink;

;

opticalSPITTPSourceSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

opticalSPITTPSource;

NAMES SUBORDINATES

rsCTPSource;

ACCORDING TO RULE

SET SIZE(1) OF rsCTPSource;

;

opticalSPITTPBidirectionalSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

opticalSPITTPBidirectional;

NAMES SUBORDINATES

rsCTPSink, rsCTPSource, rsCTPBidirectional;

ACCORDING TO RULE

SET SIZE(1) OF CHOICE {

rsCTPSink, rsCTPSource, rsCTPBidirectional };

;

msTTPSinkSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

msTTPSink;

NAMES SUBORDINATES

augSink,

msDatacomCTPSink,

msOrderwireCTPSink;

ACCORDING TO RULE

SET {

SET SIZE(1,4,16) OF augSink,

SET SIZE(0..1) OF msDatacomCTPSink,

SET SIZE(0..1) OF msOrderwireCTPSink

};

;

msTTPSourceSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

msTTPSource;

NAMES SUBORDINATES

augSource,
msDatacomCTPSource,
msOrderwireCTPSource;

ACCORDING TO RULE

SET {
 SET SIZE(1,4,16) OF augSource,
 SET SIZE(0..1) OF msDatacomCTPSource,
 SET SIZE(0..1) OF msOrderwireCTPSource
};

;

msTTPBidirectionalSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

msTTPBidirectional;

NAMES SUBORDINATES

augBidirectional,
msDatacomCTPSink, msDatacomCTPSource,
msDatacomCTPBidirectional,
msOrderwireCTPSink, msOrderwireCTPSource,
msOrderwireCTPBidirectional;

ACCORDING TO RULE

SET {
 SET SIZE(1,4,16) OF augBidirectional,
 SET SIZE(0..1) OF CHOICE {
 msDatacomCTPSink, msDatacomCTPSource,
msDatacomCTPBidirectional },
 SET SIZE(0..1) OF CHOICE {
 msOrderwireCTPSink, msOrderwireCTPSource,
msOrderwireCTPBidirectional }
};

;

rsTTPSinkSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

rsTTPSink;

NAMES SUBORDINATES

msCTPSink,
rsDatacomCTPSink,
rsOrderwireCTPSink,
rsUserChannelCTPSink;

ACCORDING TO RULE

SET {
 SET SIZE(1) OF msCTPSink,
 SET SIZE(0..1) OF rsDatacomCTPSink,
 SET SIZE(0..1) OF rsOrderwireCTPSink,
 SET SIZE(0..1) OF rsUserChannelCTPSink
};

;

rsTTPSourceSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

rsTTPSource;

NAMES SUBORDINATES

msCTPSource,
rsDatacomCTPSource,
rsOrderwireCTPSource,
rsUserChannelCTPSource;

ACCORDING TO RULE

SET {

SET SIZE(1) OF msCTPSource,
SET SIZE(0..1) OF rsDatacomCTPSource,
SET SIZE(0..1) OF rsOrderwireCTPSource,
SET SIZE(0..1) OF rsUserChannelCTPSource

};

;

rsTTPBidirectionalSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

rsTTPBidirectional;

NAMES SUBORDINATES

msCTPSink, msCTPSource, msCTPBidirectional,
rsDatacomCTPSink, rsDatacomCTPSource,rsDatacomCTPBidirectional,
rsOrderwireCTPSink, rsOrderwireCTPSource,

rsOrderwireCTPBidirectional,

rsUserChannelCTPSink, rsUserChannelCTPSource,

rsUserChannelCTPBidirectional;

ACCORDING TO RULE

SET {

SET SIZE(1) OF CHOICE {
msCTPSink, msCTPSource, msCTPBidirectional },

SET SIZE(0..1) OF CHOICE {
rsDatacomCTPSink, rsDatacomCTPSource,

rsDatacomCTPBidirectional },

SET SIZE(0..1) OF CHOICE {
rsOrderwireCTPSink, rsOrderwireCTPSource,

rsOrderwireCTPBidirectional },

SET SIZE(0..1) OF CHOICE {
rsUserChannelCTPSink, rsUserChannelCTPSource,
rsUserChannelCTPBidirectional }

