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THE INTERNATIONAL
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G.774

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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.

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,
        pointerSourceTypeGET;
    ;;
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 it's 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 excessiveBERMtceInhibit 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
                vc2TTPId     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
                vc2TTPId     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 };

```
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;
;
```

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

```
excessiveBERMtceInhibit ATTRIBUTE
   WITH ATTRIBUTE SYNTAX                    SDH.Boolean;
   MATCHES FOR                              EQUALITY;
   BEHAVIOUR
      excessiveBERMtceInhibitBehaviour 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 };
```

Tributary Unit 3 Connection Termination Point Identification

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 };

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 };

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                msTTPId;
    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                msTTPId;
    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 };

```
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 {
    wl1310(0),
    wl1550(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.

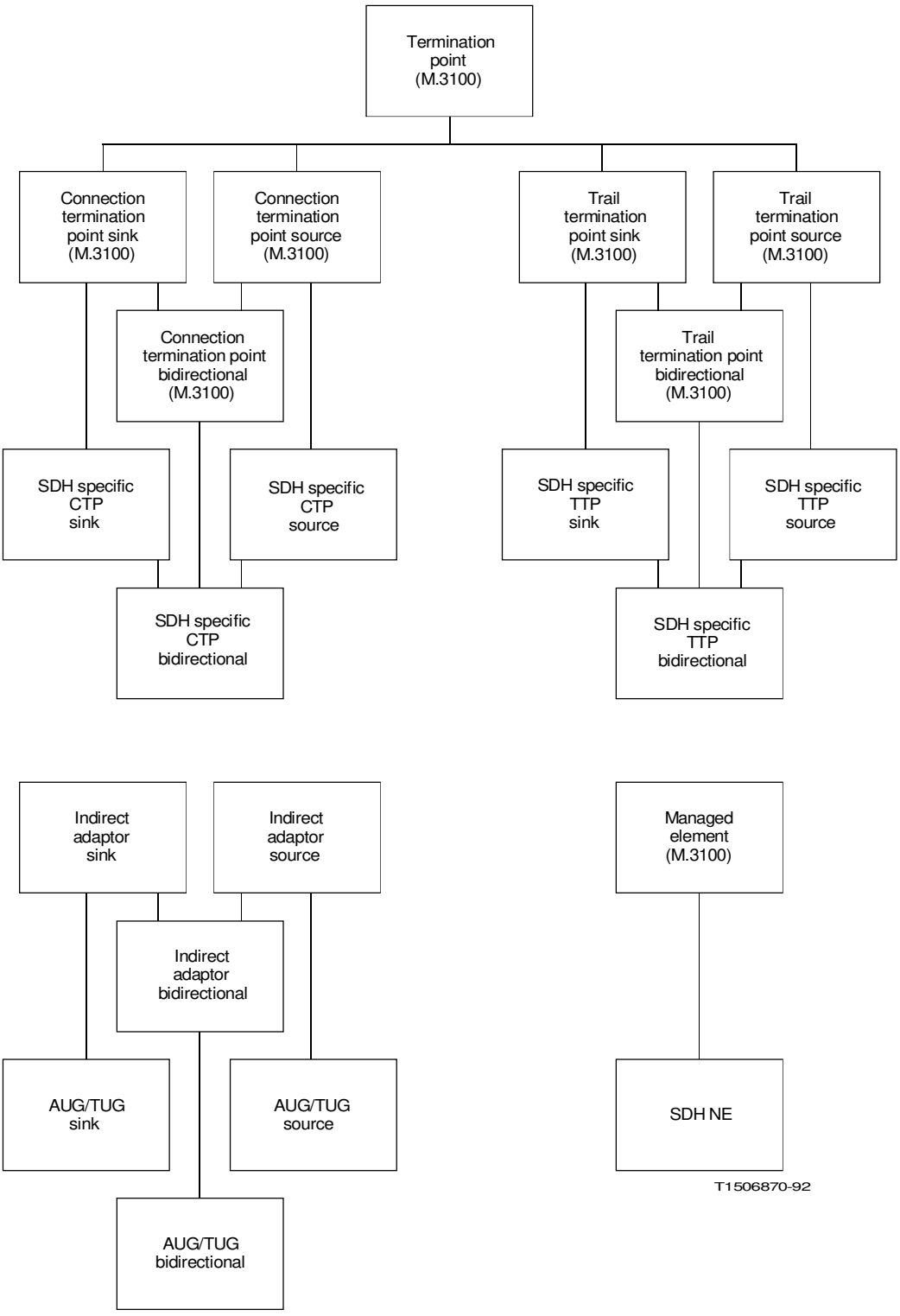


FIGURE A-1/G.774

Inheritance hierarchy

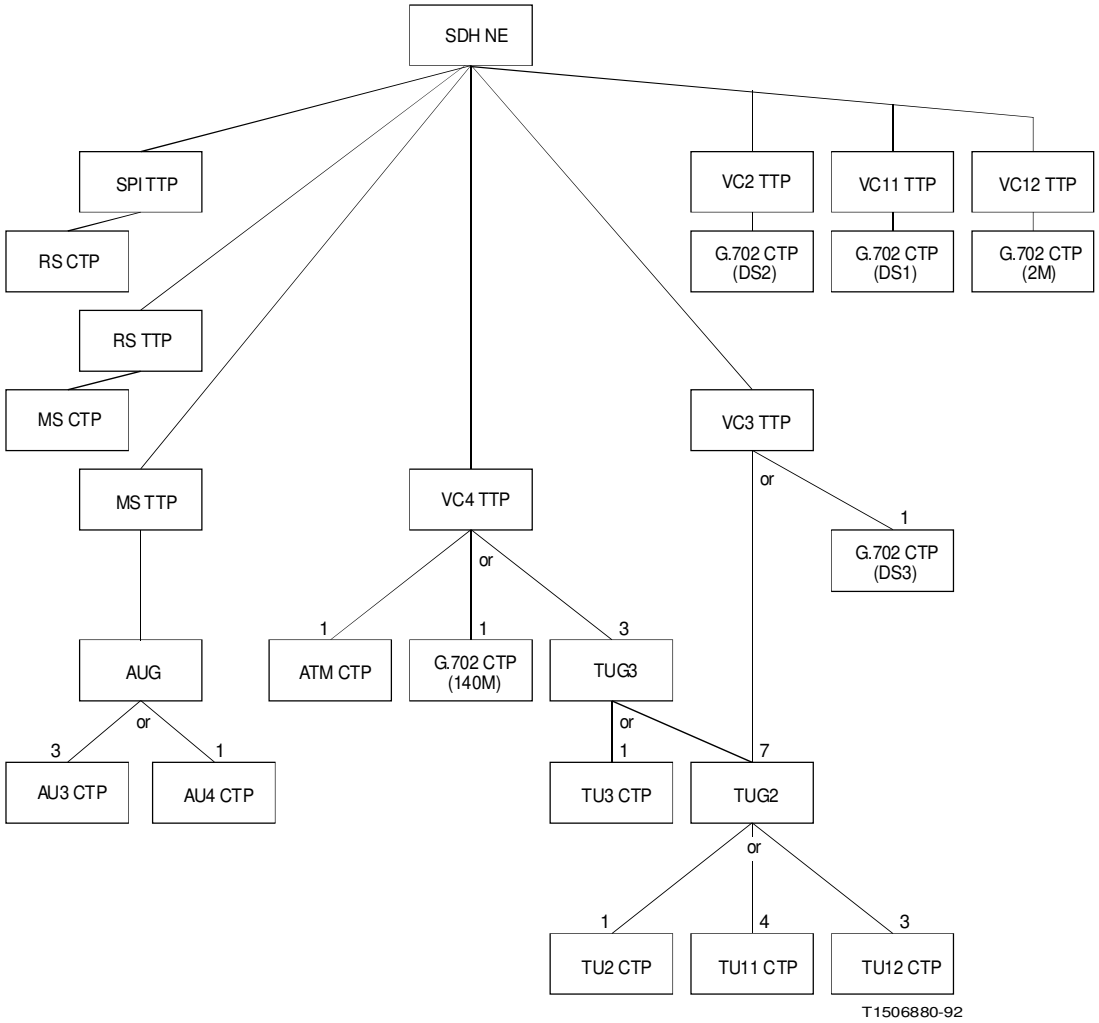
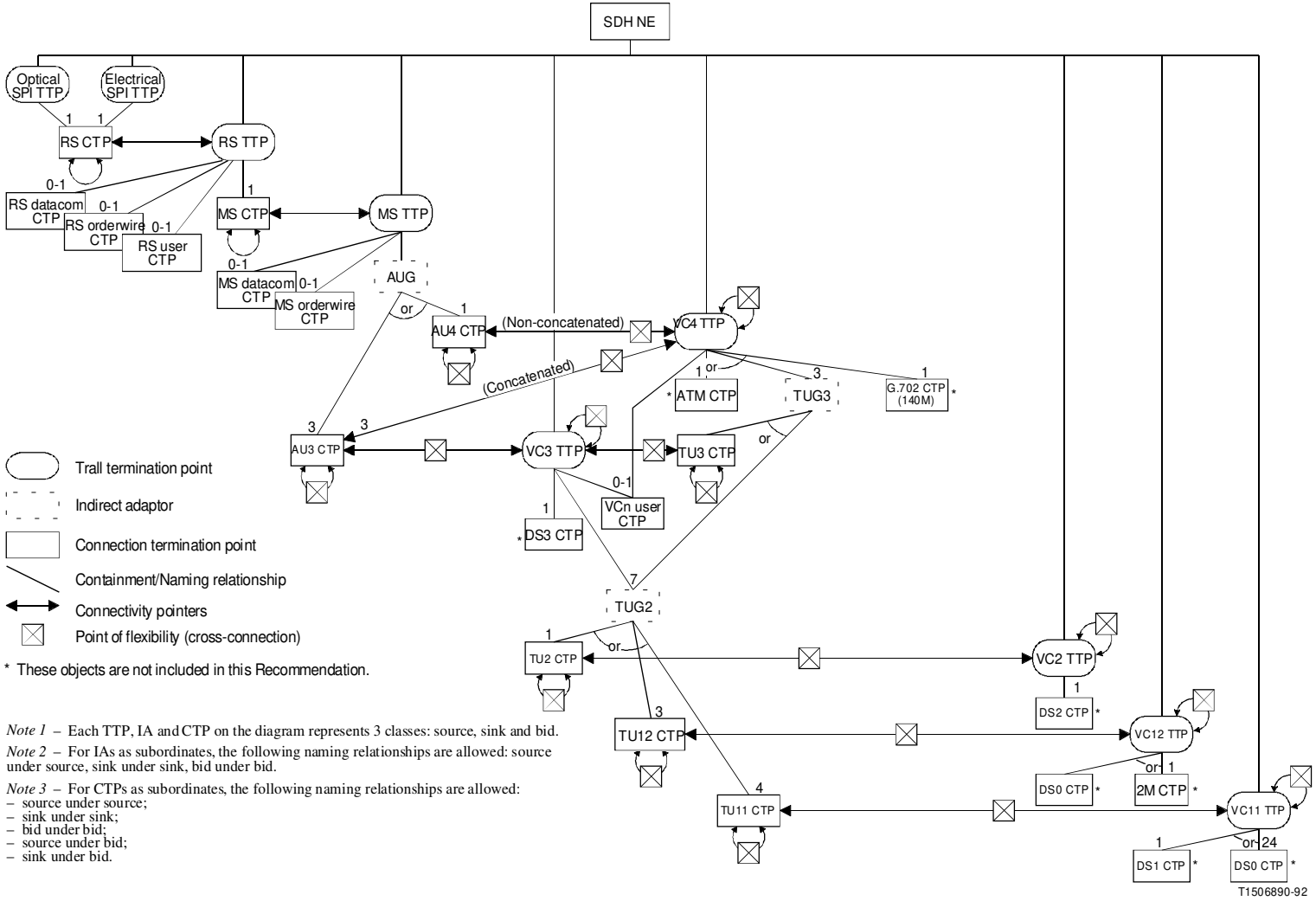


FIGURE A-2/G.774
Naming tree



Note 1 – Each TTP, IA and CTP on the diagram represents 3 classes: source, sink and bid.