};

;

sdhNESubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

sdhNE;

NAMES SUBORDINATES

electricalSPITTPSink, electricalSPITTPSource,

electricalSPITTPBidirectional,

msTTPSink, msTTPSource, msTTPBidirectional,

opticalSPITTPSink, opticalSPITTPSource, opticalSPITTPBidirectional,

rsTTPSink, rsTTPSource, rsTTPBidirectional,

vc11TTPSink, vc11TTPSource, vc11TTPBidirectional,

vc12TTPSink, vc12TTPSource, vc12TTPBidirectional,

vc2TTPSink, vc2TTPSource, vc2TTPBidirectional,

vc3TTPSink, vc3TTPSource, vc3TTPBidirectional,

vc4TTPSink, vc4TTPSource, vc4TTPBidirectional;

ACCORDING TO RULE

```
SET {  
    SET SIZE(0..N) OF electricalSPITTPSink,  
    SET SIZE(0..N) OF electricalSPITTPSource,  
    SET SIZE(0..N) OF electricalSPITTPBidirectional,  
    SET SIZE(0..N) OF msTTPSink,  
    SET SIZE(0..N) OF msTTPSource,  
    SET SIZE(0..N) OF msTTPBidirectional,  
    SET SIZE(0..N) OF opticalSPITTPSink,  
    SET SIZE(0..N) OF opticalSPITTPSource,  
    SET SIZE(0..N) OF opticalSPITTPBidirectional,  
    SET SIZE(0..N) OF rsTTPSink,  
    SET SIZE(0..N) OF rsTTPSource,  
    SET SIZE(0..N) OF rsTTPBidirectional,  
    SET SIZE(0..N) OF vc11TTPSink,  
    SET SIZE(0..N) OF vc11TTPSource,  
    SET SIZE(0..N) OF vc11TTPBidirectional,  
    SET SIZE(0..N) OF vc12TTPSink,  
    SET SIZE(0..N) OF vc12TTPSource,  
    SET SIZE(0..N) OF vc12TTPBidirectional,  
    SET SIZE(0..N) OF vc2TTPSink,  
    SET SIZE(0..N) OF vc2TTPSource,  
    SET SIZE(0..N) OF vc2TTPBidirectional,  
    SET SIZE(0..N) OF vc3TTPSink,  
    SET SIZE(0..N) OF vc3TTPSource,  
    SET SIZE(0..N) OF vc3TTPBidirectional,  
    SET SIZE(0..N) OF vc4TTPSink,  
    SET SIZE(0..N) OF vc4TTPSource,  
    SET SIZE(0..N) OF vc4TTPBidirectional  
};
```

;

tug2SinkSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

tug2Sink;

NAMES SUBORDINATES

tu11CTPSink,

tu12CTPSink,

tu2CTPSink;

ACCORDING TO RULE

CHOICE {

SET SIZE(1) OF tu2CTPSink,

SET SIZE(3) OF tu12CTPSink,

SET SIZE(4) OF tu11CTPSink

};

;

tug2SourceSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

tug2Source;

NAMES SUBORDINATES

tu11CTPSource,

tu12CTPSource,

tu2CTPSource;

ACCORDING TO RULE

CHOICE {

SET SIZE(1) OF tu2CTPSource,

SET SIZE(3) OF tu12CTPSource,

SET SIZE(4) OF tu11CTPSource

};

;

tug2BidirectionalSubordination SUBORDINATION RULE
SUPERIOR OBJECT CLASS
tug2Bidirectional;
NAMES SUBORDINATES
tu11CTPSink, tu11CTPSource, tu11CTPBidirectional,
tu12CTPSink, tu12CTPSource, tu12CTPBidirectional,
tu2CTPSink, tu2CTPSource, tu2CTPBidirectional;
ACCORDING TO RULE
CHOICE {
SET SIZE(1) OF CHOICE {
tu2CTPSink, tu2CTPSource, tu2CTPBidirectional },
SET SIZE(3) OF CHOICE {
tu12CTPSink, tu12CTPSource, tu12CTPBidirectional },
SET SIZE(4) OF CHOICE {
tu11CTPSink, tu11CTPSource, tu11CTPBidirectional }
};
;