Note 2 – For IAs as subordinates, the following naming relationships are allowed: source under source, sink under sink, bid under bid.

Note 3 – For CTPs as subordinates, the following naming relationships are allowed:
– source under source;
– sink under sink;
– bid under bid;
– source under bid;
– sink under bid.

FIGURE A-3/G.774

Naming, pointer and crossconnect relationships for the SDH model

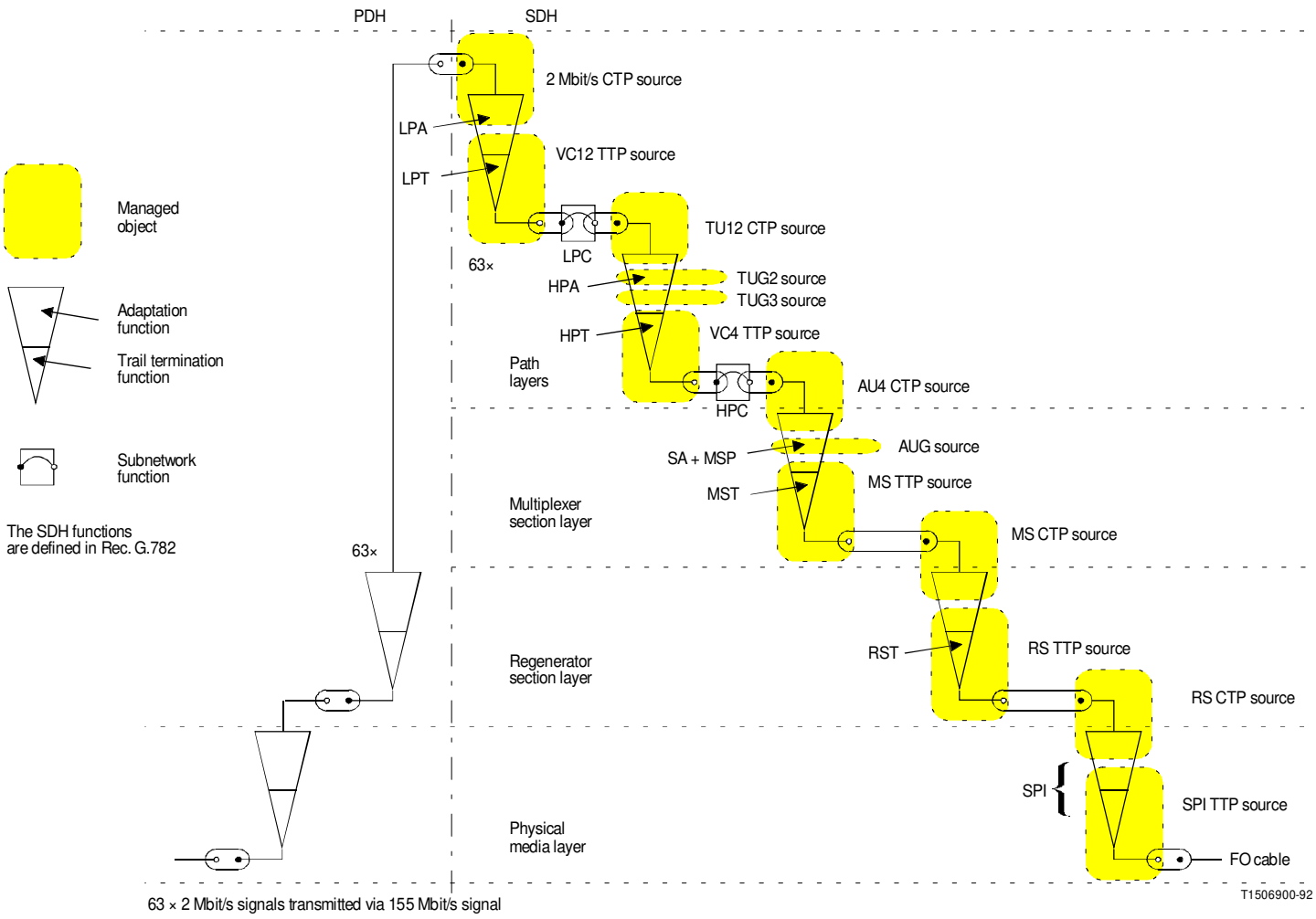
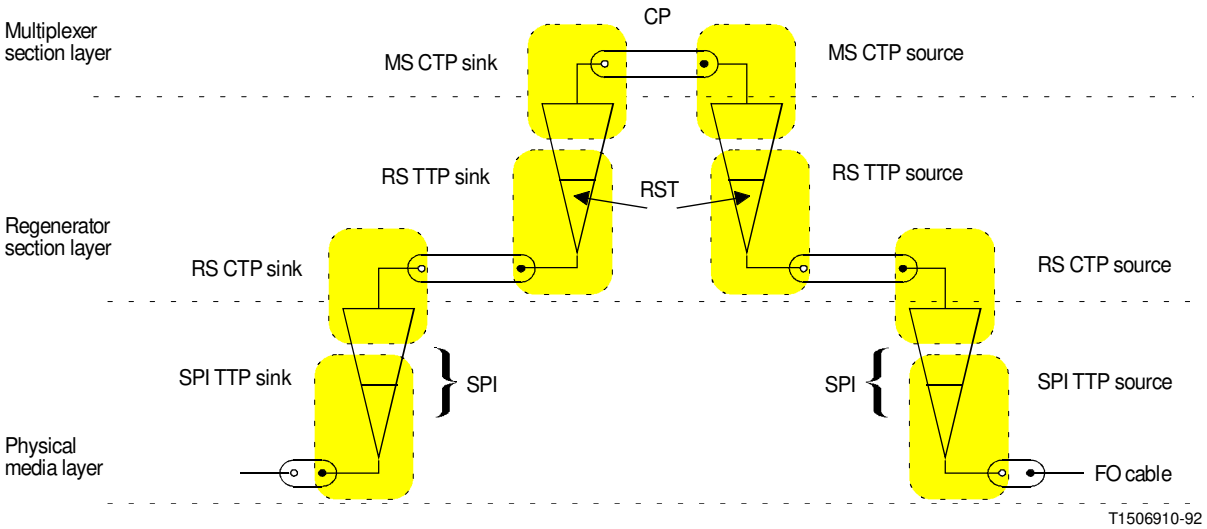


FIGURE A-4/G.774

Example of information model (SDH multiplexer)



Undirectional 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.*