tug3SinkSubordination SUBORDINATION RULE
SUPERIOR OBJECT CLASS
tug3Sink;
NAMES SUBORDINATES
tug2Sink,
tu3CTPSink;
ACCORDING TO RULE
CHOICE {
SET SIZE(1) OF tu3CTPSink,
SET SIZE(7) OF tug2Sink
};
;

tug3SourceSubordination SUBORDINATION RULE
SUPERIOR OBJECT CLASS
tug3Source;
NAMES SUBORDINATES
tug2Source,
tu3CTPSource;
ACCORDING TO RULE
CHOICE {
SET SIZE(1) OF tu3CTPSource,
SET SIZE(7) OF tug2Source
};
;

tug3BidirectionalSubordination SUBORDINATION RULE
SUPERIOR OBJECT CLASS
tug3Bidirectional;
NAMES SUBORDINATES
tug2Bidirectional,
tu3CTPSink, tu3CTPSource, tu3CTPBidirectional;
ACCORDING TO RULE
CHOICE {
SET SIZE(1) OF tu3CTPBidirectional,
SET SIZE(7) OF CHOICE {
tug2Sink, tug2Source, tug2Bidirectional }
};
;

vc3TTPSinkSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

vc3TTPSink;

NAMES SUBORDINATES

tug2Sink,

vcnUserChannelCTPSink;

ACCORDING TO RULE

SET {

SET SIZE(7) OF tug2Sink,

SET SIZE(1) OF vcnUserChannelCTPSink

};

;

vc3TTPSourceSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

vc3TTPSource;

NAMES SUBORDINATES

tug2Source,

vcnUserChannelCTPSource;

ACCORDING TO RULE

SET {

SET SIZE(7) OF tug2Source,

SET SIZE(1) OF vcnUserChannelCTPSource

};

;

vc3TTPBidirectionalSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

vc3TTPBidirectional;

NAMES SUBORDINATES

tug2Bidirectional,

vcnUserChannelCTPSink, vcnUserChannelCTPSource, vcnUserChannelCTPBidirectional;

ACCORDING TO RULE

SET {

SET SIZE(7) OF tug2Bidirectional,

SET SIZE(1) OF CHOICE {

vcnUserChannelCTPSink, vcnUserChannelCTPSource,

vcnUserChannelCTPBidirectional }

};

;

vc4TTPSinkSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

vc4TTPSink;

NAMES SUBORDINATES

tug3Sink,

vcnUserChannelCTPSink;

ACCORDING TO RULE

SET {

SET SIZE(3) OF tug3Sink,

SET SIZE(1) OF vcnUserChannelCTPSink

};

;

vc4TTPSourceSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

vc4TTPSource;

NAMES SUBORDINATES

tug3Source,

vcnUserChannelCTPSource;

ACCORDING TO RULE

SET {

SET SIZE(3) OF tug3Source,

SET SIZE(1) OF vcnUserChannelCTPSource

};

;

vc4TTPBidirectionalSubordination SUBORDINATION RULE

SUPERIOR OBJECT CLASS

vc4TTPBidirectional;

NAMES SUBORDINATES

tug3Bidirectional,

vcnUserChannelCTPSink, vcnUserChannelCTPSource, vcnUserChannelCTPBidirectional;

ACCORDING TO RULE

SET {

SET SIZE(3) OF tug3Bidirectional,

SET SIZE(1) OF CHOICE {

vcnUserChannelCTPSink, vcnUserChannelCTPSource,

vcnUserChannelCTPBidirectional }

};

;

ANNEX A

(to Recommendation G.774)

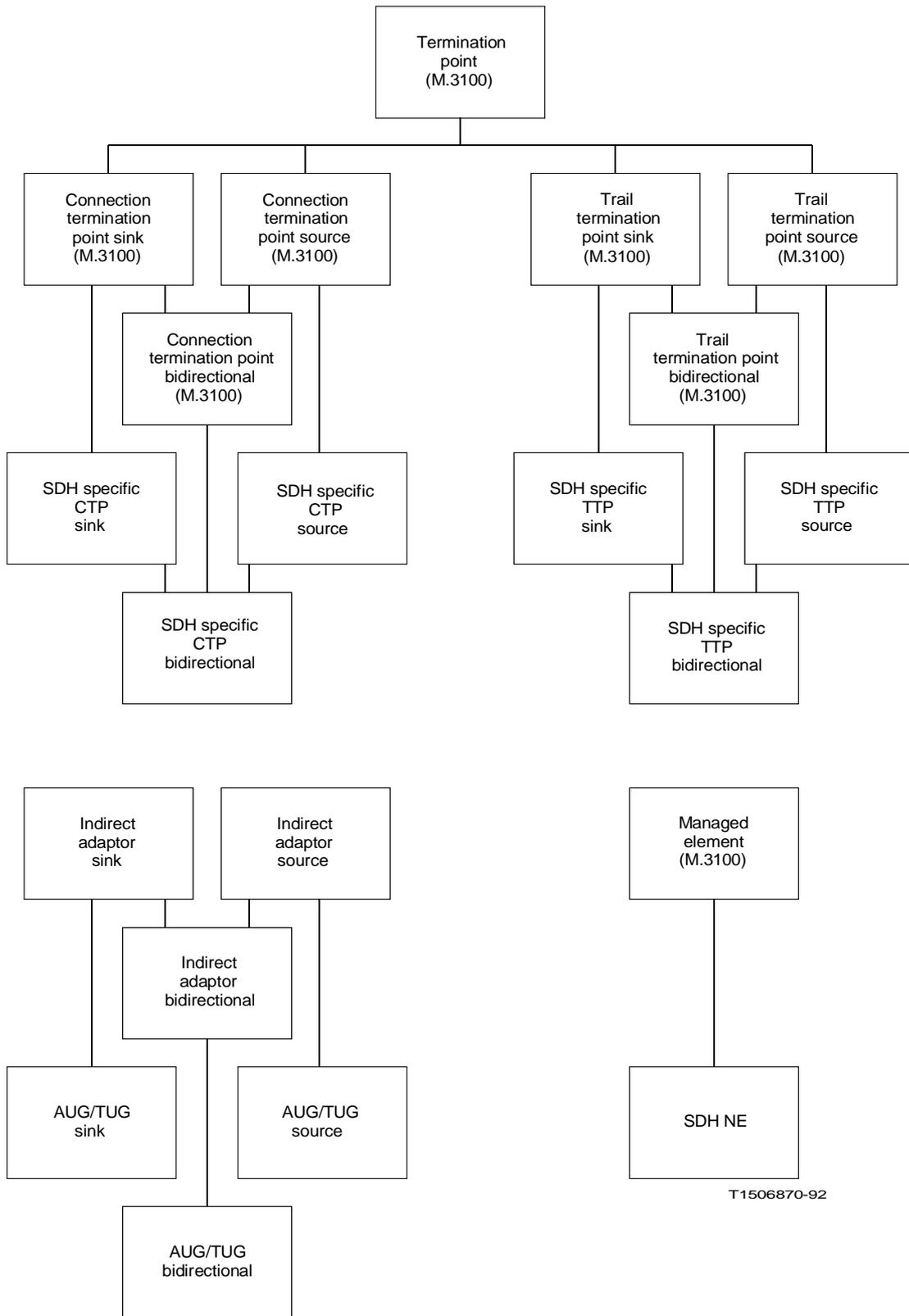
Entity relationship diagrams

Figure A-1/G.774 — shows the inheritance hierarchy for the termination points, indirect adaptor and network element object classes of the SDH information model.

Figure A-2/G.774 — shows the naming tree for the SDH information model.

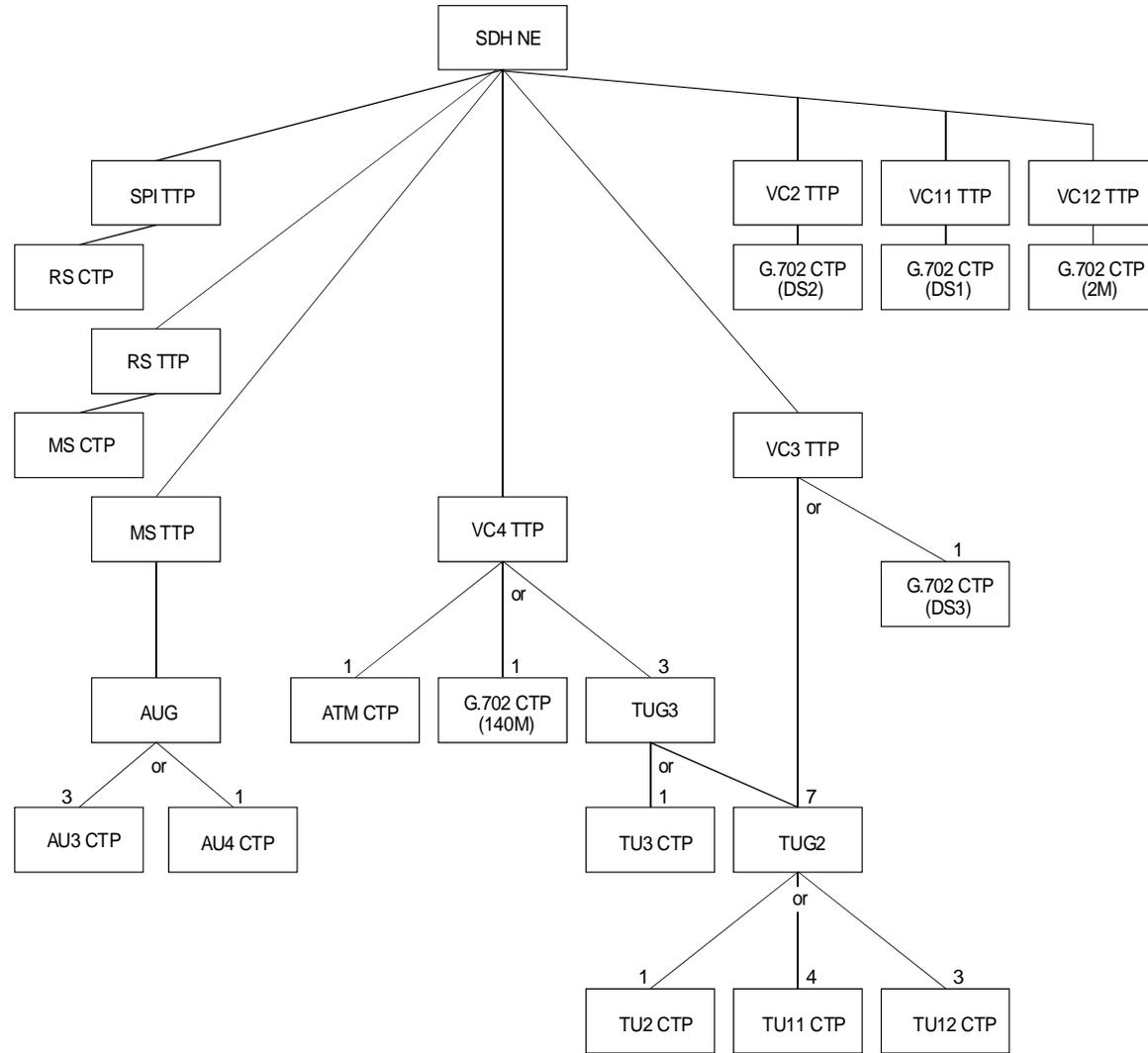
Figure A-3/G.774 — illustrates the naming, connectivity pointer and crossconnect relationships for the SDH information model.

Figure A-4/G.774 — is an example of how the managed objects are used to represent a SDH multiplex and regenerator.



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FIGURE A-1/G.774
Inheritance hierarchy



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FIGURE A-2/G.774

Naming tree

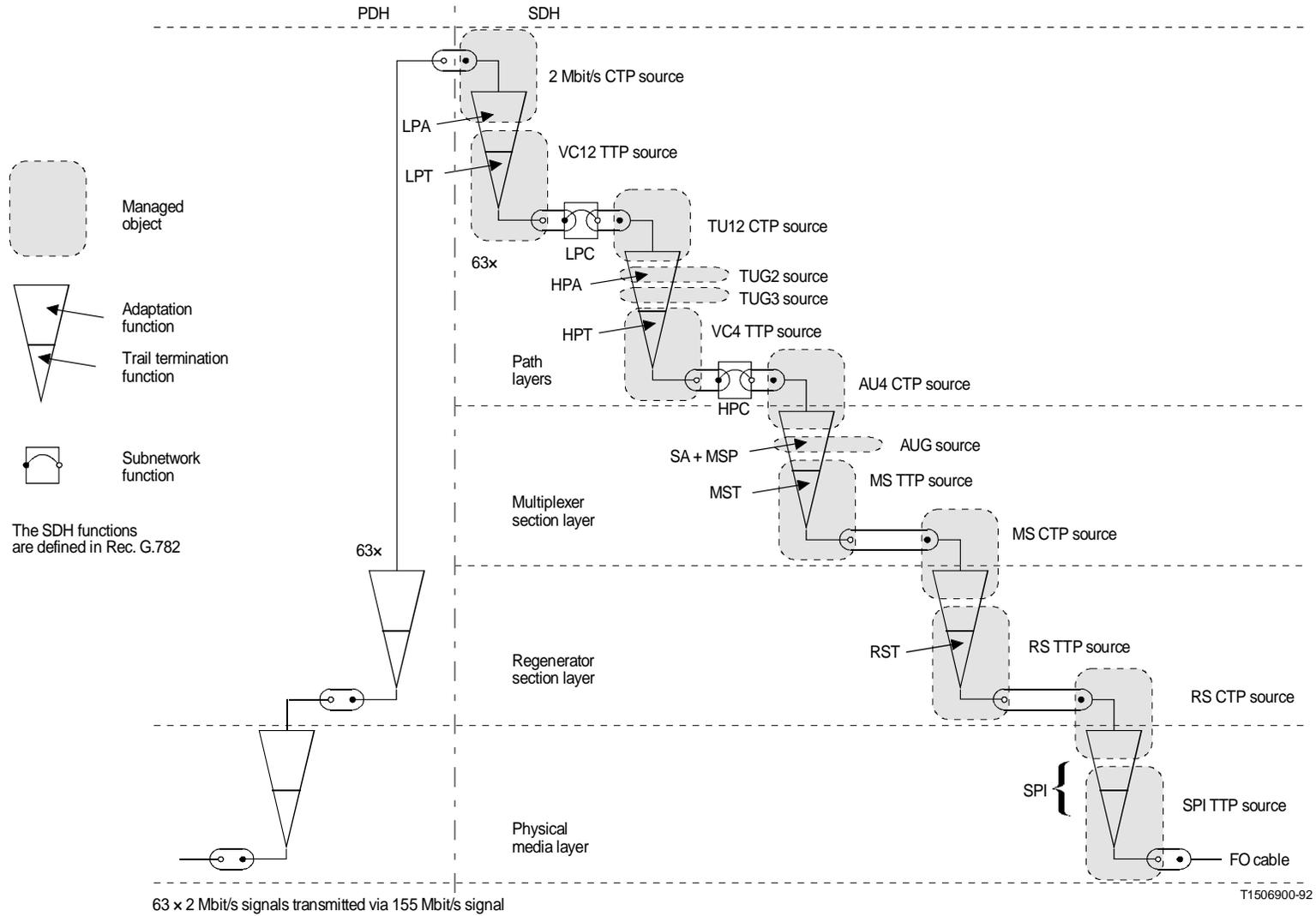
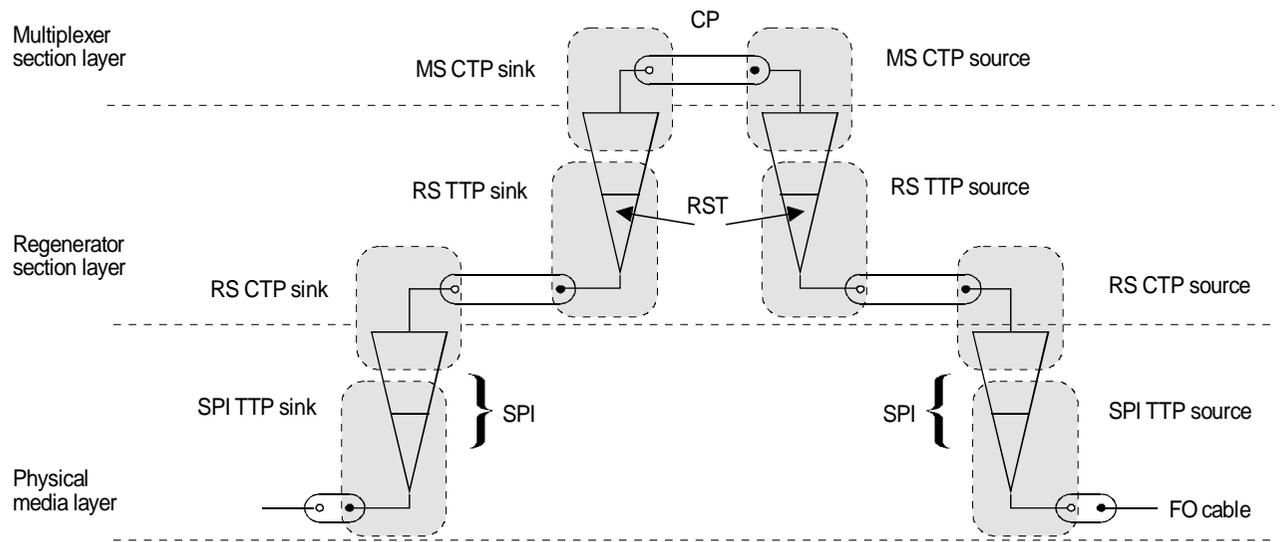


FIGURE A-4/G.774
Example of information model (SDH multiplexer)



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Unidirectional transmission 155 Mbit/s signal
 CP Connection point

FIGURE A-4/G.774
Example of information model (SDH regenerator)

ANNEX B
(to Recommendation G.774)

Alphabetical list of abbreviations used in this Recommendation

AIS	Alarm indication signal
ASN.1	Abstract syntax notation one
AU	Administrative unit
AUG	AU group
BER	Bit error ratio
CP	Connection point
CTP	Connection termination point
DS	Digital section
FERF	Far end receive failure
FO	Optical fibre
GDMO	Guidelines for the definition of managed objects
HPA	Higher order path adaptation
HPC	Higher order path connection
HPT	Higher order path termination
IA	Indirect adaptor
LOF	Loss of frame
LOP	Loss of pointer
LOS	Loss of signal
LPA	Lower order path adaptation
LPC	Lower order path connection
LPT	Lower order path termination
MS	Multiplex section
MSP	Multiplex section protection
MST	Multiplex section termination
NE	Network element
NNI	Network node interface
PDH	Plesiochronous digital hierarchy
POH	Path overhead
RDN	Relative distinguished name
RS	Regenerator section
RST	Regenerator section termination
SA	Section adaptation
SDH	Synchronous digital hierarchy
SOH	Section overhead

SPI	SDH physical interface
STM	Synchronous transfer mode
TMN	Telecommunications management network
TTP	Trail termination point
TU	Tributary unit
TUG	Tributary unit group
VC	Virtual container

References

- [1] CCITT Recommendation G.707 — *Synchronous digital hierarchy bit rates.*
- [2] CCITT Recommendation G.708 — *Network node interface for the synchronous digital hierarchy.*
- [3] CCITT Recommendation G.709 — *Synchronous multiplexing structure.*
- [4] CCITT Recommendation M.3010 — *Principles for a telecommunication management network.*
- [5] CCITT Recommendation M.3100 — *Generic network information model.*
- [6] CCITT Recommendation G.783 — *Characteristics of synchronous digital hierarchy (SDH) multiplexing equipment functional blocks.*
- [7] CCITT Recommendation G.784 — *Synchronous digital hierarchy (SDH) management.*
- [8] CCITT Recommendation X.722 — *Information technology — Open Systems Interconnection — Structure of management information: Guidelines for the definition of managed objects.*
- [9] CCITT Recommendation X.208 — *Specification of Abstract Syntax Notation One (ASN.1).*
- [10] CCITT Recommendation X.720 — *Information technology — Open Systems Interconnection — Structure of management information: Management information model.*